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# How does performance funding impact the open access mission of community colleges in Massachusetts?

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# HOW DOES PERFORMANCE FUNDING IMPACT THE OPEN ACCESS MISSION OF COMMUNITY COLLEGES IN MASSACHUSETTS?

by

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## Abstract

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HOW DOES PERFORMANCE FUNDING IMPACT THE OPEN ACCESS MISSION OF COMMUNITY COLLEGES IN MASSACHUSETTS?
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The purpose of this case study of four community colleges was to determine if the Massachusetts Performance Funding Formula (MAPFF) has negatively impacted access in two threats to access: (a) decreased affordability; and (b) restriction of admissions, enrollment, and recruitment in fiscal years 2014, 2015, and 2016. Participating senior administrators provided their perceptions of how the Massachusetts Performance Funding Formula impacted student access and their institutions. Access was negatively impacted by decreased affordability due to significant increases to tuition and fees the students pay. Access was also negatively impacted by a reduction and elimination of programs, courses, and sections.



*Keywords:* Massachusetts, community colleges, performance funding formula, access

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# Chapter I

## Introduction

The publicly stated mission of the Massachusetts community colleges espouses open access to high-quality, affordable higher education for the states' citizens. However, an examination of how other states are tying funding to students' success outcomes also reveals that there may be a related shift in emphasis of the mission of community colleges from allocating state funding based on enrollment and access to completion and success. This shift in mission away from open access and more towards completion is important because from the formation of community colleges in the early 1900s, open access has been the primary mission, whereby access to higher education is for all, not just for the brightest and the wealthiest (American Association of Community Colleges, 2012; Dougherty, 2001; Dowd & Shieh, 2013; Shannon & Smith, 2006). In Massachusetts, a significant portion of the community college funding comes from the state. Shifting the funding allocation away from enrollment and more towards completion demonstrates a change in priority away from access.

The implementation of the performance funding formula (MAPFF) to allocate state funding in Massachusetts does not demonstrate this shift. The focus of this study was to examine the impact that state performance funding has had on the open access mission of community colleges in Massachusetts. To gain a better understanding of the impact of performance funding on access, we must understand how community colleges are funded, what performance funding is, what open access is, and why it is such an important mission that is worth preserving.

## Background

In fiscal year 1993, for the first time in history since the data has been collected, state appropriations for higher education nationally fell below the previous year. Taxpayers complained about the rising costs against a perceived decrease in the quality of higher education (Burke, 2002). With the curtailed funding and rising criticism, renewed demands for accountability from higher education have become commonplace. During the more recent recessionary period, beginning in December 2007 and ending in June 2009, with state budgets strained, state legislators began questioning the quality and quantity of undergraduate higher education. Now, during the slow and prolonged economic recovery we are still experiencing today, critics are again questioning the function of higher education, as well as the skyrocketing tuition and fee costs, as well as the historic level of student loan debt (AACC, 2012; Dougherty, 2001; Dowd & Shieh, 2013; Shannon & Smith, 2006).

Traditionally, states budgeted appropriations for public colleges and universities based largely on current costs, student enrollments, and inflationary increases. These factors disregarded the quantity and quality of graduates and the benefits to society (Burke, 2002). The cost-plus budgeting also "promoted inappropriate growth in expenditures, enrollments, and programs, even in states with declining demographics and decreasing student demands" (Burke, 2002; p20). State legislators, governors, and some high-profile advocacy groups have noted that the U.S. is falling behind other countries in educational attainment and argue that this traditional funding model does little to address this concern (Tandberg & Hillman, 2013).

Stagnant or declining state fiscal support and increased expectations of improving student success in community colleges are driving the implementation of the performance funding formula.

This study examined the impact state performance funding had on one of the primary missions of community colleges in Massachusetts: open access.

**Research Questions**

The overarching research question for this study was: How is performance funding influencing the open access mission of community colleges in Massachusetts?

To answer this question, I sought answers to the following additional questions:

1. What operational changes that are directly related to the implementation of the MAPFF have occurred at the institutional level to improve student success?
2. How has the MAPFF Program influenced tuition and fee rate changes?
3. How have changes in the Massachusetts state appropriations with MAPFF influenced institutional changes in college education delivery or support for student success that then affected access?
4. How does the senior management perceive the impact of performance funding on student access to community colleges?

**Rationale and Significance of the Study**

Massachusetts is a system of community colleges with sufficient standardization across the sector to generate cases to compare. The MDHE instituted the Massachusetts Vision Project in 2010 with the stated goals of increasing the number of students participating, persisting, and completing college, and of making the institutions of higher education accountable for that achievement through the allocation of state funding using

the MAPFF. Massachusetts adopted the use of a performance funding formula to allocate a significant amount of state funding to the community colleges annually, and has set a goal to lead the nation in higher education. Prior to the implementation of the MAPFF, Massachusetts most recently allocated appropriations to the community colleges by overall percentage changes to the sector without consideration of institutional student outcomes or even enrollment.

Four negative impacts found in studies conducted in Tennessee, North Carolina, South Carolina, Missouri, Florida, and Washington as a result of performance funding that may affect access are (a) increasing tuition and fee rates, making college less affordable, as a result of having to expand institutional research staff to capture and analyze data, and other staff and faculty to provide additional student support services; (b) becoming more restrictive in admission, enrollment, and recruitment practices, known as creaming, to improve outcomes on performance funding metrics; (c) weakening of academic standards to improve outcomes; and (d) narrowing of institutional missions to focus more on programs that are rewarded more highly in the performance funding formula (Dougherty & Reddy, 2011; Rutherford & Rabovsky, 2014; Smith, 2015). The Massachusetts Vision Project included a commitment to increase funding from the Commonwealth. However, between 2014 and 2016, the first three years of using the funding formula in Massachusetts to allocate funds to the community colleges, appropriations for additional funds declined from $20 million to $9.1 million.

Closing the door to a population of students that have no other chance of achieving their educational and professional goals would be a significant diversion of the missions of community colleges and pose a significant threat to the educational

opportunity of American citizens. This study examined how the MAPFF has intentionally and unintentionally turned away students because of the performance funding formula by making attendance less affordable. This information could be useful for Massachusetts, as well as, other states to design better performance funding programs and adequately funding colleges so that access is not negatively impacted.

**Research Design**

Using four community colleges in Massachusetts, I conducted a multiple-case study on the impact that implementation of performance funding has on the community college open access mission. This one-time look at these colleges focused on the immediate impact on operational changes and student tuition and fee increases resulting from the MAPFF.

As a former senior administrator for a community college in Massachusetts, I bring my own knowledge and experience into the study. In my position, I witnessed first-hand the immediate impact of operational changes that were implemented with a view toward improving student outcomes and performance scores. While the actions taken at my former institution may have positively impacted student success, they may also have negatively impacted students with increases in tuition and fees, increased selectivity in the students being recruited and accepted into the institution, or reductions in program and course offerings that eliminated or limited enrollment for some admitted students. Although the MAPFF still incorporates a stop-loss component that guarantees an increase to each institution regardless of the outcomes measured, results are provided by the Massachusetts Department of Higher Education that show how each institution would fair in relation to the other community colleges in the state before applying the stop loss.

## Pragmatic Philosophical Worldview

A pragmatic worldview provides the philosophical basis for this study. The pragmatic worldview is not committed to any one system and allows me to choose among research designs to provide the best understanding of the research problem and to "draw liberally from both quantitative and qualitative assumptions" (Creswell, 2014, p. 11). In this study, I focused on the research question of how performance funding immediately impacts operations that affects the open access mission of community colleges, and use all approaches available to understand and answer this question. The pragmatic worldview opens the door to multiple research methods, different worldviews, assumptions, and forms of data collection and analysis (Creswell, 2014; Teddlie & Tashakkorri, 2009).

## Conceptual Framework

As Maxwell (2013) suggests, it is important for research design to make explicit which paradigm(s) or theories the study will draw on, "since a clear philosophical and methodological stance helps explain and justify design decisions" (p. 43). Four main sources are used to construct a conceptual framework: 1) experiential knowledge; 2) existing theory and research; 3) pilot and exploratory research; and 4) thought experiments (Maxwell, 2013).

My experiential knowledge provides the basis for my conceptual framework. As a former vice president of finance and operations, and a senior, cabinet-level administrator at a community college in Massachusetts, I spent a considerable amount of time working with community college funding allocated via the Massachusetts performance funding formula. I have also worked extensively on developing institutional strategic plans and

how they effect change that involves both student access and success. These experiences gave me a strong foundation and framework to position and develop my study.

As the vice president of finance of a community college in Massachusetts, I participated in discussions with the president and other senior members of the president's cabinet about the MAPFF outcomes each year at my institution. I also participated in meetings with the vice presidents of finance at most of the other community colleges and leaders from MDHE, where the MAPFF and the amount of state appropriations were discussed.

It was my responsibility as the Vice President of Finance to prepare a balanced annual operating budget for my former institution. In the budget building process I worked with the other senior leaders to stay within budget guidelines and accomplish their goals. Having a similar position in another state expands my knowledge and experience. Thus, my conceptual framework grew from experiential knowledge.

The second source informing my conceptual framework was found in existing research. Existing research shows that open access continues to be one of the fundamental missions of community colleges (AACC, 2012; Boggs, 2011; Cohen & Brawer, 2006; Dowd & Shieh, 2013; MDHE, 2015; Oliver, 1995; Shannon & Smith, 2006; Townsend & Dougherty, 2006). However, some evidence has been found in the previous research conducted that performance funding has led institutions to initiate actions to maximize their state allocations from the formula through restrictive enrollment practices and actions that increased costs of review and compliance with the formula (Dougherty & Reddy, 2011; Smith, 2015; Tandberg & Hillman, 2013). The focus of this study was to determine what impact the MAPFF has had on the open access

mission of the community colleges in the Commonwealth of Massachusetts in these and other potential areas. The research conducted thus far does not adequately address the financial impact on colleges, specifically in their operational budgets and ultimately on the cost of attendance. Findings of note are instability in funding, funding levels that are too low, shortfalls in regular state funding for higher education, and inequalities in institutional capacity (Dougherty & Reddy, 2011, 2013). Previous studies also found impacts of performance funding on community colleges through actions that restricted admissions to community colleges and increased costs of compliance and review (Dougherty et al., 2014, 2016; Dougherty & Reddy, 2011, 2013; Lahr, Pheatt, Dougherty, Jones, Natow & Reddy, 2014; Hillman, Tandberg & Fryar, 2015). The findings of restricted admissions and increased costs of compliance in the previous research has become the basis for my study.

The third source informing my conceptual framework was a pilot study. I conducted a pilot study using two community colleges in Massachusetts prior to collecting the qualitative data for this study. The pilot study field-tested the survey and interview protocols, leading to modifications in content and delivery that helped me gather the data to answer my research questions. The two institutions used for the pilot study were not included as one of the four case institutions in the final study.

Finally, I used thought experiments to inform my conceptual framework. Performance funding programs are designed to improve institutional performance and student outcomes (Dougherty et al., 2014, 2016; Dougherty & Reddy, 2011, 2013; Lahr, Pheatt, Dougherty, Jones, Natow & Reddy, 2014; Hillman, Tandberg & Fryar, 2015). My theory was the senior administrators of the institutions would seek the additional funding

offered by the MAPFF and initiate actions to maximize state appropriations that negatively impacted access in two areas—decreased affordability and restrictive admissions, enrollment, and recruitment practices.

To initiate actions that will maximize state appropriations and prepare balanced fiscal year budgets, I theorize that the institutions will need additional revenue to increase student services staff, increase faculty and advisors, and purchase applications and systems necessary to generate the student data to monitor and increase student success. A portion of the additional revenue will come from increased student fees that will decrease affordability for some students who wish to attend community college. In an effort to maximize state appropriations, I also believe the institutions will initiate actions to improve their formula outcomes using restrictive admissions, enrollment, and recruitment practices found in previous research.

My conceptual framework provides the foundation for my proposition on how the MAPFF negatively impacts the open access mission of community colleges in Massachusetts. My position as a Vice President of Finance and the knowledge acquired of community college finances, my detailed knowledge of the MAPFF, and how the state appropriations fit into the total revenue of the institutions in Massachusetts, serves as the experiential knowledge for the framework. Using my experiential knowledge together with the review and analysis of the existing research provided insight into the impacts performance funding programs have had on institutions and students and serves as the second component of the framework. For the third component of my framework, the pilot study conducted on two institutions in Massachusetts provided the necessary feedback needed to amend the survey and interview protocols to maximize their effectiveness in

gathering the information from the case institutions to help answer my research questions. Finally, accumulation of my experiential knowledge, the existing research of the impacts of performance funding, and the feedback from the pilot study, provided the basis for my thought experiments theorizing that the implementation of the MAPFF will negatively impact access through restrictive admissions, enrollment and recruitment activities and actions decreasing affordability.

**Multiple-Case Study Design**

To determine the impact that the implementation of performance funding has on the open access mission of community colleges, a multiple-case study was conducted on four of the community colleges in the Commonwealth of Massachusetts. In particular, the study focused on the changes the colleges have implemented to improve their performance metrics, and how these changes have intentionally or unintentionally impacted access.

The study used quantitative administrative and secondary data, including changes in state appropriations and changes in tuition and fees from FY2014 through FY2016, covering the first three years of the MAPFF. To augment the analysis of the quantitative administrative and secondary data and quantitative surveys, one-on-one interviews were conducted to uncover the reasons for the changes and generated causal links (Maxwell, 2013). The quantitative administrative and secondary data were collected and analyzed first, and this was followed up with the collection and analysis of the survey and qualitative interview data. These data were connected and compared together to established patterns of behavior that supported my theory that the MAPFF has negatively impacted student access.

Case studies researching the impact that performance funding has had on student success and outcomes in Tennessee and Florida, Pennsylvania, and Ohio, as well as other states, have been well documented, Dougherty and Natow (2010); Dougherty, Jones, Lahr, Natow, Pheatt & Reddy (2014); Lahr, Pheatt, Dougherty, Jones, Natow & Reddy (2014). While much has been learned about the positive and negative impacts that performance funding has had on the colleges from these studies, the students, and the states, few have shown that student success and outcomes are improved by the adoption of a funding formula (Bragg & Durham, 2012; Dougherty & Reddy, 2011; Lahr, et. al., 2014).

Each of the states examined in the multiple-case studies above that have adopted performance funding to appropriate state funds to support the community colleges, measure and reward student success and outcomes differently. Massachusetts is not an exception (Dougherty, Natow, Bork, Jones, Vega, 2013). The MAPFF attempts to reward maintaining access, as well as improving student success, and this study examined if the formula did enough to maintain access or if it negatively affected it.

When Tennessee first adopted performance funding for public colleges in 1979, most of the programs employed PF 1.0 programs (Dougherty & Reddy, 2011). These programs allocated additional money to the public colleges over and above the base appropriations as “bonuses,” which were to serve as enticements for the colleges to improve student outcomes, such as numbers of students graduating, retention, and transfers to four-year institutions.

However, in recent years, more states around the country have adopted new policies allocating increasingly significant amounts of the appropriations by performance

outcomes, what is now called PF 2.0. There are three major reasons for the departure from bonus allocations in PF 1.0 programs to base allocations in PF 2.0 programs. First, state officials have questioned if the small percentages of additional funding were enough to compel significant improvements in institutional practices and student outcomes (Dougherty & Reddy, 2011; Quintero, 2012). Second, with the current and foreseeable stagnation of the economy, future state budgets are unlikely to have enough funds to provide incentives on top of the base allocations for higher education. Lastly, the PF 2.0 programs in Ohio, Tennessee, and Washington were endorsed by the U.S. Department of Education and national policy groups, such as the National Governors Association, the National Conference of State Legislators, Lumina Foundation, and the Gates Foundation (Dougherty & Reddy, 2011; McKeown-Moak, 2013). From a different perspective, some political leaders believe that public funds should not be used to fund higher education, noting that as students are the primary beneficiaries of this investment, it is a private good (Marginson, 2011). I address this debate further below after providing a brief history of community colleges and their missions.

**Organization of the Proposal**

The literature review in Chapter II begins with the history of the open access mission of community colleges in the United States. The history of student success and completion in community colleges is reviewed, along with defining a public good and a justification of how a community college education is considered a public good. The economic impact of community colleges is examined both in Massachusetts and nationally. The historical funding of community colleges is also examined, along with a historical perspective of why and how performance funding programs were initiated in

Massachusetts and across the country, and the latest renewed interest. The external pressures that were in play at the state level influencing policy changes for the public funding for community colleges in some states and leading to the adoption of funding based on performance outcomes is also examined. Research on the impact of performance funding on student success is reviewed. A review of the negative consequences of the implementation of performance funding programs is also reviewed. Finally, I explain how my study will build upon existing research and how this need to build upon the existing research served as the impetus for my research project.

Chapter III describes the research methodology and design that was used to conduct the study, and the data that was collected and analyzed. I also outline why the research study is being conducted and how the results can inform future studies and strategies on the implementation of performance funding programs.

Chapter IV begins with a review of how my study will add to the existing research and recaps the research questions. The findings are then discussed beginning with the results from the quantitative administrative and secondary data. Next, the findings from the quantitative and qualitative survey are discussed, followed by the interviews by case institutions. The chapter continues with a discussion summarized by common themes found and by the two threats to access. The chapter concludes with a summary of the findings.

Chapter V presents the conclusions of the study based on the quantitative administrative and secondary data, quantitative survey data, and the qualitative one-on-one interviews from the senior-most administrators at four case institutions in

Massachusetts. I conclude the chapter with implications for future research, policy, and practice.

# Chapter II

## Review of the Literature

Chapter II begins with a discussion of the complex mission of community colleges and the history of the open access mission of community colleges in the United States. Student success and completion in community colleges is reviewed, along with defining a public good and a justification of how a community college education is considered a public good. The historical funding of community colleges in the United States is examined, along with a discussion on community college governance relative to decision-making. The external pressures that were in play at the state level of government, influencing the policy changes for the public funding of community colleges in some states and leading to the adoption of funding based on performance outcomes are examined. Performance funding programs are discussed, along with the circumstances that led to their creation and the transformation from PF 1.0 to PF 2.0 programs. Research studies on performance funding programs are reviewed together with both positive and negative impacts.

The chapter continues with a review of Massachusetts Community Colleges and their economic impact to the commonwealth, followed by a review of the creation of the Massachusetts Vision Project and the implementation of performance funding programs in Massachusetts. The chapter continues with a discussion of revenue maximization and the role it plays in the MAPFF. The chapter concludes with a discussion on how my study builds upon the research in the field.

## The Complex Missions of Community Colleges

Community colleges have evolved into highly complex, comprehensive higher education institutions that have "four enduring values: access, community responsiveness, creativity, and a focus on student learning" (Boggs, 2011, p. 3). Community colleges' missions include student services, career education, developmental education, community education, vocational and technical education, and transfer education (Townsend & Dougherty, 2006). According to the Massachusetts Department of Higher Education (MDHE, 2015), the publicly stated mission of the 15 community colleges is to

> offer open access to high quality and affordable academic programs, including associate degree and certificate programs. They are committed to excellence in teaching and learning, and provide academic preparation for transfer to four-year institutions, career preparation for entry into high demand occupational fields, developmental coursework, and lifelong learning opportunities. (para. 2)

From their very inception, providing access to higher education for everyone remains a very important mission for community colleges. Critical focus on open access came from the Truman Commission, The Carnegie Commission, and the Higher Education Act. Any move away from open access would be a fundamental change in direction.

## The Open Access Mission of Community Colleges

Community colleges are often called the "people's college" or "democracy's college," with open-door admission policies that admit students regardless of their academic achievement and create educational opportunities (Dowd & Shieh, 2013). Community college entrance requirements are for students to have a high school diploma

or equivalency or be 18 years old. SAT or ACT scores are not needed for acceptance, but may be used to place students in appropriate courses, in addition to placement scores on a state approved instrument, such as the College Board's ACCUPLACER. Requiring such placement in pre-degree level courses positions the students for success but also may control access to degree-level courses and programs.

One of the most important elements of the community college is the open enrollment policy (Oliver, 1995; Shannon & Smith, 2006). The primary mission of community colleges in this country is thought to be providing access to higher education for everyone, regardless of economic means or academic performance. The commitment of community colleges as an engine of opportunity and economic growth has accounted for more than 13 million students in credit and non-credit courses annually (AACC, 2012).

The community college open access mission is one of the reasons why the community college movement grew so significantly in the United States in the 1960s and 1970s. In a report entitled "A Case for the Community College's Open Mission" in 2006, the authors make the case for the community colleges' open mission, and their shared "commitment to access is as American as the Declaration of Independence" (Shannon & Smith, 2006, p. 15). The open-door mission of community colleges ensures access to post-secondary education for all who can benefit, and is the foundation on which all community college operations rest. Nationally, community colleges enroll many low income, first generation, educationally disadvantaged, and minority students who would not otherwise have an opportunity to attend higher education. Significant percentages of Hispanic American, African-American, Native American, and Asian/Pacific Islanders are

enrolled in community colleges (Shannon & Smith, 2006). Moreover, with community colleges enrolling 41% all U.S. undergraduates, these students are the most at risk of being left behind by the changing labor market and the shift in the demand for workers with higher education (AACC, 2019).

After the turn of the 20th century, there is clear evidence of the importance of the open-access mission of community colleges. Public junior colleges began with a central mission to provide transfer education for students seeking to pursue a baccalaureate degree at a four-year institution (Cohen & Brawer, 2006). Early in the 20th century, educators wanted junior colleges to relieve the research universities of having to provide general education and serve as buffer institutions that would keep the poorly prepared students from the universities and only send the brightest students (Cohen & Brawer, 2006). The first public junior college was established in 1902 by extending the Joliet Township High School by two additional years (Koos, 1947).

Since the 1902 organization of public community colleges, their open-access mission has evolved. Critical focus for open access came from the Truman Commission, The Carnegie Commission, and the Higher Education Act. Any threat to the open-access mission would be a fundamental change in direction. Admitting students regardless of academic achievement, economic means, race, or religion, into college, also known as open access or universal access, has become and remains a critical mission of community colleges in the United States (Dougherty, 2001). Individuals without any post-secondary education have limited access to good, higher paying jobs (Cohen & Brawer, 2008).

In 1925, the junior college definition was modified to include the development of "a different type of curriculum suited to the larger and ever changing civic, social,

religious, and vocational needs of the entire community in which the college is located" (Cohen & Brawer, 2008; "Institutional Definitions," para. 1). As the national economy became more industrialized and complex, the American people felt the need for higher education for their children. Community colleges also enroll non-traditional aged students, who attend college to maintain their jobs, to get re-trained for new jobs, or to earn a promotion. Many work full time and attend class part time to get ahead in their lives at an affordable cost. The average age of a student at a community college is 28 with a median age of 23, which is higher than the undergraduate students at many four-year schools (American Association of Community Colleges, 2012).

For a diverse student population, community colleges have served as the gateway to higher education and to the middle class (AACC, 2012; Dowd & Shieh, 2013; Shannon & Smith, 2006). The open-access mission influences admissions and enrollment processes, curricular structures, faculty hiring, and advising and counseling activities (Shannon & Smith, 2006). Parallel to and arguably part of the open-access mission is the commitment to providing a quality education at an affordable cost.

A significant percentage of students graduating from high schools and entering community colleges require developmental coursework, and this requires the additional application of resources by the community colleges (Dougherty & Reddy, 2011, 2013). Community colleges also enroll large numbers of adult students who must attend college to maintain their jobs, acquire jobs, or earn promotions. These students come with different needs and requirements that require additional and unique resources from community colleges to assist them in becoming successful. Continued reductions in state funding and tying allocations to outcomes does not support the community colleges in

spending their limited resources on the neediest students. Shortage of funding limits the resources to provide staff to support the neediest and most at-risk students. It's likely that the access and outcomes mission work against each other in the performance funding formula for these students (AACC, 2012).

Nationally, almost half of the students who enter community colleges do not attain their intended goals of earning a degree or certificate, transfer to four-year institutions, or are still enrolled after six years (American Association of Community Colleges, 2012). There is clearly room for improving student outcomes. The United States once led the world in college degree completion. Although according to a report published by the National Center for Higher Education Management Systems in 2005, the United States only ranked eighth in the world for degree completion among 25–34 year olds (Jones & Kelly, 2007), a mere seven years later, in 2012, the U.S. college completion rate dropped to sixteenth in the world for 25 to 34 year olds (American Association of Community Colleges, 2014, 2012). This change in rank is not due to the U.S. performing worse than it has in the past, but to its failure to improve and keep up with advances in other countries.

This growing gap should be a significant concern for the United States' political and educational leadership. The "economic competitiveness of the 21st century and beyond will require the U.S. to succeed at enhancing its stock of human capital" (Jones & Kelly, 2007), hence, the increasing focus on student outcomes. The following governmental "acts" and "commissions" focused on access and opportunities for higher education.

## Opening the Doors to Higher Education

**Truman Commission.** In July of 1946, President Harry Truman appointed a presidential commission, known as the Truman Commission, with the charge to examine "the functions of higher education in our democracy." The formation of this commission marked the beginning of a "substantial shift in the nation's expectations about who should attend college" (Hutcheson, 2007, p. 107). The commission's report espoused two goals: 1) to educate college students in a broad program of general education; and 2) to improve college teaching (Hutcheson, 2007), by stating that higher education should be much more accessible to the nation's citizens, with approximately half of the nation's citizens being capable of completing the first two years of college (Hutcheson, 2007). The commission report defined the concept of open access as "equal opportunity for all persons, to the maximum of their individual abilities and without regard to economic status, race, creed, color, sex, national origin, or ancestry" and called it "a major goal of American democracy" (Hutcheson, 2007, p. 109).

**National Defense Act.** President Dwight D. Eisenhower issued a special message to Congress on January 27, 1958, asking for help in strengthening the American education system so that it could better compete with the Soviet Union in the areas of technology and science. "For the sake of national security, Eisenhower called for the federal government to take emergency action to provide funds to reduce the waste of talent and promote education in math, science, and foreign language fields" (Cervantes, Creusere, McMillion, McQueen, Short, Steiner, & Webster, 2005; p11), resulting in the National Defense Act of 1958, Title II. Advocating for expanded opportunity and access

to higher education, this act provided low-interest loans for college students using a need-based formula, expanding access for students from families with low incomes.

**Higher Education Act.** One of President Lyndon Johnson's highest Great Society priorities was to broaden educational opportunities for all Americans, and his chief legislative instrument was the Higher Education Act of 1965. President Johnson's intention was to help willing individuals receive a post-secondary education that would lead to a higher income for them and their children and would "benefit the country by ensuring a steady supply of educated individuals to provide the human resources needed for economic prosperity" (Cervantes, Creusere, McMillion, McQueen, Short, Steiner, & Webster, 2005, pg. 17).

**Carnegie Commission.** The Carnegie Commission for Higher Education (1968–1973) "made the community college the centerpiece of its call for universal access to higher education" (Dougherty, 2001, p. 2). The Commission recommended that all states support the call of the Truman Commission and enact legislation making the community college "open access" for all persons over the age of 18 who are high school graduates and who can benefit from continuing education (Dougherty, 2001).

**Spellings Commission.** In 2006, a commission authorized by then Secretary of Education Margaret Spellings, known as the Spellings Commission, issued findings regarding the access, affordability, quality, and accountability of American higher education. The report describes access to higher education as "limited by the complex interplay of inadequate preparation, lack of information about college opportunities, and persistent financial barriers" (Spellings, 2006, p. 8). The skills "expectations gap" and the need for developmental education reinforces the importance of the community colleges'

open-access admission policies and ability to serve the large number of the underserved and underprepared groups (Horn & Radwin, 2012).

The Spellings Commission's recommendations on accountability led to the development of a consumer-friendly information database to improve performance and transparency throughout higher education (Spellings, 2006, p. 21). This database is more commonly known as the U.S. Department of Education College Scorecard (USDE, 2017).

**Student Success and Completion**

American higher education has achieved a great deal of success over the 370 years since the first college was established to train Puritan ministers in the Massachusetts Bay Colony (Spellings, 2006). America led the world for the percentage of college educated citizens for a long time but has become complacent and has fallen to sixteenth in the world in completion rates for 25 to 34 year olds (American Association of Community Colleges, 2012; Spellings, 2006). Many other countries are now educating more of their citizens to more advanced levels than we are (Spellings, 2006; Bailey, Jenkins & Jaggars, 2015). Now in the 21st century, significant and urgent reforms are needed to not only provide post-secondary educational opportunities, but also to increase the success levels of our students (American Association of Community Colleges, 2012; Bailey, Jenkins & Jaggars, 2015). While not everyone needs to go to college, everyone needs some post-secondary education to prosper and achieve more economic security (Spellings, 2006).

Students are being lost in high schools and leaving before graduation. There is a large percentage who are graduating from high school but who have not mastered

reading, writing, and thinking skills necessary for college-level work (Spellings, 2006; Goldrick-rab; 2010; Dougherty & Reddy, 2011, 2013). The nation's community colleges are seeing 58% to as much as 63 % of their students take at least one developmental education course in reading, writing, or mathematics (Horn & Radwin, 2012).

Some students do not enter college because they lack adequate information or adequate funds to afford the rising costs of post-secondary education (Spellings, 2006). Institutional quality has been measured by financial inputs and resources, rather than by institutional comparisons of student learning outcomes to help individuals choose the most appropriate college (Spellings, 2006). The college report card published on the Federal Higher Education website was developed as a means to start to provide this outcome information. Additionally, policymakers lack more comprehensive data to help them "decide whether national investment in higher education is paying off and how taxpayer dollars could be used more efficiently" (Spellings, 2006, p. 14).

Student success and completion in post-secondary education is vitally important for America's future. "In an increasingly competitive world economy, America's economic strength depends upon the education skills of its workers. In the coming years, jobs requiring at least an associate degree are projected to grow twice as fast as those requiring no college experience" (Obama, 2013, p. 1). Nearly 80% of new jobs over this decade will require some post-secondary education or training beyond high school (Munoz, 2014).

**Is Higher Education a Public Good?**

The recent recession forced the states to make deep reductions for higher education funding. However, since the recession, most states have begun to restore some

of funding removed during the deep cuts, but funding levels remain below pre-recession levels. The large funding cuts have led to steep increases in tuition and fees, and spending cuts that may have weakened the quality of education available to the students (Mitchel, Palacios & Leachman, 2014). The funding cuts and the actions by the institutions come at a time when a "highly educated workforce is more crucial than ever to the nation's economic future" (Mitchel, Palacios & Leachman, 2014; p1). A report published on job growth and education requirements through 2020 found that a large portion of future jobs will require college educated workers (Carnevale, Smith & Strohl, 2013).

For many citizens, the purpose of completing a post-secondary education was to gain access to better-paying jobs that allowed them to earn more throughout their lives. But this is no longer the only reason. The United States economy has developed into one that requires post-secondary skills, and citizens without this may not even have a job (Matthews, 2013). By the beginning of 2010, the official end of the Great Recession, the American economy had lost 5.6 million jobs for Americans with a high school education or less (Matthews, 2013). "If more Americans are educated, more will be employed, their collective earnings will be greater, and the overall productivity of the American workforce will be higher" (U.S. Department of the Treasury and Department of Education, 2012, p. 13).

A highly educated population is fundamental to economic growth and a vibrant democracy. For the first time, the United States is seeing that younger generations will be less educated than their parents. A better-educated United States citizen will give business leaders a better-qualified workforce pool right here in the U.S., so they do not have to ship jobs overseas. Substantial evidence shows that higher education raises

earnings. As individuals gain education, they are less likely to be unemployed (U.S. Department of the Treasury and Department of Education, 2012). Individuals with only a high school diploma were nearly twice as likely to be unemployed as those with a college or advanced degree (U.S. Department of the Treasury and Department of Education, 2012). The skill premium, quantified as the difference between wages for individuals with college degrees versus high school graduates, amounted to additional earnings of $2.4 trillion, or 16% of the $15 trillion in total GDP in 2012 (U.S. Department of the Treasury and Department of Education, 2012). This skill premium cannot be only for those people who can afford to pay the tuition and fees of the increasingly expensive private colleges and universities. This highlights the importance of the open-access mission of community colleges.

The federal government, state, and many local governments around the nation financially support public higher education through appropriations and direct grants to students, such as Pell and federal student loans. In Massachusetts, there is no local government financial support for the colleges. The community colleges in the state depend on state appropriations and student tuition and fees as their primary sources of revenue. Government support, along with the economic benefits to the students, businesses, and the state and local economy, support the notion that public higher education is a public good. Although the debate as to whether public higher education is a public or private good may continue, it is clear by the actions of the federal government and the economic impact of the Massachusetts community colleges that higher education is a public good, one that all citizens benefit from, both directly and indirectly. However, the percentage of college costs that are borne by the students has increased significantly,

as many states have experienced a decrease in revenues, translating into reductions in the appropriations for the public colleges. This action has perpetuated the notion that public education is shifting away from a public good and more towards a private good.

**Historical Funding of Community Colleges**

The contemporary community colleges in operation now arose in the 1960s in response to new opportunities and unmet needs and demands of the public junior colleges established in the early 1900s (Phelan, 2014). When the community colleges were small, demands on public funds were modest. Today with more than 50% of college-aged students attending community colleges, and rising institutional budgets, state legislatures have begun to scrutinize the states' investment in public higher education (Cohen & Brawer, 2008). Since the 1960s, funding of the contemporary public community colleges has varied significantly state by state. The two major sources of community college operational funding are public appropriations, from both state and local taxing authorities, and tuition and fees paid by the students. (Minor funding has come from other miscellaneous income sources, such as facilities rental, commissions from the college bookstore, and food service, etc.) The exact proportions of each of the major funding sources varies significantly by state, which reflects the states' "differing expectations and goals for community colleges" (Phelan, 2014, p7). Some states chose to keep tuition and fee rates very low or even at zero and have funded the community colleges at nearly 100% through public appropriations. Other states decided that government appropriations and tuition and fees should be relatively equal in proportion. Some states choose not to use local government financial support to fund the community colleges, as is the case in

Massachusetts. Regardless of the funding model used, community college funding has historically been unstable due to the discretionary nature of state support (Phelan, 2014).

**Government Funding of Community Colleges**

Early in the 1990s, the national recession precipitated a historic decline in the levels of state support for higher education, with budget cuts becoming commonplace. As state revenues declined during this period, the funding of higher education, a significant discretionary line item in state budgets, became an easy target for budget cuts and redirections of funds for other priorities in state budgets.

During periods when government revenues decline and state budgets are strained, legislative critics of higher education from both the government and private sector complain about the quality and quantity of faculty teaching and student learning and the bourgeoning of administrative positions and support staffs (Burke, 2002). During the recession of the early 1990s, this criticism focused on undergraduate education and specifically on "admitting too many unqualified students, graduating too few of those admitted, permitting them to take too long to graduate, and allowing them to graduate without the knowledge and skills required for successful careers" (Lively, 1992 in Burke, 2002; p7). An article published in the Chronicle of Higher Education reported that states were enacting new laws and policies that required colleges to "demonstrate efficiency, quality, and sound stewardship of public money" (Lively, 1992 in Burke, 2002; p8). Former New Jersey Governor Thomas Keane, then president of Drew University, stated that higher education has lost its image and significant changes were necessary to stay in business (Burke, 2002). This sentiment was substantiated in a report issued during a 1993

conference of national leaders in higher education, with a statement that higher education was failing to meet societal needs (Burke, 2002).

Since the late 1990s and over the next 20 years, there were significant shifts in the proportions of funding coming from tuition and government support. State revenues began to pick up larger shares of the funding, which was highlighted by the California Proposition 13. In the late 1970s, Proposition 13 limited the property tax to 1% of the property evaluations with a 2% annual increase. As a result, local community college districts saw their major funding source effectively capped and were forced to look to the state for more funding. “Within two years, the state of California’s share of community college revenues increased from 42% to nearly 80%” (Cohen & Brawer, 2008; “Sources of Funds,” para. 3). Community colleges in states with large systems, such as Colorado, Florida, North Carolina, Virginia, and Washington, receive as much as 75% or more of their funds from the state (Cohen & Brawer, 2008; Phelan, 2014). In 2012, New Jersey state appropriations provided 17% of the community college revenues, local governments provided 21%, and student tuition and fees provided 62% (New Jersey’s Community Colleges Facts at a Glance, 2014). In Massachusetts, local governments do not provide funding to the community colleges. At Cape Cod Community College, the commonwealth funded 41% of the revenues and the students provided 51% in 2012. The commonwealth funded 39%, 44%, and 46% in 2013, 2014, and 2015 respectively. Students funded 50%, 48%, and 45% in 2013, 2014, and 2015 respectively (Audited Financial Statements of Cape Cod Community College, 2012, 2013, 2104, and 2015). However, the national average finds the percentage of funding coming from state appropriations is now at 32.8% (AACC, 2019).

Changes in support vary from year to year as well. Public funding was flat during the 1970s as a result of a decline in the percentage of full-time students, but turned up in the mid-1980s, remained steady for several years, and increased again in the mid-1990s (Cohen & Brawer, 2008; Phelan, 2014). As we have seen recently, the percentage of public funding to community colleges has declined due to the severe and prolonged recession in the mid-2000s. During the years when the state funding ebbed, the colleges made up for that shortfall by increasing the percentage of the operating budget contributed by tuition and fees, decreasing expenditures by deferring maintenance and equipment purchases, freezing new employment, reassigning staff, and increasing the use of part-time faculty (Phelan, 2014). Since the 2008 recession began, most states have deeply cut funding to public colleges, and Massachusetts is no exception. As a result of these deep funding cuts, public colleges have increased tuition and fees to compensate for the revenue loss.

The significant increases in tuition "have accelerated longer-term trends of reducing college affordability and shifting costs from states to students" (Mitchel, Palacios, & Leachman, 2014, p. 2). However, shifting costs towards students have only accounted for part of the revenue loss stemming from the state funding cuts. Public colleges have cut faculty positions, eliminated course offerings, closed campuses, and reduced services, among other cuts (Mitchel et al., 2014). Rising tuition, deep state funding cuts, and reducing faculty and student services will have a negative impact on outcomes as well as access. Adding performance funding to the mix may exacerbate the impact by forcing colleges to become more selective with regard to the students they

admit and/or by increasing tuition and fees. It is my contention that student access is at risk of being negatively impacted by the implementation of performance funding.

With each ensuing period of increased state funding, the funding patterns also increased in complexity (Cohen & Brawer, 2008). Four typical models are listed for state support: negotiated budget, unit-rate formula, minimum foundation, and cost-based program funding (Cohen & Brawer, 2008).

Negotiated budget funding is primarily used in states where all or nearly all the community college funds come from the state and is arranged and negotiated annually with the state legislature or board (Cohen & Brawer, 2008). These budgets are usually incremental, reflecting the prior year's support with increases and decreases based on available funds and changing costs (Cohen & Brawer, 2008).

The unit-rate formula allocates funds to colleges on the basis of full-time equivalent students, the number of students in certain programs, the credit hours generated, or a combination of measures, and is used in a majority of states (Cohen & Brawer, 2008).

In the minimum foundation model, state allocations are made at a variable rate that depends on the amount of local funding and is a variant of the unit-rate formula (Cohen & Brawer, 2008). The intention is to allocate more state funds to community colleges where local support is lower. This is a protection for smaller schools and remains a portion of the performance funding formula in Massachusetts.

The cost-based funding formula allocates state funds based on budgeted objectives and instructional categories using actual expenditures (Cohen & Brawer, 2008). Local funds may or may not be part of the formula. There are significant

variations among institutions state by state (Cohen & Brawer, 2008). Because of the differences and the complexities of this type of funding, “absolute parity among the institutions can never be achieved” (Cohen & Brawer, 2008; “Allocation Patterns,” para. 6). The performance funding models that are now in vogue in many states add even more complexity by adding completion and student success measures to the mix.

**Community College Governance**

Governance can be defined as “a rationale, focused on decision making.” (Cohen & Brawer, 2008; “Categorizing Governance,” para. 1). Three models have been used to explain the governance structure of community colleges: bureaucratic, political and collegial (Cohen & Brawer, 2008). The bureaucratic model is a formal structure with defined patterns of activity, with the organization held together by authority delegated from the top down. Political models assume a “conflict among contending forces, students, faculty, administrators and trustees, each with different interests.” (Cohen & Brawer, 2008; “Categorizing Governance,” para. 2). The collegial model is a structure whereby the trustees share their authority with students and faculty, as well as with administrators (Cohen & Brawer, 2008). The collegial model is more of a theoretical model rather than an actual structure in use (Cohen & Brawer, 2008). The bureaucratic and political are the most applicable to community colleges (Cohen & Brawer, 2008).

The community colleges in Massachusetts are part of a state bureaucratic system of higher education. Each community college has a board of trustees appointed by the Governor. Each community college president reports to the board of trustees and meets with them monthly. Each of the community college presidents has a governing cabinet made up of the senior-most administrators at the institution who report directly to the

president. Typically, the senior most administrators include the vice president of finance, vice president of academics or provost, the senior human resources officer, vice president of student services, and the senior information technology officer. Some institutions include other administrators on the president's cabinet, such as the senior institutional research officer and other senior leaders unique to the institution.

During the time I was a vice president of finance at a Massachusetts community college, at my institution and the other 14 institutions, the presidents and their cabinets were responsible for leading strategic decision-making, including by not limited to, tuition and fee rate increases, institutional budgets, and staffing. The vice presidents of finance were responsible for leading the analysis and guiding the cabinet discussions on budgeting and suggesting increases in tuition and fee rates for the institution. The boards of trustees were provided monthly financial reports on year-to-date budget versus actual results. Fiscal-year budgets that include all revenue sources, including state appropriations, are recommended by the president through work completed by the vice president of finance and other cabinet members and presented to the boards of trustees for approval. When suggesting increases to tuition and fees the students pay, the president and the vice president of finance conduct open campus meetings where the rationale for the increases are explained and discussed with students, staff, and faculty. In most cases, these open campus meetings are perfunctory at best. Understanding the community college governance and decision-making structure is important to understand the findings and conclusions of my study.

## Performance Funding

Performance funding programs are designed to improve institutional performance and student outcomes (Dougherty & Reddy, 2011). The outcomes are measured in the formulas and are used as a basis for allocating state appropriations. Performance funding programs provide incentives to the institutions that "mimic the profit motive for businesses" (Dougherty & Reddy, 2011, p.2). The formula awards more state appropriations to institutions that outperform most of the other institutions in the commonwealth in the specific metrics contained in the formula.

By the early 1990s, strained government budgets, the criticism over the high cost, inefficiencies, and poor results of public higher education produced negative reactions toward public higher education. Conservative Republicans captured many of the governorships and state legislature seats on campaign pledges to cut spending for state programs, including higher education, which was characterized as just another government program with education leaders as one more interest group. As a result, the linking of state resources to campus results became an attractive policy alternative in state capitols (Burke, 2002).

State funding of colleges linking budgeting to performance differs from the cost-plus based budgeting by allocating resources for achievement of defined results. Connecting resources to results in state budgeting took on two different forms, "performance funding" and "performance budgeting" (Dougherty & Reddy, 2013). Performance funding ties specific resources to institutional results based on a predefined formula. Achieving good results on a designated indicator or metric, the campus receives a specific amount of performance money for that measure. Performance budgeting has no

explicit formula tying performance to funding (Burke, 2002). The governing bodies consider an institution's past performance as one factor in determining their funding allocations (Burke, 2002).

**Performance Funding 1.0 vs. 2.0.** Performance Funding 1.0 (PF 1.0) programs provide small amounts of additional funds over and above state appropriations for improvement in the performance of students on success and persistence measures (Dougherty & Reddy, 2013). Performance Funding 2.0 (PF 2.0) programs tie the colleges' base state appropriations at various percentages to improvements in the performance of students on success and persistence measures (Dougherty & Reddy, 2013).

Massachusetts introduced a performance funding formula (MAPFF) to allocate state appropriations to the community colleges to increase accountability of the institutions for the successful outcomes of their students. Several legislative concerns are addressed by tying the state appropriations to enrollment and performance metrics: 1) assess and reward colleges reflecting the goals of the MDHE's Vision Project and other priorities of the legislature; 2) address disparities and inequities in state funding between colleges on a per student basis; and 3) add assurance that efforts to stop the growth in student charges are instituted (Lenhardt, 2013). The annual cost to attend a community college in Massachusetts is among the highest in the nation. During the 2015–2016 academic year, the total cost to attend a community college in Massachusetts was in excess of $5,500 (MDHE, 2016). Below average state investments in higher education have forced increases in mandatory fees at the community colleges and state universities.

The report published by CCRC on the impacts of state performance funding systems in the U.S. found that beginning in Tennessee in the late 1970', policy-makers were seeking new ways to improve institutional performance and student outcomes. Institutions could earn a bonus of 2% over and above their annual appropriations for achieving performance goals outcomes (Dougherty & Reddy, 2011). Tennessee added and dropped various performance indicators over the years and increased the percentage of additional funding that institutions could earn from 2% to 5.45% of the base appropriation (Dougherty & Reddy, 2011).

As of 2015, 32 states have operated a performance funding program in one form or another, and several states are in formal discussions about it (Table 1; National Conference of State Legislators, 2016). Most of these programs have been PF 1.0 programs or programs that involve supplements to the base state funding. However, in recent years, a growing number of programs have re-emerged as PF2.0 models, which allocates some base state funding to the institutions on the basis of performance (Dougherty & Reddy, 2013).

Table 1

*Status of College Financing Tied to Performance*

| In Place at 2-Year Institutions | In Place at 4-Year Institutions | In Place at 2-Year and 4-Year Institutions | In Transition |
|---|---|---|---|
| New York | Maine | Virginia | Connecticut |
| Wisconsin | Pennsylvania | North Carolina | Vermont |
| Texas | Arizona | Florida | Iowa South Dakota |
| Wyoming | Oregon | Ohio | |
| Hawaii | | Indiana | |
| Massachusetts | | Michigan | |
| | | Illinois | |
| | | Missouri | |
| | | Arkansas | |
| | | Louisiana | |
| | | Oklahoma | |
| | | Kansas | |
| | | North Dakota | |
| | | Montana | |
| | | Colorado | |
| | | New Mexico | |
| | | Utah | |
| | | Nevada | |

*Note.* Adapted from Jones (2013).

The shift from enrollment and access-based funding to performance-based funding is not a new concept. Institutions have received appropriations from the state for achieving certain objectives, most often for growing enrollments and providing greater access (Jones, 2012, 2013). In the past, institutions were rewarded by their respective states for increasing access and enrolling more students. Enrollment-driven formulas were the norm, with access strongly in the financing policy, and the "decision makers became very good at devising ways to appropriately reward improvements in student access" (Jones, 2012; p2). Performance funding itself is not new; "it's the objectives for which the incentives are being provided that are new; access is no longer the dominant goal" (Jones, 2012, p. 2). Increased degree production has now taken over as the

dominant goal in many states. Now, decision-makers are trying to become equally adept in devising ways to fund institutions based on student outcomes and success, which validates the previous reference that management behaviors at community colleges are increasingly being incentivized to imitate behaviors found in the business sector, with economic goals driving institutional strategies and actions (Levin, 2005; Dougherty & Reddy, 2011).

Tennessee's program, the first of its kind, and its reformulation, exemplifies the desires of the state's goal to address widespread dissatisfaction with enrollment-based funding and the growing public concern over outcomes assessment for higher education (McLendon, 2013). The first iteration of the Tennessee performance-based funding program, providing supplemental funding over and above base state allocations, featured external accountability as well as institutional improvement goals. With support from the Federal Fund for the Improvement for Postsecondary Education, the Ford Foundation, and the Kellogg Foundation, the policy was implemented at several pilot campus sites, with close involvement of the Tennessee Higher Education Commission. The pilot's success propelled legislative action. At the time, campus leaders hoped that by demonstrating the higher education community's commitment to active performance assessment, they could forestall the imposition of a more restrictive state accountability system (McLendon, 2013).

On the extreme end of the PF 2.0, state programs, such as those previously employed in South Carolina and currently in Tennessee and Ohio, where 100% of the higher education appropriations were based on performance, have experienced problems during implementation because the uniform allocation approach insufficiently accounted

for the differences among the individual institutions' missions (Kelderman, 2019). This uniform approach was not accepted by each of the institutions and proved to be controversial and costly, both in political and economic terms (McLendon, 2013). With steep declines in tax funds available for higher education, the uniform allocation of appropriations without consideration of institutional missions and the absence of evidence that performance-based funding programs enhance institutional performance in a cost-effective way, led to the discontinuation of the program, as it did in other states (McLendon, 2013). However, as a result of some influential organizations, such as the Bill and Melinda Gates Foundation, Lumina Foundation, National Governors Association, Complete College America, and the National Conference of State Legislators, a resurgence of performance-based funding is being seen and is one of the most popular state policy trends in higher education (Hillman, et al., 2015).

Concerns that the United States is falling behind other countries in degree completion and not keeping pace with labor market changes are leading state policy-makers to align colleges better with state policy goals by funding colleges using a performance-based program (Hillman, et al., 2015). State policy-makers believe that "funding colleges according to their outputs, rather than inputs, incentivizes and motivates colleges to increase degree productivity" (Hillman, Tandem, & Fryar, 2015; p 1). Quality improvement incentives funded by the Lumina Foundation were made in 11 states where significant commitments to a PF2.0 program allocating base state appropriations has been tied to performance (McLendon, 2013). The PF2.0 programs have distinct features that were more strongly emphasized than the earlier PF1.0 programs, including (a) the funding of degree production for the emerging economy; (b)

development of workforces prepared for the states' perceived future needs; (c) recognition that missions, measures, and incentives are more tightly and efficiently linked; (d) incorporation of 'throughput" indicators such as, rates of student completion of gateway courses, along with outcome measures; and (e) recognition of the financial and political stakes are in play (McLendon, 2013). Tennessee's experience with the initial PF1.0 program and its current reformulated PF2.0 program is illustrative of the factors driving the initial and now renewed interest in performance funding (McLendon, 2013).

**Performance Funding Research**

Much of the current and recent research on PF predominantly describes how it works, the motivations behind implementing it to allocate state appropriations (Burke & Serban, 1998; Harnisch, 2011; Dougherty, Natow, Bork, Jones, Vega, 2013; Dougherty & Reddy, 2013; Friedel, Thornton, D'Amica, Katsinas, 2013; McKeown-Moak, 2013), the stability of PF programs throughout the country (Burke & Modarresi, 2001; Dougherty, Natow, & Vega, 2012), and to a lesser extent, the impacts on student outcomes (Hillman, Tandberg, & Gross, 2014; Tandberg & Hillman, 2013; Rutherford & Rabovsky, 2014). Increased expenditures without proportionate increases in public financial support may lead to increases in the cost of attendance for students. Some of the research also describes the potential negative impacts that include increased expenditures by the institutions on instruction, student services, institutional research staff, systems and analytical tools, and more selective admission processes (Wood, 2007; Shin, 2010; Dougherty & Reddy 2011; Dougherty et al., 2014; Lahr, Pheatt, Dougherty, Jones, Natow, & Reddy, 2014; Hillman, et al., 2015).

Case studies conducted on colleges and universities in the Tennessee Higher Education System and Woodland Hills Community College in Oklahoma proved to be of great interest and have become models for my case study.

**Twenty-year history of performance funding at the University of Memphis.** The Tennessee study reviewed the performance-based funding program from its inception in 1979 over a 20-year period. In 1974, the Tennessee Higher Education Commission, the state's coordinating agency for higher education and the agency having the responsibility for developing policies for the equitable distribution of use of public funds, initiated a five-year performance funding pilot program. The funding from the Improvement of Postsecondary Education, the W.K. Kellogg Foundation, The Ford Foundation, and one anonymous Tennessee foundation was used to conduct this study (Latimer, 2001).

Latimer (2001) conducted a qualitative case study incorporating documentary data, interviews, and observations of past and present campus staff to determine the extent of the awareness of the PF policy and its purpose, the extent that PF affected educational decision-making, and to determine what strengths, liabilities, and reform suggestions of the PF policy are identified at the University of Memphis. The study found that the awareness of and the implementation and execution of the PF policy at the University of Memphis was largely an administrative function, with very little shared information pertaining to the policy outside of the members of the president's cabinet (Latimer, 2001). The information that was shared focused on how the university did during the year versus what can be done to improve in the future.

Early in the inception of the PF program, there was a high level of interest in the policy, but interest declined as the years continued and the policy became viewed as an administrative and regulatory burden. Understanding the mechanics of the PF policy frequently rested solely with the PF officer position, a separate and unique position that is in addition to the vice president of finance at the university. Very few administrators could name more than a few performance indicators. This study also found that early in the implementation of the PF policy, the university's leadership used it to create modest change at the institution. The administrators used the policy to make difficult academic decisions that needed be made and that might not have been made otherwise (Latimer, 2001). The early leaders at the university found that PF was responsible for the implementation of outcomes assessment and a significant motivator for some of the departments to undergo accreditation.

This study also cited several identified weaknesses with the PF program, including that there was no direct linkage between its execution and the PF funds that come back to the institution, and that the indicators, scoring, implementation, and reporting became too unwieldy and burdensome for the amount of funds it returned to the university. The PF allocations for the university ranged between $40,000 and $50,000 from year to year, which is considered to be very minimal. All of the administrators interviewed for this study had negative attitudes towards the PF policy, and the lack of rewards for their efforts have led to a minimalist view of it (Latimer, 2001). However, there was no mention of the impact the PF program had on the students and their access to higher education.

The finding that early on in the implementation of PF, it drove a significant change at the university and in the later years it no longer drove the strategic planning process, is important for my study because PF in Massachusetts is its fourth year of implementation and potentially at a point where the community colleges may be using it to make significant changes and at a point where it may manifest some negative impacts, most importantly decreased access.

**The impact of performance-based funding at Woodland Hills Community College.** Wood (2007) conducted a research study at the Woodland Hills Community College in Oklahoma to explore the impact of PF since its inception in 2001. The researcher sought to determine the perception of campus stakeholders of the new PF policy and the effects it had on instruction, programs, and administrative functions at the institution. A qualitative case study design was conducted to examine how the PF policy had been accepted, implemented, and championed within a single institution (Wood, 2007). Interviews were the primary method of data collection.

The PF program implemented at Woodland Hills Community College focused on the success of first time, full-time students at the institution, with student success narrowly defined as the retention and graduation for this cohort of students. The findings suggest that PF did have an impact at the institution since its inception in 2001, but shortly thereafter became "invisible" below the level of the vice presidents (specifically the vice president of finance and the academic and student services vice presidents) (Wood, 2007; p.134). This finding is consistent with the Tennessee study cited previously. An interesting finding in this study was that the PF program prompted the institution to spend money and personnel resources to attract "young, traditional students

that have a strong chance of maintaining good grades and staying in school until graduation" (Wood, 2007; pg. 135). This cohort of students at Woodland Hills Community College was only 10% of the total student body at the time of the study. It is possible that Woodland Hills Community College, by targeting young, traditional students with a strong chance of maintaining good grades and staying in school, implemented a more selective admission and recruitment strategies. The evidence of selected admissions as a result of the implementation of performance funding in multiple studies supports the focus in my study on admissions and recruitment practices.

## Impacts of Performance Funding

The studies of performance funding to date have focused on the impacts that this method of allocating and rewarding state appropriations has had on student outcomes, how these impacts are produced, and what obstacles and unintended effects are encountered (Dougherty & Reddy, 2011).

**Some positive impacts of performance funding.** The research conducted thus far on the impacts of performance funding programs in higher education has revealed that there are some very positive impacts as a result of the implementation of these programs. Performance funding is producing organizational changes that are intended to produce improved student outcomes. As a result of implementing performance funding at the Woodland Hills Community College, new programs were started that were designed to connect students together by getting them involved with campus activities outside of the classroom as a strategy to improve student retention and graduation rates (Wood, 2007). By increasing student retention, enrollment improves, increasing tuition and fee revenue for the institution, which would make up for a loss of state appropriation revenue.

Dougherty and Reddy (2011) conducted a summary of research in Tennessee, Florida, Washington, Missouri, North Carolina, and South Carolina that shows that as a result of state performance funding, colleges are making substantial changes to their academic departments' organizational structures, as well as academic programs and curricula. Several of the studies conducted on these states with the top administrative institutional leaders revealed that alterations were made to course and instructional content and testing to improve performance by the students. Additionally, changes were made in student services, advising, and tutoring functions so that students can become more successful and the institutions can improve their performance metrics (Dougherty & Reddy, 2011). These changes included hiring more staff and opening these offices for longer hours during the week and on weekends to accommodate the numbers of students that require these services. Colleges have made or are planning to make: (a) greater use of data, (b) better institutional planning efforts, (c) more awareness of their performance, (d) increasing awareness of state priorities, (e) increasing capacity to engage in organizational learning and change, and (f) changes in institutional finances (Dougherty & Reddy, 2011, 2013). State accountability mandates, such as tying funding to student outcomes in the PF model, do influence the use of data for decision-making by the community colleges (Kerrigan, 2010). By gathering and analyzing data on the outcomes measured in the PF formula, institutions will become more aware of their effectiveness with student success and provide input to improve institutional planning. Additionally, there is evidence that performance funding prompts colleges to make substantial changes to their academic and student services policies, programs, and practices (Dougherty & Reddy, 2013). An example of this is hiring additional advisors and counselors that can

service more students, changing student orientation and making it mandatory for all new incoming freshmen, and using technology to identify students who may be falling behind and in need of tutoring and other student services (McPhail, 2011).

The top administrative leaders at the institutions in these studies indicated they are using the performance funding programs for strategic analysis and planning. A study interviewing the top campus officials at 14 Tennessee two-year colleges concluded that assessment-based improvements have fostered more comprehensive and responsive college planning (Dougherty & Reddy, 2011). Studies in Tennessee, Florida, Washington, Missouri, North Carolina, and South Carolina found that academic practices and department staffing were changed in response to the performance funding demands (Dougherty & Reddy, 2011, 2013). There was also evidence found that awareness of the performance funding programs is not diffused throughout the institutions (Dougherty & Reddy, 2011). "As one moves down the chain of authority, knowledge about state funding drops considerably" (Dougherty & Reddy, 2011, p. 17). Although the institutions have made these changes in response to performance funding programs, evidence has not been found that student success has improved because of them.

Macro and micro analytical performance funding studies, conducted within and across states, were conducted and reported by Hillman, Tandem, & Fryar (2015) in the Journals of Educational Evaluation and Policy Analysis and Rutherford and Rabovsky (2014) in the Annals of the American Academy. These researchers found that states with performance funding programs (1.0 or 2.0) compared to states not employing performance funding programs, demonstrated little improvement in educational outcomes. These studies showed similar results at the micro level for outcomes within the

State of Washington's performance funding program, with little evidence that performance funding produces improvements in student outcomes, with the exception of short-term certificates. In fact, evidence has surfaced that shows that current performance funding policies may contribute to lower performance over a longer period of time (Rutherford & Rabovsky, 2014). My study was conducted using institutions within Massachusetts and thus was at a micro analytical viewpoint. As stated earlier, the performance funding research found focused more on finding effects on student outcomes, obstacles, and unintended effects encountered with the implementation of the performance funding programs. The unintended effects of performance funding cited in the research to date have revealed impacts on enrollments through restrictive admission, enrollment, and recruitment practices, but not through the primary focus on access.

**Negative consequences of performance funding.** Although there are some positive things that are happening due to performance funding, there are also some negative impacts of performance funding programs. To improve student success and to meet and exceed the performance funding benchmarks, some community colleges in Florida and Missouri have restricted admission of less prepared students to boost retention and graduation rates by what has become known as "creaming" (Dougherty & Reddy, 2011). A community college official in Florida stated that one institution did not want to attract students with poor academic records, stating, "it is not who you start with, it is who completes that matters" (Dougherty & Reddy, 2011, p. 42). One community college in Florida also discontinued its disability services because the low retention and job placement rates did not justify the high cost of these services. These studies also revealed evidence that the intentional strategy to bypass high schools for recruiting

because of the low success rates of their students affected enrollment of minority and low-income students (Smith, 2015; Tandberg & Hillman, 2013; Dougherty & Reddy, 2011). Three studies conducted on community colleges in Tennessee, one in Florida, and one in Washington revealed that academic standards were intentionally weakened to boost the success rates of students (Dougherty et al., 2013). The evidence of "creaming" found in this study revealed in several community colleges and the implementation of a strategy of by-passing high schools for recruiting students because of low success rates, indicates that performance funding has negatively impacted access at some institutions and supports the need for my study. Additionally, two Florida studies, one study in North Carolina, and Washington revealed that some institutions were weakening academic standards and inflated grades (Dougherty & Reddy, 2011).

In a 2014 case study by Lahr et al. (2014) on the unintended impacts of performance funding on community colleges and universities in Indiana, Ohio, and Tennessee, the most frequently cited unintended impact of performance funding on student access was restricting admission of less prepared students. This study identifies the types and numbers of unintended impacts, actual or potential, of state performance funding policies on higher education institutions. The study describes that across the 18 institutions studied, at six of nine community colleges and eight of nine universities, interviewees discussed the prevalence of restricted admission practices (Umbricht, Fernandez, & Ortagus, 2017; Lahr et al., 2014).

The researchers chose nine community colleges and nine universities across Indiana, Ohio, and Tennessee because "they differ substantially in their performance funding histories, political, and socioeconomic structures" (Lahr et al., 2014; p 7). The

researchers differentiated between observed unintended impacts and potential unintended impacts because of the relatively recent adoptions of performance funding programs in several of the states (Lahr et al., 2014). The researchers found that restricting admissions included the following practices: raising admission requirements, selective student recruitment, and targeting financial aid (Lahr et al., 2014). Studies in Florida, North Carolina, and Washington also found that performance funding can lead to "narrowing of institutional missions that are not rewarded or minimally rewarded by the performance funding programs" (Dougherty & Reddy, 2011, p. 40; Hillman et al., 2015; Tandberg, Hillman, & Barakat, 2014).

To date, there has been little evidence that shows that performance funding has influenced student completion and success. However, there is a growing concern that maintaining access and improving the success of the students will be financially difficult for the institutions (Bragg & Durham, 2012; Lahr et al., 2014). Former President Obama's American Graduation Initiative has "refocused higher education from access to completion" as the primary measure of success for community colleges (Bragg & Durham, 2012, p. 107). Consequently, community colleges may be caught in an untenable position by offering the primary pathway to higher education for historically underserved students, including learners who are underprepared for college-level coursework and struggle to finish, and their ability to demonstrate student success. "If the definition of college success shifts from access to completion without recognizing that access and success are inextricably linked, community colleges are vulnerable to criticism and possibly reduced public support" (Bragg & Durham, 2012, p. 107).

Bailey, Jaggars, and Jenkins (2015) suggest that community colleges are considered to be the low-cost alternative for higher education. Bailey, Jaggars, and Jenkins (2015) also suggest that the current trend of community colleges adopting the guided pathway models that focus on student persistence and completion, focuses on high quality completions. This is the goal of the many performance funding formula metrics. However, existing state and federal funding formulas make it difficult for colleges to make the necessary investments to retain students over time (Bailey et al., 2015).

Community colleges are designed to provide open access to higher education at affordable costs. As state appropriations for higher education have declined over the past decade, and to keep tuition and fees as low and affordable as possible, community colleges have taken measures to reduce operating costs using three primary methods: (a) increasing reliance on part-time instructors, (b) increasing student-to-faculty ratios, and (c) using fully online instruction. Unfortunately, research has shown that considering these measures to control and reduce operating costs, completion and success rates have been hurt. Studies have shown that greater reliance on adjunct instructors reduces student completion because these part-time instructors are paid to teach courses, not assist students outside the classroom or participate in program development (Bailey, Jaggars, & Jenkins, 2015). The second method of reducing operating costs, increasing student-to-faculty ratios, reduces the quality of the instruction. While this measure saves money in the short run, the longer-term effect is a reduction in the quality of education (Bailey, Jaggars, & Jenkins, 2015). A third method of reducing the per-student costs of education is using fully online instruction. Fully online instruction may help reduce the cost of instruction but also may lessen faculty engagement in collaborative activities that can

improve student persistence and success. Increased reliance on part-time instructors, increasing student-to-faculty ratios, and using fully online instruction are effective in reducing and controlling operating costs in the short term but do not increase student persistence and success and the successful implementation of guided pathways, (Bailey, Jaggars, & Jenkins, 2015).

**Beginning of Massachusetts Community Colleges**

In 1958, then Governor Foster Furcolo, a liberal democrat, introduced a bill to create a statewide system of community colleges in Massachusetts (Burns, 2005). Governor Furcolo's vision was to "provide educational opportunities within commuting distance to students of all socioeconomic backgrounds" (Burns, 2005; p7). Governor Furcolo enabled the Commission on the Audit of State Needs to look at several major policy areas of the state, with education and the "critical need to provide adequate educational opportunities for students of all ages" as a first priority (Burns, 2005; p.8). In the commission's report, numerous benefits of community colleges were cited, including 1) families saving money; 2) increased interest in the pursuit of higher education; 3) building a larger talent pool for business and industry; 4) saving money for the taxpayers because they would not have to pay for a costlier expansion of the state residential colleges; and 5) increased knowledge and skills of the state's and nation's citizens (Burns, 2005). Governor Furcolo believed that community colleges should provide educational opportunities for all citizens and made the case for public higher education being a public good because the state and the nation would gain from it. This was the original commitment to an open-access mission. The publicly stated mission of the

community colleges found in the Massachusetts Department Higher Education web page reads:

> The 15 Community Colleges (also known as the Governor Foster Furcolo Community Colleges) offer *open access* to high quality, affordable academic programs, including associate degree and certificate programs. They are committed to excellence in teaching and learning and provide academic preparation for transfer to four-year institutions, career preparation for entry into high demand occupational fields, developmental coursework, and lifelong learning opportunities.
>
> Community colleges have a special responsibility for workforce development and through partnerships with business and industry, provide job training, retraining, certification, and skills improvement. In addition, they assume primary responsibility, in the public system, for offering developmental courses, programs, and other educational services for individuals who seek to develop the skills needed to pursue college-level study or enter the workforce.
>
> Rooted in their communities, the colleges serve as community leaders, identifying opportunities and solutions to community problems and contributing to the region's intellectual, cultural, and economic development. They collaborate with elementary and secondary education and work to ensure a smooth transition from secondary to post-secondary education. Through partnerships with baccalaureate institutions, they help to promote an efficient system of public higher education.

> The community colleges offer an environment where the ideas and contributions of all students are respected. Academic and personal support services are provided to ensure that all students have an opportunity to achieve academic and career success. No eligible student shall be deprived of the opportunity for a community college education in Massachusetts because of an inability to pay tuition and fees. (p. 1)

The publicly stated mission of the Massachusetts community colleges espouses open access and a high quality, affordable education for the states' citizens. Together with the Vision Project, the Performance Funding Formula measures access, improving student outcomes and holding the public institutions of higher education accountable for results. However, without a consistent and substantial investment in public higher education by the Commonwealth of Massachusetts, achieving all three of the stated goals may not be possible.

**Massachusetts Economic Influence of Community Colleges**

Massachusetts prides itself in ranking among the top five states in the nation in the increase of state appropriation for public higher education in 2013. "Brainpower is our signature economic edge and failing to invest in that in Massachusetts would be like Texas failing to invest in the oil industry or Iowa failing to invest in corn. "In Massachusetts, we know in order to grow jobs and unlock economic opportunity; we must put a college education in reach of all of our students" (MDHE, 2013, p. 4).

In 2002, Ed Moscovitch of Cape Ann Economics was engaged to research and prepare a report of the economic impact for the investment in community colleges in Massachusetts. The report stated that the greatest benefit of a Massachusetts community

college education to students is the "more than doubling of their full-time earnings potential" (Moscovitch, 2002, pg. 1). Additionally, the report stated that "over the course of a student's working life, the increase in earnings attributable to a community college education is $330,000" (Moscovitch, 2002, p. 1). Community colleges provide higher education opportunities for students who might not otherwise have access to higher education. The greatest benefit of community colleges to the commonwealth's economy is the increase in both personal income and the taxes resulting from the increased earnings of community college students (Moscovitch, 2002). "Over the 30 year working life of the students educated in FY2011 at community colleges, the commonwealth can expect $25.2 million in additional tax revenues" (Moscovitch, 2002, p. 4). Also, spending by the community colleges and students stimulate increased economic activity (Moscovitch, 2002).

**Massachusetts Vision Project**

In a response to concerns over the rising costs of college and a new sense of urgency about the need for excellence in Massachusetts public higher education, then Governor Deval Patrick and the Massachusetts Legislature developed the Vision Project to strengthen academic performance while holding the public institutions accountable to the public for results (MDHE, 2013). In May of 2010, the Massachusetts Board of Higher Education (BHE) approved the Vision Project performance agenda for community colleges, state universities, and the University of Massachusetts. The goal of the Vision Project is to demonstrate that public higher education can act in a unified and focused way to ensure the future well-being of the commonwealth and be accountable for the results to the people of the state (MDHE, 2010). The Vision Project was adopted to

provide a framework for the system wide and campus level activity, focusing on two goals: 1) to produce the best educated citizenry and workforce in the nation; and 2) to be a national leader in research that drives economic development.

The 2012 first annual report of the Massachusetts Vision Project, *Time to Lead*, reported that the growth of high-wage jobs in Massachusetts comes mostly from health care, finance, technology, education, and life sciences. The report states that for the commonwealth to compete effectively for jobs, investment and talent, and sustain our rich civic and cultural lives, Massachusetts needs to be the best educated citizenry and workforce in the nation (MDHE, 2012). The overarching goal that summarizes the Vision Project is to move the commonwealth to be a national leader in public higher education (MDHE, 2013). The Vision Project outlines seven key outcomes, namely: college participation, college completion, student learning, workforce alignment, preparing citizens, closing achievement gaps, and research. The MDHE will compare and measure the commonwealth against the rest of the nation in specific objectives in each of the seven key outcomes.

The commission's report to the General Court of Massachusetts recommended "the commonwealth should allocate additional funding to the community colleges, state universities, and the University of Massachusetts System, and should also increase funding for state financial aid" (Malone, 2014, p. 19). The commission's report noted that in 2012, 52% of undergraduate students in Massachusetts attended an institution of higher education in Massachusetts, with nine out of 10 graduates remaining in the state. The report also stated that an increased investment in state financial aid will "dramatically enhance student's access to higher education." Uneven and below-average

state investments in higher education have forced increases in mandatory fees at the community colleges and state universities, and these increases have caused students and families to be responsible for a greater share of college costs. As noted above, during the 2015–2016 academic year, the total cost to attend a community college in Massachusetts was in excess of $5,500 (MDHE, 2016).

In 2009, the Massachusetts Board of Higher Education asked then Commissioner of the Massachusetts Department of Higher Education (MDHE), Richard Freeland, to establish a task force to develop a performance funding formula and engage the National Center for Higher Education Management Systems (NCHEMS) to aid in the analysis and development of the formula (Nelson & Keller, 2012). Thus, he was prepared in July of 2011, when the Massachusetts State Legislature instructed the Department of Higher Education to create a performance funding formula based in part on the goals of the Vision Project. Commissioner Freeland stated in the annual report on the Vision Project that a funding formula for the Massachusetts Community Colleges would allocate appropriations to the individual community colleges based in part on performance (MDHE, 2013). The report outlined the numerous legislative concerns delineated in the new formula, including: 1) ensuring that performance by community colleges supported by public monies would be assessed and rewarded based on a series of metrics that both reflected the MDHE's Vision Project and reflected other policy priorities of the legislature; 2) ensuring that disparities/inequities in state funding between colleges on a per student basis would be addressed; and 3) making sure that efforts to stop the growth in student charges are instituted. In July 2013, the Massachusetts legislature approved the community college performance funding formula and began to distribute the state

appropriation in fiscal year 2014. The legislative concerns delineated in the MAPFF was found in research conducted in several states to reduce the growth of the cost of higher education and achieve greater efficiency for use of public money (Dougherty, Natow, Bork, Jones & Vega, 2013).

Massachusetts community colleges are funded primarily through a combination of state appropriations and student tuition and fees. Since their inception, Massachusetts has provided a significant percentage of the funding for community colleges in the commonwealth through appropriated funds. Since 2008 the funding of community colleges has shifted more to the students. Currently, the average cost of attending a community college in the Commonwealth of Massachusetts is in excess of $5,500 annually (MDHE, 2016).

The Vision Project is a system-wide, campus-level framework for the community colleges, state universities, and the University of Massachusetts that focuses on seven key outcome areas, broken down into three overarching goals of access and affordability, success, and accountability, as shown in Table 2. Clearly, access is an accepted part of the mission. The MDHE's 2012 first annual report of the Vision Project, entitled "Time to Lead: The Need for Excellence in Public Higher Education" compared the commonwealth to the rest of the nation in specific objectives in each of the seven goals as follows (MDHE, 2012):

Table 2

*Access, Affordability, Success and Accountability*

| Goal | Outcomes |
|---|---|
| 1) College Participation | Increasing the percentage of high school graduates going to college<br>Increasing the readiness of these students<br>Safeguarding affordability |
| 2) College Completion | Increasing the percentage of students who earn certificates and degrees to meet the state's need for a highly educated citizenry and workforce |
| 3) Student Learning | Improving teaching and learning through better assessment<br>Documenting our results for the public |
| 4) Workforce Alignment | Aligning occupationally-oriented certificate and degree programs with the needs of statewide, regional, and local employers |
| 5) Preparing Citizens | Providing students with the knowledge and skills to be engaged, informed citizens |
| 6) Closing Achievement Gaps | Closing achievement gaps among students from different ethnic, racial, and income groups in all areas of educational progress |
| 7) Research | Conducting research that drives economic development |

*Note:* Vision Project Framework.

The first report, released in September 2012, states that in 2018, 63% of U.S. jobs will require some college education and "if the commonwealth is to compete effectively for jobs, investment, and talent and sustain our rich civic life and cultural landscape, Massachusetts needs the best educated citizenry and workforce in the nation" (MDHE, 2011, p 3). The Massachusetts Community Colleges six-year success rate, measured by first-time degree-seeking student graduations and completions, is less than 50%, which is still slightly better than the national average; however, it is not achieving the state's goal to be a national leader (Malone, 2014). In the fourth annual report of the Massachusetts Vision Project, the Board of Higher Education reaffirmed the overarching agenda with a more direct emphasis on college access, affordability, and completion (MDHE, 2016).

**Massachusetts Outcomes Accountability**

In addition to increasing student success, the Massachusetts Vision Project espouses a focus on making the public higher education institutions accountable to the citizens of Massachusetts for results by working to reduce costs and maximize operational efficiencies and making institutions accountable for helping students succeed to meet industry demand for high-skilled talent (Malone, 2014). However, making the institutions accountable for meeting the needs of industry is not solely the responsibility of the institutions.

In a summary report of the April 2010 joint meeting on the Completion Agenda, led by the American Association of Community Colleges (AACC), the Association for Community College Trustees (ACCT), the Center for Community College Engagement, the League for Innovation in the Community Colleges, the National Institute for Staff and Organizational Development, and the Phi Theta Kappa Honor Society expressed that not all factors of accountability for outcomes are under the control of the community college leaders (McPhail, 2011). Being accountable for things outside of one's control is not an optimal position to be in. However, participants involved in advancing the completion agenda shared their thoughts on the accountability of outcomes, including ways to change the community college funding model and understanding that performance-based funding is a mechanism to be considered (McPhail, 2011). Greater completions will be required just to maintain appropriations as completion increases across the institutions. As the bar is raised higher, institutions will be required to find ways to continue to compete with the other community colleges or lose state appropriations even though they have increased completions. The participants also identified key obstacles and barriers to college

completion, categorized into three groups: leadership and governance, finance and budget, and teaching and learning (McPhail, 2011).

The Board of Higher Education in Massachusetts reinforced the commitment to the Vision Project by holding the public institutions accountable for increasing college graduates over the next 10 years. To achieve this, the Board of Higher Education espouses "helping more students succeed in and complete college, close persistent achievement gaps that keep too many African-American and Latino students from graduating, and attracting and retaining students who are not being served by the system, including those who currently can't afford to attend college, those who are choosing to attend college out of state, and adult students who need to finish their degrees" (Malone, 2014; p3). The Massachusetts Higher Education Finance Commission recommended that the governor and the legislature increase the annual state appropriations for public higher education starting in FY2016 by $95 million in operating budget support and annually for the next five fiscal years. The additional funding will "allow for the expansion of programs as well as support services for students, both of which are needed if the state is to boost college completion rates and address current and projected shortages of high-skilled talent" (Malone, 2014, p. 3). This level of state operational support will allow the campuses to limit or possibly freeze mandatory fee increases, taking some of the burden off the students and families. To enhance access to higher education for the neediest students, the commission recommended an additional investment of $42 million to be allocated to the MASSGrant student financial assistance program in FY16 to help increase the amount of college costs covered from 8% to 50% of the need not covered by federal financial assistance, for the students at the public institutions" (Malone, 2014, p. 3).

The Massachusetts Higher Education Finance Commission conceded that improving outcomes requires increasing student support services and expanding programs, which can increase costs to the institutions. It stressed that with the additional support, the institutions can limit and possibly freeze the mandatory fees charged to the students and thus keep the cost of college affordable.

America was once number one in the world for college completion, and has fallen as low as 16th; and doing more of the same is not going to help (America Association of Community Colleges, 2012). The public institutions of higher education cannot be the only players responsible for turning it around. State governments need to be on the front line of meaningful reform in the public colleges (Sugar, 2010).

**Performance Funding in Massachusetts**

In July of 2011, the Massachusetts State Legislature instructed the Department of Higher Education to create a performance funding formula (MAPFF), based in part on the goals of the Vision Project. Former Commissioner Freeland established a task force including representatives of all 29 public higher education intuitions to develop a performance funding formula. The Department of Higher Education engaged the National Center for Higher Education Management Systems (NCHEMS) to aid in the analysis and development of the formula (Nelson & Keller, 2012).

In the 2013 fiscal year, "Massachusetts ranks among the top five states in the nation in the increase of state appropriation for public higher education over the previous year" (MDHE, 2013, p. 2). This increase came after several years of declining investment in public higher education, which has shifted significantly more of the costs to the students. The average in-district tuition and fee rates for Massachusetts two-year public

higher education institutions were the fifth highest in the nation for 2014–2015 year (Baum, Ma, Bell, & Elliot, 2014). Former Governor Patrick directed the Commissioner of the Department of Higher Education to research the development of a funding formula to meet the legislative concerns above by ensuring that performance by community colleges supported by public monies would meet the goals of the Vision Project. The legislative concerns include addressing the disparities and inequities in state funding between colleges on a per-student basis and to stop the growth in student charges that were already among the highest in the nation. In fiscal year 2014, the community colleges began receiving all of their funding through the newly established MAPFF.

The Massachusetts Board of Higher Education, in collaboration with the institutions, mandated the development of a performance measurement system in the form of the performance funding formula for state and community colleges "in order to promote accountability for effective management and stewardship of public funds and to achieve and demonstrate measurable educational outcomes" (MDHE, 2013).

Each year, the community college campuses submit data to the Higher Education Research System. The Department of Higher Education admits that effective management and good stewardship of public funds is difficult to demonstrate, implying that because of the rising costs of higher education and fewer degrees awarded, community colleges are ineffective in managing the institutions and not good stewards of public funds. The thinking goes that if colleges were more efficient then prices could be lower and "more students would be able to afford, attend and complete college" (Belfield & Jenkins, 2014, pg. 13). Using this logic, colleges are inefficient because the "cost/price seems high." (Belfield & Jenkins, 2014, pg. 13). Belfield & Jenkins, (2014) assert that

"higher education instruction is a labor-intensive service with tasks that are cognitively challenging and interactive and cannot easily be routinized" (Belfield & Jenkins, 2014, p. 16). Belfield & Jenkins (2014) reveal that these tasks cannot be made more efficient by reducing the amount of labor time allocated to them, and because labor represents the largest expense category for community college budgets, significant reductions in expenses are not likely.

As previously stated, Levin (2005) and Dougherty and Reddy (2011) suggest that management behavior at community colleges are increasingly mimicking behavior found in the business sector, where profit maximization is a top goal. It is for this reason that I argue that as the community colleges in Massachusetts continue to operate within the performance funding process and become more dependent on student outcomes for larger portions of their state allocations, they will reexamine themselves and determine what changes are necessary to maximize their state allocations determined by the funding formula. Because the performance-based funding program in Massachusetts still imposes a stop-loss measure providing a minimum increase in state funding, the incentive for the colleges to make changes that will positively impact student success and outcomes was diminished or delayed. However, as more of the base state financial support to the community colleges is controlled by the funding formula and the stop-loss measures are diminished and ultimately eliminated, the colleges will begin to find ways to add stability and predictability to their revenue streams and/or other means to maintain a balanced operating budget.

The changes that have been or potentially will be implemented include (a) increased spending on instruction and student services, (b) increased spending on

institutional research staff and analytical tools, (c) additional investment in computer systems and applications that will assist them in improving student outcomes, and (d) more selectivity in the admission and recruitment process. Since community colleges have some control over their tuition and fee rates, my espoused theory is that they may begin or have already begun to raise fees to secure funds to support the increase in spending focused on success, become more selective in their admissions and recruitment practices, or a combination of both. Raising mandatory fees will make it more expensive for the students and consequentially shut some students out of a college education (Shannon & Smith, 2006). Additionally, as the community colleges implement changes to instruction and student services, they may focus on the programs that they expect to score well in the performance funding metrics, and in doing so, may discontinue other programs that may not score as well. This "program narrowing" will shut out another population of students and shut the door a bit further.

**Massachusetts Performance Funding Model**

After the collaborative effort between the Department of Higher Education, the National Center for Higher Education Management Systems (NCHEMS) and the college presidents, a performance-based funding model was presented to the Massachusetts legislature for review. In July 2013 the Massachusetts legislature approved the Community College Performance Funding Formula and began to distribute the state appropriation beginning in fiscal year 2014. The formula is broken into three components: (a) "base share," roughly 36% of the total, using the enrollment variables; (b) "performance share," roughly 36% of the total, using the completion weights and

alignment multipliers; and (c) cost-of-operation subsidy," roughly the remaining 28% of the total.

The MAPFF was implemented to address three essential issues. The first was to address the large inequities in per-student funding amongst each of the community colleges, regardless of institution size, that have developed over time. Appropriations have risen by identical percentages, while institutional growth has varied significantly. The formula also addressed the issue of allocating funds in relation to aspects of institutional performance that reflect statewide education goals, including a premium for enrollments in STEM-related programs and trades and student success in these and all programs, including premiums for students considered at risk. The third issue to be addressed by the formula was to emphasize the role of community colleges in preparing students for jobs in the states' rapidly evolving economy.

**Base share: Enrollment variables.** The enrollment variables, which are measured and assigned weights that reflect the statewide education goals, are shown in Figure 1, reflecting the new performance funding detail. These programs shown are identified using the Classification of Instructional Programs (CIP) codes. CIP codes provide a scheme that supports the accurate tracking and reporting of fields of study. The more highly weighted program variables, such as math and computer science, engineering and architecture, technology, health related programs, as well as the most heavily weighted trades' variable, reflect the workforce priorities in Massachusetts. The higher the weight in this category, the more value is given towards the performance funding allocation. The credit-hour enrollments in each of the programs for each of the

15 community colleges shown below are then multiplied by the weights. This result in the base share portion of the formula.

***Performance Share Part 1: Completion weights.*** The completion weights (Figure 1) indicate the priorities of the state and are used for the calculation of the outcomes in each of these areas for a total score. This measures not only completions with certificates and associate degrees, but also progress and persistence. The largest component is the Achieving the Dream Success Rate (ATD). The success rate captures the following distinct outcomes for all first-time, degree-seeking students six years after initial entry:

1. Earning a degree or certificate at any Massachusetts community college and transferring to a four-year institution;
2. Earning a degree or certificate at any Massachusetts community college without a record of transferring to a four-year institution;
3. Transferring to a four-year institution without earning a degree or certificate at any Massachusetts community college;
4. Remaining enrolled at any Massachusetts community college after six years without earning a degree or certificate but with at least 30 credits earned.
5. Completing a credit bearing course in English and Math.
6. The number of degrees and certificates per (FTE) students.
7. The most heavily weighted completion metric, "Achieving the Dream" success rate using a three-year average score.

***Performance Share Part 2: Alignment multipliers.*** The alignment multipliers apply to subsets of student cohorts (each row of the completion section is a different

cohort) that meet one of the alignment components with a multiplier applied for each of the at risk populations shown in Figure 1.

| Stage One: Set Funding Allocations | | All Cells in YELLOW represent editable values | |
|---|---|---|---|
| Allocate new money directly to Performance? | | No | |
| Total State and Local Appropriations | | $228,154,308 | |
| Base Funding Allocation | 50% | Amount Allocate | $86,913,411 |
| Performance Funding Allocation | 50% | Amount Allocate | $86,913,411 |
| Ancillary Budget Amount | | Amount Allocate | $13,172,514 |

| Stage Two: Define Weight and Multiplier Values for Performance Allocations | | | | | |
|---|---|---|---|---|---|
| Set One: College Enrollment Variables | | Set Two: College Completion Weights | | Set Three: Alignment Multipliers | |
| Liberal Arts | 1.0 | Certificate Completion Weight | 10% | (Multipliers to place additional premiums on targeted outcomes) | |
| Physical, Bio, Social Science | 1.5 | Associate Completion Weight | 15% | At-Risk Multiplier: Pell | 2.00 |
| Math and Computer Science | 2.0 | Transfers Above 24 SCH Weight | 5% | Priority Certificate Multiplier | 1.30 |
| Visual & Performing Arts | 1.5 | 30 Credits Hours Weight | 5% | Priority Associate Multiplier | 1.30 |
| Pre-Education | 1.5 | Completions: English Weight | 7% | Set Four: Model Override Variables | |
| Engineering / Architecture | 2.0 | Completions: Math Weight | 8% | (Variables designed to phase in results; decisions in these variables are applied after performance calculations.) | |
| Developmental Education | 1.5 | Awards per 100 FTE | 5% | | |
| Trades | 2.5 | ATD Success Rate (3 Year Average) | 45% | Define Stop-Loss / Alt. Minimum | |
| Technologies | 2.0 | All weight percentages must equal 100% | 100% | 3.5% | |
| Health/Allied Health | 2.0 | Developed by: NCHEMS, 2013 | | Define Stop-Gain / Alt. Maximum | |
| Business | 1.0 | Version 3.3 | | 50.0% | |
| Services | 1.5 | the VisionProject | | Optional: Cost of Operation Subsidy | |
| Non-Credit Workforce Development | 1.0 | | | $4,500,000 | |

*Figure 1.* MAPFF formula components (Massachusetts Vision Project and National Center for Higher Education Management Systems, NCHEMS, 2013).

The data for each of the portions of the funding model is based on the results tabulated from the prior fiscal year. The performance share is derived by multiplying the

number of awards issued (degrees, certificates, and transfers) times the completion weights times the alignment multipliers.

***Cost-of-operation subsidy.*** Each institution is then given a flat $4,500,000 operational subsidy each year, totaling $67,500,000 for all 15 community colleges.

**Putting it All Together**

Starting with the total state appropriation from the previous fiscal year, the base share, the performance share, and the cost-of-operation subsidy are added together to arrive at the state appropriation before the stop-loss adjustment for the new fiscal year. The ancillary amount is then used to recalculate the results so that each institution is not hurt by their performance and is guaranteed a minimum increases amount. The resulting amount is the final appropriation that each institution will receive. The formula is summarized in Table 3.

Table 3

*Performance Funding Formula (MAPFF)*

| Component | Description |
|---|---|
| Base Share (BS) | Prior year AASL x WTD AVG % of enrollment variables. |
| Performance Share (PS) | Number of awards issued x completion weights x alignment multipliers. |
| Cost of Operation Subsidy (COS) | Flat $4,500,000 given to each college. |
| Appropriation before Stop-Loss Adjustment (ABSL) | Summation of BS, PS, & COS. |
| Stop-Loss Adjustment (SLA) | Ancillary amount provided by the state to provide a minimum guaranteed percentage increase to each college regardless of performance. |
| Final Appropriation after Stop-Loss Adjustment (AASL) | ABSL-SLA |

*Note.* Formula: BS + PS + COS = ABSL; ABSL + SLA = AASL.

Using the above formula and Figure 1, the base share $86,913,411 is distributed amongst the 15 community colleges using the proportional percentage of the enrollment variables. The performance share allocation of $86,913,411 is calculated for each institution based on their individual performance on both completion and alignment variables, culminating into a performance share percentage for each institution. The cost-of-operation subsidy of $4,500,000 is added to each institution.

Starting with the total state appropriation from the prior fiscal year of $228,154,308, the ancillary amount is added for a new total of $241,326,822 for the sector. Each institution is then given a flat $4,500,000 operational subsidy, totaling $67,500,000 for all 15 community colleges. The total appropriation amount of $241,326,822 is the sum of $86,913,411 times two, plus $67,500,000. The stop-loss calculation is then applied, which ensures each college a minimum increase of at least 3.5%.

The smaller colleges, one of which I worked for, receives a larger percentage of their annual state appropriation from the $4.5 million operational subsidy. Because of the proportion from this subsidy, the smaller colleges are less impacted by the performance or enrollment scores. However, if the MDHE changes the cost-of-operation subsidy variable to consider the size of the institution, this would have a profound effect on the annual state funding.

**Stop Loss Adjustment (Guaranteed Increase)**

For the first three years of the performance funding model, the state protected the institutions by adding money to the total appropriation, so every institution was guaranteed a 3.5% increase in FY2014 and 2015, and 2.5% increase in FY2016 from the state. While data show the term "performance funding" generated fear of decreases, the reality of guaranteed increases is shown in annual state appropriations. The feared decreases did not happen in the first three years of the formula. The funding model shows the total allocation amount for each campus before and after the stop-loss measure is applied.

In a study on performance funding for higher education experiences on three states (Indiana, Ohio, and Tennessee), a number of the respondents indicated that the performance funding program had "little or no impact on their colleges budget" in part because of a hold-harmless provision in their first few years (Dougherty, Jones, Lahr, Natow, Pheatt, & Reddy, 2016, p. 154). The Ohio institutions used a hold harmless provision in their performance funding program that limited how much funding colleges may lose from one year to the next in the first few years of the formula (Dougherty, Jones, Lahr, Natow, Pheatt, Vikash, 2014). In South Carolina, the performance funding

formula provided a hold harmless period preventing any institution from losing funding until the formula's full implementation took effect (Dougherty, Natow, Hare, Jones, & Vega, 2011). In contrast, the MAPFF Stop Loss component guaranteed a minimum increase in each of the first three years of the formula. The previous studies did not indicate the hold harmless provision of the formula had as significant of an impact as was found in my study.

**Revenue Maximization**

The Massachusetts performance-based funding formula allocates a larger percentage of the total state appropriations to institutions that perform better in the achievement of student outcomes and enrollments in STEM- and workforce-related programs measured by the formula. The implementation of performance funding as a "reform-minded funding strategy" incentivizes colleges to maximize revenue and pressures colleges to become more accountable to state legislatures and the public, and focus more on outcomes (Dowd & Shieh, 2013, p. 49).

Students represent economic entities in two ways, as "consumers" providing a significant source of revenue through the tuition dollars they pay, and as "commodities" providing value to the institutions because of their skills that are desired by businesses and industry (Levin, 2005, p. 15). The access-for-all mission remains critically important or the institutions will face loss of tuition dollars and state and federal funding. However, viewing students as consumers and commodities demonstrates that management behaviors at community colleges are increasingly imitating behaviors found in the business sector, with economic goals driving institutional strategies and actions.

The “community” in community colleges has been more narrowly focused to mean economic community, with students as economic entities (Levin, 2005, p.13). Saul and Newell (1997) saw this shift in their research on neo-conservatism and stated that “the elevation of maximum profit as the supreme legitimating purpose of democratic society has led to a corruption of liberal education” (Saul & Newell, 1997, p. 1). In a study of two community colleges, one in the United States and one in Canada, senior administrators, faculty, staff, students, and board members supported the shift toward the maximization of revenues (Levin, 2005).

In the U.S. community college, the state government began to permit the college to retain all of the student fees, while previously they did not, but decreased allocations to the institution (Levin, 2005). This community college looked to international students to support its operations because of the higher tuition and fees they are charged (Levin, 2005). Additionally, this community college raised the tuition and fee rates, benefitting the institution with a rise in revenue but also impacting enrollments because some students did not have the extra money (Levin, 2005, p. 19). “Overall, due to state budget cuts throughout the 1990s, programming and curricula were redesigned to support state economic development.” (Levin, 2005, p. 19). College resources were redirected to high-demand revenue generating programs (Levin, 2005). Their finding indicated that as consumers, students and their demands increasingly shape the curricular and organizational strategies that community colleges use to increase and maximize revenues (Levin, 2005).

The community colleges in the Commonwealth of Massachusetts have two primary revenue sources: (a) tuition and fees that the students pay, and (b) state

appropriations. Revenue is defined as the proceeds from selling an amount of product produced by a firm (Total Revenue, 2013). Revenue maximization strategy dictates that a business should do whatever is required to sell as much of its product as possible (Revenue Maximization, 2013). Revenue maximization is different from profit maximization, in which the strategy ignores the costs associated with the activity (Revenue Maximization, 2013). Optimization is defined as finding an alternative with the highest achievable performance by maximizing desired factors and minimizing undesired ones (Optimization, n.d.). The product or output of an institution of higher education is a successfully educated student; this is a desired outcome. The performance funding formula instituted in Massachusetts defines what a successfully educated student is in the commonwealth and distributes its appropriations to the community colleges by comparing how effective each institution produces its product.

The president of each community college must present balanced fiscal year budgets to the board of trustees for formal approval and adoption. A balanced budget is one in which the sum of all institutional operating revenue, including state appropriations and tuition and fee revenue, equals the sum of all operational expenditures. Operational expenditures include instructional, student, and institutional costs. When budgets are not balanced, changes are made to reduce costs, increase revenues, or often a combination of both. The only revenue source that community colleges have direct control over is the fee portion of the tuition and fee rates.

The community colleges in Massachusetts have some of the highest tuition and fee costs among community colleges in the nation, and because of this, are limited in how much they can raise the costs for students to increase revenues and remain a low-cost

alternative. To continue to be able to provide quality education for their students and improve student outcomes as measured by the performance funding formula, the community colleges must focus on making organizational improvements and search for external sources of funds to maximize revenues and attain more of the state appropriation allocations.

The Massachusetts Vision Project was adopted to provide a framework for the system-wide and campus-level activity, focusing on two goals: (a) to produce the best educated citizenry and workforce in the nation, and )(b to be a national leader in research that drives economic development (MDHE, 2010). The creation of the Performance Funding Formula builds on those goals by incentivizing community colleges to improve student outcomes, operate more efficiently, and to hold institutions accountable for results (Hillman, 2016). The introduction of the performance funding program incentivizes performance on outcomes more heavily than enrollments and awards a portion of the state funding on success in these metrics. The total formula results, using the all the defined components of the formula for each of the 15 community colleges, are summarized and ranked in order of success. A significant portion of the state appropriations is then finally allocated to the institutions based on where each institution is ranked. This supports the theory that institutions will seek the most state funds possible to maximize their efficiency and revenue by improving their outcomes (Dougherty & Reddy, 2011; Levin, 2005).

Decreasing enrollments at both two- and four-year institutions across the country has rekindled an increased competition for the demographically declining number of students seeking a higher education. Stagnant or declining state funding, an increased

emphasis on preparing citizens directly for the workforce, and the introduction of the performance funding has demonstrated the change in priorities at the state level more towards economic development (Dowd & Shieh, 2013; Levin, 2005). Because of this shift in state priorities and the increasing competition for state appropriations as allocated by the performance funding formula, the community colleges in Massachusetts are not only faced with improving student outcomes to gain, or at least maintaining state funding, but are also faced with finding supplemental and alternative sources of revenues to be competitive.

The implementation of the performance funding formula in Massachusetts shows evidence of this shift to market needs and workforce development. The report from the board of higher education "*Time to Lead,"* stated that because the growth of high-wage jobs in Massachusetts comes mostly from health care, finance, technology, education, and life sciences, public higher education institutions in the commonwealth must refocus their efforts (MDHE, 2012). The performance funding formula provides stronger weights for these fields. The emphasis placed on the trades, engineering and architecture, technology, and the sciences shows the priorities based on the state's workforce needs. When the Massachusetts community colleges perform well in these metrics as measured in the funding formula, they can secure a larger share of the state appropriations.

**Basis for Research Design**

I used a multiple-case study design on a subset of community colleges in the Commonwealth of Massachusetts to determine the impact that the implementation of performance funding has had on the open-access mission of these colleges. The use of a case study methodology on my study was influenced by two separate dissertation

research studies conducted on the University of Memphis in Tennessee (Latimer, 2001) and the Woodland Hills Community College in California (Wood, 2007). Both studies were conducted using a case study method incorporating documentary administrative data, as well as surveys and interviews. These studies reviewed how performance funding affected the administration's decision-making and the positive and negative impacts of it on the institutions. Additionally, the following larger studies conducted on performance funding also served as a guide to my study: (a) Dougherty and Natow (2010); (b) Dougherty, Jones, Lahr, Natow, Pheatt, and Reddy (2014); (c) Lahr, Pheatt, Dougherty, Jones, Natow, and Reddy (2014); (d) Hillman, Tandberg, and Gross (2014); and (e) Hillman, et al. (2015). Each of these studies were also conducted using documentary administrative data, surveys, and interviews. The multiple sources of evidence used in these studies revealed intended and unintended negative impacts of performance funding on the institutions that included changes to admissions and recruitment practices through raising admission requirements, selective student recruitment and targeting financial aid, and increases of tuition and fees, all of which are the focus of my study.

As with many changes of this magnitude, it takes time before the results are realized to the point where the colleges may begin to see the impact of their efforts on their operating budgets. Since each community college has significant amounts of appropriation money at stake, it is reasonable to assume, based on the revenue optimization theory discussed earlier, that each of them will be trying to maximize their metric scores to at least maintain their appropriation level. However, there is a very good chance that even with achieving improvements in student outcomes, the schools may not secure any additional funding and may in some cases lose state funding support.

**Building Upon the Research**

Community colleges still advocate that providing access to higher education to all continues to be one of their fundamental missions. Some evidence has been found in the research conducted that performance funding has had a negative impact on access through restrictive admission, enrollment, and recruitment practices, such as creaming and bypassing certain high schools for recruiting because of low success rates and through increased tuition and fee costs (Smith, 2015; Tandberg & Hillman, 2013; Dougherty & Reddy, 2011). The focus of my study is to determine what impact the MAPFF has had on the open access mission of the community colleges in the Commonwealth of Massachusetts in these and other areas.

The research conducted thus far does not directly address the financial impact on colleges and the strategies to manage the results, specifically in their operational budgets, which can translate into an increased cost of attendance. Of note are instability in funding, funding levels that are too low, shortfalls in regular state funding for higher education, and inequalities in institutional capacity as a significant concern (Dougherty & Reddy, 2013). In the study mentioned earlier on the unintended impacts of performance funding on community colleges in three states, the findings reveal frequent mentions of actions by the colleges such as restricting admissions and increasing costs of compliance with performance funding (Lahr, et. al., 2014). My case study set out to determine if the performance funding program in Massachusetts incentivizes community colleges to make institutional changes to improve their performance funding formula results that may specifically be detrimental to their open-access mission.

On August 22, 2013, at the University of Buffalo, then President Obama placed the issue of college affordability and performance funding on the National Agenda (Friedel et al., 2013; Obama, 2013). In his plan to make college more affordable, he advocated holding students and colleges receiving federal student aid responsible for making progress towards a degree and challenged states to increase funding and to fund public colleges based on performance (Executive Office of the President, 2014; Obama, 2013). President Obama, using the recommendations outlined in the Spellings Commission report, created the College Scorecard to provide more information about college costs and outcomes to families of potential students (Executive Office of the President, 2014). With this plan coming from a democratic president, along with the strong support from republicans in Congress, and coupled with the desires of ordinary citizens demanding lower costs of higher education (Dougherty, Natow, Bork, Jones, & Vega, 2013), performance funding has a good chance of becoming the norm. However, performance funding can have a significant negative effect if the community colleges are raising tuition and fees, restricting admissions and enrollment, or weakening academic standards to counteract funding declines due to performance-based funding.

**Evidence of a Mission Shift**

The literature review conducted as part of my research has shown evidence that performance funding has negatively impacted access in community colleges through restricting admissions of less prepared students and increasing the cost of attendance.

The publicly stated mission of the Massachusetts community colleges espouses open access to high quality, affordable higher education for the states' citizens. The literature research conducted in preparation for my study shows that open access was, and

remains, one of the most important missions of community colleges nationwide. However, examination of how states are tying funding to the success outcomes of students also reveals that there may be a related shift in emphasis of the mission of community colleges from allocating state funding based on enrollment and access to completion and success. In Massachusetts, a significant portion of the community college funding comes from the state. Shifting the funding allocation away from enrollment and more towards completion demonstrates a change in priority away from access. My study researched the impact the implementation of the MAPFF had on the open-access mission of the community colleges in Massachusetts.

# Chapter III

## Methodology

Chapter III describes the research methodology and design that was used to conduct the study and the data that was collected and analyzed. The chapter also outlines why the research study was conducted and how the results can inform future studies and strategies on the initial design, redesign, and implementation of performance funding programs.

This multiple-case study examined the impacts that the Performance Funding Program, implemented in 2014 in the Commonwealth of Massachusetts, has had on the open-access mission of its community colleges. Other research on performance funding discussed in the literature review focused predominantly on the different types of programs, how they work, the motivations behind implementing them, and some of the positive and negative impacts both on the institutions and the states. However, the research to date has revealed some negative impacts on access through selective and restrictive enrollment and admissions. The current research noted an impact to access but was not focused on the impact to access as a result of performance funding.

This chapter presents the study's methodology, beginning with a review of the research questions relevant to the study. The research design is described, as well as the case selection, data collection, and analysis techniques that were used.

### Study Protocol

The protocol for this case study includes (a) research questions, (b) research design, (c) conceptual framework, (d) selection of the cases, (e) data collection procedures, (f) analysis of the data collected, (g) discussion of the findings, and (h)

conclusions. Reliability is demonstrated by ensuring that the operations of a study can be repeated with the same results (Yin, 2009). This case study protocol operationalizes and documents the process that was followed in the execution of the study. Outlining and documenting the process enhances reliability because it allows the study to be repeated and it minimizes errors and biases.

**Research Questions**

Revenue Maximization is the theory behind the inception of the performance funding formula in Massachusetts. Massachusetts wants to incentivize the colleges to improve student outcomes by allocating a significant percent of the state allocations through the performance funding formula. To explore its impact, the overarching research question answered from my study is:

How is performance funding influencing the open-access mission of community colleges in Massachusetts?

To answer this question, I answered the following subquestions:

1. What operational changes have occurred at the institutions to improve student success that are directly related to the implementation of the MAPFF?
2. How has the MAPFF Program influenced tuition and fee rate changes?
3. How have changes in the Massachusetts state appropriations with MAPFF influenced institutional changes in college education delivery or support for student success that then affected access?
4. How does the senior management perceive the impact of performance funding on student access to community colleges?

## Purpose of Study

Management behaviors at community colleges are increasingly mimicking behavior found in the business sector, where profit maximization is a top goal (Dougherty & Reddy, 2011; Levin, 2005). It is for this reason that I argue that as the community colleges in Massachusetts continue to operate within the performance funding process and become more dependent on student outcomes for larger portions of their state allocations, they will reexamine themselves and determine what changes are necessary to maximize their state allocations as determined by the funding formula.

The purpose of this multi-case study was to discover the impact of the performance funding program on the community college open-access mission in Massachusetts. I define impact as actions initiated that decreased affordability for the students and/or actions that restricted enrollments by the institutions. It's important to ensure that opportunities for higher learning are not diminished by tying state appropriations to student outcomes and the achievement of embedded statewide goals.

I examined how the implementation of the MAPFF is impacting the open-access missions of community colleges in Massachusetts. Quantitative administrative and secondary data, quantitative and qualitative surveys, and qualitative interview data was gathered at four institutions for the study. Because Massachusetts is a new adopter of performance funding for community colleges, I focused the review on the data spanning from fiscal years 2014 through 2016.

Because of the findings found in several documented studies reviewed earlier showing that access was negatively affected by the implementation of performance

funding programs, my research focused on operational changes that restrict admissions, recruiting, and enrollment, and increased student costs, as shown in the in Table 4.

Table 4

*Data Collection*

| Restrictive Admissions, Enrollment and Recruitment (R.A.E.R.) | | Research Question Connections | Increased Student Costs (AFFORD) | | Research Question Connections |
|---|---|---|---|---|---|
| Variable | Source | | Variable | Source | |
| Raising Admission Requirements | Surveys Interviews | 1,3,4 | Increased Compliance Costs | Financial Statements Audits; Surveys and Interviews | 2,3 |
| Selective Student Recruitment (Creaming) | Surveys Interviews IPEDS MDHE | 1,3,4 | Increase Costs of Student Support | Financial Statements Audits; Surveys and Interviews | 2,3 |
| Targeting Institutional Financial Aid | Surveys Interviews | 1,3,4 | Tuition and Fee Increases | IPEDS, MDHE | 2,3 |
| Eliminating & Reducing Programs, Courses, and Sections | Surveys Interviews | 1,3,4 | | | |

*Note.* Research questions: 1) What operational changes have occurred at the institutions to improve student success that are directly related to the implementation of the MAPFF? 2) How has the MAPFF Program influenced tuition and fee rates changes? 3) How have changes in the Massachusetts state appropriations with MAPFF influenced institutional changes in college education delivery or support for student success that then affected access? 4) How does the senior management perceive the impact of performance funding on student access to community colleges?

The quantitative administrative and secondary data were obtained from (a) college websites, (b) annual financial statement audits, (c) operating budgets, (d) Higher

Education Information Resource System (HEIRS) data from the Massachusetts Department of Higher Education, (e) Integrated Postsecondary Education Data System (IPEDS), (f) National Center for Education Statistics (NCES), and (g) the National Center for Higher Education Management System (NCHEMS). The qualitative data originated from open- and close-ended surveys and one-on-one interviews of senior administrators at each institution. In the first two years of the MAPFF, significant increases in the state-wide appropriations were added, totaling $20 million in FY2014, $13.1 million in FY2015. However, with the new administration elected in Massachusetts in 2015, the appropriation increase was reduced to $9.1 million in FY2016. As discussed earlier in this chapter, indications of further cuts in state appropriations for the community colleges are suspected but not imposed yet.

**Research Design**

To determine the impact that the implementation of performance funding has on the open-access mission of the community colleges, a multiple-case study was conducted on four of the community colleges in the Commonwealth of Massachusetts. In particular, the study focused on the changes the colleges have implemented to improve their student success performance and how these changes may have intentionally or unintentionally impacted access. Quantitative administrative and secondary data, such as changes in state appropriations, tuition and fee increases, FTE enrollment changes, and performance share percentage changes were examined from FY2014 through FY2016, covering the first three years of the MAPFF. I included the collection and analysis of quantitative administrative and secondary data, quantitative and qualitative surveys, and qualitative one-on-one interview data identified and explained actions taken by the institutions in

reaction to the MAPFF for the allocation of state appropriations. The qualitative data obtained from the interviews were used for a deeper review of the preliminary findings from the quantitative administrative and secondary data.

A case study explores a phenomenon, such as performance funding, bounded by time, place, and manner (Yin, 2009). Case studies are appropriate to explain "how" or "why" events occur when examining contemporary events and when the investigator has little or no control, such as with performance funding in Massachusetts (Yin, 2009). My study used a multiple-case study design on a subset of community colleges in the Commonwealth of Massachusetts to determine the impact that the implementation of performance funding had on the open-access mission of such institutions. Similar to other multiple-case studies, my study's results were expanded to generalize the theory using "analytic generalization" rather than to "enumerate frequencies under statistical generalization" (Yin, 2009; "Traditional Prejudices Against the Case Study Method," para. 4). A multi-case study design offers an advantage over single-case design because the "evidence from multiple cases is often considered more compelling and robust" (Yin, 2009; "What Are the Potential Multiple-Case Designs (Types 3 & 4)," para. 4). Selection of each case in a multiple-case study is important to predict similar or contrasting results (Yin, 2009).

Community colleges share a mission to provide higher educational opportunities for everyone, regardless of socioeconomic circumstance or academic preparedness. The 15 Massachusetts community colleges receive the state appropriations from a performance funding formula implemented in 2014. I reviewed the changes the four case

institutions have implemented that may have negatively impacted access because of the implementation of performance funding in Massachusetts.

The Commonwealth of Massachusetts is incentivizing the community colleges to improve student success and completion by allocating a significant percent of the total state appropriations through the performance share portion of the MAPFF. As documented in the literature review in Chapter 2, research has shown that access has been negatively impacted because of performance funding as the result of restrictive admissions, enrollment, and recruitment practices, and decreased affordability.

Previous research has shown that access has been negatively impacted because of performance funding as a result of institutional actions that restricted admissions, enrollment, and recruitment. Additionally, performance funding programs have also increased institutional costs of review and compliance with the formulas.

To conduct my study, both quantitative administrative and secondary data and qualitative interview data were collected and analyzed to determine how the MAPFF impacted access. The quantitative data collected to demonstrate and associate restrictive admissions, enrollment, and recruitment practices, and decreased affordability to the implementation of the MAPFF included FTE enrollment, performance share percentage, state appropriation amounts, cost of operations, tuition and fee rates charged to the students, and the stop-loss adjustments. Additionally, a quantitative and qualitative survey with multiple-choice and open-ended questions was distributed to the senior administrators at each of the four case institutions.

The qualitative data collected included one-on-one interviews conducted with participants from the case institutions to drill down on the quantitative data obtained to

better understand the perceptions and actions taken by the senior administrators. The open-access mission is likely to be negatively impacted when performance funding leads to decreased affordability and/or restrictive admission, enrollment, and recruitment practices. My proposition is that the open-access mission was negatively impacted in the Massachusetts community colleges in one or both areas as found in the previous research.

To demonstrate and associate restrictive admissions, enrollment, and recruitment practices to the implementation of the MAPFF, quantitative administrative and secondary data were collected and analyzed. The quantitative data included decreases in FTE enrollment, changes in performance share percentage, and state appropriation changes before and after the stop-loss adjustment. Significant decreases in FTE enrollment greater than the sector average, a large percentage change in performance share from 2014–2016, and a significant benefit from the stop-loss adjustment were used to indicate the potential for implementing restricted admissions, enrollment, and recruitment practices.

Responses to the survey and one-on-one interviews were analyzed for each of the case institutions. Analysis of the quantitative data and the qualitative interview data significantly contributed to the findings and conclusions discussed later in Chapters IV and V.

Decreased affordability is demonstrated by an increase in the overall tuition and fee rates charged to the students. To associate tuition and fee increases to the implementation of the MAPFF, quantitative administrative and secondary data were collected and analyzed. The quantitative data included the performance share percentage changes calculated in the MAPFF, the associated change in state appropriations before and after the stop-loss adjustment, and the tuition and fee changes for each of the first

three years of the formula. A significant increase in tuition and fees, together with a significant loss of state appropriations before and after the stop loss, indicate an attempt to replace lost state revenue with tuition and fee revenue directly from the students.

Responses to the survey and one-on-one interviews were analyzed for each of the case institutions. Analysis of the quantitative data and the qualitative interview data significantly contributed to the findings and conclusions discussed later in Chapters IV and V.

The open-access mission is likely to be negatively impacted when performance funding leads to decreased affordability and/or restrictive admission, enrollment, and recruitment practices. My proposition is that the open-access mission was negatively impacted in the Massachusetts community colleges in one or both areas as found in the previous research.

**Data Collection**

My study draws on multiple sources of quantitative administrative and secondary data and qualitative data. Using multiple sources of evidence in a case study improves the construct validity (Yin, 2009).

Table 5

*Data Sources and Their Purpose Served*

| | Data Sources | Data Variables | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Tuition & Fees | Enroll Data | State Funding | Cost Of Ops. | Perf. Share % | Stop Loss Impact | Select Case Study Colleges | Familiar with PF Formula | Perception of Impact of MAPFF |
| Quantitative, Administrative & Secondary Data | MDHE-HEIRS | X | | | | | | X | | |
| | IPEDS | X | X | X | | | | | | |
| | Financial Statement Audits | X | | X | X | | | | | |
| | MA Performance Funding Module | | X | X | | X | X | X | | |
| | Case Study Colleges Web Sites | X | | | | | | | | |
| Qualitative | Surveys of Senior Administrators & Directors | | | | | | | | X | X |
| | Interviews with Senior Administrators & Directors | | | | | | | | X | X |
| | Impact to Access | Affordability | Restricted Admissions | Affordability & Restricted Admissions | Affordability & Restricted Admissions | Affordability & Restricted Admissions | Affordability & Restricted Admissions | Affordability & Restricted Admissions | Affordability & Restricted Admissions | Affordability & Restricted Admissions |
| | Research Question Connections | 2 | 1,3 | 1,2,3 | 1,2,3 | 1,3 | 2,3 | 2 | 1,2,3 | 1,2,3,4 |

*Note.* Research questions: 1) What operational Changes have occurred at the institutions to improve student success that are directly related to the implementation of the MAPFF? 2) How has the MAPFF Program influenced tuition and fee rates changes? 3) How have changes in the Massachusetts state appropriations with MAPFF influenced institutional changes in college education delivery or support for student success that then affected access? 4)How does the senior management perceive the impact of performance funding on student access to community colleges?

**Quantitative administrative and secondary data.** Table 5 summarizes the data sources and the purpose they served. Administrative and secondary data was collected using (a) MDHE HEIRS and IPEDS; (b) financial statement audits; (c) Massachusetts performance funding model, and (d) college websites for fiscal years 2014, 2015, and 2016.

***HEIRS (Higher Education Information Resource System) and IPEDS.*** The HEIRS database is a data warehouse into which each public higher education institution submits data at regular intervals during the year. The warehouse contains data on access, affordability, student success, and quality indicators, and efficiency and effectiveness indicators for the 15 community colleges in Massachusetts. These data are reviewed by the Board of Higher Education for consistent responses before being published online. Once published, the data become the basis for the annual Performance Measurement Report.

Integrated Postsecondary Education Data System (IPEDS) is a system of interrelated surveys conducted annually by the U.S. Departments of Education National Center for Education Statistics (NCES) (U.S. Department of Education, 2014) and contains historical data on enrollment and institutional costs.

***Financial statement audits.*** The audited financial statements prepared by the community colleges are audited by independent accounting firms, are approved and accepted by the college's board of trustees annually and are then made part of the public record. The colleges generally publish the annual financial statement audits on their websites and make them available in their libraries. Additionally, the Department of

Higher Education also has each college's financial statement audits and will provide them when asked.

The audits include a management discussion and analysis (MD&A), as well as notes on the financial statements that contain information that explain the significant changes in operational expenditures, state appropriations, and tuition and fees from one fiscal year to the next, and may provide information that helped answer my research questions. Additionally, the audits are completed as required by the Governmental Accounting Standards Board (GASB) standards, followed by the commonwealth and each of the community colleges. This provided consistently reported data for all the community colleges.

The amount of state appropriations received by the subject institutions was collected from the MAPFF and confirmed in the annual financial statement audits of each of the colleges from 2014–2016. The cost of operations was collected from the Financial Statement audits, and the MD&A from each audit was examined to identify how the changes from one year to the next were explained by the institution's financial leadership.

***Massachusetts performance funding model.*** The performance funding model is a spreadsheet with multiple tabs that summarizes all the data into the first tab labeled "Dashboard." This is the mechanism used to determine how state appropriations will be allocated to each of the 15 community colleges. The model provides details and outcomes using three variables: (a) enrollment variables, (b) completion variables, and (c) alignment variables. The formula first calculates a base share amount (BS) using a weighted average percentage of the enrollment variables. Then the performance share (PS) is determined for each institution's outcomes, using the completion and alignment

variables. Next a flat $4,500,000 is added for the cost-of-operation subsidy (COS). These are then added together to determine the amount of state appropriations before the stop-loss adjustment (ABSL). Finally, the formula then applies the ancillary amount for the stop-loss adjustment (SLA) to arrive at the final state appropriation after the stop-loss adjustment (AASL) to ensure that each college gets at least the minimum increase (Appendix A).

***Survey.*** Case study research methods are designed to illuminate a decision or a set of decisions, why the decisions were made, and how they were implemented (Yin, 2009). The quantitative and qualitative survey asked specific questions (Appendix H) to identify changes the colleges made or are planning to make, and the participant's perceived impacts of those changes on access because of the MAPFF funding. Responses to the survey were grouped, counted, and displayed by case institution representing the quantitative aspect of the survey. The participant's responses on the open-ended questions indicating the changes made at their institutions and their perceptions of the MAPFF impact on the institution and on access, represent the qualitative aspect of the survey. I analyzed participant's responses to understand the results of the quantitative administrative and secondary data and the influence the formula had on the decisions made by the senior administrators of each of the institutions.

In the development of survey questions, I used multiple-choice questions because they are easier to use and score and are more reliable because of the uniformity of responses (Fink, 2013). The multiple-choice questions offered several different methods of responses, including a five-point, ordinal, Likert Scale, multiple answer, and open response (see Appendix H). The Likert Scale questions included the following response

choices: *1) strongly agree, 2) agree, 3) disagree, 4) strongly disagree,* and *5) not sure*. I have removed the neutral choice to divert the respondents from taking the path of least resistance but have included the "not sure" choice because this answer is pertinent to answering my research questions. The surveys were distributed and conducted electronically using Qualtrics. The participants were asked about their knowledge and familiarity with the formula, institutional actions taken because of the formula, and opinions about the potential positive and negative impacts of the formula.

The survey (see Appendix H) was administered to the senior administrators and directors listed previously in Table 6 of each institution. The responses to the structured open- and close-ended survey were analyzed to identify meaningful and similar patterns of responses compared to the findings from the administrative data (Yin, 2009). I used these data to refine the interview protocols for the one-on-one interviews conducted, and to obtain a deeper understanding of the decisions made by the institutions and how they were influenced by the MAPFF.

**Qualitative data.** A purposeful sampling method (Creswell, 2011) was used to select the participant positions (listed in Table 6) at each case institution. The selection of senior and mid-level administrators was supported by various studies of performance funding impacts (Dougherty & Reddy, 2011, 2013; Lahr, et. al., 2014; Tanberg & Hillman, 2013), where these administrators were sought to participate in the surveys and one-on-one interviews because they are operating and making strategic institutional decisions. Each of the participants represent different operational areas of the institution, including financial, academic, student affairs, and institutional research which bring different perspectives on the impact of the MAPFF on access. This type of purposeful

sampling method is called “maximal variation sampling” (Creswell, 2011; “Using Sampling Procedures” para. 2).

***One-on-one interviews.*** Prior to conducting the interviews, I distributed an informed consent form (see Appendix K) detailing the interviewees’ rights as participants in the study (Creswell, 2007). The interviews were recorded, with the approval of the participants, and transcribed for analysis.

Interview protocols (Appendix L) were developed broadly and were refined using the results of the administrative documentary data and survey. The questions obtained greater detail from the participants that explained the results of the quantitative administrative and secondary data and insured my research questions were fully addressed. I conducted surveys and one-on-one interviews with the senior administrators, as shown in Table 6. The interviews were conducted by telephone with three of the four case institutions selected for the study; one institution declined to participate in the study after approval of the IRB. I worked with the president’s office and my peers (chief financial officers) at each of the institutions to schedule the interviews.

The selection of survey and interview participants listed in Table 6 was guided by previous research studies on performance funding programs (Larimer, 2001, Wood, 2007, Dougherty, 2011, 2013). The top administrative leaders were selected by their function of the college and potential to influence change at each of the institutions. These positions are typically members of the president’s cabinet.

Table 6

*Survey Distribution and Interview Participants*

| Each Institution |
|---|
| President |
| Vice President, Administration and Finance |
| Vice President of Academic Affairs |
| Vice President or Dean of Student Services |
| Director of Admissions |
| Budget Manager |
| Institutional Research Director |

The broad interview questions from the proposal were refined after an examination of the findings from the quantitative administrative and secondary data (Appendix L). The interview questions were used to determine the respondents' familiarity with the performance funding formula, how it was used in their strategic planning, and to share their thoughts and opinions on the impact that performance funding has had on their institution.

Follow-up questions were asked during the interviews specific to comments made to the main questions. Probing questions were asked that elicited more details and completed the idea and filled in the missing pieces of information (Rubin & Rubin, 2005).

Since I no longer lived in Massachusetts, and travel and scheduling in-person interviews would be difficult, the interviews were conducted via telephone at mutually agreeable times. The interviews lasted approximately 30–45 minutes and were recorded using an audio device that permitted me to transcribe the conversation. No one other than

me has access to the conversation audio file. The identities of the institutions are not revealed, and aliases were used for the interviewees' names to maintain anonymity.

The interview subjects were informed that my study is to research the impact on access of the Massachusetts community colleges because of the implementation of the performance funding formula. The results of the study will be used to inform future strategy on performance funding, not only in Massachusetts but also nationally. Additionally, their participation will be added to the scholarly work in the field and help a student achieve his doctoral degree. I asked my peers for assistance in following up with the interviewees to make the time to meet with me for the interviews.

The data from the one-on-one interviews sought to identify the motivations of decisions more deeply (Yin, 2009; Seidman, 2006). Responsive interviewing was used to generate a "depth of understanding" to address and confirm or eliminate alternative plausible explanations for those actions taken by the institutions unrelated to the implementation of the performance funding formula (Rubin & Rubin, 2005, p. 30). The questions obtained the participants' interpretation of their institutions' reactions to the performance funding formula as it related to access (Rubin & Rubin, 2005). The findings from the administrative data and the responses to the survey were used to refine and generate the interview questions.

**Quantitative Data Analysis and Case Institution Selection**

A purposeful sampling method, using publicly available documentary data focused on the two documented threats to access for the first three years of the MAPFF, was used to select the case institutions for this multi-case study. The two threats to access researched were decreases affordability (cost of attendance) and restrictive admission,

enrollment, and recruitment practices (enrollment). The variables examined for all 15 community colleges in Massachusetts were: 1) percentage change in MAPFF performance share between FY2014 and FY2016; 2) percentage change in state appropriations before the stop-loss adjustment between FY2013 and FY2016; 3) percentage change in FTE enrollment from FY2013–FY2016; 4) percentage change in tuition and fees from FY2013–FY2016; and 5) total state funding after stop loss for FY2016 only (see Appendices C&D).

Twelve of the 15 institutions were considered for the full study (Appendices C and D). Institutions B and E were not considered for the full study because they were used for the pilot study. Institution D was not considered because I was working there at the time of selection, making it difficult to remove my biases.

Decreased affordability was addressed by comparing the tuition and fee increases and the state appropriation changes. Restrictive admission, enrollment, and recruitment practices were addressed by comparing the performance share percentage and the enrollment changes.

Four case institutions were selected based on the review and analysis of the quantitative data relative to restrictive admission, enrollment, and recruitment practices and decreased affordability. I examined quantitative and qualitative surveys and qualitative one-on-one interviews to understand the actions taken by the senior leadership of the institutions, and how the performance funding formula influenced these actions. My expectations are the high probability case institutions C1 and C2 will show similar results—an impact to access—while the lower probability case institution C3 and the low

probability case institution C4 will show similar results would have less or no impact to access.

Explanatory studies that analyze relationships between variables must address and eliminate competing plausible explanations (Krathwohl & Smith, 2005; Yin, 2009). To address the internal validity of the case study, Yin (2009) recommends incorporating rival explanations as part of the initial design of the case study to help mitigate the risk that some other factor may have had a causal relationship to the outcomes found.

The two impacts to access focused on for my study are affordability and restrictive admissions, enrollment, and recruitment practices. These two threats to access can be motivated by intentional actions instituted by the institutions or unintentional by-products of actions taken. That is, the result of raising tuition and fees to replace a decrease or smaller increase in state appropriations as allocated by the performance funding formula decreases affordability for some students. Additionally, to improve the outcomes measured in the performance funding formula, institutions may have altered their admission, recruitment, and enrollment practices in some way. Both actions are a threat to student access to higher education.

Table 7

*Case Selection Criterion*

| | | | % Change in Performance Share Sector Rank [Smallest Increase] 2014–2016 (Asc. Order) | % Change in FTE Sector Rank [Largest Increase] 2013–2016 (Dec. Order) | % Change in Stage Funding Before Stop-Loss Sector Rank [Largest Derease] 2013–2016 (Asc. Order) | % Change in T&F Sector Rank [Largest Increase] 2013–2016 (Dec. Order) |
|---|---|---|---|---|---|---|
| | | | R.A.E.R. | R.A.E.R. | AFFORD | AFFORD |
| | RANK | Variable | 1 | 2 | 4 | 4 |
| High | 1 | Institution | N | N | N | L |
| | 2 | Institution | A | A | O | F |
| | 3 | Institution | J | L | H | H |
| | 4 | Institution | H | F | K | N |
| Medium | 5 | Institution | G | K | F | H |
| | 6 | Institution | O | J | L | O |
| | 7 | Institution | F | M | J | J |
| | 8 | Institution | K | O | G | C |
| Low | 9 | Institution | M | G | I | G |
| | 10 | Institution | L | H | A | I |
| | 11 | Institution | C | I | C | M |
| | 12 | Institution | I | C | M | A |

*Note 1*. R.A.E.R. stands for restricted admissions, enrollment, and recruitment.
*Note 2*. AFFORD stands for affordability.
*Note 3*. Highlighted cells indicate the institution was selected for full study.

The administrative data gathered and analyzed indicates that all 12 of the eligible community colleges have increased their fee rates over the three-year period between 2014 and 2016. However, the percentage increases in the rates varied ranging from +3.6% to +23.7%, with an average change of +6.4% (Appendix E). Tuition and fee rate increases make the cost of attending a community college in Massachusetts more expensive for students. Additionally, by reviewing the appropriation allocations in the performance funding formula over the first three years of its use, the combination of tuition increases, and appropriation decreases could indicate a negative impact to open access because of decreased affordability. The variables used for each of the 12 institutions eligible for the full study are shown in Table 8. Each of the 12 institutions were ranked from *1* (*highest potential*) to *12* (*lowest potential*) impact.

Examining enrollment declines and simultaneous increases in the performance share percentage before the stop loss on the MAPFF reveal a potential of some type of restrictive admission, enrollment, and recruitment practices. The restricted admissions, enrollment, and recruitment data reveal that 11 of the 12 eligible colleges have experienced full-time equivalent (FTE) declines from 2014–2016, ranging from -2.4%– -13.0%, with an average change of -4.9%. The performance share percentage showed variations over the same period ranging from 0.8%–10.0%, with an average change of 7.0%. The colleges were not penalized for these large changes in performance share percentage due to the stop-loss adjustment. There were also some institutions that received less state funding after the stop loss than before (Appendix D).

The performance share percentage ranked by smallest to largest increase (Table 7) for each institution is a calculated result indicating how well the institutions performed

with student completions and the alignment criterion as defined in the MAPFF (Figures 2 & 3), which determines a significant portion of the state funding received. The percentage change in FTE, ranked largest to smallest increase, and the percentage change in tuition and fee rates, ranked largest to smallest increase, (Table 7) are independent and not determined by the MAPFF.

Each institution shown in Table 7 was ranked in either ascending or descending order from 1–12 for each variable and categorized into three levels of potential negative impact to access (high, medium, and low). High potential is assigned when the quantitative administrative and secondary data variables ranked 1–4, reflecting the highest chance where the institution took actions and changes that either may have negatively impacted access through decreased affordability or restricted admissions and or enrollment and recruitment practices, or both. Medium potential was assigned when the same data variables ranked 5–8, reflecting actions or changes that either may have decreased affordability or restricted admissions, enrollment, and recruitment practices. Low potential was assigned where the same data ranked 9–12, reflecting the smallest chance where the college took actions or changes that either may have negatively impacted access through decreased affordability or restricted admissions, enrollment, and recruitment practices.

The affordability criterion (AFFORD) in Table 7 considers two variables, the percentage change in state funding before the stop loss, ranked from the largest decrease, 1 (high potential), to the smallest decrease, 12 (low potential), and the percentage change in T&F from the largest increase, 1 (high potential), to the smallest increase, 12 (low potential). This combination of large tuition and fee increases and large reductions in

state appropriations before the stop-loss adjustment indicated the potential that institutional actions were taken seeking to replace less state appropriations with tuition and fee revenue, resulting in decreased affordability of attending these institutions. Out of the two threats to access, decreased affordability will be easier to determine.

The restricted admissions, enrollment, and recruitment criterion (R.A.E.R.) in Table 7 considers two additional variables, the percentage change in performance share, ranked from the largest decrease, 1 (high potential), to the largest increase, 12 (low potential), and the percentage change in FTE enrollment declines, ranked from the largest decrease, 1 (high potential) to the largest increase, 12 (low potential). This combination of performance share percentage increases, as measured by the MAPFF, against the change in FTE enrollment declines, may reveal actions taken by the institutions to improve the institutional scores on the MAPFF through more restrictive admissions, enrollment, and recruitment practices. It is anticipated that institutions that fall into the high potential range would have the greatest chance of supporting the conceptual proposition that the MAPFF negatively impacted access through literal replication (Yin, 2009). Alternatively, it is anticipated that institutions in the medium and low potential ranges will reveal contrasting results, no negative impact on access, through theoretical replication (Yin, 2009).

Table 8

*Case Selection Criterion Continued*

| | Average Ranking of R.A.E.R. Variables 1 & 3 | Average Ranking of AFFORD Variables 2 & 4 | Average Ranking of the 4 Variables | % Change in Perf. Share Sector Rank [Smallest Increase] 2014–2016 (Asc. Order) |
|---|---|---|---|---|
| | R.A.E.R. | AFFORD | Both | P. Share % |
| Institutions | Rank | Rank | Calc. | Rank |
| A | 2.1 | 11.0 | 6.5 | 2 |
| C | 11.5 | 9.5 | 10.5 | 11 |
| F | 5.5 | 3.5 | 4.5 | 7 |
| G | 7.0 | 8.5 | 7.8 | 5 |
| H | 7.0 | 4.0 | 5.5 | 4 |
| I | 11.5 | 9.5 | 10.5 | 12 |
| J | 4.5 | 7.0 | 5.8 | 3 |
| K | 6.5 | 3.5 | 5.0 | 8 |
| L | 6.5 | 3.5 | 5.0 | 10 |
| M | 8.0 | 11.5 | 9.8 | 9 |
| N | 1.0 | 2.5 | 1.8 | 1 |
| O | 7.0 | 4.0 | 5.5 | 6 |

Note 1. High Potential Range 1–4
Note 2. Medium Potential Range 5–8

Table 8 shows that institutions N and F, with an average ranking of 1.8 and 4.5 respectively for all four variables, decreased affordability (AFFORD) and restricted admission, enrollment, and recruitment (R.A.E.R.) were selected for the study because they exhibit the best chance of literal replication of a negative impact to access.

For the selection of the third and fourth case institutions, additional variables were considered. The first additional variable used was the FY16 state funding dollars awarded after the stop loss adjustment. This variable is ranked from smallest to the largest and indicates the size of the institution based on the final state funding dollars in FY16. I believe that institutions receiving less state funding would rely more on tuition and fees

to effect changes in their institutions to make improvements in the key areas measured by the MAPFF to receive more state funding in the subsequent years.

The second additional variable was the percentage change in performance share over the three years of the study, FY2014–FY2016, ranked from lowest to highest (Table 8). The percentage change in performance share was chosen because it reflects the impact the formula had on each of the institutions over the first three years of the formula rather than the impact of any single year. The MAPFF calculates and uses the performance share percentage to determine the allocation amount based on performance, the second component of the formula, focused on student success measures, before the stop-loss adjustment. Lower performance share indicates weaker performance in the metrics measured by MAPFF (Table 3), when compared to all of the institutions in the sector and would lead to less state funding should the stop-loss adjustment be phased out.

Institutions A, G, H, J, K, L, and O all fell within the medium potential range for the combined (AFFORD) and (R.A.E.R.) variables and were considered for the study (Table 8). However, when considering decreased affordability by itself, only institutions G and J fell within the medium potential range, with an 8.5 and 7.0 respectively. To select the third case institution, I reviewed which of these two institutions received less total state funding because I believed that this, together with the (AFFORD) variable, would have a moderate chance of revealing an impact to access. Institution J was the third institution selected for the study because it fell into the medium potential range for both of the (AFFORD) variables and the (R.A.E.R.) variables and received slightly less state funding than institution G.

The fourth and final institution selected for the study was institution C. The average ranking for institutions C, I, and M all fell within the low potential range for the combined (AFFORD) and (R.A.E.R.) variables, with combined scores of 10.5, 10.5, and 9.8 respectively, and were considered for the study (Table 8). However, institution C was the fourth institution selected for the study because it received the most state funding in FY2016 after the stop-loss adjustment and had the second highest performance share score out of all 12 institutions. This combination of the most state funding and the second highest performance share indicated the lowest potential for a negative impact to access because there would be little to improve upon as far as the MAPFF metrics are concerned. The four institutions, N, F, J, and C were ranked higher potential to lower potential, respectively, for impacting access because of the MAPFF. These four institutions were examined in the qualitative portion of my study.

Performance funding programs embody theories of action (Argyris & Schon, 1974) to improve student outcomes. Using revenue maximization theory, the MAPFF, through "material incentives that mimic the for-profit motive for business" (Dougherty & Reddy, 2011; Levin, 2005), incentivizes the community colleges in the commonwealth to improve student outcomes. The MAPFF Program allocates all of the state appropriations based on three formula components described earlier (Table 2): base share (BS), which considers the enrollment variables; performance share (PS), which includes the completion and alignment variables; and cost-of-operation subsidy (COS). The formula culminates with a composite score for each of the 15 community colleges that determines the amount of state appropriation before the stop loss adjustment (ABSL). A greater amount of state appropriations is achieved by institutions outperforming other institutions

on the base share (BS) and the performance share (PS) components of the formula. A review of each institution's results from the MAPFF for each of the first three years of use was conducted to identify colleges with decreased state appropriations before the stop-loss adjustment.

The expectation is the MAPFF influenced institutional changes that negatively impacted access for the case institutions that have a high potential composite score of the selection criteria and not influenced changes that negatively impacted access for the case institutions that have a low potential composite score of the selection criteria. As delineated in the literature review, these negative impacts have been cited in other research as indicators for negative impacts of performance funding programs in other states. The case selection process is similar to several studies on the unintended impacts of performance funding referenced in the literature review (Lahr, et. al., 2014; Dougherty, et. al., 2014).

**Survey and Interview Data Analysis**

The results of the surveys and the interviews of the senior administrators from case institutions 2, 3, and 4 were examined. Unfortunately, only one participant from the Case 1 institution completed the survey, and no one participated in the interview portion of the study after giving IRB approval. The Case 1 institution's unwillingness to participate is unfortunate because the quantitative administrative and secondary data displayed the highest potential for the leaders of the institution to have taken actions that would have negatively impacted access. Also, of note, the financial impact of the MAPFF is more extreme at the case 1 institution. The MAPFF results showed a reduction in state appropriations of 24.94% before the stop loss adjustment, indicating the lowest change in

performance share percentage. The stop loss adjustment significantly helped the case 1 institution with receiving 16.48% more appropriations after the adjustment. The data also show the case 1 institution increased tuition and fee rates by 11.41% between FY2013 and FY2016. Although the data from the remaining three participating case institutions support the findings and helped answer the research questions, the number of institutions was a relatively small percentage of the total population. The data was manually coded using multiple first cycle and second cycle coding methods (Saldana, 2009). The First Cycle coding methods used were the Attribute and Exploratory methods (Saldana, 2009). The attribute coding included the demographic information about the case institutions and the participant characteristics. Attributes and characteristics, overall enrollment size of the institutions, and the participants' position title and tenure of employment at the institutions were used. The exploratory method of coding included the holistic and basic elements of the data compiled into themes (Saldana, 2009). Provisional data coding was used under this method, employing a predetermined start list set of codes that were developed from the anticipated categories and from other studies referenced in the research in the literature review (Saldana, 2009). This list of coding was consistent with the two threats of access being studied, decreased affordability and restrictive admissions, enrollment, and recruitment practices.

The second cycle coding method used was pattern coding (Saldana, 2009). Pattern coding grouped the summaries of the first cycle coding into a smaller number of categories or themes. The identification of themes that came from the data was grouped and summarized into categories under the two threats of access. With the relatively small amount of data, both first and second cycle coding was completed manually. The coded

results of the survey and interview data of the institutional leaders are found in Appendices N and O.

The coded results were then compiled and compared against the two themes of access impact: (a) affordability; and (b) restriction of admissions, enrollment, and recruitment. When analyzing and coding the data, a third theme emerged. Similar and recurring responses were received from each of the case institutions that the MAPFF is insignificant and an unimportant measure of performance. Due to the stop-loss adjustment, not only did no college received less state appropriations between 2014 and 2016, but they received at least a 3.5% increase in FY2014 and FY2015, and a 2.5% increase in FY2016 regardless of their performance outcomes as measured by the formula.

Finally, a cross-case analysis was also conducted to aid in the identification of similar or dissimilar patterns of results on decreased affordability and/or restrictive admission, enrollment, and recruitment practices and identify replication.

**Cross-Case Analysis**

A cross-case analysis technique is appropriate to use when a case study has at least two individual cases (Yin, 2009). All three cases, (C2, C3, and C4 institutions) were examined together using a cross-case synthesis analytical technique (Yin, 2009), to understand and identify if either or both threats to access, decreased affordability, and restrictive admission, enrollment, and recruitment practices, was present, as well as how the performance funding formula influenced the results. The review of these three cases helped support my proposition of a negative impact on access. The findings of all three individual case studies were compiled, coded, and reviewed to reveal the findings as decreased affordability, restrictive admissions, enrollment, and recruitment. The overall

pattern of findings compiled and examined was used to identify similar patterns that supported and contradicted my proposition that the MAPFF negatively impacted access.

## Validity and Reliability

Throughout the study, I used the four tests of validity "common to all social science methods" (Yin, 2009; "Criteria for Judging the Quality of Research Designs," para. 3). Yin, (2009) describes four tests the researcher should use to demonstrate the quality of the research study: (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability. The construct and reliability tests were addressed in the data collection phase of the study. The external validity was addressed as part of the overall research design. The internal validity was addressed during the data analysis phase.

**Construct validity.** Construct validity identifies correct operational measures for concepts being studied (Yin, 2009). The participants in my study perceived their institutions were not getting enough funding from the state from the MAPFF. To understand this perception, multiple sources of information were used, including quantitative administrative and secondary data and qualitative data to improve credibility and reliability of the findings. Actual state appropriation amounts, the annual increases for each of the 15 community colleges, and the total annual appropriations for the sector were examined from immediately prior to the study period and during the study period. The stop-loss adjustment for each of the case institutions was also examined to determine the impact it had on their perception. The data collected and analyzed did not support the perceptions of the senior administrators that the state did not provide sufficient increases in funding for their institutions through the MAPFF.

To demonstrate decreased affordability (AFFORD), the following quantitative administrative and secondary data variables were collected and analyzed: a) state appropriation amounts and change percentages before and after the stop-loss adjustment; b) tuition and fee rates and change percentages; and c) cost of operations amounts and change percentages. To demonstrate restrictive admission, enrollment, and recruitment practices (R.A.E.R), the following data variables were collected and analyzed (a) FTE enrollments and change percentages, and (b) performance share percentages and changes. Additionally, I sought responses to specific survey questions (Appendix H) and one-on-one interview questions (Appendix L) that provided feedback on the motivations, the decision-making processes used, and the perceptions of the senior administrators in reaction to the MAPFF. Previous research has found that some colleges subject to a performance funding formula, have reported increased cost of review and compliance and initiated restrictive admissions and enrollment practices (Dougherty et al., 2013, 2014; Dougherty & Reddy, 2011, 2013; Lahr, et al., 2014; Latimer, 2001; Tandberg, et al., 2014; Wood, 2007).

**Internal validity.** Yin (2009) describes internal validity for exploratory case studies where the researcher infers that a particular event results from some earlier occurrence. Drawing upon previous research where implementation of a performance funding formula has led to negative consequences, such as restrictive admissions and increased cost of compliance and review, I developed the following protocol to capture data necessary to determine how the MAPFF influenced access through decreased affordability (AFFORD) and restrictive admissions, enrollment, and recruitment practices (R.A.E.R.): (a) research questions, (b) case study research design, (c) conceptual

framework, (d) selection of the case institutions, (e) quantitative and qualitative data collection procedures, (f) analysis of the data collected, (g) discussion of the findings, and (h) conclusions. I based my conclusions on the robust quantitative administrative and secondary data and the qualitative data collected and analyzed during the study. Rival or alternate explanations were anticipated and enumerated to help address the causes of changes that may point away from the MAPFF as the reason for an impact to access (Appendix G).

**External validity.** Yin (2009) described analytic generalization as when a previously developed theory is used as a template to compare the results of the case study. Selective admission, enrollment, and recruitment actions were found in previous case studies on both two- and four-year public institutions in multiple states (Dougherty & Reddy, 2011, 2013; Dougherty et al., 2014; Rutherford & Rabovsky, 2014). I used four case institutions in my study to test the proposition that through the implementation of a performance funding formula, the MAPFF, access was negatively impacted through restrictive admissions, enrollment, and recruitment (R.A.E.R.) and through decreased affordability (AFFORD). Case institutions C1 and C2 were selected and grouped as high potential to negatively impact access. Case institutions C3 and C4 were selected and grouped as lower and low potential to negatively impact access respectively.

I reviewed and analyzed how the four case institutions impacted student access in reaction to the implementation of the MAPFF in 2014. The MAPFF allocates all of the state appropriations for the 15 community colleges. Although the surveys and other quantitative and qualitative data were used to gather some information from participants

of the four case institutions, analytic, rather than statistical generalization, was used to analyze the findings.

**Reliability.** Reliability is demonstrated by ensuring that the operations of a study can be repeated with the same results (Yin, 2009). This case study protocol operationalizes and documents the process that was followed in the execution of the study. Outlining and documenting the process enhances reliability because it allows the study to be repeated and it minimizes errors and biases. The clear definition of the study procedures, sampling, design, and analysis, described in the study protocol, contribute to reliability. As described earlier, I used publicly available data to analyze and select the case institutions for this multiple case study. Specified positions at each case institution were invited to complete the online survey and the one-on-one interview. Positions selected for knowledge of the MAPFF helped me obtain the balance of the data that answered the research questions about the impact on student access. The data from the case institutions were analyzed individually and using a cross-case analysis technique.

**Data dependency.** To ensure the validity of the data, I used the highest quality data from recognized sources. The sources of the data outlined above for each of the four case institutions were obtained directly from the Massachusetts Department of Higher Education HEIRS website, from the Federal IPEDS higher education data repository, and directly from the institutions themselves. The HEIRS data are submitted directly by each institution annually and are the most reliable and consistent information available. Additionally, other researchers can easily find this data. The identical survey was administered to the senior leadership at each of the case institutions. The interview protocol began with broad and general questions for each institution but was customized

based on the survey responses to provide clarity and ensured that I've interpreted the survey data correctly. Data triangulation occurred from the three data gathering methods outlined to determine alignment, either supporting or contrasting the theoretical argument that the MAPFF negatively impacts access. This triangulation cross-checked the data and increased validity (Figure 2). Evidence from each of the case studies added more compelling and robust findings that achieved reliability and validity of the results.

Creswell (1994) discussed the need to find convergence among sources of information and to employ different methods of data collection. Yin explains that when two or more cases are shown to support the same theory and do not support a rival theory, that replication is achieved (Yin, 2009).

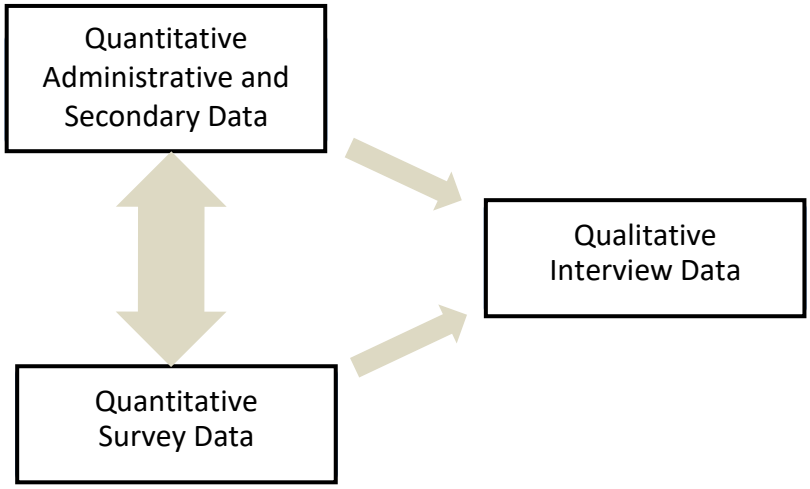


*Figure 2.* Data triangulation.

My study's method of validity and triangulation followed several of the case studies researched. In the study of the 20-year history of performance funding at the

University of Memphis, Latimer (2001) collected and examined documentary data, as well as interviews and observations. The researcher used the documentary data to corroborate and augment the evidence found from the other sources. In the Woodland Hills case study, the researcher used interviews as the primary method of inquiry. However, the researcher also used documentary data to corroborate information gained from the interviews.

In my study, quantitative administrative and secondary data, quantitative and qualitative survey, and qualitative interview data were used to corroborate and triangulate the information captured and thus improved the data analysis. Alternative explanations, (Appendix G), include several reasons for increasing tuition and fee rates that may be unrelated to the performance funding formula. To identify and eliminate alternative explanations for decreased affordability and restricted admission practices, I summarized the qualitative data summarized and identified competing issues. Competing issues unrelated to the MAPFF guided me to listen to the participants' interview responses carefully and probe for the actual causes. The senior administrators' interview responses teetered between factual data and their perceptions of the same data. The gap between factual and perceptional responses are discussed further later in Chapter IV. I coded and analyzed the survey data and one-on-one interviews. The variables in Appendices C and D for fiscal years from 2013, the year before the start of the MAPFF, through 2016, the third year of using the formula, were compiled and compared against the average results of the 15 institutions for the same period.

**Researcher Bias**

As a former vice president of finance and operations, and a senior, cabinet-level administrator at a community college in Massachusetts, I became very familiar with the performance funding formula used to allocate state appropriations to all 15 community colleges in Massachusetts. Additionally, as a senior level administrator for several years in New Jersey, I spent a considerable amount of time working with community college funding not allocated via a performance funding formula. I have also worked extensively on developing institutional strategic plans and how they effect change that involves both student access and success. These experiences gave me a strong foundation and framework to position and develop my study.

As the vice president of finance of a community college in Massachusetts, I bring a valuable component for my study rather than a bias to be eliminated. In my capacity as a senior administrator at a community college in Massachusetts, I participated in discussions with the president and other senior members of the president's cabinet about the MAPFF outcomes each year at my institution. I also participated in meetings with the vice presidents of finance at most of the other community colleges and leaders from MDHE, where the MAPFF and the amount of state appropriations were discussed.

It was my responsibility as the Vice President of Finance to prepare a balanced annual operating budget for my former institution. Preparing the operating budget is part of the responsibilities of the vice president of finance at all of the community colleges in Massachusetts. A balanced budget is achieved when the total forecasted revenues are equal to the total forecasted expenses. An accurate revenue forecast will help facilitate better decision making on the expense plans and better control the operational budgets.

There are two primary sources of revenue for my former institution, and for all of the community colleges in Massachusetts, state appropriations and tuition and fees. The forecasted tuition and fee revenue equal the sum of the projected student enrollment credit hours times the tuition and fee rates (minus institutional financial aid). As explained earlier in the chapter, revenue from state appropriations is determined by the MAPFF. Most of the community colleges in Massachusetts seek approval for their new fiscal year budgets prior to the end of their current fiscal year (July 1 to June 30). The results of the MAPFF calculations that determine exactly how much state appropriations will be awarded to each individual institution, are not available until after the new fiscal year budgets are adopted. When trying to project the state appropriation revenue for a new fiscal year, the minimum guarantee built into the formula becomes the initial budgeted amount expected from the state. The stop loss adjustment portion of the MAPFF guaranteed a minimum increase in each of the first three years of the formula (FY2014 – FY2016). Forecasting any amount exceeding the minimum guarantee is speculative.

Total expenses for the community colleges in Massachusetts and elsewhere, consist mostly of instructional, student, and institutional expenses. Staff and faculty salaries and benefits make up a majority of the expenses (80% or more). Additionally, utility costs, information technology costs, and facilities costs regularly increase each year.

In the preparation of the new fiscal year budget, when the projected expenses exceed the projected revenues, strategic decisions must be made at the senior administrative level to correct this imbalance. In my experience at my former institution

in Massachusetts and in New Jersey, obstacles exist that make it difficult to reduce expenses in a significant way. Staff and Faculty union contracts stipulate multi-year salary increases, conditions when reductions in force must be met, as well as other negotiated terms that impact costs. In the flat or decreasing enrollment environment taking place in Massachusetts during the study period, the total revenue from tuition and fees would decrease. It was difficult to forecast an increase in expenses that stayed within the amount of the guaranteed minimum state appropriation increase from the MAPFF. Therefore, in order to present a balanced budget to the board of trustees, I and the other senior administrators at my former institution, made strategic decisions on how much to increase the fee rates the students pay and speculate on the enrollment change. We also speculated on how much our student retention, persistence, and other student success efforts will impact our MAPFF results and provide more state appropriations beyond the guaranteed minimum increase. Our student success efforts typically involved hiring more faculty and staff advisors, developing new first year experience programs, purchasing early alert and case management applications, and more. These efforts added to the projected expense increases. As a result of my experience, I theorized that the other community colleges would make similar decisions. Being intimately involved with my former institution's budget preparation and strategic decision making, I brought these preconceptions and biases about increased costs and potential restrictive measures restricting access to the community colleges to the study.

To mitigate the risk of researcher bias, I used multiple sources of rich administrative data, a survey with both closed- and open-ended questions, and one-on-one interviews with multiple subjects with financial, academic, and student services

responsibilities at each of the four institutions. Since I was part of the field that my study is taking place in, there is an inescapable influence that will be present in the interviews. Reflexivity is the fact that "the researcher is part of the world he or she studies" (Maxwell, 2013; p 125). I minimized this influence as much as possible and avoided leading questions during the interviews, and actively listened to the responses of the interviewees, taking notes and recording the interviews. The data gathered from the interviews were examined after all of the interviews were completed. Seidman (2006) states that analyzing the data during the interviews should be avoided as much as possible to avoid imposing meaning from one participant's interview onto the next. After all the interviews, I analyzed the transcripts and carefully coded and interpreted the data.

The coded interview data was added to the cross-case analytic table with the results from the quantitative administrative and secondary data and quantitative survey data that identified patterns of responses.

**Pilot Study**

To help me refine my data collection plans and methodologies and identify possible problems and set the stage for the actual study, I conducted a pilot study with two community colleges in Massachusetts, institutions B and E, that were not selected as one of the institutions for my multiple-case study (Appendix D). The pilot study field-tested the survey and interview protocols and led to modifications in content and delivery that helped me gather the data to answer my research questions.

**Limitations of the Study**

There are five principle limitations to my study, with each discussed below. First, my study was restricted to a single state, which limited the scope of the research. The

study only focused on the Massachusetts Performance Funding Formula, first implemented in FY2014, and its impact on four community colleges in the commonwealth through FY2016.

Second, a relatively small number of senior administrators ultimately participated in the survey. Twenty-eight senior administrative leaders were invited to complete the survey, and after several months of reminders, only 13, or almost 50%, completed the survey. Thus, my interpretations are influenced by a small number of community college administrators.

Third, all quantitative and qualitative research is subject to my analysis and interpretation (Maxwell, 2013). Because of my former senior financial administrative position with a community college in Massachusetts, and my familiarity and use of the MAPFF, the creation of the survey and interview protocols, interactions with the interviewees, and my data analysis, my subjectivity was unavoidable. However, this subjectivity was mitigated by conducting a pilot study with two community colleges in Massachusetts and by working closely with the chair of my dissertation committee, who was a former community college president at multiple institutions (not in Massachusetts) and is intimately familiar with the funding and operations of community colleges.

The Fourth limitation is the scope of my study was to determine how the MAPFF impacted student access and did not attempt to determine how the MAPFF impacted student success and degree completion. There were no attempts to mitigate this limitation, although no findings or conclusions are presented on this topic.

Finally, no attempt was made to investigate the perceptions of the senior administrators that not enough funding was allocated by the MAPFF. The MAPFF

allocated 100% of the state appropriations for the community colleges through the formula and increased the total appropriations each year during the study period. The perceptions of the senior administrators' actions were incentivized, although the data did not reflect the reality of MAPFF. Future research should focus more on perceptions of the senior administrators.

**Conclusion**

As mentioned in the literature review, the research conducted thus far on performance funding has focused on the development of and the process of working with performance funding formulas and indicates some positive impacts. Despite the positive impacts of the performance funding process as discovered in the research conducted to date, the research indicates that existing performance funding programs encounter significant obstacles to success and produce significant unintended impacts on students and colleges (Smith, 2015; Tandberg & Hillman, 2011; Dougherty & Reddy, 2011), such as restrictive admissions, enrollment and recruitment practices, relaxing academic standards to improve student success, and/or making it too expensive for some students to attend a community college because of increases in tuition and fees, all of which indicates a negative impact on student access.

The significance of my study was to determine if community colleges in Massachusetts are turning students away from a chance of a college education because of the imposition of performance funding. Massachusetts is one of a number of states that have adopted some form of performance funding, so it is important for the field to understand the phenomena and its impact on students. Understanding how Performance

Funding affects access will inform decision-makers at the policy and college level on future strategy.

# Chapter IV

## Findings

This chapter presents the findings from a multi-case study of the impact a Performance Funding program has on the open-access mission at a sample of community colleges in the Commonwealth of Massachusetts. The chapter begins with a review of my study and builds upon existing research, followed by the research questions. Next the quantitative administrative and secondary data and the qualitative data collected are discussed. The chapter concludes with a summarization of six significant findings.

### Building Upon the Research

Evidence has been found in prior research that performance funding has had a negative impact on access through creaming and bypassing certain high schools for recruiting because of low success rates and other restrictive admission, enrollment, and recruitment practices. Evidence was also found that performance funding programs have increased costs of review and compliance for the institutions. My study builds on findings that performance funding has negatively impacted institutions in various ways and examines the direct impact on the open-access mission of community colleges with its focus on two threats to access, decreased affordability and restrictive admissions, enrollment, and recruitment. The results of the study address how the MAPFF negatively influenced the open-access mission of community colleges in Massachusetts.

The Department of Higher Education of the Commonwealth of Massachusetts espoused three primary goals for their public higher education institutions. The first goal was the continued affirmation of the primary mission of the community colleges in Massachusetts to provide open access to high quality, affordable higher education for the

states' citizens. The second goal was the creation of the Vision Project to strengthen academic performance, while holding the public institutions accountable to the public for results (MDHE, 2013). The third goal, a sub-component of the Vision Project, was the development of the Massachusetts Performance Funding Program (MAPFF) to allocate the state appropriations and incentivize the community colleges to improve student success and completion by allocating a significant percent of the total state appropriations through the MAPFF.

My study's proposition is that the open-access mission will be negatively impacted in the Massachusetts community colleges in the form of decreased affordability and/or restrictive admissions, enrollment, and recruitment practices. As documented in the literature review in Chapter II, research has shown that these two threats to access have been found in other studies researching the impacts of the use of a performance funding formula to allocate state appropriations.

**Quantitative Administrative and Secondary Data**

Through examination of quantitative data, four institutions were selected for the study, two with a high probability of negatively impacting access, one lower potential and one low potential of negatively impacting access. My expectations are the high probability case institutions 1 and 2 will show similar results and demonstrate an impact to access, while the lower probability case institution 3 and the low probability case institution 4 will show similar results and would show a lower impact to access.

The four case institutions, grouped into the high potential to low potential for impacting the open access mission, are listed in Table 9, with two additional variables

added from the financial statement audits prepared by independent auditing firms: (a) the operating expense change percentage, and (b) operating cost per FTE percentage change.

As a reminder, high potential is assigned when the quantitative administrative and secondary data variables ranked 1–4, reflecting the highest chance where the institution took actions and changes that either may have negatively impacted access through decreased affordability or restricted admissions and or enrollment and recruitment practices, or both. Medium potential was assigned when the same data variables ranked 5–8, reflecting actions or changes that either may have decreased affordability or restricted admissions, enrollment, and recruitment practices. Low potential was assigned where the same data ranked 9–12, reflecting the smallest chance where the college took actions or changes that either may have negatively impacted access through decreased affordability or restricted admissions, enrollment, and recruitment practices.

Table 9

*Quantitative Data*

| Results | C1 – High | C2 – High | C3 – Lower | C4 - Low |
|---|---|---|---|---|
| Increase T&F & Additional Fees (Actual) | 11.41% | 16.52% | 6.27% | 5.67% |
| FTE Decrease (Actual) | -12.94% | -7.52% | -5.28% | 0.52% |
| State Appropriations $ FY16 – FY13 Before SL (Calc) | $32,119 | $70,174 | $52,834 | $91,546 |
| State Appropriations % FY16 - FY13 Before SL (Calc) | -24.94% | 20.29% | 38.3% | 60.93% |
| State Appropriations $ FY16 – FY13 After SL (Actual) | $41,554 | $70,698 | $50,247 | $84,531 |
| State Appropriations % FY16 – FY13 After SL (Actual) | 16.48% | 23.14% | 29.77% | 44.52% |
| State Appropriation $ Change FY16 - FY13 After SL (Calc vs. Actual) | $9,435 | $524 | $-2,587 | $-7,015 |
| Stop Loss Impact % FY16 – FY13 (Actual) | 29.4% | 0.7%% | -4.9% | -7.7% |
| Operating Expense Change (Calc) | 3.8% | 4.8% | 12.8% | 9% |
| MAPFF Performance Share % Change (Actual) | 0.80% | 8.0% | 4.9% | 9.6% |
| Impact on Access | - | Yes | Yes | Yes |

**Tuition and fees.** As explained previously in Chapter III, the MDHE has determined and set the level for the tuition component of the total tuition and fees charged to students. The MDHE requires the colleges remit all in-state revenue received from the tuition component back to the commonwealth (Malone, 2014). All out-of-state tuition revenue is retained by the colleges. The Department of Higher Education in Massachusetts has determined and set the level for the tuition component, remaining

largely unchanged for more than a decade, and only permits each college to change the variable fee component. Students pay a single rate, which is referred to as the tuition and fee rate. Other fees established and changed individually by each college, such as student activity fees, facilities, or parking fees, may be components of the variable fee portion of the total tuition and fee rate or may be separately charged.

The tuition and fee increase for Case 1 and Case 2, 11.41% and 16.52% respectively, exceeded the 15-community college sector increase of 8.2%. Alternatively, the tuition and fee increase of 6.27% for Case 3 and 5.67% for Case 4, are less than the sector average. Tuition rates are generally established by the Department of Higher Education in Massachusetts. However, each college has the autonomy to change their fees rates to accommodate their individual institutional financial needs.

**State appropriation change before stop loss.** The percentage changes shown in Table 9 represent the average difference between the total appropriations before the stop-loss adjustment, in comparison to the previous year over the first three years of the MAPFF (FY2014–FY2016). Each case institution would have received the total allocation of appropriations before the stop loss based solely on the results of the performance metrics within the MAPFF had the stop-loss adjustment not been applied. The MDHE initially stated that the stop loss adjustment would be phased out after four years.

Case 1 would have lost a significant amount of state appropriations and should be motivated to initiate actions to improve outcomes as measured by the MAPFF. Case 2 would have gained but should have been motivated to improve because it saw the other institutions receiving significantly larger shares. The high gains for the Case 3 and 4

institutions suggest they were doing a good job as measured by the MAPFF and had limited incentive to take actions to improve.

**Performance share percentage.** As previously explained, there are four components that make up the state appropriation allocation using the MAPFF for each institution: (a) base allocation, (b performance allocation, (c) flat cost of operation subsidy, and (d) stop loss adjustment (Table 3). The base allocation is determined by the enrollment variables as defined by the formula. The performance allocation is determined by the student success, completion, and alignment variables in the formula and is added to the base share. The performance share percentage, the second component, indicates each institution's results on student success outcomes on the MAPFF metrics in relation to all the community colleges in Massachusetts. The third component, the flat cost of operation subsidy, is $4,500,000 given to each institution regardless of performance or size. The base allocation, the performance share percentage, and the cost-of-operation subsidy is used to determine the amount of the state appropriation that would be allocated by the formula before the application of the "hold harmless" or stop-loss adjustment amount.

The performance share of the sector of 15 community colleges in Massachusetts averaged 6.7%. Institutions with a performance share less than the average 6.7%, indicate lower performance as measured by the MAPFF compared to the other institutions in the sector and would receive a smaller proportion of the total state appropriation allocation before the stop loss adjustment. Conversely, institutions with a performance share greater than the average 6.7%, indicate higher performance as measured by the MAPFF

compared to the other institutions in the sector and would receive a greater proportion of the total State appropriation allocation before the stop-loss adjustment is applied.

Over the first three years of the MAPFF, the Case Institution 1, high potential to impact access, showed very little improvement, while Case Institutions 2, 3, and 4 showed better increases in performance share. The Case 2 institution was also ranked as high potential to impact access because it ranked second in the R.A.E.R. and AFFORD variables (Table 8). However, it scored better in the performance share percentage, the second component, than the sector average. The Case 3 institution was ranked as lower potential to impact access. The Case 4 institution, low potential to impact access, showed the most improvement in performance share percentage, the second component, over the first three years of the MAPFF, showing they already have strong performance on the measures. Although Case Institutions 3 and 4 were ranked as lower and low potential to impact access respectively, both were found to have negatively impacted access. In fact, the high potential Case Institution 2, and both low potential Case Institutions 3 and 4, were found to have negatively impacted access, although this finding was not expected. During the one-on-one interviews, the respondents from the Case Institution 3 indicated that the institution had to reduce student aid by $600,000 because of the perceptions of a lack of funding from the state. The respondents from the Case 4 institution indicated that part of that college's $10 per-credit-hour fee increase was due to their perception of a lack of funding from the state. Note, the Case 3 institutions received an additional $3.277 million in state appropriations in FY2016 beyond what it received in FY13. The Case 4 institution received an additional $7.8 million in state appropriations in FY2016 than it received in FY13.

**Percentage change in operating expenses.** Operating expenses were collected from the annual financial statement audits from the four case institutions and were not used in the case selection criteria. Two of the four case institutions showed increases in operating expenses that were greater than the sector average. Case 3, 12.8% and Case 4, 9% exceeded the sector average increase of 7.92%. Case 2 increased less than the sector average with a 4.8% increase. Case 1 had the least increase in operating expenses, with a 3.8% increase. Although both the Case 3 and 4 institutions would have received much higher state appropriations before the stop-loss adjustment, 38.37% and 60.93% respectively, Case 3 institution received $2.6 million less state appropriations after the stop-loss adjustment and the Case 4 institution received $7 million less. Case 3 and 4 received larger state allocation increases giving them more money to spend. The increase in expenses greater than the sector average at the Case 3 and 4 institutions may indicate potential actions taken by these institutions over the FY2014–FY2016 period that increased costs in response to their outcomes on the MAPFF even though the Case 3 institution was categorized as lower potential and Case 4 as low potential threat to access. The responses to the survey and interview questions provided more detail to help with the assessment of the increases at these institutions and how they chose to use their increased funds.

**Stop-loss impact.** The stop-loss adjustment added to the MAPFF went beyond preventing a loss of appropriations found in previous studies. Instead, the stop-loss added to the formula guaranteed that each institution would receive a minimum increase of 3.5% in FY2014 and FY2015, and 2.5% in FY2016. Table 9 shows that Case 1 institution would have received 24.94% less state appropriation over the first three years of the

MAPFF had it not been for the stop-loss adjustment. Case 2, Case 3, and Case 4 all would have received more appropriations before the stop loss, 20.29%, 38.37% and 60.93% respectively. However, because of the stop-loss feature of the formula, Case 3 and 4 institutions received less appropriations after the stop-loss adjustment than they would have before the stop-loss adjustment over the three years under study. Case 3 and 4 institutions still received strong increases after the stop-loss adjustment. This finding will be discussed in more detail below.

**State appropriation increases.** The state increased the total appropriation for the community colleges in each year of the first three years of the MAPFF (2014–2016). The FY2014 increase was $20 million, 9.6%; the FY2015 the increase was $13.1 million, 5.8%; and the FY2016 increase was $9.1 million, 3.8% for a total over the first three years of $42.3 million. This data is important because the participants from each of the four case institutions, indicated during the interviews, that the state has added little new funding to be allocated by the MAPFF.

Prior to the collection and analysis of the surveys and interview data, review of the quantitative data indicated actions taken by the institutions to decrease affordability and restrict admissions during the initial three years of the MAPFF implementation. All 15 community colleges received more state appropriations in each of the three years under study because of the stop-loss adjustment guarantee. Case 1 institution received a $9.435 million increase in state appropriations after the stop-loss adjustment overall (calculated vs. actual), increased tuition and fee rates 11.41, and experienced a 12.94% decrease in FTE enrollment (Table 9). The Case 2 institution received a small increase in state appropriations of $523.7 thousand after the stop-loss adjustment overall (calculated

vs. actual), increased tuition and fee rates 16.52%, and experienced a 7.52% decrease in FTE enrollment (Table 9). The Case 3 institution received $2.587 million less in state appropriations after the stop-loss adjustment overall (calculated vs. actual), increased tuition and fee rates 6.27%, and experienced a 5.28% decrease in FTE enrollment (Table 9). The Case 4 institution received $7 million less in state appropriations after the stop-loss adjustment overall (calculated vs. actual), increased tuition and fee rates 5.67%, and experienced a 0.52% increase in FTE enrollment (Table 9). Each of these case institutions showed increases in costs and increases in tuition and fee rates that the students pay, and cases 3 and 4 had diminished appropriations as a result of the stop loss adjustment. The Case 4 institution is the only institution showing a slight increase in the FTE enrollment.

The minimum state appropriation increases for each institution were 3.5% in FY2014, 3.5% in FY2015, and 2.5% in FY2016 after the stop-loss adjustment (Appendix A). The FY2016 total allocations include the addition of the collective bargaining costs. Prior to FY2016, the collective bargaining costs were allocated to the institutions as a supplementary appropriation. The quantitative data show that the Case 1 institution received an increase in state appropriations of 16.48% between FY2016 vs. FY2013 (Table 9). Their operating cost increases over the same period amounted to 3.8% (Table 9). The quantitative data show that the Case 2 institution received an increase in state appropriations of 23.14% in FY2016 versus FY2013 (Table 9). Their operating cost increases over the study period amounted to 4.8% (Table 9). The quantitative data show that the Case 3 institution received an increase in state appropriations of 29.77% in FY2016 versus FY2013 (Table 9). Their operating costs increased 12.8% over the same

period (Table 9). The quantitative data showed that the Case 4 institution received an increase in state appropriations of 44.52% in FY2016 versus FY2013 (Table 9). Its operating costs increased 9% over the same period (Table 9).

Increase in costs, coupled with increases in the fees that students pay, decreases in FTE enrollment, and the impact of the stop-loss adjustment, indicate actions were taken at the institutions that impacted affordability and to a smaller degree, enrollment. However, the responses from the survey and interview data, and the subsequent analysis, supplements the quantitative data and provides additional support for a correlation to the MAPFF and potential evidence of causation to a negative impact to student access.

**Quantitative and Qualitative Survey Data**

Online surveys were administered using Qualtrics to each case institution's senior leadership. Invitations to complete the survey were sent out via electronic mail over a period of two months, along with several reminders.

Thirty-three open- and closed-ended, multiple-choice/multiple-answer questions were included on the survey. The survey questions focused on the perceptions of the participants of the MAPFF's impact on the institutions, the impact on student access, and the familiarity of the senior leadership and the remaining staff and faculty of the college community with the formula (see Appendix H). The specific institutional positions in Appendix M were targeted to complete the surveys because previous research has shown that the staff in these positions would have the most knowledge of a performance funding formula and how it may have impacted the decisions made at the institutions (Dougherty & Reddy, 2013; Hillman, et al., 2014; Tandberg & Hillman, 2013).

The cases were compiled into categories, high potential (Cases 1 and 2), to lower potential (Case 3) and low potential (Case 4), as described previously of evidence indicative of a negative impact to access (Table 8). These descriptions were further reviewed in Table 9.

The survey responses by case institution were compiled, coded, grouped, and categorized into case categories for high potential and lower potential, as shown in (Appendix N). The survey questions sought responses to several categories of questions, participant information (Appendix N, 30, 31, 32, and 33), level of review and familiarity of the MAPFF (Appendix N, 1, 2, 18, and19), perceived importance of the open-access mission (Appendix N, 14 and 15), actions enacted at the institutions during the study period (Appendix N, 4, 5, 6, and 7), actions enacted that were influenced by the MAPFF (Appendix N, 8, 9, 12, and 13) and the perceived impact of the MAPFF on their institution and on access (Appendix N, 3, 10, 11, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29).

**Participant information responses, SQ 30–33.** A summary of the respondents from each case institution is shown in Table 10.

Table 10

*The Position, Number and Tenure of Survey Respondents by Institution (Questions 30, 31, 32, and 33)*

| Position and total survey respondents | High Case 1<br>1 | High Case 2<br>2 | Lower Case 3<br>7 | Low Case 4<br>3 |
|---|---|---|---|---|
| President | | | 1-3 | 1-5 |
| Vice president, admin, and finance | | 10+ | 5-10 | 1-5 |
| Vice president academic affairs/provost | | | 10+ | 1-5 |
| Vice president/dean of student services | | | 1-5 | |
| Dean of enrollment management | | 1-5 | 1-5 | |
| Budget manager | | | - | |
| Institutional research director | 1-5 | | 1-5 | |
| Other | | | NR* | |

*Note.* Tenure = Yrs; ^ 1 year in position, 48 years at institution.
*NR = No Tenure Response.

Although the participation rate from each case institution varied greatly, the most senior positions participated including two presidents, three vice presidents of finance and administration, two vice presidents of academic affairs and provost, and a dean of enrollment management. The tenure of the administrators in their respective positions listed above range from one year to 11 years, with an average tenure of 7.6 years. The vice presidents of administration and finance have an average tenure of seven years. The president from the Case 3 institution has a tenure of one year, and the president of the Case 4 institution has a five-year tenure. The tenure of the vice president of academic affairs/provost of the Case 3 has been in that position for one year and has 48 years at the

institution. The tenure of the vice president of finance at the Case 4 institution has four years in the role. The names of the institutions were masked. The vice presidents of finance were the most represented respondents across the four case institutions.

**Level of review and familiarity responses, SQ 1, SQ 2, SQ 18, and SQ 19.** Understanding the degree to which the senior administrators reviewed and shared the results of the MAPFF for each of their institutions is important to the study because it reveals the level of importance placed on it by the senior administrators to drive strategic planning at their institutions.

As shown in SQ 1 (Appendix N), two of the three respondents from the Case 1 and 2 institutions indicated that the senior leadership did not review the results of the MAPFF at least annually. Alternatively, all 10 of the respondents from the Case 3 and 4 institutions indicated that the MAPFF results were reviewed by the senior leadership at least annually. The responses from the Case 1 and 2 institutions for SQ 1 show a correlation to performance share results. The quantitative administrative and secondary data for the Case 1 and 2 institutions indicate that they should have been motivated to improve their results on the MAPFF. However, their responses that they ignored the detailed results would negate the assumption the performance data increases motivation.

The responses on SQ 2 are mixed on whether the MAPFF results were shared with staff and faculty. The respondents from the high potential Case 1 and 2 institutions indicated that the results of the MAPFF were not shared at least annually with the faculty and staff of their institutions. Four of the respondents from the lower potential Case 3 and 4 institutions indicated that the MAPFF results were not shared with the staff and faculty at these institutions. However, three of the respondents at the Case 3 institution agreed or

strongly agreed that the MAPFF results were shared with staff and faculty, and two were not sure.

The responses from the lower potential Case 3 and 4 institutions were inconsistent on whether the results of the MAPFF were shared with faculty and staff. The responses on SQ 1 and SQ 2 for all four case institutions may also indicate a lack of importance being placed on the MAPFF at some of the institutions. These responses support the finding that the senior administrators are ignoring the MAPFF detailed results and looking only at the final appropriation amounts. These findings were followed up on during the interviews and discussed below.

SQ 18 shows two respondents from each of the Case 2, Case 3, and Case 4 institutions indicated their institutions' result on the MAPFF before the stop-loss adjustment has been a significant concern with their senior leadership. The responses on SQ 18 show one respondent from the Case 3 and 4 institution were not concerned with their results before the stop-loss adjustment. One respondent from the Case 1 institution and four respondents from the Case 3 institution were not sure if their results on the MAPFF before the stop-loss adjustment were a concern with the senior leadership.

SQ 19 asked the respondents if there were no concerns to indicate what the reactions have been. Only one respondent from the Case 4 institution indicated that they tend to lead in all categories of the formula. This response supports the categorization of the Case 4 institution as low potential to make changes impacting access, since they know and understand their performance. However, it also supports that they were motivated before and already scheduling the changes to make improvements.

The responses to SQ 18 and 19 are inconsistent among each institution and across all four institutions. The respondents indicating a concern over their results on the MAPFF before the stop-loss adjustment suggest some level of a review of the MAPFF, although it may be of just the dashboard summary. This was followed up during the interviews.

The responses received on the level of review and familiarity of the MAPFF from the four case institutions are inconsistent. Respondents from the high potential case institutions indicated review was not done, while others from the lower potential case institutions indicate a review was done. Similarly, the responses also indicate a perception that the MAPFF results were shared with other staff and faculty, while others indicated the results were not. Reviewing the results of the MAPFF could indicate interest on the part of the senior administrators to identify performance deficiencies and developed plans of action to make improvements. It is of note that the low potential institutions seem more committed to use the data. Perhaps their commitment to performance led to the reason they were ranked as low potential to impact access. These findings also indicate that the stop-loss adjustment had a significant impact on the effectiveness of the MAPFF and will be discussed later in this chapter.

**Perceived importance of access responses, SQ 14 and SQ 15.** The responses to SQ 14 (Appendix N) show that all 13 respondents of the survey strongly agreed that access is one of the most important missions of community colleges and consistently indicated that access is an important mission of the community colleges in Massachusetts. The responses to SQ 15 show that there were no disagreements and no responses (Appendix N).

**Actions taken during the study period responses, SQ 4, 5, 6 and 7.** The participants were asked to list the actions enacted at their institutions during the study period, between 2014 and 2016. A summary of the respondents' answers to SQ 4 is listed in Table 11.

Table 11

*Number of Responses and Actions Taken During the Study Period*

| Q4 – The following actions were taken at my institution from 2014-2016 (check all that apply) | High Case 1 | High Case 2 | Lower Case 3 | Low Case 4 |
|---|---|---|---|---|
| Hired additional FT/PT staff and/or faculty | | 2 | 6 | 1 |
| Reduction of FT/PT staff and/or faculty | | | 4 | |
| Increased fees | | 2 | 5 | 3 |
| Additional student fees | | | 3 | 1 |
| Purchased tools to monitor performance | | 2 | 2 | 2 |
| Changed degree requirements | | | 3 | 1 |
| Organization restructure | | | 3 | 2 |
| Elimination/education in programs, courses, sections | | | 3 | |
| Additional student services | | 2 | | 2 |
| Changes in college mission | | | | 1 |
| Not sure | 1 | | 1 | |

The purpose of asking this question was for the respondents to review and recall the actions enacted and decisions instituted at their institutions during the period under study. Respondents from Case 2, 3, and 4 institutions indicated that additional full-time and or part-time staff and faculty were hired. Only respondents from Case 3 institution indicated they reduced staff or faculty during this period. Respondents from Case 2, 3, and 4 institutions indicated that student fees were increased, and Case 3 and 4 institutions also added additional student fees. Respondents from Case 2, 3, and 4 institutions all purchased tools to monitor their institutional performance. Respondents from Case 3 and

4 institutions indicated that degree requirements were changed, and a respondent from Case 4 institutions indicated that there was a change in their college mission. Respondents from Case 3 and 4 institutions indicated that there were organizational restructures. Respondents from the Case 3 institution indicated that there were reductions and or eliminations in programs and course offerings during this period. Respondents from Case 2 and 4 institutions indicated that additional student services were added.

The responses to Survey Question 4 indicate that many actions were taken at the Case 2, 3 and 4 institutions during the period under study, FY2014–FY2016. SQ 5 provided an opportunity to add actions that were not listed in SQ 4. The responses indicated there were no other actions added by the respondents (Appendix N).

Several of the actions listed in SQ 4 may indicate increases in institutional costs, such as hiring of additional full-time and part-time staff and faculty and the purchase of tools to monitor and comply with their institutions' performance. Additional student services added at the Case 2 and case 4 institutions may indicate actions to improve student success but may also lead to an increase in institutional costs. Organizational restructures show support for new student support services focused on performance improvement or may be done to reduce operational expenses. Reductions of full- and part-time staff and faculty may indicate actions to control and reduce costs. Eliminations and reductions in course offerings may also indicate actions to reduce institutional costs. However, increases to, and additional student fees, are actions that decrease affordability for some students. The eliminations and reductions in course offerings may also indicate actions that restrict admission, enrollment, and recruitment activities.

Increases in some institutional costs, without proportionate decreases in costs elsewhere in the institution, or adequate increases in state appropriations, may lead to increases in student tuition and fees. Each case institution did receive state appropriations increases each year of the study period (Appendix A). The quantitative administrative and secondary data show that the Case 2 institution raised the tuition and fee rate the most out of the four case institutions (Table 9). The same data for the Case 3 institution shows that they were negatively impacted by the stop-loss adjustment by $2.6 million over the three years of the study, although they received a 29.8% increase in state appropriation allocations. The Case 3 institution raised tuition and fees by 6.27% during the study period (Table 9). These data may indicate actions motivated by their results on the MAPFF that negatively impacted access through decreased affordability.

The participants were then asked in SQ 6 and 7 if they believe their results on the MAPFF influenced some of the strategic planning and decisions making at their institutions (Appendix N). Two respondents from the Case 2 institution, four from the Case 3 institution, and one from the Case 4 institution agreed that their results on the MAPFF influenced some strategic planning and decision-making. One respondent from the Case 1 institution, one from the Case 3 institution, and two from the Case 4 institution disagreed. Two respondents from the Case 3 institution were not sure. Of the respondents that disagreed in SQ 6, one respondent from the Case 2 institution added environmental factors such as demographic shifts in their service area influenced their strategic decisions. One respondent from the Case 3 institution added the crisis of the day and student attainment data influenced their strategic decision-making. Respondents from the Case 4 institution indicated student attainment data and their six-year plan influenced

their strategic decisions. Note that student attainment, or student enrollment and retention, are measured by the MAPFF and reflected in the performance share percentage calculation.

Although the responses to SQ 4–SQ7 are inconsistent and some respondents indicate that some strategic decisions were influenced by their results on the MAPFF, they do not indicate which specific strategic decisions were made and the motivations behind these actions. The respondents were then asked which of the actions in SQ 4 they perceived were influenced by their institution's results on the MAPFF in SQ 8, 9, 12, and 13.

Understanding the actions taken by the institutions and which were influenced by the MAPFF and the perception of the senior leadership of those actions on the impact on the institution, and access, is important because it provides insight to the use of the MAPFF in strategic planning and provide additional evidence to help determine the intentional or unintentional response to their results on the MAPFF that may have negatively impacted access.

**Actions influenced by the MAPFF, SQ 8, 9, 1,2 and 13.** In SQ 8, the respondents indicated the following actions were influenced by the MAPFF in the survey as shown in Table 12. The actions listed as choices for the respondents, were actions found in other research studies conducted on the impact of Performance Funding formulas on institutions of higher education in other states (Dougherty & Reddy, 2011, 2013; Lahr, et al., 2014). The respondents were also given an opportunity to identify actions that were not listed in the survey in SQ 9 (Appendix N). No additional actions were identified.

Table 12

*Number of Responses and Actions Taken by the Case Institutions Influenced by Their Results on the MAPFF SQ 8*

| Q8 – I believe that the following actions were influenced by my institution's results on the MAPFF | High Case 1 | High Case 2 | Lower Case 3 | Low Case 4 |
|---|---|---|---|---|
| Increased fees | | 1 | 1 | 1 |
| Additional student fees | | 1 | 1 | 1 |
| Purchased tools to monitor performance | | 2 | | |
| Changed degree requirements | | 1 | 1 | 1 |
| Organization restructure | | 1 | 1 | |
| Elimination/education in programs, courses, sections | | 1 | | |
| Additional student services | | | 1 | |
| Changes in college mission | | | | 1 |
| Not sure | 1 | | 6 | |

The senior administrators at the Case 2 (high-potential institution) and Case 3 and 4 (lower- and low-potential institutions respectively), indicated that the MAPFF influenced student fee additions and increases. This finding indicates there may be a correlation between the MAPFF and decreased affordability for the students. Only the two respondents from the Case 2 institution indicated that the MAPFF influenced the purchase of tools to monitor performance, although SQ 4 shows that Case institutions 2, 3, and 4 purchased these tools during the study period. This indicates the purchase of tools to monitor performance by Case 3 and 4 institutions were not influenced by the MAPFF intentionally or possibly were planned before the formula was implemented.

One respondent from each Case 2, 3, and 4 institutions indicated the MAPFF influenced changes in their degree requirements, even though only Case 3 and 4 institutions indicated these changes were made during the study period in SQ 4. The respondents from Case 2 and 3 institutions indicated the MAPFF influenced restructures

in their organizations; however, the respondents from the Case 2 institution did not indicate that there were organization restructures during the study period in SQ 4. Responses from the Case 2 institution indicated the MAPFF influenced eliminations and reductions in programs, courses and sections, and the addition of student services, even though they did not indicate the program, course, and sections eliminations in SQ 4. The respondents from the Case 3 institution indicated there was an elimination and reduction in programs, courses, and sections (Table 11); however, they did not indicate that the MAPFF influenced those changes (Table 12). These noted inconsistencies between the responses to SQ 4 and SQ 8 indicate there was not a conscious connection to the MAPFF or it did not influence actions taken during the study period, the actions were influenced by something else, or they were confused by these two questions. These responses were followed up on during the interviews.

Six of the seven respondents of the Case 3 institution were not sure what actions enacted at their institution were influenced by the MAPFF even though all seven respondents from the Case 3 institution indicated that the senior leadership reviewed and discussed the results of the MAPFF at least annually (Appendix N). No respondent indicated "other" for SQ 8, and thus there were no actions added in SQ 9.

The responses to SQ 8 from the high potential, Case 2 institution, indicated actions that correlate to both threats to access, decreased affordability, and restrictive admission, enrollment and recruitment. The respondents indicated that the MAPFF influenced increases and additional student fees, some of which might have been to pay for the purchase of tools to monitor performance and the additional student services. Respondents from the lower potential Case 3 and 4 institutions indicated that student fees

were increased, and additional student fees were added as a result of their results on the MAPFF. The not sure responses from the Case 1 and 3 institutions may indicate a lack of strategic review and planning directly related to the MAPFF or an inability to understand the connection between the goals of the overall Vision Plan from the goals of the MAPFF. The responses to SQ 8 were followed up on during the interviews to gain a better understanding of their responses to the survey.

Responses to SQ 12 (Appendix N) show that one respondent from the Case 2 institution, three from the Case 3 institution and one from the Case 4 institution indicated that the MAPFF "somewhat," or "significant" on a five-point Likert scale, (significant, substantial, somewhat, none yet but may in the future, and not sure), influenced tuition and fee increases at their institutions. The president from the Case 3 institution indicated the MAPFF significantly influenced their tuition and fee increases, and the vice president of academic affairs indicated the MAPFF somewhat influenced their tuition and fee increases. The vice president of finance at the Case 4 institution indicated that the MAPFF influenced their tuition and fee increases. Four respondents from case 2, 3, and 4 institutions indicated that the MAPFF has not yet influenced tuition and fee increases. One respondent from the Case 1 and case 3 institutions indicated that they were not sure. Only one respondent from the Case 3 institution indicated the construction of a new student center influenced their tuition and fee increases in SQ 13.

Although the responses to SQ 12 were mixed, three of the most senior positions at the case institutions indicated their results on the MAPFF for Case 2, 3, and 4 institutions influenced fee increases and additional student fees. In my experience in higher education, the president, vice president of academic affairs, and vice president of finance

are intimately involved in the determination and recommendation of the tuition and fee rates to the board of trustees at their institutions. This finding further supports the responses in SQ 8 and correlates to the decreased affordability threat to access.

The responses from three of the four case institutions on these survey questions indicate actions taken that directly decreased affordability for students through increased and additional student fees. Some respondents also indicate actions that appear to impact operational costs by purchasing tools to monitor performance and adding additional student services and eliminating or reducing programs, courses, and sections. Interestingly, three of the four case institutions indicated that degree requirements were changed at their institutions because of the MAPFF. It's important to note that while Case 2 senior administrators indicated they do not review the MAPFF data, they seem to have reacted to the principles and goals of the MAPFF. Findings from other research studies concluded that changes to degree requirements were done to increase student completion which improves institutional results on the performance funding formulas and helps them to increase their government appropriations.

**Perceived impact of the MAPFF on institutions and access, SQ 3, 10, 11, 16, 17, and 23–27.** The participants were asked in SQ 3 (Appendix N), to indicate the level of incentives, based on a five-point Likert scale (significant, substantial, somewhat, none yet but may in the future, and not sure), for student success at their institutions that were provided by the MAPFF. Five respondents from the Case 3 institution and one respondent from each of the Case 2 and Case 4 institutions indicated that the MAPFF "somewhat" provided incentives to improve student success. One respondent from each of the Case 1 and Case 2 institutions and two from the Case 3 institution indicated that

they were not sure. Two respondents from the Case 4 institution indicated that the MAPFF has not yet provided incentives to improve student success but may in the future. It is noteworthy that no respondents indicated the MAPFF provided a substantial or significant level of incentives to improve student success and responses were mixed even for the lower levels.

SQ 3 was included in the survey to help me understand how the participants felt about the MAPFF. I did not attempt to research the impact the MAPFF had on student success. The participants were then asked which actions they considered negatively impacted their institution. The responses to SQ 10, 11, 16, and 17, indicating negative impacts on the institutions are shown in Table 13.

Table 13

*Number of Responses and Perceived Negative Impact of the MAPFF SQ10, 11, 16, and 17*

| | FY2014 - FY2016 | | | |
|---|---|---|---|---|
| | High Potential | | Lower Potential | |
| Qualitative Surveys | Case 1 | Case 2 | Case 3 | Case 4 |
| | 1 Respondent | 2 Respondents | 7 Respondents | 3 Respondents |
| SQ 10 - I believe that the MAPFF has negatively impacted my institution in the following ways: (Check all that apply). | Add'l Compliance Costs (1) | No neg impact (1) Larger T&F inc (1) Elim/Reduce courses (1) reductions in staff/faculty (1) lower staff morale (1) Addl costs of compliance (1) | No Neg Impact (1) Larger fee inc (2) reduc std svcs (2) lower staff/fac morale (4) Elim/Reduce courses (3) staff reductions (2) reduct in academic qual (1) add'l cost of compliance (1) | Redductions in staff/fac (1) reduct in std svcs (1) No Neg impact (2) |
| SQ 11 - Please provide other examples not mentioned in Q10 above. | Blank | Blank | I have not seen this used at all as an explanation for funding decisions (1) | Blank |
| SQ 16 - Research conducted in other states has shown that performance funding has negatively impacted access through increased student costs, restricted admissions and selective student recruitment. I believe that the implementation of the MAPFF has negatively impacted student access through the following mechanisms: (Check all that apply) | Not Sure (1) | Access not negatively impacted (1) Increase std costs (1) Elim/Reduction of courses (1) | Access not negatively impacted (2) Not sure (2) Inc std costs (3) Elim/Reduce courses (3) | Access has not been negatively impacted (3) |
| SQ 17 - Please provide other examples not mentioned in Q16 above if applicable. | Blank | Blank | Blank | Blank |

Most of the senior administrators at the four case institutions indicated that the actions listed in SQ 10 negatively impacted their institutions (Table 13). The tuition and fee increase at the Case 2 institution was the largest of the four case institutions; however, only one response indicated a negative impact on their institution on SQ 10. The tuition and fee increase at the Case 1 institution was the second largest, but the respondent did not indicate a negative impact on the institution SQ 10. Two of the seven total respondents from Case 3 institution indicated that their results on the MAPFF precipitated larger increases in student fees, despite their tuition and fee increase of 6.27% (Table 9), was less than the sector of 15 average and just slightly larger than the

Case 4 institution tuition and fee increase. This finding suggests that even though the fee increases were less than the sector average, they would not have been as much without the MAPFF. This suggests that only a portion of the tuition and fee increases instituted during the study period were influenced by the MAPFF results. However, it shows some correlation between the MAPFF and decreased affordability for students, a documented threat to access.

Several respondents from the Case 2, 3, and 4 institutions indicated the MAPFF negatively impacted them through reductions in staff and faculty, reduction in student services, and elimination and reduction in programs, courses, and sections. Reductions in staff and faculty, student services and programs, and courses and sections are cost-saving measures that may limit tuition and fee increases but may also correlate to second threat to access, restrictive admissions, enrollment, and recruitment practices by limiting the number of choices students have for classes desired and/or support and guidance in student services.

Respondents from Case 1, 2, and 3 institutions indicated that the MAPFF negatively impacted them through additional costs of review and compliance activities. This also may correlate to increases in tuition and fees. Three of the seven respondents from the Case 3 institution indicated lower staff morale as a result of the MAPFF. It was noteworthy that all three vice presidents for finance from Case 2, 3, and 4 institutions indicated that the MAPFF has not negatively impacted their institutions. Their responses are not consistent with those of the presidents and other senior leaders at these institutions. The inconsistency of these responses were reviewed during the interviews to

gain a better understanding of why the other senior administrators of the institutions felt differently than the vice presidents of finance.

Discrepancies were noted in the responses from the respondents at the Case 3 and 4 institutions to SQ 8 (Table 12) and SQ 10 (Table 13). The respondents from the Case 3 institution indicated that the MAPFF negatively impacted them when they eliminated and reduced programs, courses, and sections in SQ 10 (Table 13), but did not indicate that those actions were influenced by the MAPFF in SQ 8 (Table 12). The respondents from the Case 4 institution indicated that the fee increases influenced by the MAPFF in SQ 8 (Table 12) did not negatively impact them in SQ 10 (Table 13). The respondents were asked to provide other examples of actions that negatively impacted their institutions in SQ 11, and one respondent from the Case 3 institution indicated that they have not seen the MAPFF used as an explanation for funding decisions.

The senior administrators were asked if the MAPFF negatively impacted student access in SQ 16 (Table 13). Four of the respondents from Case 2 and 3 institutions indicated that the MAPFF negatively impacted access through increased student costs, correlating to the decreased affordability threat. Four respondents from the Case 2 and 3 institutions indicated that the MAPFF negatively impacted access through the elimination and reduction in programs, courses, and sections, correlating to restrictive admissions, enrollment, and recruitment practices. All three respondents from the Case 4 institution indicated the MAPFF had no negative impact on them. However, two of the three respondents previously indicated the MAPFF negatively impacted their institutions through reductions in staff and faculty and student services (Table 13). None of the respondents from the Case 4 institution indicated that the MAPFF negatively impacted

student access by the increased student costs they indicated in their responses to SQ 8 (Table 12). All three vice presidents of finance from Case 2, 3, and 4 institutions indicated that the MAPFF has not negatively impacted access. The responses from the vice presidents of finance indicate a disconnection between increasing costs for students and access to higher education. The responses from the vice presidents of finance were followed up on in the interviews. No other actions were indicated that negatively increased access in SQ 17.

The responses indicating actions taken at the case institutions during FY2014–FY2016) influenced by the MAPFF (Table 12) and the responses negatively impacting their institutions (Table 13) and the responses negatively impacting access were inconsistent. While there were some perceptions of impact by the MAPFF, most of the actions taken were not consciously connected to the MAPFF. Tuition and fees were increased at all four case institutions over the study period. The vice presidents from all three case institutions responded that their institutions increasing student fees did not negatively impact student access. Some respondents from the Case 2 and 3 institutions indicated that increasing student costs negatively impacted their institutions and student access, and one of the respondents form the Case 4 institution felt that it negatively impacted their institution and did not impact student access.

Table 14

*Number of Responses and Perception of Positive Impact and no Impact of the MAPFF SQ 23–SQ 27*

| | FY2014 - FY2016 | | | |
|---|---|---|---|---|
| | High Potential | | Lower Potential | |
| Qualitative Surveys | Case 1 | Case 2 | Case 3 | Case 4 |
| | 1 Respondent | 2 Respondents | 7 Respondents | 3 Respondents |
| SQ 23 - I believe that the MAPFF has positively impacted my institution in the following ways: (Check all that apply). | None (1) | Increased awareness (2) | None (1) Improved std success and completion (1) Increased awareness of institutional performance (5) Provided the needed incentive to improve student services and instruction (1) | None (1) Inc awareness of institutional performance (2) |
| SQ 24 - What are other examples of positive impacts not mentioned in Q23? | Blank | Blank | Blank | Blank |
| SQ 25 - I believe that my institution's outcomes on the MAPFF has had NO impact on my institution either positively or negatively from 2014 - 2016. | Not Sure (1) | Disagree (2) | Agree (2) (3) Not sure Disagree (3) | Agree (1) Disagree (1) Not sure (1) |
| SQ 26 - If you agree that the MAPFF has had NO impact on your institution from question 15 above, what do you believe were the reasons: (Check all that apply) | None (1) | None (2) | Stop Loss (2) (3) None Inc tuition rev thru enrollment (1) Ignore results because MAPFF will be discontinued (1) Gon't understand MAPFF results (1) | Ignore results b/c MAPFF will be discontinued (1) Focused more on rev growth thru enrollment (2) None (1) |
| SQ 27 - Please provide other examples not mentioned in Q26 above. | Blank | Blank | The formula has only been used to distrubute small annual increases rather than the whole pot of money so the affect is minimal (1) | Blank |

The participants were asked in SQ 23 if they believe the MAPFF has positively impacted their institutions. Nine responses indicated the positive impact of the MAPFF was increased awareness of institutional performance. One of the respondents from each of the Case 1, 3, and 4 institutions stated that there were no positive impacts because of the MAPFF. One respondent from the Case 3 institution indicated they felt the MAPFF improved student services and instruction and improved student success and completion.

The participants were asked in SQ 24 to add other examples not mentioned in SQ 23. There were no additional examples noted.

The participants were asked in SQ 25 if they felt the institutional outcomes from the MAPFF had no impact, either positive or negative, on their institutions. Two respondents from the Case 3 institution indicated there were no positive or negative impacts of the MAPFF on their institution, three were not sure, and three disagreed (or felt that there were positive impacts to their institution). However, a majority of the responses to SQ 23 indicated positive impacts on their institution. One respondent from the Case 4 institution felt there were positive impacts of the MAPFF on their institution (disagreed), one felt there were no positive or negative impacts, and one wasn't sure. However, two of the three responses indicated the positive impact of increased awareness of institutional performance. One respondent from the Case 1 institution wasn't sure. There was no consensus on the perceived impact of the MAPFF on institutional outcomes, either positive or negative.

The participants were then asked in SQ 26 and 27 to indicate the reasons they felt the MAPFF had no impact on their institution's outcomes. Two respondents from the Case 3 institution indicated the stop-loss adjustment was the reason they felt there was no impact on their institution. One respondent each from both the Case 3 and 4 institutions indicated they ignore the results of the MAPFF because they believe the formula will be discontinued. One respondent from both the Case 3 and 4 institutions was more focused on increasing tuition revenue through enrollment rather than through the MAPFF. None of the responses to SQ 26 addressed the performance metrics of the MAPFF as the reason for not having an impact on their institutions. The stop-loss response for SQ 26 from two

respondents at the Case 3 institution prompted more probing questions during the interviews to get a better understanding of the stop-loss impact.

The participants were asked in SQ 27 to provide other examples not mentioned in SQ 26. One respondent from the Case 3 institution indicated that the formula has only been used to distribute small annual increases rather than the whole pot of money, so the effect is minimal. The MAPFF allocated all the state appropriations with an additional $20 million in FY2014, $13.1 million in FY2015, and $9.1 million in FY2016 to the 15 institutions.

**Perceptions of the MAPFF and additional comments, SQ 28–29.** The participants were asked in SQ 28 (Table 15), what surprised them most about the MAPFF.

Table 15

*Number of Responses and What Surprised the Respondents Most About the MAPFF SQ28 and 29*

| | FY2014 - FY2016 | | | |
|---|---|---|---|---|
| | High Potential | | Lower Potential | |
| Qualitative | Case 1 | Case 2 | Case 3 | Case 4 |
| Surveys | 1 Respondent | 2 Respondents | 7 Respondents | 3 Respondents |
| SQ 28 - What has surprised you most about the MAPFF and your institutions results? | Blank | MAPFF became irrelevant suw to lack of funding (1) | How the institution compares with the other CCs (1)<br>Not always favorable and we can't figure out why (1) | Blank |
| SQ 29 - Please add any additional comments on the MA Performance Funding Program you feel will be pertinent to this study. | Blank | Blank | Other measures such as the VFA seem to place the CCs in a better light than do the measures of the DHE (1) | Blank |

Out of a total of three responses to SQ 28, one respondent from the Case 2 institution added that the MAPFF became irrelevant because of their perception of a lack

of funding, although they received an increase of $3.7 million in state appropriations in FY2016, versus FY2014. While the Case 2 institution's performance share percentage of 8% was greater than the sector average of 6.7%, they saw little impact in state appropriations received. The cumulative stop-loss impact was a $.524 million increase in state appropriations over the three years of the MAPFF (FY2014, FY2015, and FY2016). The MAPFF Dashboard shows the calculation of state appropriations before and after the stop-loss adjustment. The MAPFF is used to allocate all the state appropriations, and if it wasn't for the stop-loss adjustment, the Case 2 institution would have only received $.524 million less appropriations, for a net gain of $3.2 million.

One respondent from the Case 3 institution noted that how their institution compares with the other community colleges surprised them. Another response to SQ 28 was that the performance of the Case 3 institution was not always favorable, and they can't figure out why. These responses reflect at least a cursory review of the MAPFF results on the dashboard. There is little data reflecting accurate perceptions or knowledge of the detail displayed in the performance tabs within the MAPFF spreadsheet.

The participants were asked in SQ 29 (Table 15), to add any additional comments regarding the MAPFF they felt is appropriate for the study. The only response was recorded from the Case 3 institution, which stated that other measures, such as the VFA (Voluntary Framework of Accountability), seem to place the community colleges in better light than the measures of the DHE formula.

While only a few responses to SQ 28 and SQ 29 were recorded, they indicate a misconception and misunderstanding of the MAPFF. The response from the Case 2 institution indicated that not enough funding was being allocated by the MAPFF when in

fact, all the state appropriations are allocated through the formula. The two other responses from the Case 3 institution indicated surprise in how their institution compared to the other institutions in the sector. The MAPFF spreadsheet details each component that compiles into the final appropriation both before and after the application of the stop-loss adjustment. A review of the details would provide the data needed to understand how they fared when compared to the other institutions.

The responses to SQ 3, and SQ 23–SQ 27 were very inconsistent with some responses, indicating a degree of ambivalence towards the effectiveness of the MAPFF. The respondents from the Case 2, 3, and 4 institutions indicated the most significant impact of the MAPFF was increased awareness of their institutional performance. Both respondents of the Case 2 institution indicated that their senior leadership did not review the results of the MAPFF at least annually (SQ 1, Appendix N).

**Perceived impact of the MAPFF stop-loss adjustment, SQ 18–21.** The participants were asked in SQ 18 if their institution's result on the MAPFF before the stop loss was a significant concern. Two of the respondents from the Case 2 and 3 institutions and one respondent from the Case 4 institution indicated that their results before the stop-loss adjustment were a concern. This indicates a lack of understanding of the stop-loss adjustment because Case 2, 3, and 4 institutions would all have received more state appropriations without it; nevertheless, their immediate fix was to raise fees. Four respondents from the Case 3 institution and one from the Case 1 institution were not sure. A respondent from the Case 4 institution stated during the interview that they were not concerned with the results because they tend to lead the other institutions in all the MAPFF categories. It was noted that this response reflects a more conscious connection

to the detailed results of the MAPFF. The responses to SQ 18 were inconsistent across the case institutions. To get a better understanding regarding what the causes of the concerns were, the participants were then asked in SQ 20 what actions would be taken once MDHE eliminated the stop-loss adjustment.

Table 16

*Number of Responses and Perception of the Stop-Loss Adjustment of the MAPFF SQ 18, 20–22*

| | FY2014 - FY2016 | | | |
|---|---|---|---|---|
| | High Potential | | Lower Potential | |
| **Qualitative** | **Case 1** | **Case 2** | **Case 3** | **Case 4** |
| **Surveys** | **1 Respondent** | **2 Respondents** | **7 Respondents** | **3 Respondents** |
| SQ 18 - I believe that my institution's results on the MAPFF, before the stop loss adjustment, has been of significant concern with our senior leadership. | Not Sure (1) | Agree (2) | Disagee (1)<br>Not sure (4)<br>Agree (1)<br>Strongly agree (1) | Disagree (1)<br>Strongly disagree (1)<br>Agree (1) |
| SQ 20 - DHE proposed that the Stop Loss component of the funding formula will be phased out after the fourth year of using the formula. Once the MAPFF stop loss adjustment is discontinued, I believe that my institution will most likely take the following actions to replace any lost appropriations: (Check all that apply). | Take Steps to improve scores on MAPFF (1) | Raise tuition & fee rates (2)<br>Decrease staff/faculty (1)<br>Secure alternative revenues (1)<br>Elim/ Reduce academic program courses (2)<br>Take steps to improve our scores on the MAPFF (1) | Raise tuition & fee rates (2)<br>Secure alternative revenues (4)<br>Reduce services currently available to students (2)<br>Take steps to improve our scores on the MAPFF (2)<br>Decrease staff/faculty (3)<br>Reduce/Elim courses (2) | Raise tuition & fee rates (2)<br>Secure alternative revenues (2) |
| SQ 21 - Please provide additional information for Q20 above. | Blank | Blank | I cannot Answer (1) | We would have an increase in funding (1) |
| SQ 22 - With the decline in additional State appropriations since the implementation of the MAPFF for the community college sector, I believe that the current funding formula will be modified significantly or discontinued in the near future. | Agree (1) | Agree (2) | Agree (3)<br>Disagree (1)<br>Not Sure (3) | Agree (1)<br>Strongly Agree (1)<br>Disagree (1) |

Participants at three of the case institutions indicated that they would be forced to take actions to improve their results on the MAPFF if the stop-loss adjustment was discontinued. However, the data in Table 16 also suggests the senior administrators plan to take actions that will have an unintended impact to the outcomes that are desired by the

Department of Higher Education. Ten of the 13 respondents stated they would reduce student services, program offerings, and staff and faculty. Seven of the respondents indicated they would seek alternative revenues, and six responded they would increase their tuition and fees to make up for any state funding lost.

Responses received from the Case 2, 3, and 4 institutions on SQ 20 indicate that they would raise tuition and fee rates, secure alternative revenues, eliminate programs, courses and sections, and reduce student services. Respondents from the Case 1, 2, and 3 institutions indicated they would take steps to improve their scores on the MAPFF. This confirms my theory the results on the MAPFF would motivate actions to improve their outcomes on the MAPFF. The participants were asked in SQ 21 to provide additional information on actions when the stop-loss adjustment is phased out.

One respondent from the Case 3 institution indicated they could not answer this question. One respondent from the Case 4 institution indicated that they would have an increase in funding. These set of questions were asked to provide some insight on the significance of the stop-loss adjustment to strategic planning and decision-making at the case institutions. Note that phasing out the stop-loss adjustment provides increases to Case 3 and 4 and a smaller increase to Case 2. The responses make it appear that only one respondent knew that.

This question was included in the survey to help gain a better understanding of the importance and significance of the stop-loss adjustment by the senior administrators. Their responses to SQ 18 and 20, as well as SQ 10, 11, 16, and 17 indicate confusion on regarding the impact of the stop-loss adjustment. These questions were followed up on during the one-on-one interviews.

With the decline in additional state appropriations since the implementation of the MAPFF, the participants were in asked in SQ 22 if they believed the current formula would be modified significantly or discontinued soon. Eight of the respondents agreed the formula would be changed or discontinued, two disagreed, and three were not sure. Perhaps the responses from the Case 1 and 2 institutions indicated more of a wait-and-see attitude on the longevity of the MAPFF before taking it more seriously. The responses from the Case 3 and 4 institutions are inconsistent. The responses to this question and SQ 3 (Appendix N) indicated ambivalence towards the MAPFF and a lack of confidence that it provides incentives to achieve the state's goals and improve student success.

**Summary of the Quantitative and Qualitative Survey Data**

The analysis of the results of the survey questionnaire yielded the following significant findings:

1. The survey responses are mixed on the level of review and dissemination of the MAPFF results to others at the institutions. Most senior administrators from the high potential, Case 1 and 2 institutions, disagreed on the review and discussions surrounding their institutions MAPFF results in SQ1 and SQ 2. Alternatively, most of the responses by the lower potential, Case 3 and 4 institutions, agreed that the MAPFF results were reviewed and discussed by the senior administrators in SQ1 and were disseminated to others at their institutions in SQ 2.
2. The survey responses indicated that the MAPFF influenced increases in and additional student fees, increased operational costs for the purchase of tools to

monitor performance, additional student services, organization restructures, and elimination/reduction in programs, courses, and sections (Table 12).

3. Some respondents of the survey indicated negative impacts to their institutions through decreased affordability (AFFORD) and potential restrictive admissions, enrollment, and recruitment practices (R.A.E.R.) (Table 13).
4. A consistent response on the survey from the vice presidents of finance at Case 2, 3, and 4 institutions indicated that the MAPFF has not had a negative impact on their institutions or on student access (Table 13).
5. The survey respondents appeared to have trivialized or overlooked the results of the MAPFF before the stop-loss adjustment and the impact it has on their institutions short of the final appropriation allocation (Table 16).
6. The perception from most of the survey participants is the MAPFF would be altered significantly or discontinued in the future (Table 16).

**Qualitative interview data.** Invitations to participate in follow-up, one-on-one interviews at the case institutions with the senior leadership in Table 17 were sent via electronic mail. Included with the email was a summary table of finance and performance data for their institution to refresh their memory on their institutions' results of the MAPFF. A total of seven one-on-one interviews were conducted across the four case institutions, with each interview conducted over the telephone due to distance. Responses were recorded using an electronic device, and transcribed and coded using exploratory methods (Saldana, 2009). It became evident from the survey responses that the positions below dean were not privy to how this data was used in the MAPFF and therefore, they

were not selected to be interviewed. The dean of enrollment management from the Case 3 institution did not respond to my requests for an interview.

Table 17

*Interview Participants*

| Institution | Name | Title | Approximate # of Years in Position |
|---|---|---|---|
| C1 | | - | |
| | Paul | Vice President of Finance | 10+ |
| C2 | Sally | Dean of Enrollment Management & College Access | 1–5 |
| | Robert | President | 1–3 |
| C3 | Jake | Vice President of Finance | 5–10 |
| | Kim | Interim Vice President of Academics | 10+ |
| C4 | Rachael | President | 1–5 |
| | Eric | Vice President of Finance | 1–5 |

The interview participant names are representative of their gender and the length of time in the position, but the names are aliases. One of the presidents and the interim vice president of academics had only been in their respective positions at the Case 3 institution for one year at the time of their participation in the qualitative portion of the study. The remaining respondents have been at their position at the case institutions long enough to experience the application and use of the MAPFF and its impact on their respective institutions and students.

The interview questions focused on the first three fiscal years of the performance funding formula's use in Massachusetts, FY2014–FY2016. The questions started broadly and were customized based on the survey responses of the respondents and from the findings of the quantitative administrative and secondary data. They were designed to

determine the familiarity with the performance funding formula, how it was used in their strategic planning, and address and confirm or eliminate alternative plausible explanations for those actions taken by the institutions that could be unrelated to the implementation of the performance funding formula (see Appendix O). The interviews revealed additional insight into the responses on the survey. Several inconsistencies were noted on the responses in the interviews versus how the respondents answered the survey questions.

**Interview responses by case institution.** The Case 1 and 2 institutions are classified in the study as high potential for negatively impacting student access. The Case 3 and 4 institutions are classified as lower potential for negatively impacting student access.

A summarization of key data from the MAPFF results spreadsheets, compiled and distributed by the Department of Higher Education, and the HEIRS database, was prepared for each of the case institutions. The individual case institution summary data was included in the invitation to participate in the one-on-one interviews to refresh their recollection of their institutions' data.

***Case 1 interviews***. The IRB at the Case 1 institution approved my study. However, numerous requests for interviews spanning two months went unanswered. Finally, the vice president of academic affairs responded to me that they do not wish to participate in the qualitative portion of the study. As a reminder. only one person responded to the survey. The Case 1 institution was grouped as having the highest potential to impact access. The MAPFF results showed a reduction in state appropriations of 24.94% before the stop loss adjustment, indicating the lowest change in performance

share percentage. The stop loss adjustment significantly helped the case 1 institution with receiving 16.48% more appropriations after the adjustment. The data also show the case 1 institution increased tuition and fee rates by 11.41% between FY2013 and FY2016. Unfortunately, the case 1 institution's reluctance to fully participate in the study weakened the findings. The quantitative data showed that the case 1 institution was significantly impacted by the MAPFF evidenced by the amount of state appropriations calculated both before and after the stop-loss adjustment. I expected to obtain and understand the perceptions of the senior leaders of the case 1 institution on the impact of the MAPFF on their institution and students and the motivations behind the tuition and fee rate increases. Since my study focused on the quantitative and qualitative data of only four case institutions, the reluctance of the case 1 institution to participate reduced the amount of data by 25% and weakened the benefit for the commonwealth on learning the impact of the MAPFF on community college students. However, the data from the three remaining case institutions was sufficiently robust to determine the impact to access.

***Case 2 interviews summary***. Several important findings are identified from the responses of the interviews from the Case 2 institution. The first finding was the reasons behind their fee increases were mixed.

"Paul," the vice president of finance, responded to my question regarding why the institution increased student fees 16.52% over the first three years of the MAPFF by stating that the board of trustees and the college leadership wanted to hire the additional people necessary to meet the demands that were being placed on them to achieve better student success. The increase in student fees provided the needed revenue to hire the additional people. The two respondents from the Case 2 institution indicated on SQ 10

(Table 13) that the MAPFF negatively impacted access by influencing larger tuition and fee increases. However, they also indicated that they reduced staff and faculty and eliminated and reduced courses, programs, and sections. While these survey and interview responses from the Case 2 institution somewhat contradict themselves, these actions indicate an attempt to make changes that align with the goals of the MDHE and the implementation of the MAPFF. However, it also supports my proposition that the institutions would initiate actions that would increase costs for students and negatively impact access. After reviewing where their fees are in comparison to the other community colleges in Massachusetts, they made a conscious decision not to be the institution with the lowest fees, as they had been in the past.

"Sally," the dean of enrollment and college access, stated that the primary driver of the fees increases was their facilities [portion] of their tuition and fees that all students pay and not because of their results on the MAPFF. As stated previously, the fee portion of the tuition and fees vary among the institutions. A portion of the fee for the Case 2 institution includes an increase for facilities. She stated that they increased their facility fee to help support a new building that they've brought online, and made smaller fee increases in the student activities and technology fees.

The second finding is the respondents are concerned about retention and graduation rates more for enrollment revenue purposes than in terms of the funding formula.

I pointed out to "Paul" on the summary chart that his institution's performance share percentage decreased from 9% in 2014 to 7.6% in 2016. I asked him what he attributes that decrease in performance share percentage to.

"Paul" admitted:

> There are certain areas where we need to make some big improvements, especially in retention and graduation rates. We're very concerned about retention and graduation rates more for enrollment purposes than we are in terms of the funding formula. We know retaining students and getting them to graduation is going to have a bigger impact on our enrollment and have a much bigger financial impact on us than the funding formula would have.

"Sally" stated that the results of the MAPFF were not part of the strategic planning of the college and didn't know why they were not. She also stated that the institution was initially focused more on student recruitment and enrollment during the early implementation of the MAPFF but has now "flipped," parallel to national efforts, to focus on retention efforts. When asked about her institutions' enrollment decline, she responded that their retention was the primary problem, as well as their ability to attract new students during those years. She reiterated that she didn't attribute any of the enrollment decline to the MAPFF. The perception was that retaining students and getting them to graduation is going to have a bigger impact on their enrollment and have a much bigger financial impact than the funding formula would have.

The third finding is the perception that the goals of the MAPFF were separate and apart from the goals of the Vision Project, even though the implementation of the MAPFF was an extension of the Vision Project and reflects the same goals. "Paul" stated that "every three years, we would adopt a set of strategic priorities based on the Vision Project," (same goals as the MAPFF) when asked if his institution's leadership made strategic decisions to improve results on the MAPFF. He said that they paid close

attention to the formula when it first came out when setting institutional priorities because a significant amount of money was attached to it.

The fourth finding is vice president of finance is relied upon to communicate the MAPFF results to the other senior administrators and displayed an overall lack of a depth of knowledge of the MAPFF. When asked about the impact of the stop loss-adjustment on her institution, she admitted that she was unfamiliar with it and asked me to explain it. I then asked "Sally" how familiar she was with the MAPFF components for her institution and she replied, "not very familiar at all." She stated that the vice president of finance told the senior staff that "such a small amount of funding is tied to the MAPFF to not establish goals based on the results." This data point correlates to the responses on the survey regarding the level of review and familiarity of the MAPFF.

In "Sally's" opinion, there is a "lack of depth of knowledge" of the MAPFF and the college community as a whole is not familiar with the MAPFF. "Sally" also indicated lower staff morale due to "working more with less," but said that is not a direct result of the formula. However, her institution received $3.7 million, or 23% more state appropriations in FY2016 than in FY2013.

The fifth finding is the perception by the vice president of finance that the MAPFF does not allocate enough funding to warrant more attention paid to the detailed results of the formula. In response to his institution's appropriation before the stop-loss adjustment in fiscal years 2014, 2015, and 2016, "Paul" said that the performance of his institution "didn't make that much of a dollar difference" and they benefited from the stop-loss adjustment like other institutions that made the funding more "palatable, fairer, and more livable."

He went on to say:

> As the years went by and the amount of money attached to the formula got smaller and smaller, we started paying less attention to the formula itself, but we focused on the strategic vision that was laid out by the commonwealth for the community colleges.

"Paul's" response noted, however, that even though the amount of the increase got smaller each year, the amount of state appropriation grew each year between FY2014 and FY2016. The MAPFF is used to allocate all the state appropriations. The MAPFF allocates 100% of the total state appropriations to the community colleges each year ,and the spreadsheet dashboard displays this. The total state appropriations increased $20 million, 9.6% in FY2014, $13.1 million, 5.8% in FY2015, and $9.1 million, 3.5% in FY2016. While the state appropriation changes over this period began with a $20 million increase, the next two years saw increasingly smaller increases. The total stop-loss impact for Case 2 institution between FY2014 and FY2016 was $523,700, or 2.4% over this period. This supports "Paul's" perception that the amount of money tied to the formula is insignificant. It also supports the responses from the senior administrators of the cursory review of the MAPFF, focusing on the net amount of new appropriations received after the stop loss, or just the final funding amount. However, the Case 2 state appropriation in FY2016 was $3.7 million, or 23% more than in FY2013, the year before MAPFF.

Finally, the respondents indicated was that no actions were taken at their institutions to restrict enrollments because of the MAPFF. "Paul" did not feel that their declining enrollment during the three years of the study was attributable to actions taken at his institution because of their results on the MAPFF. He stated, "the economy got

better, and people can go out and get jobs." Additionally, he stated that the four-year institutions in Massachusetts were competing against them by offering developmental courses and had "lowered their standards for admissions, and that is driving students away." The third reason he stated for the declining enrollment was that they [other senior administrators at his institution] "know we have a problem with retention and have to work on that because if we can get our retention rates better, the enrollment figures would be better." "Paul" stated that his institution is "totally revamping our advising system and we're doing some things that actually are showing some results in terms of retention." He stated that "some additional staff were hired, and some full-time faculty were given release time to work as liaisons." This response is contrary to his response to the Survey Question 10, where the respondents indicated that staff and faculty were reduced at his institution.

When asked if his institution changed admission, enrollment, and recruitment policies because of the MAPFF, "Paul" stated that nothing like that was done. He went on to say that "we can't afford to do anything that would restrict admissions." "Paul's" final statement was: "the formula is really not the driving force in our student success initiatives, but they [student success initiatives] will help us with the formula."

***Case 3 interviews summary***. Several important findings are identified from the interview responses from the Case 3 institution. The first finding identified is the variation of responses on the reasons behind the tuition and fee increases.

"Robert," the president, started out by saying that he is still in his first year as president at the Case 3 institution. "Robert" stated that from what he has seen, the MAPFF had significantly influenced the increases in his institution's fee increases. He

suggested that the MAPFF doesn't seem to consider the high cost of some programs, which may limit the funding from the commonwealth and force institutions to "increase their fees more than they would have." He was unaware that the MAPFF weights STEM enrollments higher than other programs. STEM programs are typically higher cost programs to run. By weighting the higher cost programs more, the MAPFF does consider the higher cost of programs.

"Jake," the vice president of finance, responded to questioning about his institutions'' fee increases by stating that it was "to fill the budget gap." He also added that his institution has been relying on both fee increases and the use of their reserves to fill the budget gap for the past couple of years. "Jake" attributed the budget gap to their declining enrollment and said that "the state hasn't really given us any increase in our appropriation." Upon a review showing that the commonwealth did increase appropriations to the institutions each year during the first three years of the formula, he stated that, "I still don't really feel they've stepped up because they were flat-funded before that, and these increases just put us where we should have been had we been given the regular increases all along." He also stated that he was recommending cost-saving measures that included reductions and retrenchments to reduce operational expenses and help balance their budget. "Jake" added that their former president retired after more than 30 years at the college and "didn't care about the budget deficit. He just kept giving employee raises and raising student fees and using reserves" to pay for them.

"Ken," the interim vice president of academics, attributed the increase in fees over the three years under study to the declining enrollment they had. "If we don't meet our goals of enrollment, then the only way we can move forward without cutting back too

much and losing too many positions is to increase the fees." He added that, "the trustees never had a good appetite for increasing the fees, [and] they finally said no more." He also mentioned that they borrowed funds from their foundation, not their reserves, during this time.

The second finding is the lack of familiarity with the components of the MAPFF and how the components address the goals of the Vision Project. "Robert" also stated that the MAPFF incentivizes colleges to increase student outcomes "by default," [sic] but he felt that "we need to be as nimble and we need to be able to create programs that meet our business and industry needs. Those needs may fall outside of what has been defined by the bureaucracy of the funding formula." He went on to add, however, that "sometimes we feel the pressure to have to say 'no' to things that are not going to help us in the funding formula." This finding implies the MAPFF doesn't reflect the needs of the local business community for each institution. While an observation of concern, my study was not designed to explore the composition of the formula.

"Robert" was not aware that his institution had lost funding because of the stop-loss adjustment, and after he reviewed the chart above, he stated that he was "concerned about that." Because of his unfamiliarity with the stop-loss adjustment, I asked him if he and his senior staff review and discuss his institution's outcomes of the MAPFF. He said that they have reviewed the formula results and that his CFO has "discussed them with the other CFOs in the commonwealth." Not being familiar with the impact of the stop-loss adjustment on his institution during the FY2014–FY2016, preceding his tenure at the Case 3 institution indicates his reliance on his vice president of finance's interpretation

and communication of the formula's results, and supports the misperceptions of performance share versus the bottom line state allocation after the stop-loss adjustment.

"Jake" felt that because of the reports the colleges are required to file annually with the Department of Higher Education indicating their results against the goals of the Vision Project, the results are scrutinized more by the commonwealth than the MAPFF results. He stated: "I tend to wonder how much the formula is the driver [for improving outcomes] versus just knowing that the report is going to come out ranking each institutions' performance on the Vision Project goals. We're going to be held accountable based on another [Vision Project] report that they are really focusing on." This implies that the MAPFF is separate and distinct from the Vision Project, even though the MAPFF was a stated goal and part of the overall Vision Project, and the formula elements reflect the goals of the Vision Project. "Jake" did not know why his institution's performance share percentage increased over the three years being studied, but offered: "others [institutions] were doing badly, and we worked on graduation rates, retention, and increasing the underserved people as part of the Vision Project." This response indicates that "Jake" knew these elements count towards performance but did not indicate that he knew they are also part of the goals of the MAPFF. "Ken" was unfamiliar with the stop-loss adjustment of the MAPFF and could not answer my questions related to the funding loss after the adjustment.

The third finding is the reliance on the Title III grant to make improvements on student success initiatives before the implementation of the MAPFF and the expiration of the grant in 2015, interrupting their progress. When asked about actions taken at his institution to improve outcomes as measured by the MAPFF, "Robert" responded: "we

began overhauling our academic and career advising services for our students but lost the grant funding [Title III] awarded a few years ago [prior to MAPFF] that was helping us to do that." He went on to add that his institution had received a big gift that would allow them to again pursue this effort. This indicates a commitment by the Case 3 institution to adding staff to achieve the goals of the MAPFF. Previously, the grant and later the gift they received would help them continue their efforts with less of an impact on their tuition and fee rates. Note that they were already focused on this goal prior to the implementation of the MAPFF.

"Jake" could not recall what his institution did to improve student outcomes except that they used a Title III grant for revamping the advising process. After we reviewed and discussed his institution's performance before the stop-loss adjustment, "Ken" said that they had a Title III grant that had helped. However, when the grant ended in 2015, he stated that, "all of the good work we did, we couldn't keep up with because we weren't able to afford all of the advisors and so forth." "Ken" confirmed that they had to reduce the staff and reconfigure their advising program after the end of the grant. However, "Ken" made no mention of receipt of an additional monetary gift described by "Robert" to help them continue to work on improving their academic and career services.

"Ken" made a final point that the formula results had a demoralizing effect on the institution. "We all think we're doing a great job and yet we see the results and ask how other institutions can be doing better than we are." This comparison sentiment reflects that "Ken" and others trivialized or overlooked the formula results before the stop-loss adjustment, and only looked at final allocations. Even so, the Case 3 institution received $3.277 million, or 29.8% more, in state appropriations in FY2016 than in FY2013.

However, because of the stop-loss impact, it would have received $2.6 million more in state appropriations before the application of the stop-loss adjustment over the same three-year period.

The fourth finding is the participants felt their enrollment loss was not caused by the MAPFF. “Robert” stated that he did not feel that their results on the MAPFF contributed to any of his institution’s enrollment decline during this period. He echoed others interviewed that the reasons were because of an improving economy, a decline in the number of high school graduates, and a low unemployment rate.

“Jake” stated he did not feel that their results on the MAPFF contributed to any of the 11% enrollment decline during the period under study. He also echoed his presidents’ response that it was attributable to fewer high school graduates and added that there was a disruption surrounding the construction of a new building on campus that may have negatively impacted their enrollments during this time. “Jake” also stated that it was important to focus on efforts to increase enrollments by “beefing up our admissions efforts, because you have to put the money in there to get the enrollments.”

“Ken” attributed his institution’s enrollment decline to changing demographics and a reduction of the number of high school graduates. “We also have downsized programs and hired an outside consultant to help them review and make recommendations on programs that would attract more students,” he said. He added that by having fewer course offerings, “that does eliminate some student access because they might not offer the course on the day the students want it.”

The last finding is the perception of a lack of funding from the state. “Jake’s” institution received appropriation increases each year but would have received more

appropriations before the application of the stop-loss adjustment but lost a total of $2.6 million after the adjustment over the three years of the MAPFF. “Jake” indicated that he understood that and responded by saying, “yeah that definitely hurt us.” However, their state appropriation in FY2016 was $3.277 million, or 29.8% more, than in FY2013, the year before the MAPFF. “Jake’s” perception reflects a mindset of too little or no new funding that was not supported by the data.

Consistent with his survey responses, at first “Jake” didn’t feel that the MAPFF had any negative impacts on access, but then added that, “they had to make about $600,000 cuts to institutional financial aid” during the time period under study. However, he still didn’t think it was a result of their results on the MAPFF. “There were all the other things going on, like the state not having the money to give us regular increases, collective bargaining pressures, and enrollment decreases,” he said. Then “Jake” added that, “yeah I guess there has been some negative impact to access since the implementation of the MAPFF.” Reduction of institutional aid can directly impact the number of students enrolled because it directly impacts the cost of attendance (AFFORD).

Jake’s final comment was:

> The formula sounds good on the surface, but once you really dig into it, I don’t think it really works that well. It’s like kicking someone when they’re down because cutting funding due to poor performance on the MAPFF makes it more difficult to make improvements.

Although the Case 3 institution received $3.277 million more in state appropriations in FY2016 than in FY2013, the year before the MAPFF, "Jake's" perception consistently went to "no funding" and ignored the positive effects his institution saw.

***Case 4 interviews summary***. Several important findings were identified from the responses of the interviews from the Case 4 institution. The first finding is the results of the MAPFF influenced an additional increase in their student fees.

"Rachel," the president, stated that "we have the lowest fees of all 15 community colleges in the state" and the increase in fees was due to a large deficit the college had and was funding with unrestricted reserves. "When I came in, there was a $4 million budget deficit, and we had to increase fees to dig ourselves out of this hole," she said. She mentioned that 10 years earlier, the state was paying 70% of the costs and the students paid 30%. This changed to the students paying 70% and the state paying 30%. She added that they experienced a loss of general funds when money was added to state funding because, "it is targeted to things in workforce development or STEM." She added that, "our crisis when we have enrollment slides is really the general funds." "Rachel" also noted that the government "likes to lean on the idea of accountability as part of their solutions and keep us efficient; after years of doing that, we are all pretty much efficient."

"Eric," the vice president of finance echoed Rachel's response on the reasons for the increase in fees. "They don't need to be the least expensive nor the most expensive, but somewhere in the bottom third," he said. "Eric" also added that, "they did feel that it wasn't fair to current students to try to solve our $4 million budget deficit all at once, the combination of fee increases and use of our reserves took three to four years to solve." I asked Eric what he thought about receiving $7 million less in appropriations after the

stop-loss adjustment than they would have received before the stop loss over the first three years of the MAPFF and if that influenced any part of the fee increases. At first, he said "no" because "they figured we anticipated we weren't going to get it." However, "Eric" then came to the realization that the loss due to the stop-loss adjustment was used in determining the amount of their fee increase. He stated that, "I guess you might say that, yeah, not getting it was factored into setting our fees." He added that "if the formula ran without the stop loss or if we were funded based on our size, we would have charged a lot less on our fees. We would not have increased by $10 per credit hour." "Eric" also added that had it not been for the stop-loss adjustment, "we would have probably spent more money on some of the areas that needed it." He continued with: "The total state appropriation wasn't increased enough to cover our mandated costs that we have every year. Performance funding only works if the state is willing to fund us; otherwise it becomes just a matter of winners and losers." "Eric's" responses indicate that not only was their tuition and fee increase impacted by the stop-loss adjustment, but also that they were not able to make improvements in their operations to positively impact student success.

The second finding is the president of the Case 4 institution was the first participant that was aware of the difference between the stop-loss impact, the performance share percentage, and the enrollment component of the MAPFF. None of the other participants indicated any knowledge of this. The Case 4 institution's state appropriation in FY2016 was $7.8 million, or 44.5% more than in FY2013, the year before the MAPFF. However, the Case 4 institution received $7 million less in state

appropriations after the stop-loss adjustment over the same three-year period than it would have before (Table 21).

"Rachel" responded to that fact by stating that, "the stop loss is really an anathema. The politicians don't have the courage to give less funding to an institution because of poor results on a funding formula. She went on to say that the stop loss may impact what an individual institution receives in state funding, but it doesn't impact the entire system in Massachusetts. "So, access doesn't change when you look at the entire system." In "Rachel's" view, her institution was negatively impacted by the stop-loss adjustment, which supports why she felt the state politicians lacked courage to give less funding to poor performing institutions. It is noteworthy that "Rachel" is the only participant that indicated awareness of the difference between the stop-loss impact and the performance share. She was also the only senior administrator who mentioned some detailed knowledge of the enrollment component of the MAPFF. She stated that they did review the detailed results of the MAPFF early on but had stopped doing that and now just discuss the additional money there is available, so they can balance the budget. She added that the Department of Higher Education needs to reform the formula to be more nuanced based on the institutions' characteristics. "I know that my completion rate and my retention rate will go up because of the work we are doing on development education and student success integration, and if the formula was more nuanced, it would separate us from the field, and we would receive more state funding." The formula already separates them from the field on performance; her perception is from the stop-loss impact.

"Rachel" made a point of saying the negative impact of the MAPFF was because the state appropriations did not reflect the true worth of the institution. "There is a certain cynicism that happens in the conversation that you're being measured, held to account, and you're not good enough to prove your worth. Your performance dollars coming in that you 'earn' are never reflective of what your true work is." This statement reflects the antithetical relationship between the stop-loss adjustment and the performance share percentage. The performance share percentage for the Case 4 institution exceeded the sector average in all three years of the MAPFF but was significantly impacted by the stop-loss adjustment. In FY2016 alone, the Case 4 institution received $2.9 million less in state appropriations after the stop loss than it would have before and outperformed the sector average performance share (9.6% versus 6.7%). She went on to say that they would have been better off if they didn't have a formula because "the formula implies a certain negligence before it happens. The amount of money allocated by the MAPFF is so little that it's really not an incentive and we're under scrutiny with really no reward."

While "Rachel" was being critical of MAPFF by stating that it measures them and holds them to account for good results and that the formula is not reflective of what their true work is, their performance share percentage is the second highest of all 15 institutions in the Commonwealth. "Rachel" did understand the impact of the stop-loss adjustment, which supports her negative view of the MAPFF. They received $7 million less in state appropriations between FY2014 and FY2016 than they would have received before the stop-loss adjustment. I pointed out that her institution's performance share percentage increased over the first three years of the MAPFF and asked her what she

attributed that to. She responded, “I think the increased performance on development education is part of that.

The third finding is the respondents attributed their enrollment changes to demographic changes and not to their outcomes on the MAPFF. “Rachel” stated that her institution did not alter its admission and recruitment activities to improve their outcomes on the MAPFF. She stated that they have not, and she has not heard any talk about that at the Council of Presidents. “I don’t hear that talk and I’m not seeing that practice in Massachusetts; I don’t know about the state colleges and universities.” The part that tips us over is our lack of enrollment loss during this time.” She added that their small enrollment decline was due to the declining high school graduation rates and an economic recovery, but that was kept to a minimum because of the population growth of the greater metropolitan community.

“Eric,” was asked if his institution took any actions to change its admissions or recruitment practices. He said, “no, we didn’t do anything. We took no actions specifically to give us better funding.” The performance share percentage for the Case 4 institution increased over the period under study. “Eric” felt that his institution’s enrollment was “good and strong” [less of a decline] when other colleges had a larger dip in enrollment. “Eric” echoed “Rachel’s” response to the reasons for the slight enrollment decline: that the high school graduation rates declined, and the population of the greater metropolitan community grew. He added that they “did nothing to restrict admissions, and if someone suggested that they would be rousted out of town.” In fact, “Eric” added: “we are trying to make admissions easier by moving away from a strict dependence on

Accuplacer and moving to a GPA in high schools, and some other ways to get students into college-level courses quicker" to improve their enrollment.

The fourth finding is the Case 4 institution was already an Achieving the Dream (AtD) school prior to the implementation of the MAPFF and didn't need the incentive of the MAPFF metric to guide their focus in this area. "Eric" added that they were already an Achieving the Dream (AtD) school prior to the implementation of the MAPFF. They didn't need the incentive of the MAPFF metric to guide their focus in this area. As stated previously, the largest component in the MAPFF completion variable is the "AtD Success Rate." The AtD portion of the second variable in the MAPFF rewards colleges for serving students of color, low-income students, and other historically underrepresented student populations. The institutions success in this variable is weighted at 45% of the total Variable 2 measurement (Figure 3) and significantly impacts the performance share percentage. This supports the low potential categorization of the Case 4 institution, since they were already focused on this area of student success.

| | Quantitate Documentary and Administrative Data | | | | | Qualitative Surveys & Interviews | |
|---|---|---|---|---|---|---|---|
| | Required per credit hour Tuition & Fee Rates | Enrollment Headcount Average Change % | State Appropriation Change % before & after the Stop Loss Measure | Strategic Plan | MA Performance Funding Formula Component outcomes for each institution | Survey Instrument | One-On-One Interviews |
| Sources | DHE (HEIRS), IPEDS | Annual Financial Statement Audits, IPEDS, DHE (HEIRS) | PF Formula issued by the DHE | Web Sites, College Admin | MA Performance Funding Model issued by DHE | President, VP of Finance, VP of Academic Affairs, Presidents, Budget Managers, & IR Directors | President, VP of Finance, VP of Academic Affairs, Budget Managers, Director of Admissions, Registrars & IR Directors |
| Research Questions | YR -1 To 3 | YR -1 To 3 | YR -1 To 3 | Current | | | |
| Over Arching RQ | | | | | | | |
| **How is performance funding influencing the open access mission of community colleges in Massachusetts?** | X | X | X | X | X | X | X |
| Sub-Question 1 | | | | | | | |
| How does the senior management perceive the impact of Performance Funding and the Vision Project on student access to community colleges? | | | | X | | X | X |
| Sub-Question 2 | | | | | | | |
| What operational changes have occurred at the institutions to improve student success that are directly related to the implementation of the MAPFF? | | | | X | | X | X |
| Sub-Question 3 | | | | | | | |
| How has the MAPFF Program influenced tuition and fee rate changes? | X | X | X | | X | X | |
| Sub-Question 4 | | | | | | | |
| How have changes in the Massachusetts State appropriations with MAPFF influenced institutional changes in college education delivery or support for student success that then affected access? | X | X | X | X | X | X | X |

*Figure 3*. Research methods.

The fifth finding is the perception that not enough money was allocated by the MAPFF. All the state appropriations are allocated through the MAPFF. Finally, the respondents stated they did not look at the details of the MAPFF but rather just focused on the amount of total state appropriation change. The MAPFF allocates 100% of the total state allocation, and the MAPFF spreadsheet displays the detailed calculations for all the components of the formula.

"Eric" confided that they did not look at the details of the MAPFF but rather just focused on the amount of total state appropriation change. This is because there is not a lot of money tied to the formula. "I think if they [state] funded the formula, we would pay

more attention to the formula. But it becomes kind of a useless exercise that there's no money going into it." As noted earlier, the MAPFF allocates all the state appropriations to the community colleges.

**Summary of interview themes.** Several common themes were found among the participants from the Case 2, 3, and 4 institutions. The first theme is a perception that the goals of the Vision Project are separate and distinct from the goals of the MAPFF. Respondents from each of the Case 2, 3, and 4 institutions did not appear to recognize that the goals of the MAPFF are the same in the Vision Project. The second theme found is the institutional results of the MAPFF influenced negative impacts to student access through decreased affordability for the students. Respondents from each of the Case 2, 3, and 4 institutions attributed large tuition and fee increases to the MAPFF. The third theme found is the vice presidents of finance at Case 2, 3, and 4 institutions were relied upon to evaluate and communicate the results of the MAPFF with the other senior administrators. The fourth theme found is the senior administrators trivialized or overlooked their institutional detailed results before the stop-loss adjustment, effectively nullifying the fiscal incentive intended by the MDHE to improve student success with the MAPFF. Finally, the respondents perceived the MAPFF did not cause the reduction in enrollments at the case institutions; however, some programs, courses, and sections were reduced or eliminated in response to the perception of a lack of state funding.

## Discussion

This chapter began by asking, "how is performance funding influencing the open access mission of community colleges in Massachusetts?" In review, performance funding programs are designed to improve institutional performance and student

outcomes using formulas for the basis for allocating state appropriations. To answer this question, the study sought to determine how the senior leadership of four community colleges in Massachusetts responded to their institutions' results of the Massachusetts performance funding formula (MAPFF) over the first three years of use, FY2014–FY2016. A major finding of my study is the disconnection found between the performance funding component metrics and the impact of the Massachusetts Performance Funding Formula (MAPFF), which includes the stop-loss adjustment (guaranteed increase).

Performance funding involves the use of a formula to tie government funding to institutional performance on specific indicators (Dougherty & Reddy, 2011). As explained in Chapter II, the MAPFF was introduced in FY2014 to allocate state appropriations to the 15 community colleges in Massachusetts for the successful outcomes of their students, to stop the growth of student charges already among the highest in the nation, add accountability of the institutions for the use of public funds, and to address several other legislative concerns. It was stated in Chapter II that the stop-loss adjustment (guaranteed increase) of the MAPFF could diminish or delay the performance incentive of the funding formula. My analysis of the data collected indicates that the stop-loss adjustment component of the MAPFF has significantly altered the intended purpose that the MDHE had for the implementation of the formula. The stop -loss adjustment diverted attention away from the impact of performance improvements by the institutions for the first three years under study. After fiscal year 2014, the institutions continued increasing student fees in FY2015 and 2016. Although this stop-loss effect was identified before collecting data, the degree to which it impacted the results was more profound.

The difference between the performance share and the stop-loss adjustment is an important distinction to recap before the results of the findings are discussed. Chapter III describes how the MAPFF determines the amount of state appropriation each of the community colleges receive by combining the results of the base share, performance share, cost-of-operation subsidy, and then the fourth component is application of the stop-loss adjustment (Table 3). The stop-loss adjustment is both to hold institutions harmless for poor performance results on the first three components of the MAPFF, as evidenced by the performance share percentage, and to guarantee a minimum funding increase as stipulated when the MAPFF was instituted (3.5% in FY14 and FY15, and 2.5% in FY16). However, an institution with higher performance share percentages can be negatively impacted because of the stop-loss adjustment even though they receive more state appropriations than the previous fiscal year. This is because they may receive less than they would have before the stop-loss adjustment; coined as the "stop-loss effect." The stop-loss effect is described next.

**Stop-loss effect.** The "stop loss" feature guaranteed each institution would receive a minimum increase of 3.5% in fiscal years 2014 and 2015, and 2.5% in FY2016. At the time of the implementation of the MAPFF, the Massachusetts Department of Higher Education (MDHE) scheduled the phase-out of the stop-loss adjustment over the first four years of the MAPFF. MDHE reduced the stop-loss adjustment percentage in fiscal year 2016 to 2.5% from 3.5%. The institutions scoring a higher performance share percentage in the MAPFF saw the calculated value in the MAPFF dashboard, but did not receive the full benefit. The stop-loss adjustment of the MAPFF reallocates appropriations from better performing institutions to institutions for which their state

appropriations would not have reached the minimum increase in any year. The MAPFF for Case 2, 3, and 4 institutions all showed that they would have received more appropriations before the stop loss, 20.3%, 38.4%, and 60.9% respectively, but instead saw part of the appropriations reallocated to other institutions, such as to case 1 institution (Table 9). The missing feedback in the qualitative portion of my study from the case 1 institution is unfortunate because they significantly benefitted from the stop-loss effect. The quantitative administrative and secondary data for the case 1 institution also displayed the highest potential for the leaders of the institution to have taken actions that would have negatively impacted access. Without their participation in the interviews, it is unknown if the perceptions of the senior administrators at the case 1 institution would have differed from the other case institutions. My analysis of the data collected from the qualitative interviews indicate the senior administrators looked at the final allocations after the stop loss and felt the MAPFF did not allocate enough funding to warrant more detailed attention paid to the formula.

Analysis of the qualitative data led to my conclusion that the stop-loss effect is significant. The consistent perception of the senior administrators that the MAPFF did not allocate enough funding, points to a confusion between performance as measured by the formula and the total appropriation—the impact of the stop-loss effect. The stop-loss effect is the difference between the state funding calculated before and after the stop-loss adjustment. The quantitative administrative and secondary data, the quantitative and qualitative survey, and qualitative interview responses indicate that the stop-loss effect significantly affected the perception of the participants and the effectiveness of the MAPFF as originally intended by the MDHE. Most of these administrators viewed the

final MAPFF allocation (after the stop-loss adjustment) as the effect of the performance formula.

The performance allocation is determined by the student success, completion, and alignment variables in the formula. The performance share percentage is the gauge or score indicating the effectiveness of each institution in meeting the goals determined by MDHE. The stop-loss adjustment is applied after the calculation of the performance share percentage and the result is the state appropriation allocation for each of the 15 community colleges in Massachusetts.

The intent of the Department of Higher Education is to incentivize improved performance as measured by the MAPFF by rewarding the institutions with more state appropriations showing improved student success. However, because of the stop-loss adjustment, the MAPFF guaranteed each institution received additional state appropriations in each of the first three years of the MAPFF, regardless of their outcomes on the first three components of the formula. Essentially, the effectiveness of the performance funding incentive was lost.

Analysis of the survey and interview data revealed inconsistent views of how the formula impacted the institutions with regards to strategic decision-making, specifically impacting access. Two significant findings and four other findings emerged from the quantitative and qualitative data analysis, as summarized below.

**Significant and notable findings.** Two significant findings were found in my study: 1) the stop-loss effect appears to have had a significant impact on the effectiveness of the MAPFF and prompted actions by the senior leadership negatively impacting access and 2) the perception of the senior administrators that the state is not funding the formula

enough to have any impact on access. Four other notable findings were also found and included: 1) lack of detailed review of the MAPFF results and the reliance on the interpretation and communication from the vice presidents of finance; 2) the trivialization, and/or lack of attention paid to the enrollment variable within the base share component of the MAPFF; 3) the perception that the Vision Project was more of an incentive to improve student success over the MAPFF, and 4) the perception that none of the enrollment losses at the case institutions were related to actions implemented because of the MAPFF.

The most significant finding was the stop-loss effect "resulting from the hold harmless factor" had a significant impact on the effectiveness of the MAPFF because the senior leadership perceived the final allocation as the most significant result of the MAPFF. The stop-loss effect is the difference between the state funding calculated before and after the stop-loss adjustment which guaranteed and minimum increase to all the colleges. Although all four case institutions received more state appropriations in each of the three years of the study, the Case 3 and 4 institutions saw their state allocations reduced as a result of the stop-loss adjustment. The state appropriations were reduced by a total of $2.587 million for Case 3 institution and $7.014 million for Case 4 institution over the first three years of the formula. Case 2 institution received a total increase of $523,700 over the first three years of the formula. The Case 1 institution would have received $2.4 million, or 24.9% less in state appropriations before the stop-loss adjustment, and received $1.6 million, or 16.48% more after the stop-loss. Because of these results, the senior administrators trivialized or overlooked the performance component of the formula, stifling any actions to improve student success as incentivized

by the formula. Although previous studies reported some use of hold harmless or stop-loss provisions to appropriation losses, the impact and effectiveness of them were not elaborated on because they were not the primary focus (Dougherty, et al., 2011; Dougherty, et al., 2014; Dougherty, Jones, Lahr, Natow, Pheatt, and Reddy, 2016; Dougherty & Reddy, 2011, 2013). These studies found that the top administrative institutional leaders at various two- and four-year institutions in Tennessee, Florida, Washington, Missouri, North Carolina, and South Carolina used the performance funding programs output to analyze institutional effectiveness and develop strategic plans to improve student success results that could maximize the amount of state appropriations. In the Woodland Hills study, early on the performance funding formula did motivate strategic planning, however, the performance funding formula was invisible to staff and faculty below the vice president level (Wood, 2007).

Possibly related to the first finding, the second significant finding was the senior administrators from the Case 2, 3, and 4 institutions perceived that the state was not funding the formula enough to have any impact on them, positive or negative. The MAPFF allocates all the state appropriations for the community colleges, qualifying it as a PF 2.0 program (Dougherty & Reddy, 2013). Additionally, the quantitative data show the Massachusetts appropriations were increased by $20 million or 9.6%, $13.1 million or 5.8%, and $9.1 million or 3.5% in FY2014, FY2015, and FY2016 respectively. The Case 2, 3, and 4 institutions received $3.7 million (23%), $3.3 million (29.8%), and $7.8 million (44.5%) more in state appropriations in FY2016 than they did in FY2013. These increases would be considered good by any standard. However, they received less than they would have received before the stop-loss adjustment. The stop-loss effect masked

the magnitude of the performance portion of the funding formula and is a significant reason the Case 2, 3, and 4 institutions felt this way.

All three vice presidents of finance at Case 2, 3, and 4 institutions had the mindset that due to the lack of state funding in the years leading up to the implementation of the MAPFF, they did not recognize or give credit for the increases they did receive. “Jake,” the vice president of finance at the Case 2 institution, didn’t think the state stepped up because the institution had been flat funded before the MAPFF was implemented. “Eric,” the vice president of finance at the Case 4 institution, indicated that the state appropriations increases were not enough to cover their mandated costs and didn’t expect much from the state because he anticipated they wouldn’t get much of an increase.

The first notable finding is each institution’s lack of a detailed review of the MAPFF results and the reliance on the interpretation and communication from the vice president of finance regarding the formula’s results. The vice presidents of finance at Case 2, 3, and 4 institutions felt that the MAPFF was not an important measure that warranted a detailed review because they interpreted the MAPFF as allocating too few dollars to the institutions. This also indicates a trivialization and/or a lack of attention paid to the difference between the performance share and the stop-loss effect. The performance share is the measurement of how well each institution performed in the college completion and alignment variables. The stop-loss adjustment is applied after the calculation of the performance share. The dashboard page of the MAPFF spreadsheet summarizes the dollar impact of base share, performance share, cost-of-operation subsidy, and the total appropriation both before and after the stop-loss adjustment. It seemed that the vice presidents of finance were not concerned with the detail of the

MAPFF, focusing only on the appropriation after the stop loss. Perhaps the vice presidents of finance understand having the stop-loss adjustment in the MAPFF but feel that the state would never eliminate it as the MDHE intended. In publicly funded community colleges, the vice president of finance is typically the position responsible for knowing the details of how the state allocates appropriations and using this information to develop the fiscal year budgets and sharing this information for value in strategic decision-making. It appeared the other senior administrators feared the formula and game themselves permission not to fully analyze and understand the results. The interviews with the participants at all three case institutions reveal the vice presidents of finance are controlling the MAPFF information provided to others at the institutions, masking the information by making the decision before the administrators who control the operations for student success are engaged. As a result, this defeated the incentive of the MAPFF on improving student access and success. This finding is contrary to the findings in previous performance funding studies where early on, the PF program drove significant change at the institutions (Dougherty & Reddy, 2011, 2013; Dougherty, et al., 2016; Dougherty, Jones, Lahr, Natow, Pheatt, Vikash, 2014; Lahr, Pheatt, Dougherty, Jones, Natow & Reddy, 2014; Latimer, 2001, Hillman, et al., 2015; Wood, 2007).

The study conducted at the University of Memphis found that the senior administrators at the university found the PF formula was unwieldy and burdensome for the funds it returned (Latimer, 2001). The University of Memphis study indicated the existence of a performance funding officer position. However, there was no mention that the PFO controlled the PF-resulting information, releasing it to the other senior administrators at the institution. Other studies found that the PF program had an impact at

the institution early on but shortly became “invisible” below the vice president level (Dougherty & Reddy, 2011; Dougherty, et al., 2016; Dougherty, Jones, Lahr, Natow, Pheatt, Vikash, 2014; Lahr, Pheatt, Dougherty, Jones, Natow & Reddy, 2014; Latimer, 2001, Hillman, et al., 2015; Wood, 2007). Having a separate performance funding officer position could indicate that this institution treated the performance funding program as strategically important. It could also mean that the other senior leaders, including the vice president of finance, were not as committed to learning and understanding how the performance funding program impacted their institutions.

The second notable finding is the trivialization, and/or, lack of attention paid to the enrollment variable of the MAPFF. The base share enrollment variable weights programs higher in STEM and workforce development, providing an opportunity for the institutions to maximize this component of the formula. Although the senior administrators indicated the MAPFF did not directly impact access, they instead focused on increasing overall enrollments. Apart from the president of the Case 4 institution, the interviewees did not seem to know the MAPFF weights enrollments differently by program. Each institution was focused on increasing total, overall enrollment through obtaining new students and improving their rates of retention. When probed about their overall enrollment strategy, most of the participants never mentioned familiarity with or attempts to strategically increase enrollments weighted higher in the MAPFF. The enrollment variables with the higher weights in STEM and workforce-related programs as shown in Figure 1, indicate the Department of Higher Education’s priorities for the public institutions in the commonwealth. These goals are also outlined in the overall Vision Project goals. “Rachel,” the president of the Case 4 institution, recognized that the

MAPFF targets enrollments in workforce development and STEM but did not indicate a change in their enrollment strategies because of it. “Rachel” also indicated this did not match the needs of the local businesses. While focusing on all enrollments is an action consistent with profit maximization and imitating behaviors found in the business sector, found in Levin (2005), it ignores or trivializes the goals and priorities of the Department of Higher Education in Massachusetts for more STEM and workforce enrollment. This finding is contrary to the findings in other studies on performance funding programs, where actions were found to be more selective in admissions to boost graduation rates (Dougherty, Jones, Lahr, Natow, Pheatt, Vikash, 2014). Although the Case 2, 3, and 4 institutions overlooked the enrollment goals in the base-share component of the MAPFF, they focused on increasing overall enrollments and indicated they did not engage in any kind of restrictive admissions, enrollment, and recruitment practices.

The third notable finding is many of the participants stated that their institutions’ focus on improving enrollment and student success were incentivized more by the Vision Project results and not the MAPFF. However, the MAPFF is a sub-component of the Department of Higher Education’s overall Vision Project.

The fourth notable finding is all senior administrators did not perceive any of the enrollment loss was related to actions implemented because of improving their results on the MAPFF. Although there were some contradicting responses between the survey and interview responses, the participants agreed that fewer high school graduates, an improving economy, and lower unemployment rates were the principle drivers for their enrollment declines. This would be standard community college strategic responses. However, the data show reductions and eliminations of programs, courses, and sections at

Case 2 and 3 institutions were influenced by the MAPFF in response to the perception of a lack of state funding. The Vision Project addresses the desire of the Massachusetts Department of Higher Education to produce the best-educated citizenry and workforce in the nation and be national leaders in research that drives economic development (MDHE 2010; 20111; 2012; 2013). The Vision Project focuses on five key areas: (a) college participation, including college readiness and enrollment; (b) college completion, including graduation and student success rates; (c) student learning, including campus-level and system-wide assessment; (d) workforce alignment, including promotion of STEM education and statewide workforce planning; and (e) research. The Vision Project explicitly lists specific policies and practices for the college completion area, including performance funding (MDHE, 2011). The MAPFF components also align directly to the enrollment variables (Figure 1), completion (Figure 2), and the alignment multipliers (Figure 4). Their failure to recognize this fact indicates a lack of understanding of the role the MAPFF plays in the Vision Project for Massachusetts.

**New Funding Allocations FY16**

| Community College | FY15 GAA (w/ Collective Bargaining) | New Funding Level - No Stop Loss | | | | New Funding Level - With Stop Loss | | |
|---|---|---|---|---|---|---|---|---|
| | | Base Allocation ($) | Performance Allocation ($) | Cost of Operation Subsidy ($) | Total Allocation | % Difference in Funding from 2015 | Total Allocation After Stop Loss Adjustment | Difference $ (+/-) between Stop Loss and FY14 GAA | Percentage Difference in Funding |
| Institution A | $ 10,347,506 | $ 2,239,941 | $ 4,870,655 | $ 4,500,000 | **$ 11,610,597** | 12.2% | $ 10,748,446 | $ 400,940 | 3.9% |
| Institution B | $ 19,518,238 | $ 8,942,232 | $ 9,047,040 | $ 4,500,000 | **$ 22,489,272** | 15.2% | $ 20,461,326 | $ 943,088 | 4.8% |
| Institution C | $ 23,950,197 | $ 13,871,649 | $ 9,786,209 | $ 4,500,000 | **$ 28,157,857** | 17.6% | $ 25,285,825 | $ 1,335,628 | 5.6% |
| Institution D | $ 11,369,527 | $ 3,557,221 | $ 5,585,564 | $ 4,500,000 | **$ 13,642,785** | 20.0% | $ 12,091,122 | $ 721,595 | 6.3% |
| Institution E | $ 9,948,739 | $ 2,237,103 | $ 1,899,007 | $ 4,500,000 | **$ 8,636,110** | -13.2% | $ 10,197,457 | $ 248,718 | 2.5% |
| Institution F | $ 19,310,996 | $ 7,179,021 | $ 7,676,750 | $ 4,500,000 | **$ 19,355,771** | 0.2% | $ 19,793,771 | $ 482,775 | 2.5% |
| Institution G | $ 15,368,132 | $ 5,423,762 | $ 6,858,305 | $ 4,500,000 | **$ 16,782,067** | 9.2% | $ 15,816,954 | $ 448,822 | 2.9% |
| Institution H | $ 20,227,372 | $ 8,225,586 | $ 6,552,997 | $ 4,500,000 | **$ 19,278,583** | -4.7% | $ 20,733,056 | $ 505,684 | 2.5% |
| Institution I | $ 21,845,084 | $ 10,178,848 | $ 10,568,947 | $ 4,500,000 | **$ 25,247,795** | 15.6% | $ 22,925,199 | $ 1,080,115 | 4.9% |
| Institution J | $ 13,842,636 | $ 5,586,919 | $ 5,144,666 | $ 4,500,000 | **$ 15,231,586** | 10.0% | $ 14,283,527 | $ 440,891 | 3.2% |
| Institution K | $ 20,608,175 | $ 7,959,764 | $ 8,132,976 | $ 4,500,000 | **$ 20,592,740** | -0.1% | $ 21,123,379 | $ 515,204 | 2.5% |
| Institution L | $ 18,806,189 | $ 6,684,133 | $ 9,381,352 | $ 4,500,000 | **$ 20,565,485** | 9.4% | $ 19,364,638 | $ 558,449 | 3.0% |
| Institution M | $ 19,861,314 | $ 8,999,744 | $ 8,053,275 | $ 4,500,000 | **$ 21,553,019** | 8.5% | $ 20,398,308 | $ 536,994 | 2.7% |
| Institution N | $ 11,056,826 | $ 2,463,088 | $ 339,872 | $ 4,500,000 | **$ 7,302,960** | -34.0% | $ 11,333,247 | $ 276,421 | 2.5% |
| Institution O | $ 24,170,848 | $ 7,366,677 | $ 7,018,071 | $ 4,500,000 | **$ 18,884,749** | -21.9% | $ 24,775,119 | $ 604,271 | 2.5% |
| SYSTEM TOTAL | **$260,231,779** | $ 100,915,688 | $ 100,915,688 | $ 67,500,000 | **$ 269,331,375** | 3.5% | $ 269,331,375 | $ 9,099,596 | 3.5% |

**New Funding Allocations FY15**

| Massachusetts Public Community Colleges | FY14 GAA (w/o Collective Bargaining) | New Funding Level - No Stop Loss | | | | New Funding Level - With Stop Loss | | |
|---|---|---|---|---|---|---|---|---|
| | | Base Allocation ($) | Performance Allocation ($) | Cost of Operation Subsidy ($) | Total Allocation | % Difference in Funding from 2014 | Total Allocation After Stop Loss Adjustment | Difference $ (+/-) between Stop Loss and FY14 GAA | Percentage Difference in Funding |
| Institution A | $ 9,079,631 | $ 2,044,786 | $ 4,026,415 | $ 4,500,000 | **$ 10,571,201** | 16.4% | $ 9,746,386 | $ 666,755 | 7.3% |
| Institution B | $ 16,825,677 | $ 7,418,472 | $ 7,858,484 | $ 4,500,000 | **$ 19,776,956** | 17.5% | $ 18,144,944 | $ 1,319,267 | 7.8% |
| Institution C | $ 19,779,544 | $ 11,926,470 | $ 8,448,687 | $ 4,500,000 | **$ 24,875,157** | 25.8% | $ 22,057,362 | $ 2,277,818 | 11.5% |
| Institution D | $ 10,167,629 | $ 3,187,571 | $ 3,487,584 | $ 4,500,000 | **$ 11,175,155** | 9.9% | $ 10,618,009 | $ 450,380 | 4.4% |
| Institution E | $ 8,956,454 | $ 2,136,840 | $ 2,218,465 | $ 4,500,000 | **$ 8,855,305** | -1.1% | $ 9,269,930 | $ 313,476 | 3.5% |
| Institution F | $ 17,161,341 | $ 6,032,292 | $ 6,564,990 | $ 4,500,000 | **$ 17,097,282** | -0.4% | $ 17,761,988 | $ 600,647 | 3.5% |
| Institution G | $ 13,796,654 | $ 4,625,911 | $ 6,176,188 | $ 4,500,000 | **$ 15,302,099** | 10.9% | $ 14,469,611 | $ 672,957 | 4.9% |
| Institution H | $ 17,984,319 | $ 7,198,469 | $ 4,859,449 | $ 4,500,000 | **$ 16,557,917** | -7.9% | $ 18,613,770 | $ 629,451 | 3.5% |
| Institution I | $ 18,983,593 | $ 8,712,193 | $ 8,937,600 | $ 4,500,000 | **$ 22,149,792** | 16.7% | $ 20,398,933 | $ 1,415,340 | 7.5% |
| Institution J | $ 12,084,503 | $ 4,831,595 | $ 4,574,204 | $ 4,500,000 | **$ 13,905,799** | 15.1% | $ 12,898,651 | $ 814,148 | 6.7% |
| Institution K | $ 18,246,953 | $ 6,630,125 | $ 6,990,552 | $ 4,500,000 | **$ 18,120,677** | -0.7% | $ 18,885,596 | $ 638,643 | 3.5% |
| Institution L | $ 16,876,332 | $ 5,822,475 | $ 7,375,675 | $ 4,500,000 | **$ 17,698,150** | 4.9% | $ 17,467,004 | $ 590,672 | 3.5% |
| Institution M | $ 16,333,936 | $ 7,894,345 | $ 7,669,297 | $ 4,500,000 | **$ 20,063,643** | 22.8% | $ 18,001,172 | $ 1,667,236 | 10.2% |
| Institution N | $ 10,069,883 | $ 2,170,187 | $ 658,807 | $ 4,500,000 | **$ 7,328,995** | -27.2% | $ 10,422,329 | $ 352,446 | 3.5% |
| Institution O | $ 21,807,862 | $ 6,281,678 | $ 7,067,015 | $ 4,500,000 | **$ 17,848,693** | -18.2% | $ 22,571,137 | $ 763,275 | 3.5% |
| SYSTEM TOTAL | **$228,154,311** | $ 86,913,411 | $ 86,913,411 | $ 67,500,000 | **$ 241,326,822** | 5.8% | $ 241,326,822 | $ 13,172,511 | 5.8% |

**New Funding Allocations FY14**

| Massachusetts Public Community Colleges | FY13 Funding Amount | New Funding Level - No Stop Loss | | | | New Funding Level - With Stop Loss | | |
|---|---|---|---|---|---|---|---|---|
| | | Base Allocation ($) | Performance Allocation ($) | Cost of Operation Subsidy ($) | Total Allocation | % Difference in Funding 2013 | Total Allocation After Stop Loss Adjustment | Difference $ (+/-) between Stop Loss and FY13 GAA | Percentage Difference in Funding |
| Institution A | $7,988,207 | $ 2,112,318 | $ 3,330,594 | $ 4,500,000 | **$ 9,942,912** | 24.5% | $ 9,207,281 | $ 1,219,074 | 15.3% |
| Institution B | $13,885,391 | $ 6,820,622 | $ 7,076,763 | $ 4,500,000 | **$ 18,397,385** | 32.5% | $ 16,699,347 | $ 2,813,956 | 20.3% |
| Institution C | $17,496,631 | $ 8,912,763 | $ 7,603,525 | $ 4,500,000 | **$ 21,016,288** | 20.1% | $ 19,691,704 | $ 2,195,073 | 12.5% |
| Institution D | $9,823,796 | $ 3,224,452 | $ 2,444,272 | $ 4,500,000 | **$ 10,168,724** | 3.5% | $ 10,167,629 | $ 343,833 | 3.5% |
| Institution E | $7,805,889 | $ 2,151,049 | $ 3,146,823 | $ 4,500,000 | **$ 9,797,872** | 25.5% | $ 9,048,211 | $ 1,242,322 | 15.9% |
| Institution F | $16,074,594 | $ 5,969,313 | $ 7,197,649 | $ 4,500,000 | **$ 17,666,962** | 9.9% | $ 17,067,692 | $ 993,098 | 6.2% |
| Institution G | $11,859,106 | $ 4,470,668 | $ 6,223,780 | $ 4,500,000 | **$ 15,194,448** | 28.1% | $ 13,939,229 | $ 2,080,123 | 17.5% |
| Institution H | $17,376,154 | $ 6,702,109 | $ 5,341,321 | $ 4,500,000 | **$ 16,543,430** | -4.8% | $ 17,984,319 | $ 608,165 | 3.5% |
| Institution I | $17,121,183 | $ 8,213,614 | $ 7,471,748 | $ 4,500,000 | **$ 20,185,362** | 17.9% | $ 19,032,193 | $ 1,911,010 | 11.2% |
| Institution J | $11,007,508 | $ 4,743,484 | $ 3,445,542 | $ 4,500,000 | **$ 12,689,027** | 15.3% | $ 12,056,206 | $ 1,048,698 | 9.5% |
| Institution K | $17,629,906 | $ 6,369,881 | $ 6,444,258 | $ 4,500,000 | **$ 17,314,139** | -1.8% | $ 18,246,953 | $ 617,047 | 3.5% |
| Institution L | $16,305,635 | $ 5,380,009 | $ 6,239,967 | $ 4,500,000 | **$ 16,119,976** | -1.1% | $ 16,876,332 | $ 570,697 | 3.5% |
| Institution M | $12,980,557 | $ 7,331,544 | $ 6,406,535 | $ 4,500,000 | **$ 18,238,079** | 40.5% | $ 16,259,469 | $ 3,278,912 | 25.3% |
| Institution N | $9,729,356 | $ 2,178,260 | $ 1,079,715 | $ 4,500,000 | **$ 7,757,974** | -20.3% | $ 10,069,883 | $ 340,527 | 3.5% |
| Institution O | $21,070,398 | $ 5,747,069 | $ 6,874,664 | $ 4,500,000 | **$ 17,121,733** | -18.7% | $ 21,807,862 | $ 737,464 | 3.5% |
| SYSTEM TOTAL | $208,154,311 | $ 80,327,156 | $ 80,327,156 | $ 67,500,000 | **$ 228,154,311** | 9.6% | $ 228,154,311 | $ 20,000,000 | 9.6% |

*Figure 4.* MAPFF Dashboards FY2014–2016.

Before arriving at my conclusions, I considered the correlation versus causation phenomenon. A correlation between variables does not automatically mean the change in one variable caused the change in another variable. This research study sought to determine if the implementation of the MAPFF, used as the mechanism in Massachusetts to allocate funding based on performance, caused a negative impact to access on either of two threats to access: decreased affordability and/or restricted admission, enrollment, and recruitment practices.

My proposition states that the implementation of the MAPFF will have negatively impacted access in two areas: (a) intentional restrictive admissions, enrollment, and recruitment practices; and (b) decreased affordability.

As for restrictive admissions, enrollment, and recruitment practices, actions that limit or restrict admissions or recruitment of students influenced by the MAPFF were explored (Table 4). The senior leadership perceived the MAPFF did not contribute to any part of their enrollment losses during the three-year period under study. However, responses from the participants at Case 2 and 3 institutions indicated the MAPFF influenced the reduction elimination of some programs, courses, and sections at their institutions during the study period in response to the perception of too little funding from the state. Previous studies found that institutions operating under a performance funding formula restricted admissions and enrollment intentionally by being more selective of students admitted into the colleges (Dougherty & Reddy, 2011, 2013; Lahr et al., 2014; Smith, 2015; Tandberg & Hillman, 2013). The results of my study did not find intentional restrictive admission and enrollment practices.

For decreased affordability the following variables were considered: increased costs through operational changes, additional staffing, and new and increased tuition and fees (Table 4). The quantitative administrative and secondary data and the qualitative interview data showed the MAPFF did influence some portion of the tuition and fee increases and new fees, and a reduction of student aid during the study period. Previous studies found that institutions operating under a performance funding formula experienced increased costs related to the review and compliance of a formula and engaged targeting financial aid (Dougherty & Reddy, 2011, 2013; Lahr, et al., 2014; Smith, 2015; Tandberg & Hillman, 2013).

**Conclusion**

The findings reached after a thorough analysis of the quantitative administrative and secondary data, the quantitative and qualitative survey data, and the qualitative interview data center around the perceptions and interpretations of the MAPFF and its purpose by the senior leadership of the case institutions.

This chapter considered if the MAPFF had an impact on student access at the case institutions in my study. The data show that the changes at Case 2 were greater than case 3 and case 4 institutions in most of the variables measured. The tuition and fee increase of 16.52% at case 2 was the largest of the four case institutions. The tuition and fee increase at case institutions 3 and 4 were 6.27% and 5.67% respectively. The state appropriation calculation before the stop-loss adjustment, indicating the results of the first three components of the MAPFF, for the Case 2 institution was 20.29% versus 38.3% and 44.52% for case institutions 3 and 4 respectively. The FTE change at the Case 2 institution was -7.52% versus -5.28% and +0.52% for case institutions 3 and 4

respectively. The performance share percentage change at Case 2 was 8.0% versus 4.9% and 9.6% at the Case 3 and 4 institutions respectively. The stop-loss impact percentage at Case 2 was 2.4% versus -6.2% and -10.2% at the case 3 and 4 institutions.

The findings from the quantitative data and qualitative interview data suggest that the MAPFF did have a negative impact on access at Case 2, 3, and 4 institutions, in both decreased affordability and through the reduction and elimination of programs, courses, and sections. While I did not question the participants if some of the tuition and fee increases would have been instituted anyway without the MAPFF, I must consider that they probably would have. However, it was clear that actions were instituted in response to the perception that the amount of the state appropriations allocated through the MAPFF after the stop-loss adjustment would decrease and negatively impacted student access.

# Chapter V

## Conclusions

The purpose of my study was to determine if one or both of two previously documented threats to access—decreased affordability and restricted admissions, enrollment, and recruitment—were found at the case study institutions as a result of the implementation of the MAPFF. This chapter presents conclusions based on the findings from the quantitative administrative and secondary data, the quantitative and qualitative survey data, and the qualitative one-on-one interview data obtained from the senior most administrators at four case institutions in Massachusetts.

Guiding the findings is the overarching research question for my study of: How is performance funding influencing the open-access mission of community colleges in Massachusetts?

Subquestions asked:

1. What operational changes have occurred at the institutions to improve student success that are directly related to the implementation of the MAPFF?
2. How has the MAPFF Program influenced tuition and fee rate changes?
3. How have changes in the Massachusetts state appropriations with MAPFF influenced institutional changes in college education delivery or support for student success that then affected access?
4. How does the senior management perceive the impact of performance funding on student access to community colleges?

## Study Overview

The study began with the quest to determine if the performance funding formula (MAPFF), implemented by the Department of Higher Education as part of the Commonwealth of Massachusetts Vision Project, negatively impacted the open-access mission of the community colleges in Massachusetts.

The Massachusetts Legislature developed the Vision Project to strengthen academic performance at the community colleges while holding the public institutions accountable to the public for results (MDHE, 2013). The legislative concerns for the formation of the MAPFF include addressing the large inequities in per student funding, allocating funds in relation to aspects of institutional performance that reflect statewide education goals, emphasizing the role of community colleges in preparing students for jobs in the states' rapidly evolving economy, and stopping the growth in student charges that are already among the highest in the nation.

Levin (2005) and Dougherty & Reddy (2011) suggested that the management behavior at community colleges is mimicking the business sector and making decisions to maximize profit as a goal. It was for this reason I argued that the community colleges in Massachusetts would respond to the MAPFF by making changes at their institutions to maximize their state appropriations, and through their actions, may negatively impact the open-access mission of community colleges in Massachusetts.

The Commonwealth of Massachusetts is incentivizing the community colleges to improve student success and completion by allocating 100% of total state appropriations through the three components of the MAPFF. The base enrollment share component weights enrollments in STEM and workforce development programs more heavily than

other programs, and as a result, adds annual variability within the formula. The performance share component incorporates student success and alignment variables. The cost-of-operation subsidy is a flat $4,500,000 for each institution. Finally, a fourth factor intended to be temporary hold harmless is the stop loss adjustment which guarantees a minimum increase for each institution. The actual state allocation is the result of all four factors after adjusting with the stop loss. As documented in the literature review in Chapter II, research has shown that performance funding programs have negatively impacted access in the areas of: decreased affordability (AFFORD) and restrictive admissions, enrollment, and recruitment practices (R.A.E.R.).

My study's proposition, as it relates to the impact of the MAPFF on the open access mission, is that the open-access mission was negatively impacted in the Massachusetts community colleges in one or both areas of decreased affordability and restrictive admissions, enrollment, and recruitment because of the MAPFF.

All 15 community colleges in Massachusetts increased their tuition and fee rates during the three years under study. The increases ranged between 3.5% and 23.7%. The percentage change in FTE for the 15 community colleges ranged between a 0.5% increase to a 15.1% decrease from 2013 through 2016. Only 12 of the 15 community colleges were considered for the full study. Two of the 15 institutions were used for the pilot study, and the third was my home institution at the time my study began, leaving 12 for consideration.

The investigation began by selecting four institutions for this multi-case study using a purposeful sampling method, discussed in depth in Chapter III. Each of the four case institutions were examined in view of the two documented threats to access,

decreased affordability (AFFORD) and restrictive admissions, enrollment, and recruitment practices (R.A.E.R.). Based on the quantitative administrative and documentary data, Case 1 and 2 institutions were grouped into the high potential category, the Case 3 institution into the lower potential category, and the Case 4 institution was grouped into the low potential category for a negative impact to access.

The data from the surveys and interviews were analyzed to examine how the MAPFF influenced actions implemented at each of the institutions that may have impacted the affordability to attend the three case institutions and/or limited enrollments by restricting admissions, enrollment, and recruitment in some intentional or unintentional way. Note, the case 1 institution withdrew from participating in the study.

**Findings Summary**

Described in chapter four, two significant findings were found in my study: 1) the stop-loss effect appears to have had a significant impact on the effectiveness of the MAPFF as the senior leaders look at the bottom line, unaware of the formula details; and 2) the perception of the senior administrators that the state is not funding the formula enough to pay attention to the details of the formula results. Four other notable findings were also found and included: 1) lack of detailed review of the MAPFF results and the reliance on the interpretation and communication from the vice presidents of finance; 2) the trivialization, and/or lack of attention paid to the enrollment variable within the base share component of the MAPFF; 3) the perception that the Vision Project was more of an incentive to improve student success over the MAPFF, and 4) the perception that none of the enrollment losses at the case institutions were related to actions implemented because of the MAPFF.

**Impact to access.** Findings from the quantitative administrative and secondary data, the quantitative and qualitative survey data, and the qualitative interview data collected from the four case institutions were compiled into the two documented areas of threats to access: (a) decreased affordability (AFFORD); and (b) restrictive admissions, enrollment, and recruitment (R.A.E.R.).

Decreased affordability for the students is defined in my study when tuition and fees are increased to replace a reduction in, or smaller increase in state appropriations as allocated by the MAPFF and/or to fund operational cost increases related to actions taken at the institutions to improve their performance share percentage results on the MAPFF. Previous studies revealed that some institutions may not have the financial and human resources necessary to initiate actions to increase college completions (Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Latimer, 2001; Tandberg, et al., 2014; Wood, 2007). However, these studies did not indicate that the tuition and fee rates of the institutions were increased to fund the additional financial and human resources necessary to increase college completions.

Restriction of admissions, enrollment, and recruitment practices is defined in my study when institutions may have altered their admission, recruitment, and enrollment practices to improve the outcomes measured in the performance funding formula that may have decreased access to the institutions. Many studies on performance funding found institutions engaging in restrictive admissions and selective enrollment activities that impacted enrollment to improve their formula outcomes (Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Smith, 2015; Tandberg & Hillman, 2013).

**Decreased affordability (AFFORD).** The quantitative data collected shows the tuition and fee rate dollar changes and the percentage changes over the first three years of the MAPFF (Appendix B). The MDHE required the community colleges in Massachusetts to freeze tuition and fees in FY2014 for adding $20 million to the total appropriations allocated through the MAPFF. The Case 2 and 3 institutions raised fees in each of the next two fiscal years, and Case 1 and 4 institutions waited until FY2016. This data indicates that the MDHE did not achieve one of its primary goals of the MAPFF to stop tuition and fee increases.

The quantitative data revealed the stop -loss effect for the Case 1 institution was significantly positive, receiving 29.8%, 42.2%, and 55.2% more state appropriations in each of the first three years of the MAPFF, showing increased reward above the performance ratings (Appendix B). The stop-loss effect for the Case 3 institution was -5.0%, -7.2%, and -6.2% for the first three years of the MAPFF. The stop-loss effect for the Case 4 institution was -6.3%, -11.3%, and -10.2% for the same period. The stop-loss effect for the Case 2 institution was -3.4%, 3.9%, and 2.4% over the first three years of the MAPFF. Thus, Cases 2, 3, and 4 earned more money under the performance formula and then lost it to the stop-loss adjustment.

Analysis of the quantitative survey responses indicates that some participants from each of the Case 2, 3, and 4 institutions perceived the MAPFF influenced actions, including increasing operational costs by hiring full and part-time faculty and staff, adding additional student fees, and increasing existing tuition and fees (Table 12). Additional responses from Case 1, 2, and 3 institutions indicated actions taken that increased costs to the institutions through expansion of student services and the purchase

of tools to monitor performance. These actions were consistent with results from other studies on performance funding impacts (Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Latimer, 2001; Tandberg, et al., 2014; Wood, 2007). These responses were also confirmed during the one-on-one interviews. However, contradicting results are evident from the survey responses because the three vice presidents of finance from the Case 2, 3, and 4 institutions indicated there were no negative impacts from the MAPFF (Table 13). During the interviews, the vice presidents of finance indicated that the MAPFF did ultimately influence some portion of their tuition and fee increases based on final allocations, reflecting the stop-loss effect, not in reaction to the performance share component results. Several respondents from the Case 2, 3, and 4 institutions indicated potential cost saving measures with a reduction in staff and faculty and reduction in student services. These actions could also preserve affordability by restricting the amount of fee increases. However, focusing on cost savings may limit initiatives to improve student success, which is a primary goal of the MAPFF.

Further analysis of the qualitative interview data indicates that some of the participants felt not enough money was allocated through the MAPFF to warrant detailed analysis or as an incentive to improve performance. This finding is also consistent with the results of other studies on performance funding (Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Latimer, 2001; Wood, 2007). However, the Case 2 institution received $3.7 million, or 23% more, in state appropriations in FY2016 than in FY2013 ($19.794 vs $16.074). The appropriation increase for the Case 3 institution in FY2016 was $3.277 million, or 29.8% more, than

FY2013 ($14.284–$11.007). The Case 4 institution received $7.8 million, or 44.5% more, in state appropriations in FY2016 than in FY2013. I did not ask the participants to quantify the appropriation increase amounts they felt would have been enough to examine their results on the MAPFF more closely. These increases would be considered good by community colleges across the country.

The quantitative data revealed tuition and fee increases at each of the case institutions during the three-year period. Additionally, the quantitative data reveal significant appropriation adjustments from the stop-loss adjustment. The qualitative data collected indicate that several senior administrators, including a president at one case institution and the vice presidents of finance at all three case institutions, indicated that some portion of their tuition and fee increases and additional student fees were influenced because of their results, or their perception of the results of the MAPFF. Although each of the case institutions received more money, the senior administrators spoke about shortfalls, cuts and being hurt by the MAPFF. The tuition and fee increases and additions, coupled with significant appropriation adjustments, point to a correlation of negative impacts on affordability because of the MAPFF.

**Restrictive admissions, enrollment, and recruitment (R.A.E.R.).** Analysis of the quantitative data indicate that enrollments declined at each of the case institutions in varying degrees over the three years of the study (Appendix B). All respondents perceived that the decline was not related to the MAPFF and that they had not changed admissions process, contrary to some previous studies. Analysis of the survey responses indicate some participants perceived a negative impact on student access because they had to eliminate programs, courses, and sections because they perceived the MAPFF did

not allocate enough funds to their institutions. Additionally, reductions in staff and faculty and reductions in student services, enacted because of the MAPFF, also contributed to the reduction in enrollment and retention. Although the responses were mixed, there seems to be a potential correlation to the MAPFF that eliminations and reductions in these areas will impede the institutions ability to provide the programs and courses and services students may want and need to fulfill their educational goals. While the previous studies found restrictive and selective admissions and enrollment activities implemented because of performance funding, they did not specify enrollment reductions tied to perceptions of inadequate state funding (Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Smith, 2015; Tandberg & Hillman, 2013).

Some responses from the Case 1, 2, and 3 institutions indicated increased operational costs of compliance. One response from the Case 3 institution indicated a reduction of academic quality and rigor as a result of their results on the MAPFF. Previous studies also found a reduction or weakening of academic quality (Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Smith, 2015; Tandberg & Hillman, 2013). Respondents from two of the case institutions indicated the MAPFF influenced changes in their organization structure (Table 12).

These actions occur routinely within institutions of higher education and may have a positive or negative impact on the institutions and students. Several respondents from the Case 2 and 3 institutions indicated that staff morale had been negatively impacted because of the MAPFF. This could suggest that the MAPFF may be having a deleterious impact on the institutions, the effects of which were not pursued in my study.

**Research Subquestion 1.** What operational changes have occurred at the institutions to improve student success that are directly related to the implementation of the MAPFF? The survey used in my study specifically asked the participants to select from a list of changes, found in previous research on the impact of performance funding programs, that were influenced by their institutions' results on the MAPFF. SQ 8 (Table 12) asked the respondents to identify actions undertaken at their institutions that were influenced by their results on the MAPFF. These responses were then followed up during the one-on-one interviews.

As seen in Chapter IV, the responses indicate (a) organization restructures; (b) both additions and reductions in student services; (c) the purchase of tools to monitor institutional performance and compliance; (d) reductions in staff and faculty; and (e) elimination and reduction of programs, courses, and sections. The findings in my study were also found in the following studies on performance funding programs: (Burke & Modarresi, 2001; Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Latimer, 2001, Smith, 2015; Tandberg & Hillman, 2013; and Wood, 2007).

***Support for proposition.*** These responses address the research question and reveal intentional actions instituted by the institutions that were influenced in part by the Vision Project, the expiration of a Title III grant and the MAPFF. Elimination and/or reduction in the number or programs, courses, and sections will help the institution reduce costs by reducing the number of faculty and other instructors. The respondents indicated on the survey and during the interviews that these actions initiated at their institutions were influenced by the MAPFF even though many of the senior

administrators admitted not examining their results of the MAPFF in detail. Additionally, there was no support found indicating these actions were intentionally done to negatively impact access. While these actions routinely happen when FTE enrollment falls, they appear to have unintentionally impacted access by eliminating course and section options for students.

Reductions in staff and faculty, student services and programs, and courses and sections are cost saving measures that may limit tuition and fee increases but may also unintentionally correlate to the second threat to access, restrictive admissions, enrollment, and recruitment practices (R.A.E.R.) by limiting the number of choices students have for classes desired and/or support and guidance in student services.

The Case 3 institution was the only case institution that received a Title III grant. The purpose of the Title III Grant matched part of the goals in the Vision project for increasing student success and offers an alternative explanation for the organizational restructures and revamped student advising changes made, which may not reflect the institutions results on the MAPFF.

**Research Subquestion 2.** How has the MAPFF Program influenced tuition and fee rate changes? The Department of Higher Education in Massachusetts determines and set the level for the tuition component and only permits each college to change the variable fee component of the tuition and fee amount. As a condition of increasing the total state appropriations in FY2014 by $20 million, the 15 public community colleges in Massachusetts agreed to freeze the fee rates in that fiscal year.

All 15 community colleges increased tuition and fees, and the increases in fees alone do not answer my question. The quantitative administrative and secondary data

show all four case institutions increased student fees during the period under study (Appendix B). The Case 2 institution increased fees in both FY15 and FY16. The fee amount in FY16 amounted to 16.52% more than the fees in FY14, significantly more than sector average of 8.2%. The Case 1 institution froze their fees in FY14 and FY15. However, it increased its fees in FY16, which is 11.41% more than FY15. This increase is also significantly more than the sector average increase. The fee increases implemented at the Case 3 institution in FY15 and FY16 amounted to 6.27%, and the fee increases at the Case 4 institution in FY16 amounted to 5.67%, both less than the sector average increase of 8.2%. To put these increases in context, comparing the increases during the study period to the increases immediately prior to the implementation of the MAPFF, contrasting results appear. The fee increases from FY2012 to FY2013 were 0.2%, 3%, 2.7%, and 0% for case institutions 1, 2, 3, and 4 respectively. The fee increases from FY2013 through FY2016, after the implementation of the MAPFF, were significantly larger even after the state mandated that fee rates could not be increased in FY2014, the first year of the MAPFF.

The survey and interview responses from the institutions provided the additional input that provided additional data to support my proposition. Respondents from the Case 2 institution indicated that the board of trustees and the college leadership wanted to hire the additional people necessary to meet the demands that were being placed on them to achieve better student success. The increase in student fees provided the needed revenue to hire the additional people. Case Institution 3 also indicated that the institution had to reduce student aid by $600,000 because of the perceptions of a lack of funding from the state. Respondents from the Case 4 institution indicated that the MAPFF was an element

for the higher increases they pursued. Routine tuition and fee increases are normal but are usually smaller as shown by the increases in 2013 above.

When the price of tuition and fees are increased, some students will find it difficult to take the number of credits desired or any courses at all. It is as result of this that decreased affordability, or the increased cost of attendance, will negatively impact access.

The larger increase in student tuition and fees and additional student fees that were implemented because of the perceptions and concerns of the senior administrators about the MAPFF, indicate actions that, while not intentionally made to negatively impact student access, ultimately did because they increased the cost of attendance, making their institutions less affordable and less accessible to some students.

***Support for proposition.*** The larger increases in student tuition and fees, additional student fees, and the reduction of student aid support my proposition that access would be negatively impacted because of the MAPFF. However, the actions initiated by the institutions are not because of responding to their results on the formula, but instead over concerns about it. Even the stronger performers, lower and low potential Case 3 and 4 institutions, were still taking actions for the threat of MAPFF results. Additionally, these responses are consistent with previous research. Previous studies revealed that some institutions may not have the financial and human resources necessary to initiate actions to increase college completions but did not address if there were increases in the tuition and fee rates as a direct result of the performance funding results (Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Latimer, 2001; Tandberg, et al., 2014; Wood, 2007).

**Research Subquestion 3.** How have changes in the Massachusetts state appropriations with the MAPFF influenced institutional changes in college education delivery or support for student success that then affected access? The survey and interview responses from the Case 2 and 3 institutions indicate that some programs, courses, and sections offered to students were reduced or eliminated and negatively impacted their institutions (Table 13). Also, a reduction of student services was indicated by the participants from the Case 3 and 4 institutions.

These actions indicate some correlation to the MAPFF. However, the qualitative data do not support causation. Most responses did not connect the enrollment declines each institution experienced since FY2014 to program or course eliminations or reductions. Although these actions may indicate routine changes, they also indicate an unintended, negative impact to access by reducing the courses and sections available to students. The senior administrators at each of the case institutions indicated that these actions were made as a cost-saving measure to make up for smaller increases in state appropriations. Although additional state appropriations were received in each of the three years under study, their perception of smaller increases was the final state allocation, reflecting the stop-loss adjustment portion of the formula (stop-loss effect). Only one respondent indicated the MAPFF negatively impacted their institutions with a reduction in academic quality and rigor.

In the follow-up interviews, I probed more deeply into the changes that were made that were influenced by the MAPFF. Like performance funding 2.0 (PF 2.0) programs that allocate significant amount of funds through the formula (Dougherty & Reddy, 2013), several of the interviewees indicated that they didn't focus on the details of

the MAPFF because they felt there was not a lot of money tied to it. Although the MAPFF allocated 100% of the total state appropriations, several of the interviewees stated that their vice president of finance told them not to make strategic plans based on the MAPFF results because the amount of money tied to the formula was small. Note, the percentage of state appropriations allocated to each institution varies with the results of the MAPFF's base component, performance component, and stop-loss adjustment. The flat $4,500,000 cost-of-operation subsidy is given to each institution regardless of size and is allocated through the MAPFF. The increases that each of the case institutions did receive would be good by any standard. As stated earlier, the Case 2, 3, and 4 institutions received $3.7 million (23%), $3.3 million (29.8%), and $7.8 million (44.5%) more respectively in state appropriations between FY2013 and FY2016.

While respondents discussed several changes, each stated definitively that none of the changes instituted at their institutions were a direct result or were influenced by their results on the MAPFF. Additionally, each of the participants stated that actions were not initiated to intentionally restrict admissions, enrollment, or recruitment of students (R.A.E.R.).

***Support for proposition.*** The survey and interview data support a correlation between the elimination and reduction of programs, courses, and sections offered and the MAPFF, but it does not show that the MAPFF caused it. Data did not clearly show that actions taken at the case institutions were an attempt to improve student success and negatively impact access. Thus, the findings are not consistent with previous research that found institutions restricting admissions, enrollment, and recruitment to improve student success because of a performance funding formula and negatively impacting access

(Dougherty & Reddy, 2011, 2013; Dougherty et al., 2013, 2014, 2016; Lahr, et al., 2014; Smith, 2015; Tandberg & Hillman, 2013). Alternative explanations were explored, indicating that enrollment declines were a result of demographic changes, fewer high school graduates, and an improving economy. The participants in the study consistently stated that all three of these alternative explanations contributed to the enrollment declines and not because of actions taken because of the MAPFF.

**Research Subquestion 4.** How does the senior management perceive the impact of performance funding on student access to community colleges? Six of the 13 respondents on the survey indicated that the MAPFF did not negatively impact student access and two weren't sure. However, four of the survey respondents indicated that access was negatively impacted because of increased student costs. During the interviews, several of the senior administrators that originally responded that the MAPFF did not negatively impact access, changed their perceptions, and acknowledged that access was negatively impacted at their institutions.

***Support for proposition.*** The emphasis of RQ 4 on perception turned out to be a critical observation. It appears the perceptions driving administrator actions were incentivized by the MAPFF, even though the data did not reflect the reality of the MAPFF. The quantitative administrative and secondary data indicate that all four case institutions received more state appropriations over the three years under study as guaranteed by the stop-loss adjustment. The C1 institution received 12.54%, C2 received 15.97%, C3 received 18.48%, and C4 received 28.41% more in state appropriations in FY2016 versus FY2013. The data obtained from the surveys and interviews indicate the perceptions of the amount of state appropriations received after the stop-loss adjustment,

influenced the senior administrators to add to the tuition and fee increases at the case institutions and negatively impacted access. Also, the interviews at all three case institutions reveal the vice presidents of finance were relied upon to disseminate and control the MAPFF information provided to others at the institutions, masking the information and drawing conclusions before the administrators who control the operations for student success were engaged. As a result, this gave the other senior administrators permission not to understand the formula and defeated the incentive of the MAPFF on improving student access and success. In a case study of Indiana's performance-based funding program, limited evidence was found that the effects of performance funding could limit access for low-income and minority applicants (Umbricht, et al., 2017). The findings are also consistent with previous research that found institutions negatively impacted student access because of a performance funding formula in the form of decreased affordability (Dougherty & Reddy, 2011, 2013; Dougherty et.al, 2013, 2014, 2016; Lahr, et.al, 2014; Mitchel, Palacios, & Leachman, 2014; Bailey, Jaggars, & Jenkins, 2015).

**Negative impact on access.** Previous research on the impact of performance funding has revealed that senior administrators at the institutions are the most knowledgeable about performance funding and the formulas used (Dougherty 2011, 2013; Latimer, 2001; Wood, 2007). However, the previous research has not indicated sole reliance on the vice presidents of finance or the performance funding officer (Latimer, 2001) to control and disseminate the results to other senior leaders.

The MAPFF results report distributed by the MDHE, is a multi-tab spreadsheet showing the detailed results of all the components making up the final state appropriation

amount for each of the 15 community colleges in Massachusetts. It is possible that the MDHE did not adequately communicate the importance of reviewing the details within the spreadsheet to be used as a tool to improve performance. I did not pursue this line of questioning with the participants of my study. However, as a former vice president of finance at a Massachusetts community college during FY2013–FY2016, no guidance was provided by MDHE on how to use the MAPFF results report as a tool to improve performance during my tenure. Much of the statewide conversations I was involved with included the vice presidents of finance from each of the community colleges and representatives from MDHE. These conversations were limited to the dissatisfaction with the amount of the annual total state appropriation increases, with no substantive discussions on the results of the components of the formula for strategic planning. The predominant feedback from the vice presidents of finance was a dissatisfaction with the amount of the annual increases of the total state appropriations, which got in the way of discussing the goals of the MDHE reflected in the formula results. The MDHE representatives rarely spoke about the goals and incentives of the MAPFF that can help maximize state appropriations. Perhaps this was because the MDHE representatives at the meetings were not familiar with MAPFF variables enough to have cogent conversations with the vice presidents who more deeply understand the finances of the campuses.

The actions of the case institutions during the study period supported my proposition of negatively impacting access. However, their actions were based on their perceptions of a lack of funding coming from the MAPFF. The state appropriations were increased in each year during the study, and each case institution received more appropriations in each of those years. In reality, the increases they received are good by

any state standards. This perception that the state was not funding the formula enough prevented more strategic decision-making to meet the goals outlined by the MDHE and to maximize their state appropriations.

The negative impact of the Massachusetts performance funding program on student access was consistent with previous research that found institutions negatively impacted student access because of a performance funding formula in the form of decreased affordability (Dougherty & Reddy, 2011, 2013; Dougherty et.al, 2013, 2014, 2016; Lahr, et.al, 2014; Mitchel, Palacios, & Leachman, 2014; Bailey, Jaggars, & Jenkins, 2015).

However, contrary to my proposition, the case institutions in my study negatively impacted affordability because of the amount of appropriations received after the stop-loss adjustment, rather than instituting student success initiatives to improve their results on the MAPFF and achieve the goals of the MDHE (performance effect). The stop-loss adjustment portion of the MAPFF was included to prevent institutions from losing state appropriations during the initial implementation of the formula. It also guaranteed that each institution would receive 3.5% more state appropriations in FY2014 and FY2015, and 2.5% more in FY2016. The MDHE intended to phase out the stop-loss altogether after four years. The institutions scoring a higher performance share percentage in the MAPFF saw the calculated value in the MAPFF dashboard, but did not receive the full benefit. The stop-loss adjustment of the MAPFF reallocates appropriations from better performing institutions to institutions where their state appropriations would not have reached the minimum increase in any year. The MAPFF for Case 2, 3, and 4 institutions all showed that they would have received more appropriations before the stop loss,

20.3%, 38.4%, and 60.9% respectively, but instead saw part of the appropriations reallocated to other institutions, such as to Case 1 institution (Table 9).

Alternative explanations were explored for increasing student fees due to regular inflationary increases, mandates from MDHE, to fund higher costs due to retirement accruals and contractual wage increases. Although some of these reasons contributed to part of the increases in tuition and fees, several senior administrators specifically stated that a portion of the tuition increases were due to appropriations lost after the stop-loss adjustment portion of the formula. One senior administrator attributed a negative impact to access because of a reduction of institutional aid given to students to help control their costs. I did not question the participants of the study if some of the tuition and fee increases would have been instituted anyway without the MAPFF; however, I must consider they probably would have.

As I prepared for study, I anticipated the stop-loss adjustment would diminish or delay the incentive for the colleges to make changes at their institutions to improve student outcomes and success. The survey and interview data revealed a misperception of the function and application of the stop-loss adjustment, as well as the extent to which the base and performance components were trivialized or overlooked by the vice presidents of finance. This led the case institutions to ignore the detailed results of the formula and supported the perception that not enough money was tied to the MAPFF after the final state allocations. The qualitative data indicate that the stop-loss adjustment caused the case institutions to increase the tuition and fees more than they would have without it.

## Conclusion

My study sought to examine how the Massachusetts community colleges are responding to the MAPFF, with a focus on answering the overarching research question of how performance funding is influencing the open-access mission of community colleges in the Commonwealth of Massachusetts. Through the collection and analysis of quantitative administrative and secondary data, the quantitative and qualitative survey data, and the qualitative one-on-one interview data, the six significant findings found suggest that the MAPFF imposed by the Department of Higher Education (MDHE), and in use in Massachusetts has unintentionally negatively impacted student access in the form of decreased affordability and to a lesser extent, through restrictive admissions, enrollment, and recruitment activities as the result of intentional actions taken, in part, to the perception of inadequate funding and to replace lost appropriation increases lost due to the MAPFF stop-loss adjustment.

In previous research conducted, the authors of these studies found that performance funding formulas have led to unintended negative impact on the institutions because of increased costs of compliance with the imposed goals of the formulas (Dougherty & Reddy, 2011, 2013; Dougherty et.al, 2013, 2014, 2016; Lahr, et.al, 2014; Tandberg, et al., 2014, Wood, 2007). These previous studies also found negative impacts to access in the form of raising admission standards or by altering enrollment and recruitment practices. By raising admission standards and altering recruitment practices, the institutions in these studies attempted to maximize their state appropriations but appeared not to attempt to maximize tuition and fee revenue because they restricted admissions. The results from my study did not find actions taken to intentionally restrict

admissions, enrollment, and recruitment practices by the case institutions. In fact, the findings from my study were that the senior administrators initiated intentional actions to increase overall enrollment and student retention. However, by reducing programs, courses, and sections, and by increasing tuition and fee rates, access appears to have been negatively impacted through cost-saving measures in reaction to their perception of the final state appropriations each fiscal year after the stop-loss adjustment portion of the MAPFF.

The study examined data from four case institutions selected by using purposeful sampling. Each of these case institutions was grouped into a potential to impact access based on the quantitative administrative and documentary data. Based on this data, Case 1 and 2 institutions were grouped as high potential to negatively impact access. Case 3 institution was grouped as lower potential and Case 4 institution was grouped as low potential. The findings from the study indicate that three of the four case institutions negatively impacted access, Case 2 high potential institution, Case 3 lower potential, and Case 4 institution low potential. The senior administrators from the Case 1 institution chose not to participate in the qualitative portion of the study, and only one respondent completed the survey.

While the findings support my proposition that access was impacted due to the MAPFF, the impetus was from the perception of a lack of funding from the state instead of actions implemented to improve student success. Previous research studies have discovered similar results where there was inadequate state funding, although these findings were from states with PF 1.0 programs that provide budgetary bonuses on top of the regular appropriations (Dougherty & Reddy, 2011; 2013; Latimer, 2001;). The

performance funding program in Massachusetts is a PF 2.0 program in which the formula is used to allocate the regular appropriations with a significant percentage of the appropriations incentivized for improved performance results.

The data acquired from the surveys and interviews indicate that the case institutions were not focused on or overlooked their performance results on the detailed variables of the formula in making strategic decisions. The participants from the three case institutions participating in the qualitative interview portion of the study all stated that they instituted actions to increase total, overall enrollments. These responses partially support profit maximization. However, the enrollment variable of the formula weights STEM and trade enrollments more than liberal arts, business, and non-credit workforce development programs, supporting the state's higher educational goals. There was no evidence found that their actions to increase enrollments considered these more heavily weighted areas.

Each of the participants from the three institutions participating in the qualitative portion of the study admitted that very little, if any, attention was paid to their institutions' detailed outcomes on the MAPFF. Instead, they focused primarily on the amount of state appropriation they would be getting after the stop-loss adjustment. This led to the most significant finding of my research study, which I termed the "stop-loss effect." The stop-loss adjustment portion of the MAPFF guaranteed each institution would receive a minimum increase regardless of their individual performance on the formula metrics. The senior administrators at case institutions C2, C3, and C4, focused on the amount of the state appropriations they received after the application of the stop-loss adjustment and trivialized or overlooked the performance share percentage leading to

the state appropriations before the stop-loss adjustment. By overlooking the performance share, the senior administrators missed the opportunity to use the MAPFF results for strategic planning and decision-making with an eye towards improving student success.

The Massachusetts Department of Higher Education (MDHE) scheduled to phase out the stop-loss adjustment over the first four years of the MAPFF. Institutions scoring a higher performance share percentage in the MAPFF (performance effect), saw the calculated value in the MAPFF dashboard, but did not receive the full benefit. This supports the survey responses indicating the limited positive impact of the MAPFF was increased awareness of institutional results. The MAPFF dashboard, the first of many tabs in the spreadsheet (Appendix A), shows the outcomes for all 15 community colleges. The MAPFF reallocates appropriations from better performing institutions to institutions where their state appropriations would not have reached the minimum increase in any year.

The MDHE implemented the MAPFF in part to hold public institutions accountable for student success and address several essential issues (MDHE, 2013). The formula also addressed the issue of allocating funds in relation to aspects of institutional performance that reflect state-wide education goals, including a premium for enrollments in STEM-related programs and trade, and student success in these and all programs, including premiums for students considered at risk. The third issue to be addressed by the formula is to emphasize the role of community colleges in preparing students for jobs in the state's rapidly evolving economy. Finally, the formula was adopted to stop the growth in student charges that are already among the highest in the nation.

The MAPFF fell short on incentivizing the institutions to focus on statewide goals of preparing students for jobs in the state's rapidly evolving economy because the case institutions focused on growing enrollment in all programs instead of focusing enrollment efforts in the programs weighted higher in the MAPFF. The case institutions indicated they were focusing enrollment efforts on all programs to grow tuition and fee revenue, partially supporting the revenue maximization theory discussed earlier. While they were trying to maximize tuition and fee revenue, there were no indications to maximize state appropriations. However, these actions do not directly address the intended goal of the state to grow enrollments in STEM- and workforce-related programs and trades.

The incentive to focus on statewide goals imbedded within the MAPFF variable components was overlooked by the senior administrators as a result of the stop-loss effect. Had the stop-loss adjustment just guaranteed that no institution would lose appropriations (hold harmless), rather than adding a minimum increase, the incentive might have been preserved. However, Case 2, 3, and 4 institutions had their state appropriation increases reduced through the reallocation to other institutions in the sector to bring them up to the minimum increase percentage detracting from the value of performance share increases. This contributed to the perception the state allocated too few dollars to warrant a detailed review of the MAPFF results.

Not only did the MAPFF not curtail the institutions from raising the student tuition and fee costs, but it also contributed to the size of the increases. Case 1 and 2 institutions increased the tuition and fee rates 11.41% and 16.52% respectively over the study period, FY2014–FY2016 (Table 9). Although the tuition and fee increases at Case 3 institution averaged 6.27% and 5.67% at Case 4 institution over the first three years of

the MAPFF, the president and vice president of finance at Case 4 institution acknowledged the impact of the stop loss influenced the size of their increases in tuition and fees. The community college sector average tuition and fee increase was 8.2% over this period.

In my higher education professional career of 18 years, I've worked at two public community colleges in two different state systems and a private, four-year institution in a third state. In that time, I've come to understand that increasing student costs impacts some students' ability to attend college. Some students are financially able to absorb tuition and fee increases more easily than others. However, lower income and some minority students will have a difficult time paying for higher tuition and fee costs because federal and state aid has not kept up with the amount of the institutional increases. The impact of performance funding formulas on low income and minority students was not a focus of my study.

Colleges and states are reluctant to raise tuition because it conflicts with the open-access mission (Bailey & Morest, 2006). However, the financial statement audits revealed that tuition and fee revenue for the community colleges in Massachusetts account for a significant and growing percentage of their operating revenues. State appropriations account for a diminishing percentage of about 35–50% of the total operating revenues for the community colleges. As previously described, the tuition portion of the total tuition and fee rates for community colleges, was set by the MDHE. The MDHE and the presidents of the community colleges agreed not to increase student fees as a condition of getting the $20 million increase in appropriations in the first year of the MAPFF. However, there was no similar agreement in the two ensuing years. The

annual cost to attend a community college in Massachusetts is among the highest in the nation. During the 2015–2016 academic year, the total cost to attend a community college in Massachusetts was in excess of $5,500 (MDHE, 2016). The MDHE was concerned that it would negatively impact access for some students. That being said, there was a disconnection found between the impact of raising the cost of attendance for students versus the perception from the vice presidents of finance at Case 2, 3, and 4 institutions from their survey and interview responses that the MAPFF did not negatively impact access. This is problematic since the other senior administrators at these institutions indicated they rely on the vice presidents of finance to analyze and communicate the results of the MAPFF on their budgets. Only after the interviews did the vice presidents of finance acknowledge that a portion of their tuition and fee increases were influenced by the MAPFF and negatively impacted access; however, not because of actions taken to improve their performance scores on the MAPFF, rather, in response to the perception of the final State allocation, including [reflecting] the stop-loss adjustment portion of the formula (stop-loss effect).

**Positive impact of the MAPFF.** I focused on the impact the MAPFF had on the open-access mission. In the collection of survey and interview data, I requested responses and perspectives on positive impacts the formula may have had on the institutions (Table 14). The largest response from the participants was that the MAPFF forced the institutions to increase their awareness of institutional performance. This perception is supported by the MAPFF dashboard portion of the spreadsheet. The summary outcomes of all 15 colleges, both before and after the stop loss, are displayed together. However,

the MAPFF spreadsheet has each of the detailed, supporting calculations for all the components in separate tabs, revealing how each institution's performance was derived.

Many participants felt that the formula had no positive impact on their institutions. Only two of the participants felt that the MAPFF positively impacted their institution by improving student success and completion and improved student services and instruction.

**Observation.** Finally, one of the key goals of creating and implementing the MAPFF was to hold institutions receiving public funding accountable for student success (MDHE, 2013). The analysis of the quantitative administrative and secondary data, the quantitative and qualitative survey data, and the qualitative interview data revealed to me that the implementation of the MAPFF had the appearance of meeting one of the MDHE's key goals of holding the community colleges in Massachusetts, that receive public money in the form of annual state appropriations, accountable for student success results. However, I believe it failed to meet this goal. There are several reasons for this observation.

First, the stop-loss adjustment guaranteed each institution would receive more appropriations in each of the first three years of the MAPFF regardless of how well they performed as measured by the formula. The senior administrators from the case institutions stated they felt the MDHE didn't place emphasis on the outcomes achieved on the MAPFF. Poor performance on the MAPFF was rewarded with increases in each of the three years of the study.

Second, the consistent perception of the senior administrators was that not enough money was added to the MAPFF to incentivize the institutional leadership to strategically

use their outcomes to improve student success. Each of the case institutions was grouped into a potential to impact access based on the quantitative administrative and documentary data. The expectation was that both the high potential case institutions, C1 and C2, would have taken actions negatively impacting access through decreased affordability or restricted admissions, enrollment or recruitment. The expectation was that the lower and low potential case institutions, C3 and C4, would have less incentive and would have less or no negative impact on access. Although the MAPFF allocated additional funds in each of the first three years of the formula to each of the community colleges in Massachusetts, including the four case institutions, the perception of the senior administrators was the additional funds were not significant enough for strategic use. The senior administrators stated they did not review their detailed outcomes on the MAPFF and focused on the final amount received. Thus, while changes were at times relational or proportional, the "perceptions" factor worked strongly at all cases, minimizing the anticipated differences.

**Limitations**

There are five main limitations to my study. First, my study was restricted to a single state, which limited the scope of the research. The study only focused on the Massachusetts Performance Funding Formula, first implemented in FY2014, and its impact on four community colleges in the commonwealth through FY2016.

This multi-case study was conducted on four out of 15 community colleges in Massachusetts. To mitigate this limitation, I selected the institutions using a purposeful sampling method by looking at several variables that could indicate a high potential and

lower potential of actions taken to negatively impact access and find literal replication among the high potential and low potential cases.

Second, only one participant from the Case 1 institution completed the survey, and no one participated in the interview portion of the study after giving me IRB approval. The Case 1 institution's unwillingness to participate is unfortunate because the quantitative administrative and secondary data displayed a high potential for the leaders of the institution to have taken actions that would have negatively impacted access. However, without the data from the survey and the one-on-one interviews, I did not obtain the perceptions of the senior administrators on the impact of the MAPFF on their institution and on the students. Although the data from the remaining three participating case institutions support the findings and helped answer the research questions, the number of institutions represented a relatively small percentage of the total population.

Third, a relatively small number of senior administrators ultimately participated in the survey. Twenty-eight senior administrative leaders were invited to complete the survey, and after several months of reminders, only 13, or almost 50%, completed the survey. Thus, my interpretations are influenced by a small number of community college administrators. Even though only a relatively small number of senior administrators participated in my study, the significant findings enumerated earlier were found in Case 2, 3, and 4 institutions.

The fourth limitation is the scope of my study was to determine how the MAPFF impacted student access and did not attempt to determine how the MAPFF impacted student success and degree completion. There were no attempts to mitigate this limitation, although no findings or conclusions are presented on this topic.

Finally, no attempt was made to investigate the perceptions of the senior administrators that not enough funding was allocated by the MAPFF. The MAPFF allocated 100% of the state appropriations for the community colleges through the formula and increased the total appropriations each year during the study period. The perceptions of the senior administrators' actions were incentivized although the data did not reflect the reality of MAPFF. Future research should focus more on perceptions of the senior administrators.

**Recommendations for Future Research**

Future research on performance funding should include studying the perception of how other Massachusetts accountability programs, such as the Vision Project, competes for the perception and attention given to the MAPFF at the publicly funded institutions in Massachusetts. Several of the participants from the case institutions in my study perceived that the Department of Higher Education focused more on the institutions' performance in the attainment of goals as defined by the Vision Project rather than the results of the MAPFF. It appeared that the other senior administrators feared the formula and gave them permission not to fully analyze and understand the results. The mindset of the vice presidents of finance of the case institutions was the perception the MAPFF was not an important measure that warranted a detailed review because they interpreted the MAPFF as allocating too few dollars to the institutions. The reality was the performance funding formula in Massachusetts allocated 100% of the total appropriations for the community colleges and shared many of the same goals of the Vision Project. The state appropriation increases were $20 million in FY2014, $13.1 million in FY2015, and $9.1

million in FY2016. These increases are not insignificant. Additionally, the institutions received more appropriations each of these years.

Another area to consider for a future study would be to research if community colleges have become numb to changes in funding because they've had to do more with less for so long. The additional state appropriations added to the formula in each of the three years studied were more than had been allocated in several years prior.

I examined the interpretations and perceptions of the senior administrators of community colleges in the commonwealth. Further research is needed to examine how the Department of Higher Education and the legislative leaders of the commonwealth evaluate the results of the MAPFF on the stated goals in the creation of the formula, which were institutional accountability and slowing down the growing costs of higher education.

The most significant finding of my study is the negative impact on access primarily because of the stop-loss adjustment portion of the MAPFF on institutional allocations. The impact of the stop-loss adjustment, termed the stop-loss effect, altered the perception of the senior administrators and decreased the effectiveness of the formula. In several studies on performance funding, a number of the respondents indicated that the performance funding program had "little or no impact on their colleges budget" in part because of a hold-harmless provision in their first few years (Dougherty, Jones, Lahr, Natow, Pheatt, and Reddy, 2016, pg. 154). Ohio institutions used a hold-harmless provision in their performance funding program that limited how much funding colleges could lose from one year to the next in the first few years of the formula (Dougherty, Jones, Lahr, Natow, Pheatt, Vikash, 2014). In South Carolina, the performance funding

formula provided a hold harmless period preventing any institution from losing funding until the formula's full implementation took effect (Dougherty, et al., 2011). The results of my study support these findings. Research on the stop-loss or hold harmless provisions of performance funding programs should be conducted to determine their impact and effectiveness.

**Recommendations for Policy and Practice**

The lessons learned from my study can be valuable for future revisions to the current funding formula, development of performance funding programs in other states, and college leadership enrichment. College leaders need to distinguish between perception and fact. The senior administrators interviewed in the study described their perceptions of the outcomes of the MAPFF without fully understanding and verifying the facts. The other senior leaders relied upon the vice president of finance to interpret and communicate the results of the formula rather than reviewing and understanding the results themselves. Consequently, the effectiveness of the MAPFF was diminished and the senior leaders missed the opportunity to fully understand the MAPFF results and use them to update their assumptions and make better, more informed decisions. Compounding this, they held on to their perceptions that state appropriation increases were too little in spite of the significant increases the colleges actually received, i.e., updating their perception based on evolving facts.

Staying within the boundaries of what I've learned from my study, the insights gained from the people directly responsible at the institutions to implement and direct change, and from what I've learned from the research done in the preparation for my

study, I submit the following recommendations for both the institutions subject to a performance funding formula and the implementing body.

**Recommendation 1: Minimize losses with a hold harmless provision.** As stated in (Umbricht, et al., 2017), a performance funding formula isn't merely about holding institutions accountable for the use of public money or increasing the number of graduates; "it is also about increasing access to higher education and creating a more skilled workforce" (p. 667). The goals of the Vision Project and the MAPFF as a component of it, included maintaining access and creating a more skilled workforce for the commonwealth (MDHE, 2011). However, the impact of the stop-loss adjustment appeared to divert the attention of the senior administrators away from the enrollment and performance results of the formula and reinforced the perception that not enough money was allocated by the formula to make a difference. Therefore, it is advisable for policy-makers who are interested in implementing or modifying performance funding programs with a hold-harmless provision or stop-loss adjustment to minimize the appropriation loss rather than provide a guaranteed increase. Plan ahead and phase out the hold-harmless feature after three or four fiscal years to provide time for institutional adjustment to the formula.

**Recommendation 2: Review formula results.** The findings in my study indicate a fear on the part of the senior leaders at the institutions to review and understand the details of the formula. During the one-on-one interviews, the senior leaders at the case institutions expressed their perceptions about the formula and its impact on the institutions and students without analyzing the full details available to them. The detailed data provided within the MAPFF spreadsheet, displays the results from the base share,

performance share, and the alignment variables for each institution. Additionally, the vice presidents of finance were relied upon to review, interpret, and communicate the results to the other senior administrators. Review and analysis of the formula's detailed results by all the senior administrators at an institution would provide an opportunity to gauge the institution's performance in each of the variables in the formula and use the data to enhance decision making. Although it is the primary responsibility of the vice president of finance to understand the amount of state appropriations an institution will be receiving from the funding formula, the review and analysis of the enrollment, retention, student access, and success results provided in the formula, are essential for all of the senior administrators to review and understand. Becoming familiar with the detailed results of the performance funding formula variables and components will improve strategic decision making that respond to the goals of the formula, improve revenue, and better manage the expenses of the institution. Therefore, it is advisable for the president and the academic and student vice presidents at the institutions, and other senior leaders responsible for student success subject to a performance funding formula, review and understand the results of all formula components and use in strategic planning.

**Recommendation 3: Provide instructions.** The MDHE communicated the progress made by the community colleges on the goals of the Vision Project to the public each year through the publication of glossy color brochures. I thought these publications were put together well and effectively communicated the progress of the Vision Project. What I didn't see was communication and instruction on how the institutions should review and interpret the variables in the MAPFF and use their results to improve student success and achieve the goals of the commonwealth. As a new senior administrator in a

community college in Massachusetts at the start of the first year of the MAPFF, receiving detailed instruction on the review and use of the MAPFF would have been beneficiary not only to me, but also to the other senior leaders at my institution. Therefore, it is advisable for the MDHE, and policy makers in other states, provide instructional sessions annually on how to use the results of the performance funding formula effectively to improve student success and achieve the goals of the policy makers.

**Recommendation 4: Require annual reports.** The MDHE and policy makers in other states should emphasize the importance of the performance funding formula and require the institutions prepare and submit annual reports to their individual boards of trustees on how the results of the formula were used to plan and implement change connected to the stated goals and objectives of the performance funding program. Hence, the college leadership will become more aware of the facts and lead to more informed and improved decision making.

**Recommendation 5: Adjust for student affordability.** The quantitative data collected and analyzed on all 15 community colleges in Massachusetts revealed tuition and fee increases in the second and third year of the three year study period (FY2014 – FY2016). To help minimize the impact on student affordability, the MDHE and policy makers in other states should include a variable within the formula that adjusts the final allocation amount when the tuition and fee rates are increased or decreased beyond a predetermined range.

**Recommendation 6: Recognize regional demographic variations.** The president of the case 3 institution pointed out that the enrollment variable in the MAPFF does not account for regional workforce and demographic variations of the community

colleges service areas. Although there were institutional representatives from all of the community colleges on the task force that originally developed the variables in the MAPFF, the regional workforce needs, and demographic variations of the individual institutional service areas were not incorporated into the component variables of the formula. Short of incorporating a variable or some adjustment into the funding formula to recognize these regional differences, the senior leadership at the institutions should develop strategies and figure out how to use the formula's components to their advantage.

**Recommendation 7: Highlight and summarize each formula component in final allocation.** The MAPFF is a multi-tab spreadsheet that contains the detailed calculations for each of the formula components for all 15 community colleges. The first tab of the spreadsheet summarizing the final state allocations for each institution is called the "Dashboard." However, the detailed calculations supporting the final amounts on the dashboard for all 15 community colleges are contained in the other tabs within the MAPFF spreadsheet and could be difficult to decipher and understand for non-financial managers. Two of the three components of the MAPFF, base share and performance share, have multiple variables and calculations that culminate into the amounts summarized on the dashboard. I recommend that the detailed tabs be summarized and highlighted to simplify and facilitate review and analysis by the institution and the board of trustees. By doing so, the results can be more easily seen which can help reduce the fear of reviewing and trying to understand the formula results.

**Recommendation 8: Fund adequately and consistently.** The state appropriation increases were $20 million in FY2014, $13.1 million in FY2015, and $9.1 million in FY2016. The amounts of these increases are considered good by any standard. However,

the amount of the increases for each year were not known from the onset and implementation of the MAPFF. The FY2014 increase of $13.1 million and the FY2015 increase of $9.1 million were not known until the state budgets were finalized for each of the fiscal years. During my tenure at a community college in Massachusetts, the state budgets were not finalized before the college presented budgets to the board of trustees for approval.

The diminished state appropriation increases over the three years of the study signify a trend that can alter the value and importance placed on the performance funding program by the senior leaders at the colleges. I recommend that state consistently fund the formula and provide more consistent and predictable funding over a long enough period, to be an effective incentive for the institutions to strive for.

**Recommendations for Leadership**

The president and senior leaders must be as familiar with all of the sources of income in the budget as they are with the expenses. The state appropriations are a significant percentage of the income side of the budget second only to tuition and fee revenue. As the Vice President of Finance, a great deal of calculations and projections were conducted, data shared with the president and senior leaders, and decisions made on the tuition and fee revenue as part of the annual budget process. A similar level of review and analysis of the formula's detailed results would provide an opportunity to gauge the institution's performance in each of the variables in the formula and use the data to enhance income projections and strategic decision making.

The president as the CEO of the institution should lead the senior leaders through the performance funding formula results and build stronger connections between the

strategic plans and budgeting. Perhaps higher education leadership and degree programs should include critical examination of the income sources and performance funding formulas as part of managing an institutional operating budget.

As a senior leader in a community college in Massachusetts during the implementation of the MAPFF and working on this research project, I became very familiar with details of the MAPFF and the results for my institution. I attempted to point out the details of the MAPFF to my colleagues at my institution and at the other institutions and found little interest in discussing it. I was mindful not to influence how the study unfolded or bias the results in any way. If I was still working in a community college in Massachusetts, or at another public college subject to a performance funding formula, I would use the results of this study to educate the senior leaders how to use the results to drive strategic decisions.

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# Appendix A

## Quantiative Data by Year by Case Institution

**Quantitative Data by Year**

| | Tuition & Fees ($) | | | | FTE Enrollment Changes (%) | | | MAPFF Performance Share Changes (%) | | | | Stop Loss Impact $ (000) | | | | Stop Loss Impact % | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FY14 | FY15 | FY16 | % Change | FY14 | FY15 | FY16 | FY14 | FY15 | FY16 | AVG | FY14 | FY15 | FY16 | Total | FY14 | FY15 | FY16 | AVG |
| C1 (High) | 4,910 | 4,910 | 5,470 | 11.41% | -13.7% | 1.7% | -0.8% | 1.30% | 0.76% | 0.30% | 0.8% | $2,312.0 | $3,093.3 | $4,030.0 | $9,435.3 | 29.8% | 42.2% | 55.2% | 42.4% |
| C2 (High) | 4,420 | 4,750 | 5,150 | 16.52% | -5.4% | -4.4% | 2.3% | 9.00% | 7.55% | 7.60% | 8.1% | -$599.2 | $664.7 | $458.2 | $523.7 | -3.4% | 3.9% | 2.4% | 1.0% |
| C3 (Lower) | 5,740 | 5,950 | 6,100 | 6.27% | -2.3% | -6.2% | 3.3% | 4.30% | 5.26% | 5.10% | 4.9% | -$632.8 | -$1,006.8 | -$947.6 | -$2,587.2 | -5.0% | -7.2% | -6.2% | -6.1% |
| C4 (Low) | 4,230 | 4,230 | 4,470 | 5.67% | 1.6% | -2.1% | 1.1% | 9.50% | 9.72% | 9.70% | 9.6% | -$1,324.6 | -$2,818.2 | -$2,872.0 | -$7,014.8 | -6.3% | -11.3% | -10.2% | -9.3% |

Sources: MDHE HEIRS, IPEDS, MAPFF

# Appendix B

## Selection Variables 1, 2 and 3

| Institution | Performance Share % 2014 | Performance Share % 2015 | Performance Share % 2016 | AVG % Change in Performance Share 2016-2014 | % Change in Perf Share Sector Rank [Smaest Increase] 2014 - 2016 (Asc. Order) | % Difference in State Funding Before Stop Loss 2014-2013 MAPFF Dashboard | % Difference in State Funding Before Stop Loss 2015-2014 MAPFF Dashboard | % Difference in State Funding Before Stop Loss 2016-2015 MAPFF Dashboard | Average Change in State Funding Before Stop Loss (2013 - 2016) | % Change in State Funding Change Before the Stop Loss Sector Rank [Largest Decrease] 2013-2016 (Asc. Order) | FTE 2013 | FTE 2014 | FTE 2015 | FTE 2016 | % Change in FTE 2016-2013 | % Change in FTE Sector Rank [Largest Decrease] 2013 - 2016 (Dec. Order) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | | | | | 2 | | | | | | 3 |
| Institution A | 4.1% | 4.6% | 4.8% | 4.5% | 2 | 24.5% | 16.4% | 12.2% | 17.7% | 10 | 1,483 | 1,379 | 1,281 | 1,330 | -10.3% | 2 |
| ~~Institution B~~ | ~~8.8%~~ | ~~9.0%~~ | ~~9.0%~~ | ~~8.9%~~ | | ~~32.5%~~ | ~~17.5%~~ | ~~15.2%~~ | ~~21.7%~~ | | ~~5,707~~ | ~~5,967~~ | ~~5,724~~ | ~~5,581~~ | ~~2.2%~~ | |
| Institution C-C4 | 9.5% | 9.7% | 9.7% | 9.6% | 11 | 20.1% | 25.8% | 17.6% | 21.1% | 11 | 8,814 | 8,952 | 8,768 | 8,860 | 0.5% | 12 |
| ~~Institution D~~ | ~~3.0%~~ | ~~4.0%~~ | ~~5.5%~~ | ~~4.2%~~ | | ~~3.5%~~ | ~~9.9%~~ | ~~20.0%~~ | ~~11.1%~~ | | ~~2,491~~ | ~~2,346~~ | ~~2,128~~ | ~~2,114~~ | ~~15.1%~~ | |
| ~~Institution E~~ | ~~3.9%~~ | ~~2.6%~~ | ~~1.9%~~ | ~~2.8%~~ | | ~~25.5%~~ | ~~1.1%~~ | ~~13.2%~~ | ~~3.7%~~ | | ~~1,464~~ | ~~1,338~~ | ~~1,305~~ | ~~1,259~~ | ~~14.0%~~ | |
| Institution F-C2 | 9.0% | 7.6% | 8.0% | 7.2% | 7 | 9.9% | 0.2% | 0.1% | 3.4% | 5 | 4,911 | 4,646 | 4,439 | 4,542 | -7.5% | 4 |
| Institution G | 7.7% | 7.1% | 6.8% | 7.2% | 5 | 28.1% | 10.9% | 9.2% | 16.1% | 8 | 3,637 | 3,549 | 3,452 | 3,500 | -3.8% | 9 |
| Institution H | 6.6% | 5.6% | 6.5% | 6.2% | 4 | -4.8% | -7.9% | -4.7% | -5.8% | 3 | 5,442 | 5,401 | 5,190 | 5,295 | -2.7% | 10 |
| Institution I | 9.3% | 10.3% | 10.5% | 10.0% | 12 | 17.9% | 16.7% | 15.6% | 16.7% | 9 | 6,040 | 6,002 | 5,786 | 5,894 | -2.4% | 11 |
| Institution J-C3 | 4.3% | 5.3% | 5.1% | 4.9% | 3 | 15.3% | 15.1% | 10.0% | 13.5% | 7 | 3,143 | 3,072 | 2,881 | 2,977 | -5.3% | 6 |
| Institution K | 8.0% | 8.0% | 8.1% | 8.0% | 8 | -1.8% | -0.7% | -0.1% | -0.9% | 4 | 5,195 | 5,113 | 4,683 | 4,898 | -5.7% | 5 |
| Institution L | 7.8% | 8.5% | 9.3% | 8.5% | 10 | -1.1% | 4.9% | 9.4% | 4.4% | 6 | 4,635 | 4,447 | 4,121 | 4,284 | -7.6% | 3 |
| Institution M | 8.0% | 8.8% | 8.0% | 8.3% | 9 | 40.5% | 22.8% | 8.5% | 24.0% | 12 | 5,879 | 5,691 | 5,546 | 5,618 | -4.4% | 7 |
| Institution N-C1 | 1.3% | 0.8% | 0.3% | 0.8% | 1 | -20.3% | -27.2% | -34.0% | -27.1% | 1 | 1,765 | 1,523 | 1,550 | 1,537 | -13.0% | 1 |
| Institution O | 8.6% | 8.1% | 7.0% | 7.9% | 6 | -18.7% | -18.2% | -21.9% | -19.6% | 2 | 4,746 | 4,682 | 4,447 | 4,565 | -3.8% | 8 |
| Sector of 15 Average | 6.7% | 6.7% | 6.7% | 6.7% | | 11.4% | 5.7% | 2.9% | 6.7% | | 4,357 | 4,274 | 4,087 | 4,150 | -2.3% | |
| Sector of 15 Median | 7.8% | 7.6% | 7.0% | 7.9% | | 15.3% | 9.9% | 9.2% | 11.1% | | 4,746 | 4,646 | 4,439 | 4,542 | -3.8% | |

## Appendix C

## Selection Variables 4 and 5

| Institution | T&F 2013 | T&F 2014 | T&F 2015 | T&F 2016 | % Change in T&F 2016-2013 | % Change in T&F Sector Rank [Largest Increase] 2013 - 2016 (Dec. Order) | FY16 State Funding After SL |
|---|---|---|---|---|---|---|---|
| | | | | | | **4** | **5** |
| Institution A | 5,810 | 5,810 | 5,810 | 6,020 | 3.6% | 12 | 10,748,446 |
| ~~Institution B~~ | ~~5,204~~ | ~~5,204~~ | ~~5,204~~ | ~~5,444~~ | ~~4.6%~~ | | |
| Institution C-C4 | 4,230 | 4,230 | 4,230 | 4,470 | 5.7% | 8 | 25,285,825 |
| ~~Institution D~~ | ~~5,090~~ | ~~5,090~~ | ~~5,266~~ | ~~5,266~~ | ~~3.5%~~ | | |
| ~~Institution E~~ | ~~6,018~~ | ~~6,018~~ | ~~6,168~~ | ~~6,482~~ | ~~7.7%~~ | | |
| Institution F-C2 | 4,420 | 4,420 | 4,750 | 5,150 | 16.5% | 2 | 19,793,771 |
| Institution G | 5,300 | 5,300 | 5,300 | 5,600 | 5.7% | 9 | 15,816,954 |
| Institution H | 5,370 | 5,370 | 5,390 | 5,910 | 10.1% | 5 | 20,733,056 |
| Institution I | 5,330 | 5,330 | 5,480 | 5,630 | 5.6% | 10 | 22,925,199 |
| Institution J-C3 | 5,740 | 5,740 | 5,950 | 6,100 | 6.3% | 7 | 14,283,527 |
| Institution K | 5,070 | 5,070 | 5,670 | 5,670 | 11.8% | 3 | 21,123,379 |
| Institution L | 4,710 | 4,860 | 5,720 | 5,860 | 23.7% | 1 | 19,364,638 |
| Institution M | 6,140 | 6,140 | 6,140 | 6,400 | 4.2% | 11 | 20,398,308 |
| Institution N-C1 | 4,910 | 4,910 | 4,910 | 5,470 | 11.4% | 4 | 11,333,247 |
| Institution O | 5,106 | 5,106 | 5,106 | 5,436 | 6.5% | 6 | 24,775,119 |
| Sector of 15 Average | 5,230 | 5,240 | 5,406 | 5,661 | 8.2% | | 18,881,789 |
| Sector of 15 Median | 5,204 | 5,204 | 5,390 | 5,630 | 6.3% | | 20,096,039 |

## Appendix D

## Timeline for Dissertation

| Task | Days | End Date |
|---|---|---|
| **Quantitative Documentary and Administrative Data Collection** | | **1/1/2017** |
| **Selection of Case Insitutions** | | **4/1/2017** |
| **Preliminary Proposal Approval - BM II** | | **8/14/2017** |
| **Complete Pilot Study** | | **9/30/2017** |
| **IRB Approvals** | | **11/20/2017** |
| **Survey Disseminated to Subjects** | | **11/23/2017** |
| **Complete One-On-One Interviews** | | **2/9/2018** |
| **Analyze Findings from all sources** | | **2/15/2018** |
| **First Draft of Findings Chapter IV** | | **2/17/2018** |
| **Final Proposal Approval - BM II** | | **6/30/2018** |
| **Final Drafts of Chapter IV and Chapter V** | | **3/28/2019** |
| **Symposium Scheduled** | | **3/29/2019** |
| **Committee Feedback** | | **4/14/2019** |
| **Revise Dissertation** | | **4/21/2019** |
| **Symposium Completed** | | **5/19/2019** |

## Appendix E

## Alternative Explanations

| Result | Unrelated Cause(s) | Elimination |
|---|---|---|
| Tuition & Fee Rate Increases | 1. Reasons unrelated to Performance Funding. Could be a regular inflationary increase.<br>2. Increased costs due to initiatives focused on student enrollment. | 1. Surveys and interviews will address.<br>2. Survey and interview questions will address. |
| Tuition & Fee Rates Not Changed. | 1. Could be mandate from MA DHE, as it was in 2014.<br>2. Greater revenues received from alternative sources due to "Academic Capitalism" | 1. Data from HEIRS is available to verify.<br>2. Rigorous questioning in both the surveys and one-on-one interviews. |
| Salary & Benefit Costs Are Unchanged or Changed within the Collective Bargaining COLAs. | 1. Reasons could include retirement accruals and lower replacement costs.<br>2. Reorganizations of staff into positions to help improve student outcomes more directly. | 1. Surveys and interviews will address.<br>2. Surveys and interviews will address. |
| Costs per FTE Increases. | 1. Collective bargaining COLA increases; non-personnel expenditure increases.<br>2. Enrollment decreases related to demographic shifts. | 1. Audits, surveys and interviews will address.<br>2. HEIRS, surveys, and interviews will address. |
| State Appropriations Reduced | 1. Sector-wide reduction from the state. | 1. Data from MDHE is available to verify. |
| Additional Full-Time/Part-Time Faculty Added | 1. New academic programs added; new campus opened. | 1. Surveys and interviews will address.<br>2. Surveys and interviews will address. |

| | | |
|---|---|---|
| | 2. Significant enrollment increases. | |
| Reduction in Full-Time Faculty | 1. Retirements and other terminations. | 1. Surveys and interviews will address. |
| Student Services Staff Increased | 2. Significant enrollment increases.<br>3. New campus opened. | 2. Surveys and Interviews will address.<br>3. Surveys and Interviews will address. |
| Enrollment Decreases | 1. Demographic changes.<br>2. Fewer high school students graduating. | 1. Surveys and interviews will address.<br>2. Documentary data, surveys and interviews will address |
| Improved Retention and Completions | 1. Implementation of best practices. | 1. Surveys and interviews will address. |
| Researcher Perception that Decreased Affordability is Due to Performance Funding | 1. Actions focused on student success but unrelated to the outcomes of the performance funding formula. | 1. Careful generation of survey and interview questions and fairly reviewing all quantitative and qualitative data. |
| Perception that Performance Funding Will Not Continue into the Future | 1. Institutions not paying much attention to the results of the PF formula in their decision making. | 1. Rigorous questioning with senior administrators, multiple sources of data, and peer review. |

## Appendix F

## Survey

# Performance Funding Impact Survey

The purpose of this survey is for a doctoral dissertation study only. I have received IRB approval from your institution to conduct this study.

Hello: Your College is one of only four community colleges in Massachusetts chosen for this study. Members of the leadership team of each of the four community colleges will be asked to complete this survey. You are invited to participate in a research study on the impact that performance funding has on the open access mission of community colleges in Massachusetts. Research conducted nationally has identified that the allocation of state appropriations using a funding formula, incentivizing institutions to improve student outcomes, has identified some positive and negative impacts on community colleges. The implementation of a performance funding program in Massachusetts (MAPFF) may or may not confirm these findings. Your participation will help me complete the requirements for my degree and inform future strategy and studies and add to the scholarly work in the field. In this survey, 28 people will be asked to complete a survey and it will take approximately 10-15 minutes to complete the questionnaire. Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for me to learn your opinions. Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact [Walter Brooks] by email at the email address specified below. Thank you very much for your time and support. Please start with the survey now by clicking on the Continue button below.

Walter Brooks: walterbrooksrocks@gmail.com

The table above is a summary of your institution's data from the MAPFF and the HERIS repository to help you recollect the outcomes from the funding formula and assist you in answering the questions below.

### Q1. The senior leadership reviews and discusses the results of the MAPFF at least annually.

- ○ Strongly Agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)
- ○ Not Sure (5)

**Q2. My institution's results from the MAPFF are shared with the staff and faculty at least annually by the senior leadership:**

- ○ Strongly Agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)
- ○ Not Sure (5)

---

**Q3. I believe that the MAPFF has provided the following level of incentives to improve student success at my institution:**

- ○ Significant (1)
- ○ Substantial (2)
- ○ Somewhat (3)
- ○ Not yet but may in the future (4)
- ○ Not Sure (5)

---

**Q4. The following actions were taken at my institution from 2014–2016: (Check all that apply.)**

- ☐ Hiring of additional FT/PT staff and/or faculty (1)
- ☐ Reduction of FT/PT staff and/or faculty (2)
- ☐ Additional or expansion of student services (advising, first year success, tutoring, etc.) (3)
- ☐ Purchasing and use of additional tools to monitor student success and persistence (4)
- ☐ Increases in tuition and fee rates (5)
- ☐ Additional student fees (6)
- ☐ Reductions/eliminations in course offerings (7)
- ☐ Changes in the college mission and goals (8)
- ☐ Organizational restructure (9)
- ☐ More stringent admission requirements (10)
- ☐ Changes in degree completion requirements (11)
- ☐ Other (please explain below) (12)
- ☐ No strategic decisions were influenced by the MAPFF (13)
- ☐ Not sure (14)

---

**Q5. If you chose OTHER in Q4 above, please write your explanation here.**

**Q6. I believe that my institution's results on the MAPFF, from 2014–2016, have influenced some of the strategic planning and decisions made at my institution from Question 4 above since the inception of the formula in 2014 to improve student success and completion.**

- ○ Strongly Agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)
- ○ Not Sure (5)

**Q7. If you disagree in Q6, what *DID* influence the strategic decisions made?**

**Q8. I believe that the following actions from Question 4 above were influenced by my institution's results on the MAPFF: (Check all that apply.)**

- ☐ Hiring of additional FT/PT staff and/or faculty (1)
- ☐ Reduction of FT/PT staff and/or faculty (2)
- ☐ Additional or expansion of student services (advising, first year success, tutoring, etc.) (3)
- ☐ Purchasing and use of additional tools to monitor student success and persistence (4)
- ☐ Increases in tuition and fee rates (5)
- ☐ Additional student fees (6)
- ☐ Reductions/eliminations in course offerings (7)
- ☐ Changes in the college mission and goals (8)
- ☐ Organizational restructure (9)
- ☐ More stringent admission requirements (10)
- ☐ Changes in degree completion requirements (11)
- ☐ Other: (Please explain below) (12)
- ☐ No strategic decisions were influenced by the MAPFF (13)
- ☐ Not sure (14)

---

**Q9. If you chose OTHER in Q8 above, please write your explanation here.**

**Q10. I believe that the MAPFF has negatively impacted my institution in the following ways: (Check all that apply.)**

- [ ] Larger increases to tuition & fee rates (1)
- [ ] Reduction in academic quality and rigor (2)
- [ ] Reduction in student services (3)
- [ ] Elimination/ reduction in program/course/section offerings (4)
- [ ] Reductions in staff/faculty (5)
- [ ] Lower staff/faculty morale (6)
- [ ] Additional costs of review and compliance (7)
- [ ] MAPFF has not negatively impacted my institution (8)

**Q11. Please provide other examples not mentioned in Q10 above.**

**Q12. I believe that my institution's results on the MAPFF have influenced my institution's tuition and fee rate increases from 2014–2016 at the following level:**

- ○ Significant (1)
- ○ Substantial (2)
- ○ Somewhat (3)
- ○ None yet but may in the future (4)
- ○ Not Sure (5)

---

**Q13. If NOT SURE from Q12 above, what other factors *DID* influence your tuition and fee rate increases?**

---

**Q14. I believe that ACCESS to higher education is one of the MOST important missions of community colleges.**

- ○ Strongly Agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)
- ○ Not Sure (5)

---

**Q15. If you disagree in Q14 above, what do you feel is the MOST important mission of community colleges?**

---

**Q16. Research conducted in other states has shown that performance funding has negatively impacted access through increased student costs, restricted admissions and selective student recruitment. I believe that the implementation of the MAPFF has negatively impacted student access through the following mechanisms: (Check all that apply.)**

- ☐ Increased student costs (1)
- ☐ Restricted admissions of less prepared students (2)
- ☐ Selective student recruitment (3)
- ☐ Elimination or reduced program/course/section offerings (4)
- ☐ Access has not been negatively impacted by the MAPFF (5)
- ☐ Not sure (6)

---

**Q17. Please provide other examples not mentioned in Q16 above if applicable.**

---

**Q18. I believe that my institution's results on the MAPFF, *before the stop-loss adjustment*, has been of significant concern with our senior leadership.**

- ○ Strongly Agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)
- ○ Not Sure (5)

---

**Q19. If it did not cause concern (Q18), what has the reaction been if any?**

---

**Q20. DHE proposed that the Stop Loss component of the funding formula will be phased out after the fourth year of using the formula. Once the MAPFF stop loss adjustment is discontinued, I believe that my institution will most likely take the following actions to replace any lost appropriations: (Check all that apply.)**

- [ ] Raise tuition & fee rates (1)
- [ ] Decrease staff/faculty (2)
- [ ] Secure alternative revenues (3)
- [ ] Reduce services currently available to students (4)
- [ ] Reduce academic programs (5)
- [ ] Reduce the number of students admitted into your institution (6)
- [ ] Take steps to improve our scores on the MAPFF (please provide info in Q21 below) (7)
- [ ] Reduce the number of course sections (8)

---

**Q21. Please provide additional information for Q20 above.**

---

**Q22. With the decline in additional State appropriations since the implementation of the MAPFF for the community college sector, I believe that the current funding formula will be modified significantly or discontinued in the near future.**

- ○ Strongly Agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)
- ○ Not Sure (5)

---

**Q23. I believe that the MAPFF has *positively* impacted my institution in the following ways: (Check all that apply.)**

- ☐ Improved student success and completion (1)
- ☐ Provided the needed incentive for my institution to improve student services and instruction (2)
- ☐ Increased the number of graduates (3)
- ☐ Increased awareness of institutional performance (4)
- ☐ All of the above (5)
- ☐ None of the above (6)

---

**Q24. What are other examples of positive impacts not mentioned in Q23?**

**Q25. I believe that my institution's outcomes on the MAPFF has had NO impact on my institution either positively or negatively from 2014–2016.**

- ○ Strongly Agree (1)
- ○ Agree (2)
- ○ Disagree (3)
- ○ Strongly disagree (4)
- ○ Not Sure (5)

**Q26**. **If you agree that the MAPFF has had NO impact on your institution from question 15 above, what do you believe were the reasons: (Check all that apply.)**

- ☐ The Stop Loss Adjustment; our institution still received appropriation increases each year (1)
- ☐ I ignore the results because I don’t believe that the MAPFF will continue to be used much longer (2)
- ☐ I am focused more on increasing tuition revenue through enrollment (3)
- ☐ Don’t understand the formula results (4)
- ☐ All of the above (5)
- ☐ None of the above (6)

**Q27. Please provide other examples not mentioned in Q26 above.**

---

**Q28. What has surprised you most about the MAPFF and your institutions results?**

---

**Q29. Please add any additional comments on the MA Performance Funding Program you feel will be pertinent to this study.**

---

**Q30. Select the title that most closely fits your position:**

- ○ President (2)
- ○ Vice President (Academic) (3)
- ○ Vice President (Financial) (4)
- ○ Vice President/Dean of Student Services (5)
- ○ Director/Manager of Admissions (6)
- ○ Budget Director/Manager (7)
- ○ Responsible for Institutional Research (8)
- ○ Other (9)

**Q31. If you selected other for Q30 above, please enter your title here.**

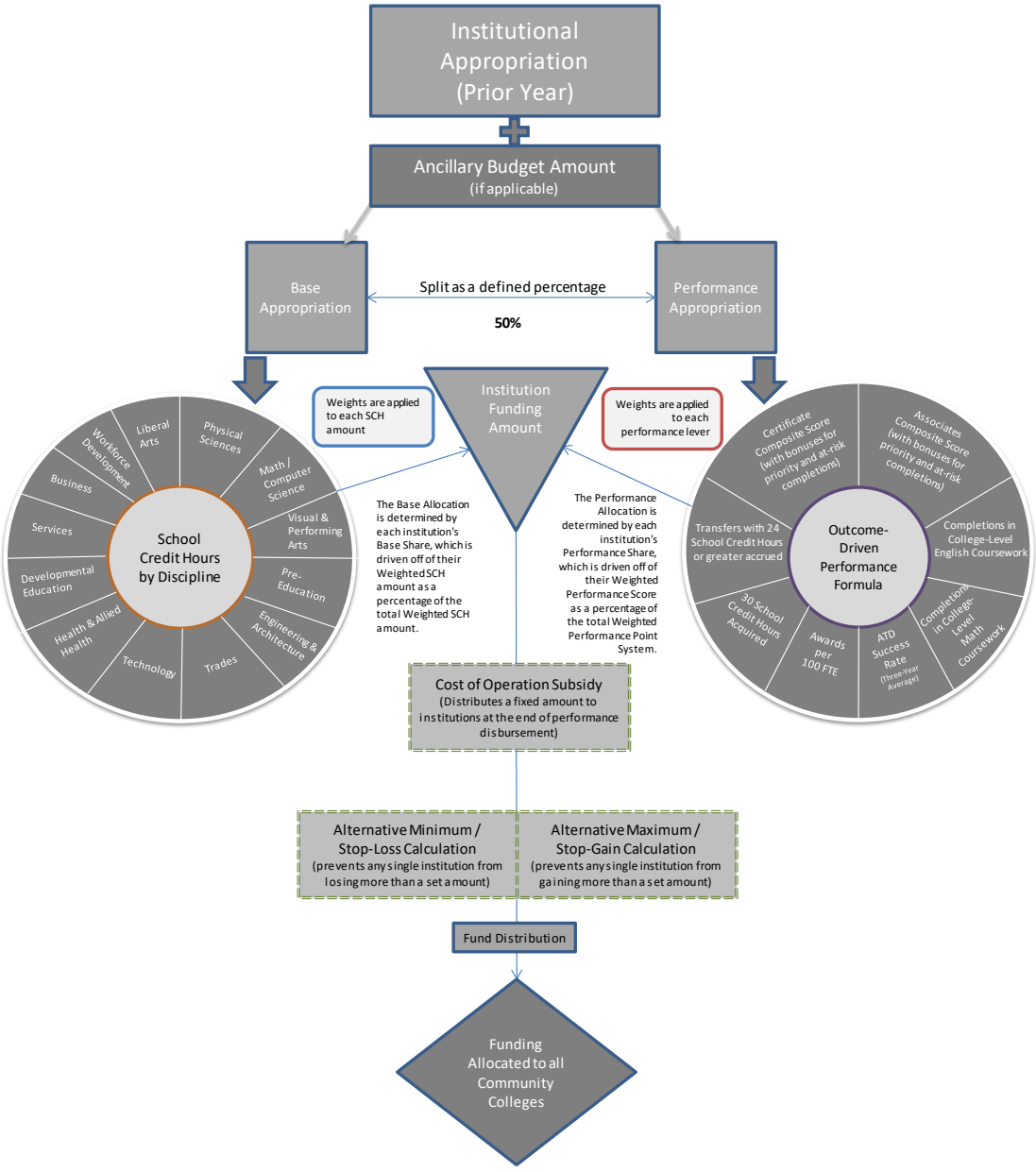
**Q32. Select your institution from the list. (Your name and institution's name will remain anonymous in the report.)**

**Q33. How long have your worked in your position at your current institution? (Round to closest # of years.)**

**End of Block**

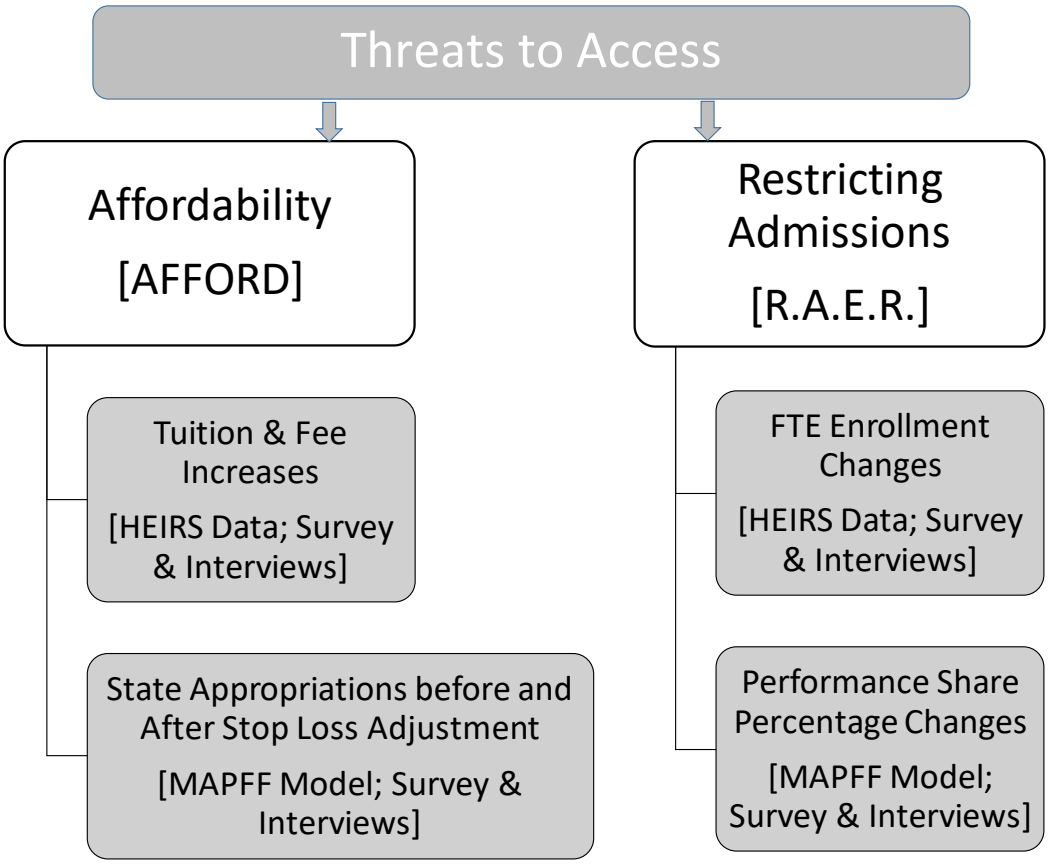
# Appendix G

## Overview of the Massachusetts Performance Funding Formula



**Appendix H**

**Data Use Diagram**



## Appendix I

### Consent-to-Participate Form

My name is Walter Brooks and I'm a doctoral student attending Rowan University in New Jersey and the former vice president of finance and operations at Cape Cod Community College. I have received IRB approval from your institution to conduct my research study.

The purpose of this study is to understand the impact that performance funding has on the open-access mission of community colleges in Massachusetts. The study will follow a multiple-case study design on nine community colleges in the Commonwealth of Massachusetts. Several of the original nine community colleges have been chosen to conduct the one-on-one interviews.

The interview will consist of asking specific questions as a follow-up to your responses to the survey you completed earlier. The purpose of the interview is to get a deeper understanding of your professional views and thoughts on the actions instituted at your institution in reaction to the implementation of the performance funding formula that has been in use since fiscal year 2013 in Massachusetts. The interview will last not more than 60 minutes and will be recorded using an audio device so that I may transcribe the information at a later date. No one other than me will have access to the conversation audio file.

There are no known risks and/or discomforts associated with this study. The expected benefits with your participation are the information about the impact that performance funding has on student access and the opportunity to participate in a qualitative research study. The results of this study can provide valuable information that can lead to further research and inform, and potentially influence, performance funding programs across the nation.

The final paper will be submitted to my dissertation committee at Rowan University as a final step in the pursuit of my doctoral degree. The institution's name and your name and personal information will not be used in the report.

Please sign your consent with full knowledge of the nature and purpose of the procedures. A copy of this consent form will be given to you to keep.

Printed Name Date:

Signature Date:

## Appendix J

## Interview Protocol

**Time of Interview:** **Interviewer:**

**Date:** **Interviewee:**

**Place:** **Age of Interviewee:**

**Sex of Interviewee:**

**Title of Interviewee:**

**Brief Description of Proposal:**

Examination of how states are tying funding to the success outcomes of students also reveals that there may be a shift in emphasis from access to success in the missions of community colleges. The implementation of a performance funding program (PFP) in Massachusetts may demonstrate this shift as well. This study will examine the impact that State Performance funding has on the open access mission of community colleges in Massachusetts and inform future strategy and studies. Your participation will also add to the scholarly work in the field.

Mission Statement of Institution:

**Questions:**

The documentary data and your survey responses indicate that the MA Performance Funding Formula has influenced actions at your institution. I'd like to explore this more deeply to fully understand the findings.

**Decreased Affordability (C1) & (C2)**

Main Questions (Probes and follow-up questions will be asked as the interview progresses.)

1. Your institution's fees have changed from xxx pch in FY2012 (before the implementation of the PF formula) to xxx pch in FY2016. Explain how the decisions were made that led to these changes.

2. In reviewing your institution's appropriation amount BEFORE the application of the stop loss amount in FY2016, your institution would have received [xxx less/more] appropriation.

    a. What do you perceive were the reason(s) for the loss of appropriation?

    b. What changes have been made or discussed at your institution to improve your results on the PF formula allocation?

    c. How have your institution's outcomes on the performance funding formula been discussed with the leadership at your institution?

3. Your institution's state appropriation percentage of total operating revenues has changed from xx% in FY2012 (before the implementation of the PF formula) to xx% in FY2016. What do you attribute this change to?

4. You [did or did not indicate] on the survey that the MA Performance Funding Formula incentivizes colleges to increase student outcomes. In what ways, does it accomplish this at your institution?

**Declining Enrollments (C3) & (C4)**

Your institution's enrollment has changed (x%) between 2014 and 2016.

5. Explain what you attribute the enrollment declines to? (*Probe to determine if any of the decline is dues to the MAPFF*.)

*6.* You indicated on the survey your institution (has or hasn't) restricted admissions, enrollments, or recruitment since the implementation of the MA Performance Funding Formula. If it has, explain how. If hasn't, explain what your institution is doing to improve student outcomes as measured in the formula. [*Probe: Has your institution changed admission, enrollment, and recruitment practices as a result of the MAPFF?]*

7. What other actions has your institution instituted to improve your outcomes as measured by the PF formula? (*To probe for unintentional impacts to access.*)

8. You indicated on the survey that the MA Performance Funding Formula has had positive impacts on your institution. Explain what they are. (*Follow-up based on their examples given on the survey.*)

9. You indicated on the survey that the MA Performance Funding Formula has had negative impacts on your institution. Explain what they are. (*Follow-up based on their examples given on the survey.*)

10. What suggestions would you make to improve the way the state allocates appropriations?

## Appendix K

### Positions Targeted to Complete the Survey

| **Case 1** |
|---|
| VP of Admin & Finance |
| President |
| Interim VP of Academic and Student Affairs |
| Associate Vice President |
| Director of Admissions |
| Direct of Instutional Effectiveness, Data Management and Reporting |
| **Case 2** |
| President |
| Dean of Enrollment Mgmt |
| VP for Student Affairs |
| Comptroller |
| VP of Admin and Finance |
| Director of Planning and Assessment |
| **Case 3** |
| President |
| Admissions |
| Academics & Interim IR Officer |
| Students |
| VP Admin and Finance |
| Institutional Research |
| **Case 4** |
| President |
| VP of Admin & Finance |
| Associate VP of Admin and Finance |
| Provost and Vice President of Academic and Student Affairs |
| Director of Admissions and Recruitment |
| Executive Director of Institutional Research |
| Associate Provost |

# Appendix L

## Survey Summary Findings Table

| | FY2014 - FY2016 | | | | | | |
|---|---|---|---|---|---|---|---|
| | High Potential | | | Lower Potential | | | |
| **Qualitative** | **Case 1** | **Case 2** | **Case 1 & 2 Codes** | **Case 3** | **Case 4** | **Case 3 & 4 Codes** | **Combined Coding** |
| **Surveys** | **1 Respondent** | **2 Respondents** | | **7 Respondents** | **3 Respondents** | | |
| SQ 1 -The senior leadership reviews and discusses the results of the MAPFF at least annually. | Strongly disagree (1) | Agree (1)<br>Disagree (1) | Consistently Disagree | Agree (6)<br>Strongly Agree (1) | Agree (2)<br>Strongly Agree (1) | Consistent | Disagreement in High Potential Cases |
| SQ 2 - My institution's results from the MAPFF are shared with the staff and faculty at least annually by the senior leadership | Strongly disagree (1) | Disagree (2) | Unfamiliar, non-transparent below senior leadership | Agree (2)<br>Not Sure (2)<br>Strongly Agree (1)<br>Disagree (2) | Disagree (2)<br>Agree (1) | Inconsistent | Unfamiliar, inconsistent, non-transparent |
| SQ 3 - I believe that the MAPFF has provided the following level of incentives to improve student success at my institution | Not Sure (1) | Somewhat (1)<br>Not Sure (1) | Small impact, unsure, Unfamiliar with MAPFF | Somewhat (5)<br>Not Sure (2) | Not yet but may in the future (2)<br>Somewhat (1) | No impact, small impact | Unfamiliar with MAPFF, Small & No MAPFF Impact |
| SQ 4 - The following actions were taken at my institution from 2014 - 2016: (Check all that apply) | Not Sure (1) | Hiring of additional FT/PT staff and/or faculty (2)<br>Additional or expansion of student services (advising, first year success, tutoring, etc.) (2)<br>Purchasing and use of additional tools to monitor student success and persistence (2)<br>Increases in tuition and fee rates (2) | Hiring, expansion,student services, student success, affordability, reduced offerings, compliance costs, restructure | Hiring of additional FT/PT staff and/or faculty (6)<br>Reduction of FT/PT staff and/or faculty (4)<br>Purchasing and use of additional tools to monitor student success and persistence (2)<br>Increases in tuition and fee rates (5)<br>Additional student fees (3)<br>Reductions/eliminations in course offerings (3)<br>Org restructure (3)<br>Change in degree reqs (3)<br>Not Sure (1) | Hiring of additional FT/PT staff and/or faculty (1)<br>Additional or expansion of student services (advising, first year success, tutoring, etc.) (2)<br>Increases in tuition and fee rates (3)<br>Additional student fees (1)<br>Org restructure (2)<br>Changes in degree completion requirements (1)<br>purchasing and use of additional tools to monitor student success and persistence (2)<br>changes in college mission and goals (1) | Hiring, expansion,student services, student success, affordability, reduced offerings, compliance costs, restructure, degree req changes, change in mission | Consistent, compliance costs, student success costs, affordability |
| SQ 5 - If you chose OTHER in Q4 above, please write your explanation here. | Blank | Blank | | Blank | Blank | | |
| SQ 6 - I believe that my institution's results on the MAPFF, from 2014 - 2016, have influenced some of the strategic planning and decisions made at my institution from question 4 above since the inception of the formula in 2014 to improve student success and completion. | Disagree (1) | Agree (2) | Inconsistent, disagreement | Disagree (1)<br>Not sure (2)<br>Agree (4) | Agree (1)<br>Disagree (2) | Inconsistent, disagreement, not important | Compliance costs, student success costs, Affordability, no Impact, not important |
| SQ 7 - If you disagree in Q6, what DID influence the strategic decisions made? | Blank | Environmental factors, such as demographic shifts in our service area (1) | Demographics | The crisis du Jour, student attainment data (1) | Student attainment data (1)<br>Six Year Strategic Plan (1) | Consistent | MAPFF No impact |
| SQ 8 - I believe that the following actions from question 4 above were influenced by my institution's results on the MAPFF: (Check all that apply) | Not Sure (1) | Additional or Expansion of Std Svcs (1)<br>Purchasing and use of additional tools to monitor student success and persistence (2)<br>Org restructure (1)<br>Increase Fees (1)<br>Addl Fees (1)<br>Reductions and Eliminations of courses (1) change in degree completion (1) | Neg impact | Not Sure (6)<br>Inc T&F (1)<br>Add'l fees (1)<br>Change in mission (1)<br>Org restruct (1)<br>Change in degree reqs (1) | Inc in fees (1)<br>Add'l fees (1)<br>No decisions made b/c of MAPFF (1)<br>Changes in degree completion reqs (1) | Unimportance, affordability | Neg impact, affordability |
| SQ 9 - If you chose OTHER in Q8 above, pl | Blank | Blank | | Blank | Blank | | |
| SQ 10 - I believe that the MAPFF has negatively impacted my institution in the following ways: (Check all that apply). | Add'l Compliance Costs (1) | No neg impact (1)<br>Larger T&F inc (1)<br>Elim/Reduce courses (1)<br>reductions in staff/faculty (1)<br>lower staff morale (1)<br>Addl costs of compliance (1) | Affordability, morale, course availability, cost savings | No Neg Impact (1)<br>Larger fee inc (2)<br>reduc std svcs (2)<br>lower staff/fac morale (4)<br>Elim/Reduce courses (3)<br>staff reductions (2) reduct in academic qual (1)<br>add'l cost of compliance (1) | Redductions in staff/fac (1)<br>reduct in std svcs (1)<br>No Neg impact (2) | Inconsistent, cost savings | Affordability, lower morale, fewer course offerings, disagreement from VP Fins, cost savings |
| SQ 11 - Please provide other examples not mentioned in Q10 above. | Blank | Blank | | I have not seen this used at all as an explanation for funding decisions (1) | Blank | | |
| SQ 12 - I believe that my institution's results on the MAPFF have influenced my institution's tuition and fee rate increases from 2014 - 2016 at the following level. | Not Sure (1) | Not yet (1)<br>Somewhat (1) | Affordability, No-impact | Not yet (1)<br>Not sure (3)<br>Somewhat (2)<br>Substantial (1) | Not yet (2)<br>Somewhat (1) | Affordability, No-impact | Inconsistent with Q10, affordability, neg impact |

# Survey Summary Findings Table Continued

| | FY2014 - FY2016 | | | | | | |
|---|---|---|---|---|---|---|---|
| | High Potential | | | Lower Potential | | | |
| **Qualitative** | **Case 1** | **Case 2** | **Case 1 & 2 Codes** | **Case 3** | **Case 4** | **Case 3 & 4 Codes** | **Combined Coding** |
| **Surveys** | **1 Respondent** | **2 Respondents** | | **7 Respondents** | **3 Respondents** | | |
| SQ 13 - If NOT SURE from Q12 above, what other factors DID influence your tuition and fee rate increases? | Blank | Blank | | Construction of new student center (1) | Blank | No impact | MAPFF no impact |
| SQ 14 - I believe that ACCESS to higher education is one of the MOST important missions of community colleges. | Strongly Agree (1) | Strongly Agree (2) | Consistent | Strongly Agree (7) | Strongly Agree (3) | Consistent | Access importance |
| SQ 15 - If you disagree in Q14 above, what do you feel is the MOST important mission of community colleges? | Blank | Blank | | Blank | Blank | | |
| SQ 16 - Research conducted in other states has shown that performance funding has negatively impacted access through increased student costs, restricted admissions and selective student recruitment. I believe that the implementation of the MAPFF has negatively impacted student access through the following mechanisms: (Check all that apply) | Not Sure (1) | Access not negatively impacted (1) Increase std costs (1) Elim/Reduction of courses (1) | Affordability, availability | Access not negatively impacted (2) Not sure (2) Inc std costs (3) Elim/Reduce courses (3) | Access has not been negatively impacted (3) | Inconsistent, VPs Fin agree | Inconsistent with Q10, affordability, neg impact, VP Fins no impact |
| SQ 17 - Please provide other examples not mentioned in Q16 above if applicable. | Blank | Blank | | Blank | Blank | | |
| SQ 18 - I believe that my institution's results on the MAPFF, before the stop loss adjustment, has been of significant concern with our senior leadership. | Not Sure (1) | Agree (2) | Important | Disagee (1) Not sure (4) Agree (1) Strongly agree (1) | Disagree (1) Strongly disagree (1) Agree (1) | Inconsistent, unimportant | Unfamiliar, unimportant |
| SQ 19 - If it did not cause concern (Q18), what has the reaction been if any? | Blank | Blank | | None (1) | We tend to lead in all categories of the formula (1) | | |
| SQ 20 - DHE proposed that the Stop Loss component of the funding formula will be phased out after the fourth year of using the formula. Once the MAPFF stop loss adjustment is discontinued, I believe that my institution will most likely take the following actions to replace any lost appropriations: (Check all that apply). | Take Steps to improve scores on MAPFF (1) | Raise tuition & fee rates (2) Decrease staff/faculty (1) Secure alternative revenues (1) Elim/ Reduce academic program courses (2) Take steps to improve our scores on the MAPFF (1) | Stop Loss significant impact | Raise tuition & fee rates (2) Secure alternative revenues (4) Reduce services currently available to students (2) Take steps to improve our scores on the MAPFF (2) Decrease staff/faculty (3) Reduce/Elim courses (2) | Raise tuition & fee rates (2) Secure alternative revenues (2) | Stop Loss significant impact | Stop Loss significant impact, caused reaction delay |
| SQ 21 - Please provide additional information for Q20 above. | Blank | Blank | | I cannot Answer (1) | We would have an increase in funding (1) | | |
| SQ 22 - With the decline in additional State appropriations since the implementation of the MAPFF for the community college sector, I believe that the current funding formula will be modified significantly or discontinued in the near future. | Agree (1) | Agree (2) | Unstable | Agree (3) Disagree (1) Not Sure (3) | Agree (1) Strongly Agree (1) Disagree (1) | Inconsistent | MAPFF not important for State, unstable |
| SQ 23 - I believe that the MAPFF has positively impacted my institution in the following ways: (Check all that apply). | None (1) | Increased awareness (2) | | None (1) Improved std success and completion (1) Increased awareness of institutional performance (5) Provided the needed incentive to improve student services and instruction (1) | None (1) Inc awareness of institutional performance (2) | Consistent | Majority said Institutional awareness |
| SQ 24 - What are other examples of positive impacts not mentioned in Q23? | Blank | Blank | | Blank | Blank | | |
| SQ 25 - I believe that my institution's outcomes on the MAPFF has had NO impact on my institution either positively or negatively from 2014 - 2016. | Not Sure (1) | Disagree (2) | Impact | Agree (2) Not sure (3) Disagree (3) | Agree (1) Disagree (1) Not sure (1) | Inconsistent, unfamiliar | Unfamiliar |
| SQ 26 - If you agree that the MAPFF has had NO impact on your institution from question 15 above, what do you believe were the reasons: (Check all that apply) | None (1) | None (2) | | Stop Loss (2) None (3) Inc tuition rev thru enrollment (1) Ignore results because MAPFF will be discontinued (1) Gon't understand MAPFF results (1) | Ignore results b/c MAPFF will be discontinued (1) Focused more on rev growth thru enrollment (2) None (1) | Consistent, unimportant, insignificant | MAPFF discontinued, focused on enrollment, stop loss impact |

# Survey Summary Findings Table Continued

| | FY2014 - FY2016 | | | | | | |
|---|---|---|---|---|---|---|---|
| | High Potential | | | Lower Potential | | | |
| **Qualitative** | **Case 1** | **Case 2** | **Case 1 & 2 Codes** | **Case 3** | **Case 4** | **Case 3 & 4 Codes** | **Combined Coding** |
| **Surveys** | **1 Respondent** | **2 Respondents** | | **7 Respondents** | **3 Respondents** | | |
| SQ 27 - Please provide other examples not mentioned in Q26 above. | Blank | Blank | | The formula has only been used to distrubute small annual increases rather than the whole pot of money so the affect is minimal (1) | Blank | | Insignificant |
| SQ 28 - What has surprised you most about the MAPFF and your institutions results? | Blank | MAPFF became irrelevant suw to lack of funding (1) | | How the institution compares with the other CCs (1)<br>Not always favorable and we can't figure out why (1) | Blank | | Insignificant |
| SQ 29 - Please add any additional comments on the MA Performance Funding Program you feel will be pertinent to this study. | Blank | Blank | | Other measures such as the VFA seem to place the CCs in a better light than do the measures of the DHE (1) | Blank | | Results of Vision Project seen as more important |
| SQ 30 - Select the title that most closely fits your position. | IR Director | VP Fin, Dean Enrol Mgmt | | VPFin, VP/Dean of std, VPACA, President, Dean, IR, Other | VPFIN, President | | Attribute |
| SQ 31 - If you selected other for Q30 above, please enter your title here. | IR | Financial & Dean Eroll Mgmt | | Blank | Blank, Assoc Provost | | Attribute |
| SQ 32 - Select your institution from the list. (Your name and institution's name will remain anonymous in the report) | Masked | Masked | | Masked | Masked | | Attribute: Confidential |
| SQ - Q33 How long have your worked in your position at your current institution? (Round to closest # of years) | 2 Years | 11,3 | | 6,4,48,1,2,?,2 | 4,5 | | Attribute |

# Appendix M

## Interview Summary Findings Table

| | High Potential | | | Lower Potential | | | |
|---|---|---|---|---|---|---|---|
| **Qualitative** | **Case 1** | **Case 2** | **Case 1 & 2 Codes** | **Case 3** | **Case 4** | **Case 3 & 4 Codes** | **Combined Coding** |
| | **1 Respondent** | **2 Respondents** | | **7 Respondents** | **3 Respondents** | | |
| **Interviews** | **0 Participants** | **2 Participants** | | **3 Participants** | **2 Participants** | | |
| | | **Exploratory Coding** | | | | | |
| IQ 1 - Your institution's fees have changed from xxx pch in FY2012 (before the implementation of the PF formula) to xxx pch in FY2016. Explain how the decisions were made that led to these changes. | Did not to participate | Access | Demands placed on them needed to hire more people and pay for it. | Access, Enroll Declines, deficit funding | Deficit, stop loss, Access, deficit | Hiring, compliance costs | Affordability, neg access |
| IQ 2a - In reviewing your institution's appropriation amount BEFORE the application of the stop loss amount in FY2016, your institution would have received [xxx less/more] appropriation.<br><br>a. What do you perceive were the reason(s) for the loss of appropriation? | | Vision Project | Vision project results more important | Insignificant | Insignificant | Insignificant dollars, not reviewed in detail | Insignificant No detailed review |
| IQ 2b - What changes have been made or discussed at your institution to improve your results on the PF formula allocation? | | Unfamiliar | None-Insignificant | New President, Dev Math | Unfamiliar | Unfamiliar | Unfamiliar, inexperienced, None |
| IQ 2c - How have your institution's outcomes on the performance funding formula been discussed with the leadership at your institution? | | No details | Cursory review only | VPFIN Dependent | No details | VP FIN Dependent, no detailed review | Summary only. How much are we getting |
| IQ 3 - Your institution's state appropriation percentage of total operating revenues has changed from xx% in FY2012 (before the implementation of the PF formula) to xx% in FY2016. What do you attribute this change to? | | Performance | Guess - performance | Vision Project | Nothing, enrollment, ATD school anyway | Vision Project, enrollment | MAPFF had little to no influence, Not reviewed in detail |
| IQ 4 - You [did or did not indicate] on the survey that the MA Performance Funding Formula incentivizes colleges to increase student outcomes. In what ways, does it accomplish this at your institution? | | Not used to make strategic decisions | None | Vision Project goals more important | Carrot or stick, not much influence | Vision Project more important, little influence | Not important, Punative vs incentive |
| IQ 5 - Explain what you attribute the enrollment declines to? (Probe to determine if any of the decline is dues to the MAPFF) | | Economy, Demographics, Competition | Economy, Demographics, Competition | Economy, demographics, competition | Unfamiliar, economy, demographics | Unfamiliar, economy, demographics | Economy and Demographics |
| IQ 6 - You indicated on the survey your institution (has or hasn't) restricted admissions, enrollments or recruitment since the implementation of the MA Performance Funding Formula. If it has, explain how. If hasn't, explain what your institution is doing to improve student outcomes as measured in the formula. ? [Probe: Has your institution changed admission, enrollment and recruitment practices as a result of the MAPFF?] | | Focus was inc overall enrollment 7 retnetion | None | Don't know, beefed up admissions | Nothing , focused on inc enrollment than MAPFF metrics | Unknown, focused on overall enrollment | No restrictive enrollment practices, agreement |
| IQ 7 - What other actions has your institution instituted to improve your outcomes as measured by the PF formula? (to probe for unintentional impacts to access) | | Retention, unfamiliar | Overall retention only | Advising efforts, admission efforts | Focused on enrollment | Focused on overall enrollment, no detailed review of MAPFF | Focused on enrollment not MAPFF, Ignored MAPFF |
| IQ 8 - You indicated on the survey that the MA Performance Funding Formula has had positive impacts on your institution. Explain what they are. (follow up based on their examples given on the survey) | | Insignificant, Inc awareness, Not used strategically | Insignificant, Inc awareness, Not used strategically | Not a whole lot. Too insignificant | Increased awareness | Not much, insignificant, increased awareness | Inc Awareness, is all. |
| IQ 9 - You indicated on the survey that the MA Performance Funding Formula has had negative impacts on your institution. Explain what they are. (follow up based on their examples given on the survey) | | Low Morale, op cost inc | Morale, op cost inc | inc std costs, elim courses | Reduction of std svcs, inc fees due to stop loss, institutional Culture | Affordability, fewer course and section options, culture | Affordability, reduction of services, morale |
| IQ 10 - 10. What suggestions would you make to improve the way the State allocates appropriations? | | Nothing | Nothing | Nothing | Formula to be more nuanced by school | More nuanced to each institution, nothing | MAPFF customized |