

ABSTRACT

CUTLER WHITE, CAROL. A Qualitative Comparative Analysis Exploring How the Arrangement of Higher Education Governance Shapes the Contribution of Two-Year Institutions to State Educational Attainment (Under the direction of Dr. Diane D. Chapman).

Two-year institutions of higher education are critical to state educational attainment (Auguste, Cota, Kartik, & Laboissiere, 2010; Wildavsky, Kelly, & Carey, 2011c), but the institutions may be hindered in contributing to attainment increases by the arrangement of governance (McLendon & Ness, 2003). The purpose of the study was to explore how the arrangement of higher education governance shapes the contribution of two-year institutions to state educational attainment (McLendon & Ness, 2003; Richardson Jr., Bracco, Callan, & Finney, 1999).

The study utilized descriptive statistics and Qualitative Comparative Analysis (QCA) methodology (Ragin, 1987) to analyze 816 state policies (accountability, affordability, college completion, finance, postsecondary remediation, postsecondary transitions, transfer and articulation, and workforce and economic development) in the 2005-2012 Boosting College Completion dataset (National Center for Higher Education Management Systems, 2012). The study explored how attainment policy varied across state two-year Coordinating, Governing, and Mixed governance arrangements (McGuinness Jr., 2014b), how region, population, socio-economic development, and state educational development combined with governance arrangement, and how the arrangement of higher education governance shapes the contribution of two-year institutions to foster improved state educational attainment. The number of policies served as a surrogate for policy innovation and a state's focus on two-year institutions.

Descriptive statistics revealed a clear pattern with the 25 Coordinating and Mixed arrangement states enacting higher mean numbers of policies in all types, while the 25 Governing arrangement states enacted lower mean numbers of policies. Demographic contexts were not found to be crucial. Rather, QCA revealed the arrangement and structure of governance was crucial empirically in shaping the role of two-year institutions for increased state educational attainment. Findings suggest two-year institutions in Coordinating and Mixed states play a larger role for increasing educational attainment through the governance arrangement's broad policy focus, and Governing states may constrain the contribution of two-year institutions to increased attainment through a mismatched policy environment and narrow governance policy focus.

Future research should expand the study of governance of two-year institutions and examine the outcomes of the enacted policies. These findings have implications for governors, system leaders, and legislators considering governance changes to meet state educational attainment goals.

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A Qualitative Comparative Analysis Exploring How the Arrangement of
Higher Education Governance Shapes the Contribution of Two-Year Institutions to State
Educational Attainment

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DEDICATION

This study is dedicated to traditional and nontraditional students at community colleges, and to adults who are completing masters and doctoral studies while working and juggling a family. The journey is long, but you can do it.

BIOGRAPHY

Carol Cutler White grew up in Essex Junction, Vermont with six biological brothers. Her maternal grandmother completed a Bachelor degree in Education in 1917 at Eastern Kentucky State University in Richmond, Kentucky. Education was one of just a handful of degrees pursued by women at the time. She had a career as an English teacher and homemaker. Carol's father graduated from high school in 1942 at the age of 17, an accomplishment in that day in the state of Vermont. He enlisted in the Army and served in World War II and the Korean War. His entire post-war career was with the Vermont National Guard. His high school education provided for a family of seven children.

Carol's mother enrolled at the University of Kentucky but after two years her family had moved to Columbus Indiana. She transferred to Indiana University to complete her Bachelor of Arts degree in Social Work in 1947. She enlisted in the Army and served as an officer in the Women's Army Corps outside Paris, France from 1950 to 1954. Carol's parents met in 1956 at a military class at Fort Benjamin Harrison just outside Indianapolis, Indiana. They were married six weeks later. At the time married women were not allowed to serve in the Army, so Carol's mother was discharged as a Captain in the US Army at the end of June 1956. Following military service, her mother was a career homemaker.

Carol's first higher education experience was at the State University of New York at Delhi where she enrolled to earn an Associate degree. Following successful completion of an Associate of Applied Science degree in Recreation Management, she transferred to the University of Vermont where she completed a Bachelor of Science degree while working for

the Chittenden County Extension Service as a 4-H Agent. With the loss of credits during transfer and the need to be employed, the two degrees took six years to complete.

After raising a son with her husband Christopher and moving to North Carolina, she returned to higher education from 2005-2007 at North Carolina State University (NC State) where she earned a Master's in Public Administration while working full-time as Director of Summer College in Biotechnology and Life Sciences and Program Manager for the Center for Integrated Fungal Research. Following graduation with the MPA, she worked in economic development with the North Carolina Biotechnology Center, and then spent six years managing federal relations and creating federal and state funded program innovations at Wake Technical Community College in Raleigh NC, the largest community college in the state.

While at Wake Technical Community College, she served as Co-Principal Investigator of the Bill and Melinda Gates Foundation Partners for Postsecondary Success and Completion by Design projects, and began her doctoral studies at NC State. She is currently employed at the University of North Carolina General Administration directing college readiness and access initiatives as State Director of the Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) U.S. Department of Education grant program, serving as the UNC System representative for the Joint Advisory Council for Cooperative and Innovative High Schools with the NC Department of Public Instruction and the North Carolina Community College System, as Co-Chair of the ACT State Council, and as a Board Member for the Public School Forum's Center for After-School Programs.

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A patience award goes to my husband Christopher. We journeyed together for the last six years through the loss of my mom, Aaron's Peace Corps tour, job change for me, job

loss and reemployment for you, and the various challenges of day to day life. It was six years of ups and downs to be sure.

Finally, I'd like to acknowledge my cohort of colleagues for making the doctoral journey an absolute joy. Being an extrovert, meeting people was half the fun. Jennifer Stanigar, Hassel Morrison, Janice Sitzes, and many other Adult and Community College and Workforce and Human Resource Education colleagues, you've inspired me, encouraged me, and made each step enjoyable. So glad to have journeyed with such quality people.

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CHAPTER ONE: INTRODUCTION

State higher education governance has been found to influence the emergence of postsecondary policy innovation efforts, the nature of the innovations under consideration, and the political success of innovative proponents and opponents (Glenny, 1983; McLendon & Ness, 2003; Richardson Jr., Blocker, & Bender, 1972; Richardson Jr., Bracco, Callan, & Finney, 1999b). All policy must pass through state governance, thus being subject to the regulatory and functioning authority of the arrangement and structure, in addition to the political climate and state context (McGuinness Jr., 2011; Schmidlein & Berdahl, 2011).

Higher education governance acts as a buffer in the legislative policy process (Tandberg, 2013) and may propel or block state policy innovations (Glenny, 1983; Knott & Payne, 2004; Lynn, Heinrich, & Hill, 2000b; Nagem, 2016). Therefore, the arrangement of state higher education governance must be viewed as a potentially critical factor in a state's educational attainment agenda (McLendon, Deaton, & Hearn, 2007; McLendon, Heller, & Young, 2005; Tandberg, 2013). Despite the varying degree of influential power wielded by higher education governance, the arrangement of higher education governance is not widely understood (Lynn, Heinrich, & Hill, 2001a; Mahroum, 2013; McLendon, 2003a; Tandberg, 2013).

Two terms require definition before proceeding. Within this study the terms "arrangement of governance" or "governance arrangement" are used interchangeably and refer to how a state conducts oversight of higher education. Governance of higher education may be arranged with a single body (combined oversight of two-year and four-year higher education institutions or a K-16 arrangement) or it can be arranged with multiple bodies of

governance within a single state (as in the case of separate governance bodies for two- and four-year institutions of higher education). The term “higher education governance structure” refers to the formal mechanism and state designated body (or bodies) with legislated authority for academic program approval, budgeting, performance oversight, and planning. The term governance structure is generally understood to mean a board, agency or a governor’s office responsible for policy and/or performance of institutions of higher education.

States appropriate funds for higher education capital and infrastructure support, operations and instructional support, and monitor performance accountability through governance structures (Marcus, 1997; McGuinness Jr., 2011). The general pattern is that state governments (governors, executive branches, administrative and fiscal agencies, and the state legislatures) treat public higher education differently from other state agencies, such as transportation departments or health and human services (McLendon & Ness, 2003). Higher education is a discretionary item in most state budgets (Hearn & Griswold, 1994; Lynn et al., 2000b; Zhang, 2008), and each state has a pattern of relationship between the government and higher education (Knott & Payne, 2004; McGuinness Jr., 2011; Tandberg, 2013).

Differences in governance arrangement across states can be attributed to variation in legal responsibilities between the executive and legislative branches, political culture, and the history of higher education development in the state (Altbach, 2011; Geiger, 2011; Glenny, 1983; Hearn & Griswold, 1994; Thelin, 2011a). Scholars of higher education governance acknowledge the complexity in understanding state higher education governance (Ellwood, 2000; Lynn, Heinrich, & Hill, 2000a; McLendon et al., 2007), and recommend expanded

higher education governance research (McLendon et al., 2005; McLendon & Perna, 2014; Petridou, 2014). Despite the existing literature and calls for increased research, scholars have tended to overlook an increasingly important factor in the discussion of higher education; two-year institutions of higher education. The next section of this paper provides a background to this study of two-year institutions of higher education.

Background to the Study

Two-year institutions of higher education (also known as community colleges or technical institutes) were initially established in the late 19th century to offer the first two-years of liberal arts undergraduate study (Zook, 1922). This liberal arts focus remained until the Post World War II era from 1947-1962 (Lucas, 1994b; Thelin, 2011b), when the post-war era ushered in new challenges for states as they worked to accommodate large numbers of returning soldiers needing to enter the workforce. The Serviceman's Readjustment Act of 1944 (the GI Bill) offered an avenue for returning soldiers to prepare for jobs and to ease their reentry into a peacetime economy (A. Cohen & Brawer, 2008; Lucas, 1994b; Thelin, 2011a), but states were unprepared to accommodate the large numbers of potential students who sought higher education through the GI Bill.

Recognizing the states' challenges, President Truman convened a Presidential Commission (the Truman Commission) to make recommendations for a national solution to the demands for a highly skilled workforce (Dongbin & Rury, 2014; Geiger, 2011; Thelin, 2011a; Zook, 1950b). The Truman Commission's main recommendation was the establishment of two-year colleges in each state to address local economic, social and technological challenges with liberal and technical education (A. Cohen & Brawer, 2008;

Thelin, 2011a; Zook, 1947, 1950b) for all Americans. The Commission called on all states to establish an organized system of open access two-year institutions of higher education (A. Cohen & Brawer, 2008; Dongbin & Rury, 2014; Zook, 1947, 1949).

With the Truman Commission impetus and the demand for higher education capacity propelling action, states established governance of two-year institutions of higher education based on political and economic factors at the time (A. Cohen & Brawer, 2008; McGuinness Jr., 2014d). Some states organized two-year institutions of higher education within the K-12 system governing, coordinating, or regulatory board. Some states organized two-year institutions of higher education within the four year governing, coordinating, or regulatory board, and some states organized the two-year colleges through a separate governing, coordinating, or regulatory board (McGuinness, 2014). As a result, variation in governance arrangement of two-year institutions embodies complexity.

Since the initial arrangement of governance, states have engaged in reform efforts on a regular basis in an effort to improve performance and efficiency of state higher education (Marcus, 1997). Currently, higher education governance in the 50 states is organized into one of three broad categories; a Governing arrangement, a Coordinating arrangement, or a Mixed arrangement (McGuinness, 1997). Within each category, there is great variation in organizing two- and four-year institutions of higher education, and in some cases there are multiple forms of governance within a single state.

The last three decades have witnessed the introduction of hundreds of pieces of legislation across states proposing structural changes to state-level higher education governance as a means to improve higher education performance (Hearn & Griswold, 1994;

Marcus, 1997; McLendon et al., 2007), yet little research exists focused on two-year institutions of higher education. Two-year institutions of higher education have greater variation of state-level governance of higher education than four-year institutions of higher education and they have more complex political environments than their four-year counterparts (McGuinness Jr., 2014c). The structural and systemic limitations created by governance arrangement in public policy is an appropriate and needed subject of research (McLendon & Perna, 2014), because the arrangement of governance can create challenges in developing solutions to complex problems such as improving state educational attainment described next.

Nature of the Problem

By 2018, the Bureau of Labor Statistics estimates the U.S. economy will create 46.8 million jobs through a combined 13.8 million new jobs and 33 million replacement jobs vacated by workers who have retired or permanently left their occupations (Sommers & Franklin, 2012). Nearly two-thirds of these jobs will require some form of postsecondary education and training beyond high-school (Belfield & Bailey, 2011; Graham & Stacey, 2002; Grubb & Lazerson, 2005; Sparks & Waits, 2011). Approximately 33 percent will require a bachelor's degree or better while 30 percent of the new and replacement jobs are classified as middle skill requiring a sub-baccalaureate credential (Carnevale & Desrochers, 2002; Carnevale, Smith, & Strohl, 2010). Only 36 percent of the estimated jobs will require workers with a high school diploma or less (Sommers & Franklin, 2012).

This labor market reality requires states to increase educational attainment to adequately address workforce readiness and economic competitiveness, making educational

attainment a top state priority of policy makers (Carnevale et al., 2010; McLendon & Perna, 2014). All 50 states need to increase educational attainment to meet the projected labor market demand. With 30% of the projected labor market demand expected to be in middle skill jobs, many states are focusing attention on sub-baccalaureate credentials in crafting educational attainment goals (Hira, 2010; Kane & Rouse, 1995; McLendon & Perna, 2014) highlighting the contribution of two-year institutions to increasing state educational attainment.

If states are to increase educational attainment focused policy is needed to address the pipeline of students entering and exiting higher education through two-year institutions of higher education. States can use policy as a mechanism to increase the demand for, and supply of, higher education in the state (Perna & Finney, 2014c). Some states may be better positioned to create policy as a means to increase educational attainment through the arrangement of governance. In other states, the current pattern of governance arrangement may be inadequate to advance a significant educational attainment policy agenda (Perna & Finney, 2014b) because the policy environment makes it difficult to create and enact policy. What is missing in the literature is how the arrangement of governance shapes the contribution of two-year institutions to increasing state educational attainment.

Problem Statement

The problem this study investigated was how the arrangement of higher education governance shapes the contribution of two-year institutions of higher education to state educational attainment.

Purpose of the Study

The purpose of this qualitative comparative study was to explore how policy making patterns, and state contexts (population, per capita income, educational attainment, and higher education regional compact) in combination with state higher education governance arrangement result in a policy environment that fosters the contribution of two-year institutions of higher education to achieving improved state educational attainment.

Conceptual Framework

This study proposed a conceptual framework grounded in a theory and a model. Governance theory explains how the arrangement of governance may constrain or benefit two-year institutions through the arrangement of governance. Kingdon's multiple streams model provides understanding of the agenda setting process of policy enactment. This section proceeds as follows; 1. governance and governance theory will be explained, 2. Kingdon's multiple streams model is explained, 3. The policy environment resulting from the arrangement of governance is explained, and 4. governance in combination with state contexts is presented with justification for selection of the research methodology.

Governance and governance theory. The term governance is used widely in the public and private sectors. It includes global and local arrangements, formal structures and informal norms and practices, spontaneous and intentional systems of controls (Williamson, 1996). Lynn, Heinrich, and Hill define governance theory as the regimes of laws, rules, judicial decisions, and administrative practices that constrain, prescribe, and enable the provision of publicly supported goods and services (Lynn et al., 2000b, 2001a).

Governance theory extends this definition to also include examination of the traditions, institutions, and the arrangement of processes that determine how power is exercised, how citizens are given a voice, and how decisions are made on issues of public concern (Lynn, Heinrich, & Hill, 2001c). Lynn, Heinrich, & Hill describe the central theoretical problem of governance research as the imposition of causal ordering on the logic that links context, governance, and outputs (Lynn et al., 2001a; Lynn, Heinrich, & Hill, 2001e).

Kingdon's multiple streams model. Kingdon's multiple streams model for understanding the policy process is comprised of three streams; problems, policies, and politics (Hearn & Griswold, 1994; Howlett, McConnell, & Perl, 2014; Kingdon, 1984). Kingdon's model simplifies the complex policy making process and aids in understanding why some policies gain importance on agendas and why some languish and never attain the status of agenda (McLendon, 2003b). It demonstrates that the policy process is not linear nor is it predictable. Rather, policy making occurs when a problem rises to the top of a governmental agenda with clear alternatives for policy solutions and the problem has effective political support to make policy a reality (Kingdon, 1984). Kingdon's multiple streams model provides a framework for understanding the policy environment created by the arrangement of higher education governance as benefitting or constraining educational attainment policy innovations (Hearn & Griswold, 1994; Tandberg, 2013).

Policy environment. The outcome of interest for this study is a policy environment where states enact 12 or more educational attainment policies for the period 2005-2012. A policy environment resulting in a higher number of educational attainment policy outputs

(policy production through the three streams coming together) produces the potential to benefit the contribution of two-year institutions of higher education to improved state educational attainment. In contrast, a policy environment resulting in a lower number of educational attainment policy outputs (where the three streams do not come together as often) produces the potential to constrain the contribution of two-year institutions of higher education to improved state educational attainment.

Governance in combination with state context. There is extensive evidence that the nature of higher education governance policy production (or outputs) is closely related to a variety of specific social, political, bureaucratic, and economic conditions and contexts (Hearn & Griswold, 1994; McLendon et al., 2007). More specifically, research has indicated that the contexts of governance, state population, state educational development, state socio-economic development, and regional compact have influenced state policy outputs (Hearn, Griswold, & Marine, 1996; Knott & Payne, 2004; Tandberg, 2013).

There were multiple combinations of the five conditions leading to a policy environment benefitting two-year institutions of higher education. The outcome of interest (12 more educational attainment policies enacted for the period 2005-2012) resulted when governance combined (Boolean AND, Boolean OR) with the state contexts. The study's methodology, Qualitative Comparative Analysis (QCA), uncovered the multiple combinations of contexts in states enacting 12 or more policies for the period 2005-2012. The conceptual framework is represented in Figure 1.1.

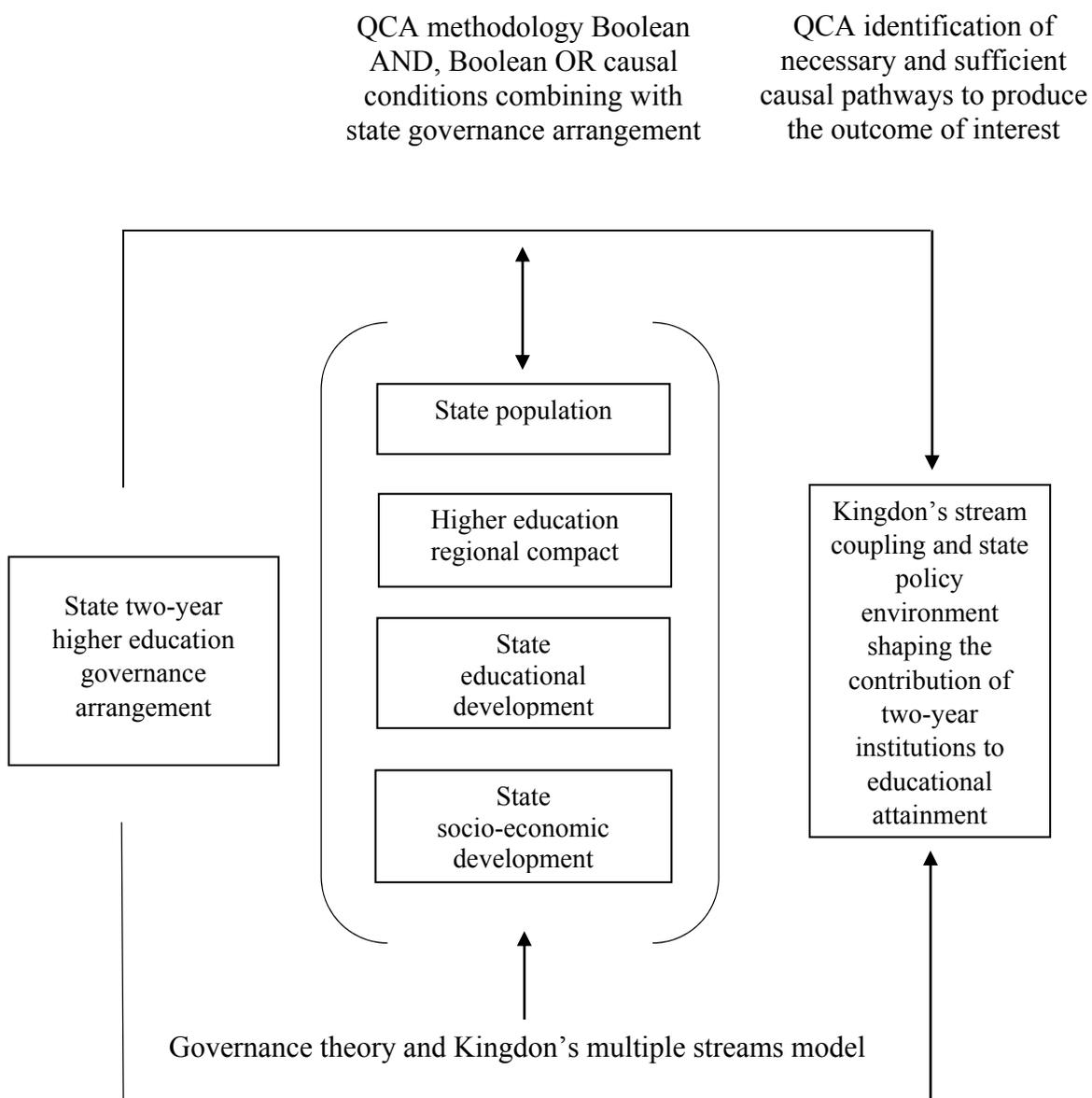


Figure 1.1 Conceptual framework

Significance of the Study

This study is significant for a number of reasons. Nearly 50% of all undergraduates are enrolled at two-year institutions, yet many of them never complete a postsecondary credential (Shapiro & Dundar, 2013). If states are to increase educational attainment to meet

projected demand for middle skill labor, two-year institutions have to produce more graduates (Carnevale & Desrochers, 2002; Carnevale et al., 2010). Therefore, large-scale change is required, rather than change at an institutional level to produce more graduates. Improving outcomes at an institutional level is a step in the right direction, but states may never achieve increased educational attainment if a handful of institutions pursue increasing student success. Momentum for improved state educational attainment needs to be at the system rather than institutional level, and improved performance requirements will have to be shared across all segments of the higher education student pipeline. If two-year institutions produce more middle skill graduates, the workforce will benefit. If two-year institutions produce more transfer students, four-year institutions and the workforce benefit. Both outcomes lead to state educational attainment gains.

Public policy is the mechanism by which state governments can increase the demand for, and supply of, higher education in the state (Perna & Finney, 2014a). Uncovering and understanding the policy environment two-year institutions function within may be a catalyst for better aligned types of policy to improve student success, and better aligned higher education and workforce systems to meet future labor market demand for postsecondary credentials. As a result, states may be better able to leverage the role of two-year institutions for increasing state educational attainment (Kazis, Conklin, & Pennington, 2004).

The type of policy states enact is significant to two-year institutions and the students they serve if state attainment goals are to be realized. For example, the majority of underprepared students who enter community colleges will not qualify for merit aid. If states are directing affordability policies toward merit aid, the vast majority of two-year students

may not be able to benefit, and those students who would be willing to pay may more benefit. The misdirected (and limited discretionary) funds may have produced better outcomes if directed toward specific areas of student financial need to address the problem of increased attainment. The goal of increased attainment has not been achieved because students with financial need to enter or progress to degree (or credential) completion are not participating in higher education. Affordability policies with student performance strings attached may also disadvantage students even if the aid is for need. Requiring a high grade point average to maintain need-based aid may not be effective with large numbers of two-year students who begin postsecondary education as underprepared and ill-equipped for postsecondary rigor.

Lastly, states may be standing in their own way through the arrangement of higher education governance and the policy environment resulting from the arrangement. This is especially true in Governing states where coordination to meet state goals is not a requirement of the structure. Therefore, these states will have greater difficulty in achieving increased educational attainment. As noted previously, some states have engaged in restructuring the arrangement of governance as a means to improve the performance of higher education. The restructuring has had mixed results (McGuinness Jr., 2002; McGuinness, 2015). Prior to overhauling the arrangement of governance, states need to understand the implications of a change of governance, and determine where reorganization may be needed prior to acting. McGuinness notes that states may reorganize, but the reorganization may be disconnected from the problem (McGuinness, 2015). He also notes that reorganization without a sense of purpose may do more harm than good. This study

provides a starting point for governors, state legislators, and policy makers to evaluate how the arrangement of higher education governance is fostering the contribution of two-year institutions to increasing educational attainment. The specific research questions this study follow.

Research Questions

This study had three research questions addressing the arrangement of higher education governance and the contribution of two-year institutions for improving state educational attainment. This study explored the following:

1. How does higher education attainment policy vary in type, quantity, and focus across state two-year governance arrangements?
2. How does region, population, socio-economic development, and state educational development combine with state two-year governance arrangements to impact attainment policy? and
3. How does the arrangement of higher education governance shape the contribution of two-year institutions to foster improved state educational attainment?

Research Method

To address the three questions required a methodology able to deal with complex combinations of causes rather than individual net effects. The methodology also needed to be able to allow for complexity through multiple causal pathways resulting in the same outcome, rather than one causal model as explanatory of the outcome (Blackman, Wistow, & Byrne, 2013). Therefore, the study utilized Qualitative Comparative Analysis (QCA) to

identify state contexts in combination with higher education governance resulting in 12 or more educational attainment policies for the period 2005-2012.

QCA is known as a bridge between quantitative and qualitative analysis (Ragin, 1998). Sample sizes, most often ranging from 12-200 cases, are quantitatively too small for inferential analysis and too large for in-depth qualitative analysis (Legewie, 2013). Unlike traditional, variable-oriented analytic techniques, such as regression analysis that measure the net effect of a predictor variable, QCA allows the researcher to find distinct configurations (or patterns) of causal conditions that, in turn, suggest different theoretical pathways to given outcomes (Longest & Vaisey, 2008). Rooted in the analysis of configurations of *set relations*, not correlations, QCA belongs to a class of analytic techniques based in set theory known as Configurational Comparative Methods (Rihoux & Ragin, 2009b). QCA is configurational because it allows investigators to identify combinations of configurations associated with the outcome of interest (Thiem, 2013).

The specific type of QCA this study employed is referred to as crisp-set QCA where states are either “in” or “out” of the set of states enacting 12 or more educational attainment policies for the period 2005-2012. Though QCA allows researchers to combine and synthesize both qualitative and quantitative information in a replicable manner, it is primarily a qualitative method as it assesses complex cases not entirely suited to experimental designs (Legewie, 2013).

Limitations and Delimitations

This study was limited to state-level educational attainment policies as reported by the states to the Boosting College Completion project administered by the National Center for

Higher Education Management Systems (NCHEMS) and the Education Commission on the States from 2005-2012. The study was also limited to publicly available data on governance arrangement as reported by the states to the National Center for Higher Education Management Systems (NCHEMS) Postsecondary Structures Database. Lastly, the study was limited to publicly available data from the 2000 U.S. Census.

The study did not examine the factors related to individual student degree attainment, institutional degree attainment, the politics of trustee selection and political bias, or other individual factors related to institutional degree attainment policy innovation. Rather, the study was limited to patterns and combinations of causal conditions in combination with governance resulting in state enactment of 12 or more educational attainment policies for the period 2005-2012.

There are limitations to crisp-set QCA as a methodology. One of the criticisms of crisp-set QCA is the loss of variability when dichotomizing set membership due to the binary categorization. In response to this criticism, QCA supporters argue that the sets are meant to represent conceptual categories such as a rich country or poor country and are not meant to represent variation in the data (Rihoux & Ragin, 2009a).

A second criticism of QCA, in general, is the apparent arbitrary process of dichotomization. The response to this criticism is that QCA requires transparency and documentation of all decision making during the process of dichotomization. The method requires an audit trail for future replication. Further the decision for setting a cutoff point for set membership is based in theory and the researcher's knowledge of the data being analyzed (C. Q. Schneider & Wagemann, 2012). During the analysis, QCA required testing different

dichotomizations to see if, and how, the outcome results changed. All of the decisions for dichotomization of set membership were documented in the Chapter Three and in the study's cumulation (Appendix D) for future replication of the results.

A final limitation or criticism of QCA is that it is difficult to distinguish which individual set membership is most important for predicting the outcome. This criticism indicates some misconception of the value of QCA. The method is not interested in individual variables or the predictive value of the variables. Rather, QCA is focused on explaining and understanding how contexts *combine* to produce an outcome (Rihoux & Ragin, 2009a).

Contributions to Theory and Practice

Governance of higher education has not been widely researched, and research focused on governance of two-year institutions of higher education is scarce. This study expanded understanding of governance theory in the context of two-year institutions of higher education. The study also extended the application of Kingdon's multiple streams model at the state-level for explaining higher education policy environments.

The study is especially important in practice. Scholars continue to recommend a fresh examination of the role of two-year institutions in the states to ensure state educational attainment goals are achieved (Goldrick-Rab & Pfeffer, 2009; Hauptman, 2011; McLendon & Perna, 2014; Monaghan & Attewell, 2014). State policy leaders are increasingly cognizant that a four-year college education is out of financial reach for many students (Carnevale & Strohl, 2010; McLendon & Perna, 2014), and that sub-baccalaureate credentials merit value in the workforce (Ewert & Kiminski, 2014). This study provided evidence of some

constraints on two-year institutions through the arrangement of governance that can be addressed by state leaders to ensure the contribution of two-year institutions is maximized in achieving state educational attainment goals. The following section provides a definition of general terms to be used throughout this study. QCA methodology terms follow this list.

Definition of General Terms

The following definitions provide understanding of the unique terms utilized throughout this study.

Articulation. The process by which four year institutions of higher education accept transfer credit earned at two-year institutions of higher education as equivalent for fulfilling degree requirements.

Dual enrollment. High school students can earn college credit while in high school by taking courses at a two or four-year institution of higher education. The courses count for credit for high school graduation and they fulfill postsecondary degree requirements.

Governance arrangement. The term describes how a state conducts oversight of higher education through governing, coordinating, or other form of body or agency.

Governance reform. The process of state legislated change for the state-level organization and monitoring of higher education within the state.

Governance structure. The formal policy making body (or bodies) with legislated state authority for performance of higher education.

Need-based financial aid. State supported aid to students who meet income eligibility requirements.

Merit-based financial aid. State supported aid to students who qualify through academic achievement.

Performance Based Funding. Funding awarded to an institution of the system of higher education when performance targets are achieved. Degree attainment is a measure of performance for funding purposes.

Prior Learning Assessment. The process whereby an institution of higher education awards credit for demonstrated competency in a content area negating the need to take the course to complete degree requirements.

Remedial education. High school graduates repeat high school content if proficiency is not demonstrated on an entrance exam at either a two or four-year institution of higher education.

Reverse Transfer. The process whereby a state four-year institution of higher education awards a two-year transfer credential to students enrolled in the institution when the state two-year degree requirements have been met.

Two-year institution of higher education. This study identifies two-year institutions of higher education as publicly supported institutions primarily awarding less than baccalaureate degree credentials. Most often the institutions are referred to as community colleges or technical institutes.

Definition of Methodology terms

Qualitative Comparative Analysis (QCA). A research approach and a technique bridging qualitative and quantitative methods for understanding complex causal combinations of conditions leading to an outcome.

Dichotomization. The process of establishing set membership criteria in QCA.

Dichotomization of set membership scores is conducted based on theory and empirical knowledge.

Causal condition. A causal condition corresponds to an independent variable in statistical analysis, however, in QCA variables are not independent. Rather, the variables are expected to be combined in observing the outcome.

Causal pathway. The combination (presence or absence) of causal conditions that lead to the outcome of interest.

Causal heterogeneity. More than one combination of conditions (indicated by a pathway) is usually necessary to account for all cases with the outcome of interest.

Consistency. Consistency represents the extent to which a causal combination leads to an outcome. Consistency scores range from 0 to 1. With crisp sets, consistency represents the proportion of cases with a given causal combination that are represented in the outcome set.

Coverage. Coverage represents the overall representation of cases exhibiting the outcome of interest that are represented in the pathway(s).

Cumulation. Documentation of QCA techniques and decision making with transparency of all decision points.

Necessary conditions. Causal conditions that are required to produce the outcome. All cases that exhibit the outcome also exhibit a necessary condition.

Minimal formula. The combination of causal conditions leading to the outcome. The minimal formula reflects the most parsimonious (shortest) reduction of the data explaining the outcome of interest.

Outcome. The outcome in QCA is much like the dependent variable in statistical analysis.

It is the subject of interest for the study.

Pathway. A descriptive Boolean term indicating the presence (or absence) of combinations of conditions leading to the outcome.

Sufficient conditions. Sufficient conditions always lead to the outcome. Sufficient conditions may not be the only conditions that lead to the outcome, however. In set relations, sufficient conditions can be considered a subset of the outcome set.

Truth table. QCA software produces a table with a row for each possible combination of causal conditions and the outcome and indicates how many cases fall in each combination (row).

Chapter Summary

This chapter provided background to the study, a description of the nature of the state educational attainment problem, provided a statement of the problem, the purpose of the study, the theoretical framework guiding the study, the conceptual framework, the significance of the study, the research questions, the objectives of the study, the limitations, contributions to theory and practice, and definition of terms. The next chapter will provide a review of the literature that guided this study.

CHAPTER 2: LITERATURE REVIEW

Higher education in America is thought to be populist, egalitarian, and democratic (Lucas, 1994b). In recent years this widely held belief is under scrutiny as college costs rise and the need for higher education attainment becomes more apparent (Sparks & Waits, 2011; Weiss, 2008). The policy debate now centers on the need to complete some form of postsecondary education to attain or maintain a middle class lifestyle in the U.S. (Graham & Stacey, 2002; Sparks & Waits, 2011), and it draws attention to the role of two-year institutions (community and technical colleges) of higher education in supplying the need for human capital and workforce demand (Carnevale et al., 2010).

For over half a century, the majority of states have organized two-year institutions of higher education through some rational form of higher education governance (McGuinness Jr., 2011; McLendon & Ness, 2003). Each state arranged governance of their two-year institutions of higher education to be responsive to the state political context, and state economic and educational concerns at the time the governance arrangement was formalized (Berdahl, 1971; Glenny, 1959; Marcus, 1997; Thelin, 2011a). Since the establishment of governance of two-year institutions of higher education, states have combined, replaced, dissolved and created new arrangements in an effort to improve the efficiency and performance of higher education (Marcus, 1997; McLendon et al., 2007).

Higher education governance plays a role in the approval of state higher education policies, programs, and budgets, and in monitoring the performance of higher education in response to directives of the state legislature (McLendon & Perna, 2014; Tandberg, 2010, 2013). Despite this dual and influential role, the shaping influence of state higher education

governance arrangement on two-year institutions has not been widely researched or documented. Within the existing literature, the majority of higher education governance research presents governance through the lens of four-year institutions and structures to the neglect of two-year institutions. Research centered on the shaping influence of governance arrangement on the contribution of two-year institutions increasing educational attainment is nonexistent. Therefore, this study will fill a gap in the literature.

This chapter presents a review of the literature guiding this study. The review will first present a brief history of higher education in the U.S. and a brief history of two-year institutions of higher education. This will be followed by a review of the literature on governance, governance theory, and the study of governance, including problems in studying governance. The review of the literature will then present an overview of Kingdon's multiple streams model of policy formation. A summary of governance arrangements, roles, and responsibilities across the states will be presented. The literature covering the effects of governance arrangements on higher education will be reviewed. The chapter concludes with an overview of the current educational attainment problem in the U.S.

Higher Education History in the U.S.

Higher education in the U.S. traces its history to Colonial times when religious interests established Harvard, William and Mary, and Yale (Geiger, 1992, 2011). The institutions were established as adjuncts of their respective churches to provide a solid liberal arts education for the training of ministers, and governance was provided by ordained ministers and a single president (Thelin, 2013). From 1745-1775, the College of New Jersey, Kings College, Dartmouth, the College of Rhode Island, and the College of Philadelphia

were established as private institutions closely aligned to religious bodies, but with secular governance (Geiger, 1992, 2011). During this same time, the original three institutions moved in the direction of a more secular curriculum.

The American Revolution moved colleges to further contemplate their societal role as political involvement against England spurred the need for an educated populace. After the Revolution, some states without higher education established colleges (Maryland, North Carolina, Vermont, South Carolina, Georgia) and the existing colleges further broadened the secular nature of the curriculum (Geiger, 1992). Over the next 100 years, expansion of public education moved across the U.S. with states establishing the majority of colleges as public institutions focused on the liberal arts (Geiger, 1992).

This liberal arts focus changed with the period following the Civil War when colleges evolved their focus to utility, research, and liberal culture. Additionally, the clientele entering public colleges evolved to include the industrial classes of women and African Americans. Many states established separate institutions for these students (Geiger, 1992; Thelin, 2011b). Education became associated with utility rather than strictly liberal arts during this time through the passage of the Morrill Act (or the Land Grant Act) by the federal government in 1862 (*Morrill Act*, 1862). The Act stipulated that there be “at least one college” to teach utilitarian subjects thereby prompting states to provide education for practical curriculum in engineering and agriculture as a means of economic development (Geiger, 2011).

Higher education continued its expansion across the U.S. growing from 200 institutions in 1860 to over 1,000 by 1890. The expansion was mainly secular colleges

established through philanthropic funds (Geiger, 1992). By 1908, it was possible to recognize a “standard U.S. university” as having two years of lower division liberal study followed by two years of upper division specialized courses (Thelin, 2011b). Higher education enrollments continued to increase between 1920-1950, but many of the institutions remained socially exclusive (Geiger, 1992). The thirty years following World War II brought revolutionary change to American higher education with the federal government’s passage of the GI Bill bringing access to higher education to the entire post-war generation (Thelin, 2011a). This historical overview will now focus specially on the development of two-year institutions of higher education.

Historical Overview of Two-Year Institutions of Higher Education

Two-year institutions of higher education trace their higher education lineage to the time period just before the Civil War when Congress passed the Morrill Act in 1862 (Cohen & Brawer, 2008; Phillippe & Gonzalez Sullivan, 2005). With its passage, the Morrill Act created the first federal legislative expression of a national commitment to higher education and workforce training through land grants of 30,000 acres per congressional representative within each state for the purpose of establishing a university (Bogue, 1950; Koos, 1931; Thelin, 2011b). Land grant universities were tasked to prepare students for careers in agriculture, engineering, and military science to meet the economic and technological labor needs of the day (Lucas, 1994b; Thelin, 2011a).

During this same time, the larger societal focus of state education policy makers was the need for a basic education for all Americans which gave rise to the establishment of public high schools. High schools extended compulsory schooling beyond the elementary

grades (A. Cohen & Brawer, 2008; Lucas, 1994b; Phillippe & Gonzalez Sullivan, 2005) and set the stage for the establishment of a bridge between high school and a four-year institution of higher education. In the midst of the Industrial Revolution, social and economic factors created momentum for the introduction of a junior institution of higher education when it became apparent that some means was needed to bridge the span between high schools and universities (Diener, 1986; Eells, 1931).

Education leaders at the time conceptualized two-year institutions of higher education in two forms (Eells, 1931; Koos, 1931; Zook, 1922). The first form of the two-year institution of higher education was as an extension of the local secondary school district in what came to be known as a junior college (Eells, 1931; Zook, 1922). The secondary school provided the first two years of liberal education for transfer to a four-year institution. The second form of the two-year institution of higher education was a branch campus established in population centers near a university offering a commuter form of higher education for the first two years of liberal education (Bogue, 1950; Cohen & Brawer, 2008; Zook, 1950). With both forms came increased access to higher education with locally available and low cost opportunities for those who lacked sufficient personal investment to attend, or were not accepted at the highly competitive universities of the time (Bogue, 1950; Eells, 1931; Zook, 1939).

The very first two-year institution of higher education (Joliet Junior College) was established by William Rainey Harper, president of the University of Chicago, and J. Stanley Brown, principal of the public high school in Joliet, Illinois with a college transfer curriculum (Zook, 1922). The two-year liberal studies model gained popularity rapidly and

by 1910, 5% of American 18-year-olds were enrolling in colleges and universities, including two-year institutions (Phillippe & Gonzalez Sullivan, 2005). Liberal arts university leaders of the day were comfortable with the proliferation of the two-year colleges. Harvard President A. Lawrence Lovell was quoted as saying the two-year colleges played a role within higher education to “*keep out of college those who have no taste for higher education*” (Lucas, 1994b).

Thus, the early years of the junior college established the somewhat paradoxical and ambiguous role of the two-year institution of higher education in American higher education as satisfying the democratic ideal that everyone has access to higher education, however not all have the ability to attend a four year institution of higher education immediately following high school (A. Cohen & Brawer, 2008; Zook, 1950b). The two-year institutions of higher education continued expanding in the two form model until the war years of the late 1940s.

Post World War II growth. The junior college model remained until the post–World War II era from 1947-1962, when the model broadened to include a vocational focus (Lucas, 1994b; Thelin, 2011a). Economic and social factors converged in the need to accommodate large numbers of returning soldiers who used the Serviceman’s Readjustment Act of 1944 (the GI Bill) to prepare for jobs and to ease their reentry into a peacetime economy (A. Cohen & Brawer, 2008; Lucas, 1994b).

Recognizing the economic, social and technological forces of the day, President Truman convened a Presidential Commission (the Truman Commission) to make recommendations for a national solution to the demands for a highly skilled workforce (Diener, 1986). The Truman Commission’s main recommendation was the establishment of

two-year colleges to address local community economic, social and technological challenges with liberal and technical education (Zook, 1947) for all Americans. The Truman Commission called on all states to establish an organized system of open access two-year institutions of higher education (Cohen & Brawer, 2008; Dongbin & Rury, 2014; Lucas, 1994; Zook, 1947).

This federal impetus, combined with each state's economic and social pressure to train workers for the expansion of the U.S. economy, created momentum for the establishment of two-year institutions of higher education with a combined mission of liberal education and college-level vocational instruction (Bogue, 1950; Zook, 1950a). As a result of the Truman Commission recommendations, the two-year institutions of higher education came to be defined as community colleges (Cohen & Brawer, 2008). The newly formatted community colleges provided social utility and efficiency for states in support of the expanding workforce and emerging middle class (Cohen & Brawer, 2008; Lucas, 1994). Large numbers of community colleges were subsequently established during the 1950s and 1960s (Bragg, 2001; Dougherty & Townsend, 2006; Geller, 2001).

The 1960s: a decade of growth, equity and access. As states began to organize two-year institution of higher education systems, local economic, social and technological leaders called on the colleges to provide a broad range of programs including four-year transfer education, vocational training, noncredit courses, customized training for business and industry, cultural enrichment opportunities, and a host of other services responsive to the needs of the local community (Cohen & Brawer, 2008; Phillippe & Gonzalez Sullivan, 2005). In the area of academics, the colleges focused on three types of degrees; the

Associate in Arts and the Associate in Sciences for transfer to a four-year institution of higher education, and the Associate in Applied Sciences as terminal preparation for vocational and technician employment (Dongbin & Rury, 2014).

Local leaders also called for shorter-term certificate programs to address highly specific training needs of the local economy (Cohen & Brawer, 2008; Dougherty, 1994). Social and economic forces also demanded the colleges offer the General Education Diploma (GED), adult basic education for literacy, short-term non-credit training or apprenticeship, and industry recognized certifications (Bragg, 2001; A. Cohen & Brawer, 2008), thereby establishing the colleges as a one stop education and training provider for a local economy. State and local economic and political leaders moved quickly to build community college facilities during the decade to meet enrollment demand (Blocker, Plummer, & Richardson Jr., 1965; Dougherty, 1994; Grubb & Lazerson, 2005). The federal government stepped in to support community colleges through the Vocational Education Act of 1963 expanding the scope of technical education programs by providing funding for curriculum design and equipment procurement (Wonacott, 2003).

Passage of the Higher Education Act of 1965 created a system of financial aid to students expanding the federal role to incentivize individual participation in higher education (Mullin & Phillippe, 2013; Thelin, 2013). The 1965 Higher Education Act, intended to assist needy students and create educational equity, established federal support for access to higher education opportunities through a system of federally funded grants and loans driven by the War on Poverty and the Great Society of the Lyndon Johnson administration (Hearn, 2001). From 1965 – 1990, the federal government added eight federal aid programs to the

original National Defense Student Loan (now the Perkins loan) including the PELL grant, the Supplemental Educational Opportunity grant, the State Student Incentive grant, College Work Study, the Income-Contingent loan, the Supplemental Loans for Students, the Parent Loans for Undergraduate Students for a total of nine federal programs of funding in support of college access (Haffron Bers, 1980; Thelin, 2013).

The result of the expanded federal financial aid programs was large enrollment growth in community colleges and a changing student demographic. In the 1960s, the traditional college age population accounted for 18.3 percent of enrollment with the balance of the student enrollment comprised of non-traditional age students (Baker & Velez, 1996; Dongbin & Rury, 2014). Enrollment growth increase was also influenced by social forces as women began attending college in larger numbers, and diverse populations began entering postsecondary education in larger numbers (Cohen & Brawer, 2008; Hearn, 2001).

Economic forces created a boom of part time enrollment as lower socio-economic status high school graduates, and many non-traditional age college students, began college while living at home and working to pay their way through college (A. Cohen & Brawer, 2008; Hearn, 2001). More than 450 two-year institutions of higher education were established during the decade, and nationally two-year institutions of higher education enrollment increased from just over five hundred thousand in 1960 to more than two million in 1970 (Cohen & Brawer, 2008; Dougherty, 1994; Mullin & Phillippe, 2013). The next 40 years continued enrollment growth in two-year institutions of higher education and cemented the two-year institution's role in the higher education and workforce development pipeline (Dougherty & Townsend, 2006; Haffron Bers, 1980; Mullin & Phillippe, 2013).

1970 – 2010: forty years of growth. The decades from 1970-2010 witnessed an increase in part-time community college students with the percentage part time degree seeking enrollment increasing from 49 percent in 1970 to 61 percent in 2010 (A. Cohen & Brawer, 2008). In the late 1990s, technological change enabled two-year institutions of higher education to offer distance education training through the internet, another large growth enrollment determinant for the colleges (Phillippe & Gonzalez Sullivan, 2005).

Socially, many individuals pursued postsecondary education for individual gain through personal investment with the assistance of the federal government's financial aid loan programs (Bragg, 2001; H. M. Levin, 1989; Thelin, 2013). According to the College Board, the college enrollment rate of high school graduates from the lowest family income quintile increased from 51% in 1998 to 55% in 2008, and approximately 40% of dependent undergraduate students from families with incomes below \$40,000 enrolled at public two-year community colleges (Mullin & Phillippe, 2013). Dependent students comprised only a fraction of the total community college enrollment with older non-traditional students making up the majority of enrollments (Cohen & Brawer, 2008).

Since 2010, enrollment at two-year institutions has continued this evolution. About 46% of all undergraduates enrolled at a two-year institution of higher education in fall 2014, down from 49% in 2013. Approximately 7.4 million students enrolled in fall 2013, with 60% enrolling part-time and less than one-third enrolling full time (AACC, 2014). This review of the literature now turns to governance and governance theory.

Governance

The Institute on Governance defines public governance as “*the traditions, institutions and processes that determine how power is exercised, how citizens are given a voice, and how decisions are made on issues of public concern*” (Lynn et al., 2001c). In the public sector, governance is complicated by a lack of transparency, power and control is dispersed, and the goals of decision makers are multifaceted and potentially political (Lynn et al., 2001c). Public sector governance implies an arrangement of distinct but interrelated elements, including policy mandates; organizational, financial, and programmatic structures; resource levels; administrative rules and guidelines and institutionalized rules and norms guiding a publicly funded organization’s activity (Lynn et al., 2001a; Lynn, Heinrich, & Hill, 2001b; March & Olsen, 1995).

Governance Theory

Governance theory and the study of public governance draw upon two frameworks from public administration and management (Bevir, 2011). The first framework studies public institutions as multilayered within the structural context of rule-governed publicly supported operations (Lynn et al., 2000a). The second framework studies governance within networks and has emphasized the role of multiple organizations in networks of negotiation, implementation, and delivery of publicly supported services (Ellwood, 2000; Lynn et al., 2001c). This study will utilize the first framework.

Within a framework of rule-governed publicly supported operations, governance theory focuses on the regimes of laws, rules, judicial decisions, and administrative practices that *constrain, prescribe, and enable* the provision of publicly supported goods and service

(Lynn, Heinrich, & Hill, 2001d). Further, governance theory focuses on the means for achieving direction, control, coordination of wholly or partially autonomous individuals or organizations on behalf of interests to which they jointly contribute within the complex processes and interactions that constitute patterns of rule (Bevir, 2009, 2011; Lynn et al., 2000a). The structures and processes may constrain and control, or confer and allow, autonomy and discretion on the part of the organizations being governed (Bevir, 2011; Christensen & Tschirhart, 2011). This is accomplished by specifying administrative decision rules, defining decision criteria, adjusting evidentiary burdens, enfranchising or empowering particular actors, and subsidizing particular interests (Lynn et al., 2000b, 2001c).

The objective of governance may or may not be about efficiency or about performance in any objective sense, even when these terms are found in statutory language. Governance, as a politically motivated activity, may be about creating symbolic activity, distributing resources to favored interests, or even preventing efficient administration of controversial policies (Lynn et al., 2001d, 2001e).

Democratic accountability motivates the systematic study of governance to determine how public policy and performance of public institutions can be improved (Bevir, 2011; Christensen & Tschirhart, 2011). Governance theory, therefore, seeks to understand and produce enduring knowledge about how, why, and with what consequences public-sector activity is structured and managed (Ingraham & Donahue, 2000; Lynn et al., 2000a).

Governance as a broad concept replaces a narrow focus on the formal institutions (agencies) of states and governments recognizing the broad and diverse activities that often blur the boundary of state and society (Lynn et al., 2001e). Governance as theory, practice,

and dilemma highlights phenomena that are hybrid and multijurisdictional with plural stakeholders (Christensen & Tschirhart, 2011). In short, the study of governance in the public sector examines how best to design and manage, as well as monitor performance of, decentralized operations so that citizens receive the intended benefits and public purposes are achieved (Lynn et al., 2001d). The role of governance for publicly supported institutions is shown in Figure 2.1.

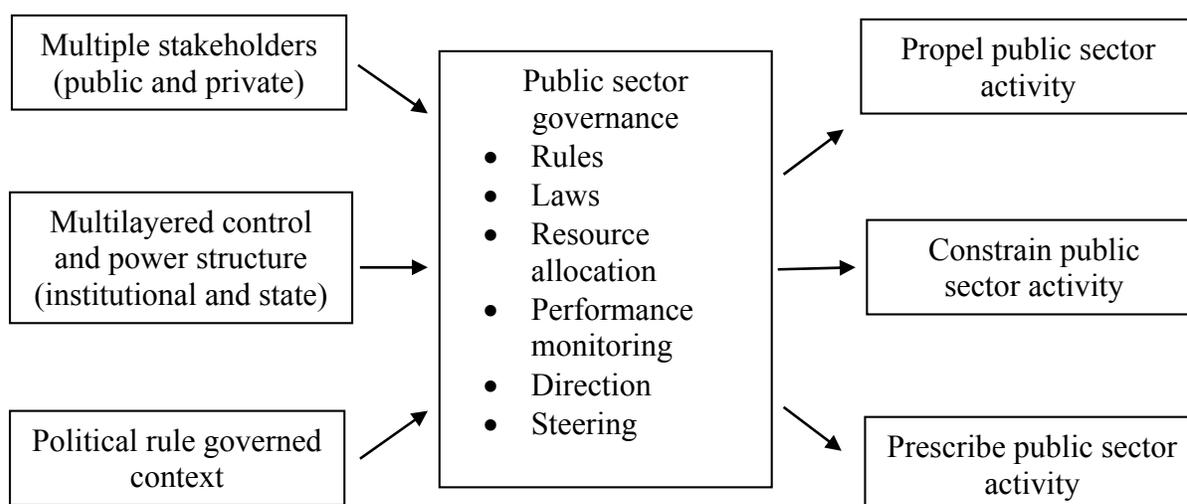


Figure 2.1 Public sector governance

Problems in Studying Governance

Studying public sector governance presents a formidable challenge. Scholars acknowledge a fundamental problem of governance studies is that publicly supported operations are inherently political (Bevir, 2011; Lynn et al., 2001a) complicating a complete defining of causal relationships due to the multiple layers and interactions of activities and authority (Lynn et al., 2000a). Governing public organizations involves multiple

representatives with differing opinions and political goals making explanation of any one aspect of the influence of a governance organization difficult (Ellwood, 2000). Governance cannot be studied by merely summing up independent decision making elements (Bevir, 2011; Christensen & Tschirhart, 2011; Heck, 2008).

These acknowledgements of the difficulty of studying governance of publicly supported organizations align with Kingdon's multiple streams model of conceptualizing the policy development process. Governance influences the policy process in significant ways and can move policy forward or block the progress of policy innovation (Kingdon, 1984; Young, Shepley, & Song, 2010). The influence of the governance arrangement and structures in the policy making process is one influence among many, but it is an extremely influential component of the rules, laws, and resources derived from the policy making process (Bevir, 2011; Christensen & Tschirhart, 2011; Lynn et al., 2001c). An overview of Kingdon's multiple stream model agenda setting and policy making is presented in the next section.

Kingdon's Multiple Streams Model

Kingdon's multiple streams model (Kingdon, 1984, 1995, 2003, 2011), a modification of the administrative science garbage can model of organizational choice (M. D. Cohen, March, & Olsen, 1972), is a common theoretical framework used to explain the dynamic and complex policy making and political agenda-setting process (Kingdon, 1984). Policy making, as defined by Kingdon's multiple streams model, is a set of processes involving three streams of activity; recognition of a *problem* by policy leaders, the

specification of *policy* alternatives from which a choice is to be made, and an authoritative *political* choice from the specified alternatives (Kingdon, 1984, 2011).

In the study of U.S. public policy formation, the multiple streams model is one of the most popular and provocative (McLendon, 2003b), and traces its lineage to the theory of organizations proposed in 1958 by March and Simon's seminal work (March & Simon, 1958). The garbage can model of organizational choice built upon March and Simon's theory of organizations through the work of Cohen, March, and Olsen (1972). Kingdon then extended the theoretical model when he applied the garbage can model of organizational choice to the policy process (Kingdon, 1984).

Both the Cohen, March and Olsen garbage can model and Kingdon's multiple streams model contradict an understanding of policy making as a rational data driven activity. The models claim that policies are not the product of rational and data informed actions, because policy actors rarely evaluate many alternatives for action and because they do not compare them systematically (Kingdon, 1984; McLendon et al., 2005).

The multiple streams model differs from the garbage can model and other theories of the public policy process in that it focuses on the relationships between policy issues and their environment, as well as examining causal linkages (McLendon, 2003b). The multiple streams model focuses on the flow and timing of policy action within the complex realities of consensus governing (Howlett et al., 2014; Kingdon, 1984, 2011) in three streams of activity; the problem stream, the policy stream, and the political stream. Each stream moves independently until the right timing (an open window of opportunity) and/or a policy entrepreneur is successful in moving the policy agenda forward with political support.

Kingdon's model simplifies the complex policy making process and aids in understanding why some policies gain importance on agendas and why some languish and never attain the status of agenda (McLendon, 2003b). Policy making occurs when a problem rises to the top of a governmental agenda with clear alternatives for policy solutions and effective political support to make policy a reality (Kingdon, 1984). Kingdon's three streams are reviewed in the next section of this review of the literature.

The stream of problems. The problem stream involves the process of problem recognition (Kingdon, 1995). Kingdon's rationale behind this stream is that a given situation has to be identified and explicitly formulated as a problem for it to bear the slightest chance of being transformed into policy (Kingdon, 1984). According to Kingdon, societal conditions capture the government's attention and are deemed problems by way of systematic indicators, dramatic focusing events, or negative feedback from existing policies. Economic and social indicators often describe the magnitude of the condition (McLendon et al., 2007).

When current or future social or economic conditions are clearly apparent, policy decision makers see the condition as a problem (Kingdon, 1984). Crises or disasters, popularization of powerful symbols, or the personal experiences of government officials are focusing events that capture the attention of the policy makers. An indicator may also catch the attention of officials through a news article, a new report, or an incident that focuses public attention on the problem. At other times, government monitoring or feedback from constituents of a particular problem may create momentum toward policy (Kingdon, 1984, 1995, 2011).

The timing of a problem is critical for the issue to move forward on the agenda and often problems never turn to policy (Howlett et al., 2014; Kingdon, 1984). Problems may fall from an agenda because the government addresses the problem without a policy, conditions may change, people become accustomed to the problem, other items are more pressing, or there may not be public interest. A situation that is not defined as a problem, and for which alternatives are never envisaged or proposed, will never be converted into a policy issue (Howlett et al., 2014; Kingdon, 1984). Recognition of a problem is critical to agenda setting for policy, but it is not enough to move the problem to policy. The problem must be linked to a policy solution.

The stream of policies. Kingdon's policy stream is concerned with the formation of policy solutions, alternatives and proposals (Kingdon, 1984). An extremely important notion of the policy stream is that proposals and solutions, not initially built to resolve given problems, may float about in search of problems to which they can be tied. Kingdon refers to this as the "primordial soup" (Kingdon, 2011) in which all problems are stirred together waiting for linkage to a solution. Whether a proposal or solution survives is largely dependent on the community of supporters and the political will in support of the issue (Howlett et al., 2014). A key feature of moving a problem to solution is the function of policy entrepreneurs who play a role in bringing attention to a problem and its proposed solution.

Kingdon describes policy entrepreneurs as pushing for problem definition to their own liking (Kingdon, 1984, 2011). In general, the policy entrepreneur's goal is to link solutions to problems with the support of politicians sympathetic to the problem. Policy

entrepreneurs recognize good timing and windows of policy opportunity as they couple the problem with a solution to enact legislation (Mintrom, 1997; Petridou, 2014). Proper linkage of the streams of problem and policy alternatives allows the policy to move forward.

The stream of politics. Kingdon's multiple streams model focuses a third stream around politics (Kingdon, 1984, 2011). Although they take place independently from the other two streams, political events, such as an election or a change in government, can lead a given topic and policy to be included or excluded from the agenda. In some instances, the dynamic and special needs created by a political event may reprioritize an identified problem's status of importance (Kingdon, 1995). Politically powerful and very visible participants in the process can assist in moving a problem to policy, including state legislatures and governors. The political party in power can demand policy solutions or they can accept proposals for policy solutions (Young et al., 2010). Regardless, of how a solution is generated, political support for policy is essential to moving policy solutions forward.

The next section of this literature review presents higher education governance within Kingdon's multiple streams model.

Kingdon's Multiple Streams Model and Higher Education Governance

Kingdon's multiple streams model is most commonly applied to federal policy making, but recent research has applied the model to state-level policy making across a wide variety of policy domains and institutional settings (Hearn & Griswold, 1994; Kingdon, 2011; Young et al., 2010). Political participants within the state context of the policy process range from the very visible state level positions (the Governor, Education Committee Chairs, and powerful legislators) to the not as visible groups of political influencers such as state-

level governance structures and higher education systems. Studies of higher education governance have found that a state's governance arrangement indeed influences the policy process (Heller, 2002; Howlett et al., 2014; Lynn et al., 2000a; Richardson Jr. et al., 1972; Tandberg, 2010). In this way, the governance arrangement and structures of higher education within a state may make policy making easier or harder for the streams to come together and arrive at policy.

More so than for primary and secondary education, state governments have long played the lead policy role for higher and postsecondary education (Heller, 2002). The fifty state governments determine the levels and types of public financial resources to invest in postsecondary education, oversee the systems that provide oversight and accountability of higher education, and establish and monitor goals for the performance of campuses (McGuinness Jr., 2011).

Early higher education governance researchers Glenny, Berdahl, and Millett chronicled the rationale for the establishment, role, and effect of higher education governance structures (Berdahl, 1971; Glenny, 1959; Millett & Harclerod, 1984). Prior to World War II, most state legislatures conducted business with individual institutional governing boards (Berdahl, 1971), however, there was a widespread perception that existing structures failed to provide a rational system of organization for state higher education (Berdahl, 1971). State education departments were primarily interested in K-12 education and state legislatures often made higher education policies based either on institutional hegemony or in response to local power bases (Glenny, 1959). The rapid growth of enrollment in public sector higher education following World War II and the establishment of two-year institutions of higher

education within states incentivized legislative action toward organized governance (McLendon, 2003a).

State legislatures arranged higher education governance to serve as a buffer between institutions and the states (Glenny, 1959, 1983; Hearn & Griswold, 1994; Tandberg, 2010), to be able to manage the growing size and complexity of public higher education, and to referee the increased political infighting for resources and increased lobbying by institutions (Tandberg, 2010, 2013). Hearn and Griswold argue that the movement toward formal state-level governance arrangements was inevitable as a means to hold colleges and universities accountable for the use of public funds (Hearn & Griswold, 1994).

In designing state-level higher education governance, legislators demanded expert, neutral evaluation of institutional needs (Millett & Harclerod, 1984). Most notable in regard to higher education governance was the fact it was devised as lay citizen boards and commissions, not a standard state agency run entirely by civil servants under a cabinet appointee (McGuinness Jr., 2011). Most states established governance in the 1960s and 1970s when the priority function was to provide an organized budget and academic program approval process (Marcus, 1997; McGuinness Jr., 2001b). By 1971, all but four states (Delaware, Michigan, Nebraska and Vermont) had established either statewide governing boards encompassing most, if not all, their public institutions or statewide coordinating boards (McGuinness Jr., 2002). The buffering effect (and resultant policy environment) of higher education governance is depicted in Figure 2.2.

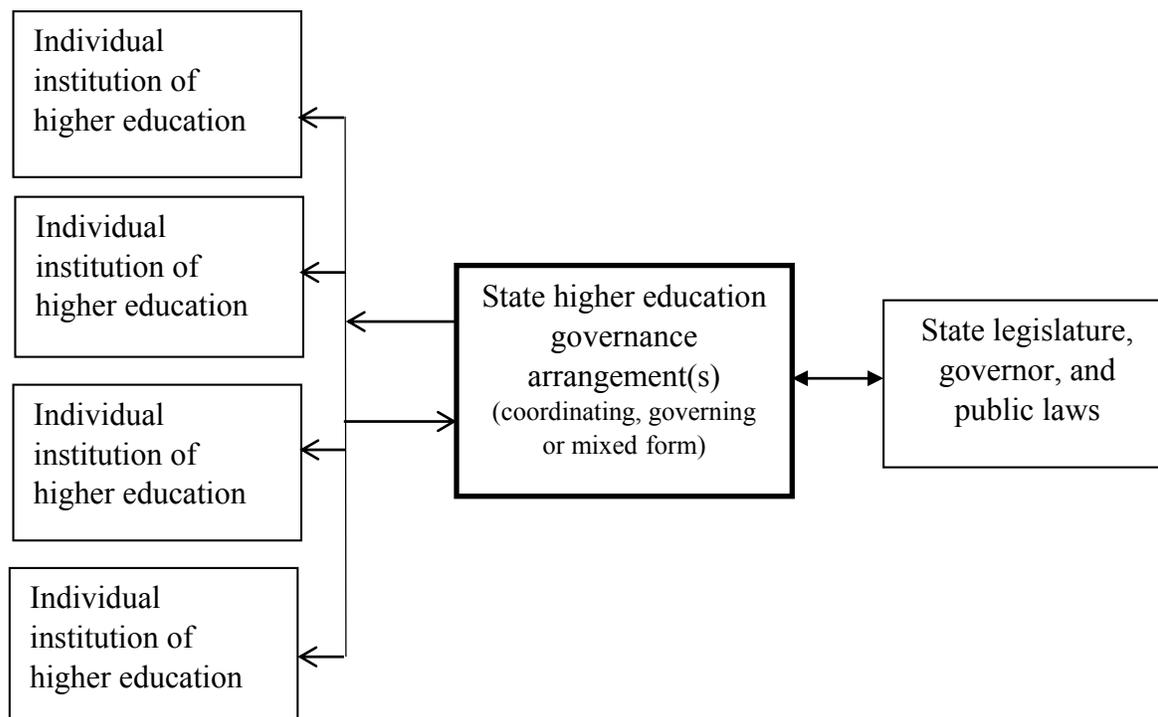


Figure 2.2. State higher education governance as buffer

Public sector governance of higher education links the objectives of various and diverse stakeholders to steer the activities that take place at the operational levels of campuses to achieve the intended public economic and social goals of higher education (Ferlie, Musselin, & Andresani, 2008; Richardson Jr. et al., 1999b). Situated between the institutional interest and the broader state interest, higher education governance has a dual interest of being responsive to the higher education system through advocacy for institutional priorities and to the state legislature through policy solution negotiation and performance monitoring. The interests of the public can conflict with the interests of a system of higher education (Schmidtlein & Berdahl, 2011) creating an imbalance of priorities.

The equilibrium in decision making authority between state-level governance and the campus and institutional boards is dynamic (McLendon, 2003a). If responding to the legislature, the focus of governance is to ensure that the public interest checks the ambition of the institutions, influences institutions under their control in the proper direction, and insulates legislators from inter-institutional bickering (Marcus, 1997; McGuinness Jr., 2011). If responding to the institutions they govern or coordinate, governance must advocate increased funding and keep the politicians out of the business of running a university or college (Marcus, 1997).

Higher education systems and governance can initiate policy proposals in response to identified problems, or they can respond to requests from the state legislature for policy solutions to problems (Brennan & Naidoo, 2008; McLendon & Perna, 2014; Richardson Jr., Bracco, Callan, & Finney, 1999a). In either circumstance, governance acts as a negotiator for elevation of specific problem solutions seeking a policy solution (Tandberg, 2013; Volkwein & Tandberg, 2007) and the arrangement of higher education governance influences the policy outputs of the process.

Governance decisions are strongly influenced by the positions and relative power of decision makers in their relationships to one another (Pfeffer & Salancik, 1978). The arrangement of governance may reduce or expand the need for state educational attainment policy thereby impacting two-year institutions of higher education (Kingdon, 2003), as the arrangement of higher education in a state links identified problems and positions the problem “according to their liking” (Kingdon, 1984). Later in this chapter, explanation of

the varying duties of each type of governance arrangement is presented which can greatly influence the policy process.

In the case of governance arrangements, allegiances can go in either direction favoring campuses or favoring the directives of the legislature and governor (Pfeffer & Salancik, 1978). Knowing that the governance arrangement holds power over resources (Pfeffer & Salancik, 1978; Tandberg, 2010) and that the position of the arrangement is one element in the calculus of higher education resources, it can be theorized that some segments of the pipeline may be favored (four-year institutions over two-year institutions or K-12 over higher education) depending on the type of governance arrangement (Lynn et al., 2000b, 2001e) and historical patterns of preference.

Higher Education Governance Evolution

The state role in American postsecondary education has evolved over the years and is still evolving through reform efforts across states (McLendon & Ness, 2003). Changing demographics, increased college costs, and the increased need for a postsecondary credential in the labor market have all contributed to the public's demands of higher education and changed the dominant political beliefs about the role of government in education (Carnevale & Desrochers, 2002; Labaree, 1997; McGuinness Jr., 2011; Sparks & Waits, 2011). From 1980-1990, governance arrangements evolved from centralized, rational planning and management approaches for a static education model to a market-driven strategic investment approach for a dynamically evolving model (McLendon & Ness, 2003). Between 1980 and 2000, 22 documented cases of restructuring of state higher education governance occurred as

states responded to the expanding priority of higher education in state policy agendas (Tandberg, 2013).

As the politics in a state change, so also does the conception of what constitutes the best approach to governing higher education and to organizing a rational state system of higher education (Marcus, 1997; McLendon et al., 2007). Changes in state postsecondary education arrangements reflect changes in the prevailing political views about the economy, the role of government, and the unique political issues facing each state (Lynn et al., 2001d; McLendon & Ness, 2003; St. John, 1991).

In response to state legislatures, the most significant trend in governance over the past 25 years has been a shift in the basic assumptions about the state role in postsecondary education (Carnevale et al., 2010; McLendon & Ness, 2003; Sparks & Waits, 2011). States have moved from a focus on oversight and control of public institutions to the use of financing policy and incentives to meet the needs of the state's population through multiple institutions and modes of content delivery, especially online learning (McLendon et al., 2007; McLendon & Ness, 2003). Since the early 2000s, state legislators have increasingly focused on accountability and the efficient use of public funds allocated to higher education (Dowd & Grant, 2006; McGuinness Jr., 2011; Volkwein & Tandberg, 2007).

Governors and state legislators increasingly expect state governance to play a more distinct and visible policy leadership role in setting a state policy agenda and serving as change agents (McLendon et al., 2005; Volkwein & Tandberg, 2007). This reflects the accelerated pace of change and a fundamental shift away from rational planning models to a more strategic, market-oriented approach to policy leadership and delivery of postsecondary

education services (Hauptman, 2011; McGuinness Jr., 1997; McLendon, 2003a). In general, state legislatures are expecting higher education governance to engage in the following (McGuinness Jr., 2001b):

1. Develop a public agenda of priority issues to be addressed by the state system of postsecondary education on behalf of the citizens of the state,
2. Build consensus around these issues with the public and the state's political and education leaders, and
3. Take steps to ensure the coordinated use of policy tools in a manner that promotes rather than hinders the pursuit of priority objectives.

These legislatively directed agendas reflect the aspirations and priorities of the general public and of corporate, civic and political leaders. In many cases, states have established special task forces or blue-ribbon commissions to shape these public agendas, then charged the higher education governance with carrying out and sustaining the momentum of task force recommendations (McGuinness Jr., 1997, 2001a, 2011). The agendas may or may not accurately reflect the functioning duties of the state's higher education governance arrangement. The type of governance structure dictates the type of influence and duties to be carried out. There are three main types of state governance; coordinating, governing, and mixed. Each is described next.

Governance Types

In general, there are three main types of state higher education governance arrangement; governing board, coordinating board, or mixed/planning agency. Aims McGuinness, of the National Center for Higher Education Management, has devised the most

widely used classification of state higher education governance and coordination (McGuinness Jr., 2003, 2011; McGuinness, 1997). McGuinness' classification and definitions follows.

Governing board/agency. Common responsibilities of public higher education governing boards include (McGuinness Jr., 1997, 2003):

- Appointing, setting the compensation for, and evaluating both system and institutional chief executives.
- Strategic planning, budgeting (operating and capital), and allocating resources between and among the institutions within the board's jurisdiction.
- Ensuring public accountability for effective and efficient use of resources to achieve institutional missions.
- Developing and implementing policy on a wide range of institutional concerns (e.g., academic and student affairs policies) without approval of external agencies or authorities.
- Advocating for the needs of the institutions under the board's jurisdiction to the legislature and governor.
- Establishing faculty and other personnel policies, including approving awarding of tenure and serving as the final point of appeal on personnel grievances.

Coordinating board/agency. A number of states have coordinating boards responsible for key aspects of the state's role in postsecondary education (McGuinness Jr., 1997, 2001a). Some coordinating boards have the responsibility for the statewide coordination of many policy tools or functions (e.g., planning and policy leadership,

institutional missions, program review and approval, and budget development and resource allocation). Other coordinating boards are responsible for only a single sector such as community colleges. The key distinguishing factor is that coordinating boards do *not* govern institutions, in the same manner as a governing board. Specifically, coordinating boards (Lovell & Trouth, 2002; McGuinness Jr., 2001a):

- Appoint, set compensation for and evaluate only the agency executive officer and staff, but not the institutional chief executives. In several states, the governor is the final appointing authority for the agency executive, but usually with recommendations from the coordinating board;
- Focus on state and system needs and priorities than on advocating the interests of a particular institution or system of institutions;
- Plan primarily for the state postsecondary education system as a whole. In most coordinating board states, this planning includes both public and private institutions, and in some states, for-profit institutions;
- May or may not review and make recommendations on budgets for the state system as a whole rather than only for one part of that system; and
- May or may not review or approve proposals for new academic programs and may or may not have authority to require institutions to review existing programs.

Mixed forms of governance. In addition to governing and coordinating boards, states organize higher education governance through P-20 Boards, planning agencies and centralized planning through a governor's office. The described next.

Planning agencies and governor's office oversight. These governance types may or may not have significant roles in either program approval, program review, or the budget process for the higher education system as a whole (McGuinness Jr., 2001b). Though state planning and policy agendas vary, they typically have included issues such as:

- Raising the education attainment of the population through stronger links between postsecondary education and K-12 reform;
- Improving undergraduate education;
- Enhancing professional education, training, research and technology;
- Increasing the productivity and cost-effectiveness of the postsecondary system;
- and
- Sustaining affordability of postsecondary education.

Service agencies. Service agencies provide support to higher education through administration of a variety of programs as outlined below.

- The administration of student assistance;
- Licensure and approval of non-public degree granting institutions;
- Administration of federal and state categorical programs; and
- Institutional data collection and analysis.

For the purposes of this study, McGuinness' classification was modified to restrict states to one governance structure per state for dichotomization in QCA. The description of this process and states is included in Chapter Three. This modification did not change the types of duties associated with the governance structure. Understanding the duties of the various types of governance is important to understanding the policy environment related to

the arrangement of governance. The duties related to the type of governance may influence policy production. Governing boards have the duty to govern institutions, not to focus on broad state goals or coordination of efforts to increase attainment. Coordinating boards do not govern institutions but are charged with ensuring state goals are reached. Mixed arrangements have similarities to Coordinating boards. The following section will describe state governance specifically of two-year institutions of higher education.

Governance of Two-Year Institutions

The governance of two-year institutions of higher education across the 50 states defies easy description or classification, due to the development within unique state circumstances and political environments. Two-year institutions of higher education evolved within states in some form of the following manner (McGuinness Jr., 2003; McGuinness, 1997):

1. Colleges that evolved as junior colleges, primarily through local initiative on the basis of school districts and the K-12 system with limited state oversight (Koos, 1931; Krey, Doyle, Eells, & Koos, 1935),
2. Colleges that developed through state law that established a framework for both local governance and a statewide structure,
3. Colleges that evolved from postsecondary vocational/technical systems often linked to the state board for vocational education, and
4. Colleges evolving from branch campuses linked to state universities.

Currently, two-year institutions are classified much like four-year institutions as having a Governing, Coordinating, or Mixed governance arrangement. McGuinness' fifty

state classification system of two-year institutions and systems of higher education which will be used for this study is presented in Appendix C. This review of the literature will now turn to the effect of governance arrangements and structures on state higher education.

Governance Arrangement Effects on Higher Education

A growing body of literature in economics and political science demonstrates governance arrangements make a difference for the management and performance of public agencies, including publicly supported higher education (Lynn et al., 2001d; Volkwein & Tandberg, 2007). Governance has been found to impact state higher education in multiple ways. (Lowry, 2001). Postsecondary governance structures have been found to buffer and condition the policy process by influencing the emergence of policy innovation efforts, the nature of innovations under consideration, and the political success of innovation proponents and opponents (Hearn & Griswold, 1994; Heller, 2002; Shaw & Heller, 2007; Tandberg, 2013).

Governance sets the rules of the game and, thus, advantages some interests rather than others without creating mandates or changing legislation influencing the system (Nicholson-Crotty & Meier, 2003). For example, a consolidated governing board governing two and four-year institutions of higher education may favor the four year institutions or disadvantage the two-year institutions of higher education through procedures or rules (Zumeta & Kinne, 2011). Governance acts as a form of legislative oversight of higher education systems, giving the political interests that control the legislature an advantage for the duration of the majority in power (B. Levin, 2008; McLendon & Ness, 2003; Smelser, 2009).

Knott and Payne found the political aspects of the number of gubernatorial appointments on governing boards affects a variety of decisions made by universities (Knott & Payne, 2004). Hearn and Griswold's found that higher education governance is associated with different policy priorities which vary by structure type (Hearn et al., 1996; Hearn & Griswold, 1994). In short, these studies found that different arrangements can produce similar results and vice versa. The ways in which the arrangement of governance influences the policy environment are described next.

Governance as buffer and intermediary. Tandberg conceptualized governance as a boundary-spanning organization with the ability to condition the impact policy entrepreneurs have on state budgeting for higher education (Tandberg, 2013). Additionally, Tandberg found that consolidated governing boards moderate the positive impact of higher education interest groups and significantly magnify the influence of the governor and the legislature (Tandberg, 2010, 2013). Tandberg concluded that the type of governance arrangement a state employs matters to policy outputs (Tandberg, 2013).

Governance and college cost. There is consistent research indicating that aspects of states governance influence tuition, student aid, and the cost of college (Hearn et al., 1996; Hearn & Griswold, 1994; Knott & Payne, 2004; McLendon, Mokher, & Flores, 2011; McLendon & Perna, 2014; Tandberg, 2010; Zhang, 2008). Public-sector tuition levels are set in the context of governance and governance arrangements are the primary factor linking tuition to other aspects of state financing policy such as student aid and institutional subsidy levels.

In an early study of the effects of governance on tuition and student aid policy, Hearn, Griswold and Marine identified consistency in the relationship between state higher education governance arrangements, regional associations and tuition prices (Hearn et al., 1996). Hearn, Griswold, and Marine found that higher levels of disposable income within a state were associated with lower two-year tuition (Hearn et al., 1996). In contrast, the authors found higher levels of high school graduation were associated with higher levels of tuition, and that greater levels of attendance in the private sector were associated with higher levels of two-year tuition.

Hearn, Griswold, and Marine also noted a regional effect with the Midwest as a region being less likely than other regions to favor the two-year schools in setting tuitions, when compared to states with relatively high levels of high school education. States with higher income levels, with less reliance on private institutions, with weak coordinating boards, and with planning agencies were more likely to structure public tuition levels to favor the 2-year institutions as points of entry into post-secondary education (Hearn et al., 1996). The authors concluded states tend to separate the two and four-year institutions of higher education by pricing. The pricing separation was least in the Midwest and in highly educated states, and was greatest in states with higher income levels, decentralized postsecondary governance, and a weaker private sector for higher education (Hearn et al., 1996).

Lowry (2001), in his seminal study of governance and higher education, demonstrated that governance is associated with the distribution of policy benefits in the form of tuition rates. Lowry found that institutions with greater autonomy have higher net tuition and fee revenues, all else equal, than those located in states with more powerful and

centralized governance arrangements (Lowry, 1998, 2001, 2003). Nicholson-Crotty and Meier concluded that states with coordinating boards have lower tuition prices than states with governing boards (Nicholson-Crotty & Meier, 2003). Scholars have also found that a state's governance arrangement impacts the amount of money states appropriate to public higher education, and the adoption of other higher education finance and accountability policies (Knott & Payne, 2004; Lowry, 1998; McLendon et al., 2007).

Evidence suggests that decentralized governing systems with no statewide coordinating board have higher tuition costs and a higher portion of tuition paid for by students and parents (Knott & Payne, 2004; Shaw & Heller, 2007). Public universities in states with substantial private enrollment tend to charge higher tuition than do states with little to offer in the private sector (Hauptman, 2011; Tandberg, 2010). Centrally governed universities rely less on tuition than on state appropriations; and the more universities per board, the less the reliance on tuition revenues (Heller, 2002). Lowry (2001) found that the degree of governance centralization and the external election of members of the board of trustees reduce tuition.

Regarding institutional characteristics, institutions in states with more centralized higher education governance tend to have less reliance on tuition funding, greater student-teacher ratios, and higher percentages of tenured faculty than those in more decentralized states (Knott & Payne, 2004; Volkwein & Tandberg, 2007). States with consolidated governing boards have been found to have lower per capita expenditures on higher education than states with less centralized governance arrangements (Zumeta, 1996). Public

universities in states that have fewer governing boards should be able to lobby more effectively, and thus obtain more state government funding (Heller, 2002, 2011).

Governance and higher education performance. State higher education governance arrangements were intended to improve effectiveness in meeting organizational goals, to achieve efficiencies, and to improve accountability (Glenny, 1983; McGuinness Jr., 2011; Schmidtlein & Berdahl, 2011). In the area of performance and accountability, governance structures are known to play a central role in monitoring the higher education system in states (Zumeta & Kinne, 2011). Performance studies have focused on aspects of university autonomy and leadership in determining higher education outputs and outcomes, but more recent studies have focused on the governance structure as a factor in performance of higher education (Richardson Jr., Bracco, Callan, & Finney, 1999c).

Richardson et al studied higher education performance and found that it is influenced by two primary factors; the state policy environment and the design of the higher education governance system. The authors found that governance impacts higher education in significant ways in four areas; lines of authority and accountability, performance monitoring, division of responsibility between levels of higher education (two-year versus four year institutions), and the capacity to perform by determining the availability, quality, and location of educational programs and services. The authors concluded that governance arrangements may limit the leadership of institutions of higher education to improve performance through the poor structural design or mismatched policy environments (Richardson Jr. et al., 1999a, 1999c).

McLendon, et al. found that governance structure had a statistically significant influence on state adoption of one particular accountability policy: performance funding (McLendon et al., 2007). The study found that states with highly centralized governance arrangements are less likely to adopt performance funding. Most recently, states have focused on performance through examination of the inputs and the outputs of public funds as measured by the output of state educational attainment (McLendon & Perna, 2014).

Governance and policy innovation. Hearn and Griswold sought to determine the extent to which centralization of authority affects state-level higher education policy innovation (Hearn & Griswold, 1994; Marcus, 1997; McLendon et al., 2007). Analyzing data from the Education Commission on the States, they found less policy innovation coming from the weak coordinating board and other more decentralized patterns than from strong coordinating boards and statewide governing boards (Hearn & Griswold, 1994; McLendon et al., 2007). They found little difference in the levels of policy innovation between coordinating and governing boards. They concluded that academic reforms associated with student outcomes were positively associated with centralization, while other categories of reform were not (Hearn & Griswold, 1994; Marcus, 1997). Hearn and Griswold concluded that centralized governance arrangements were most influential on the core educational activities of colleges and universities.

Building on Hearn and Griswold's analytical framework, McLendon, et al. distinguished between two types of policy innovations: innovations that influence public higher education accountability and innovations that impact postsecondary education finance (McLendon et al., 2005). The authors found weak empirical support for the influence of

governance on propensity to adopt financial reforms; however, they found no connection between governance and propensity to adopt new accountability policies. Hearn and Griswold's study found the regional effect of policy diffusion was a much stronger predictor of innovation in the higher education financing realm than were other variables suggesting greater attention should be paid to the interstate migration of postsecondary policy ideas, in addition to that paid to the internal, state-level (economic and political) determinants of innovation (Hearn & Griswold, 1994). The next section of this review of the literature will review the pressing problem across states of increasing educational attainment.

State Educational Attainment

Since 1975, postsecondary enrollments have increased, but educational attainment has not creating an economic and social problem for states that is now embodied in the "degree attainment or completion agenda" (Hauptman, 2012; Hockfield Malandra, 2012). Globalization and the rapid pace of technological change radically transformed the U.S. economy during the 1990s resulting in a decline of employment in the traditional manufacturing and extraction industries (Adams & Demaiter, 2008; Weiss, 2008; Woolsley, 2012). As employment in these industries moved to low cost labor nations across the globe, a crisis of economic and workforce development faced the nation (Carnevale et al., 2010; Hira, 2010) leaving many communities with high structural unemployment and large numbers of workers with no high school education or only a high school education (Berman, Bound, & Machin, 1998; Berntson, Sverke, & Marklund, 2006). A state and national economic crisis unfolded.

The need for some form of postsecondary credential beyond high school completion to successfully enter the workforce became readily apparent as jobs went unfilled due to a lack of training and competency in the Knowledge Economy (Clagett, 2006; Graham & Stacey, 2002; Symonds, Schwartz, & Ferguson, 2011). Compounding this crisis of structural unemployment and lack of education beyond high school was the misalignment of workforce and education systems to effectively coordinate worker training and education (Mullin & Phillippe, 2013; Uhalde, Strohl, & Simkins, 2006). The remaining (and available) employment in many communities required more than a high school education, leaving a structural gap between the labor supply and labor demand (Clagett, 2006; Sparks & Waits, 2011).

The shift to Knowledge Economy employment also meant that individuals who obtained only a high school education were likely to find their specific work skills becoming obsolete, their wages inadequate to attain middle class status (Belfield & Bailey, 2011; Kane & Rouse, 1995; Weiss, 2008), and employment may not be available year round and full time (Baum et al., 2010). The shift also meant the large majority of American workers with at least an Associate Degree must continually upgrade their skills through lifelong education (Grubb & Lazerson, 2005).

By 2018, the Bureau of Labor Statistics estimates the economy will create 46.8 million openings with 13.8 million brand-new jobs and 33 million replacement jobs, positions vacated by workers who have retired or permanently left their occupations (Sommers & Franklin, 2012). Nearly two-thirds of these jobs will require some form of postsecondary education and training beyond high-school (Belfield & Bailey, 2011; Graham

& Stacey, 2002; Grubb & Lazerson, 2005; Sparks & Waits, 2011). Approximately 33 percent will require a Bachelor's degree or better while 30 percent of the new and replacement jobs are classified as middle skill requiring a credential provided by two-year institutions of higher education as the gateway to entering the workforce (Carnevale & Desrochers, 2002; Carnevale et al., 2010). Only 36 percent of the estimated jobs will require workers with a high school diploma or less (Sommers & Franklin, 2012).

The reality of the labor market demand for postsecondary credentials has focused state policy debates on increasing the educational attainment of their population with particular focus on degrees and credentials provided in the majority of states by community and technical colleges (Bragg, 2001; de Alva & Schneider, 2013; Helyer, 2011; Sparks & Waits, 2011; Weiss, 2008; Zumeta, 1996). The problem of increasing educational attainment gained national attention as early as 1983 when the Reagan Administration called attention to the fact the U.S. was dropping behind other nations in educational attainment (*A Nation at Risk*, 1983). By 2000, the educational attainment problem was widely known and published in the press.

All fifty states needed to increase educational attainment if labor projections are accurate (McLendon & Perna, 2014). Increasing educational attainment across state populations is important for sustained economic growth and competitiveness (Carnevale et al., 2010; Ewert & Kiminski, 2014). Additionally, states compete for jobs in a globalized marketplace (Baum, Ma, & Payea, 2013; Sparks & Waits, 2011) further focusing attention on the need to increase educational attainment in state higher education policy debates as a means to competitive advantage for jobs (Auguste et al., 2010; de Alva & Schneider, 2013).

While access to higher education is provided by the two-year institution of higher education mission of an open door and non-selective admissions process, the student characteristics of the colleges present significant challenges for retaining and graduating the sometimes underprepared students who enter (Coleman, 2011). Over 40% of students entering the colleges are in need of remedial education and leaders of the institutions face challenging odds of seeing students through to graduation and productive employment in the Knowledge Economy (American Association of Community Colleges, 2012). Open access to higher education is not a guarantee of improving state educational attainment as most students enrolling at two-year institutions of higher education are underprepared for college level work (Carnevale & Strohl, 2010; Goldrick-Rab, 2006; McLendon & Perna, 2014).

To achieve improved educational attainment outcomes requires large scale innovation on the part of states, not just innovation within individual institutions (Brewer & Tierney, 2011; Helyer, 2011; Knott & Payne, 2004; McLendon & Perna, 2014; National Center for Education Statistics, 2012). On January 8, 2015, the Obama Administration proposed that the federal government pay for two-years of community college so students would be able to attend for free (D. Hudson, 2015). The White House argues for the proposal based on the national imperative of economic security through a ready and trained workforce, and the equity contained within the mission of two-year institutions of higher education. In announcing the proposal, President Obama stated;

“In a growing global economy, Americans need to have more knowledge and more skills to compete -- by 2020, an estimated 35 percent of job openings will require at least a bachelor's degree, and

30 percent will require some college or an associate's degree. Students should be able to get the knowledge and the skills they need without taking on decades' worth of student debt” (D. Hudson, 2015).

On July 27, 2015, U.S. Secretary of Education Arne Duncan outlined a proposal for the Higher Education Act Reauthorization to hold colleges and universities responsible for student success and graduation. In his speech, he said;

The completion challenge is not just hurting far too many individuals; it's costing us as a Nation on an international scale. Even as a degree has become critical in a globally global economy, America has fallen from first in the world in the college completion rates of our young people to twelfth. College also must be an equalizer of opportunity, but the richest quarter of students are four times more likely than the poorest quarter to earn their bachelor's degree. Whether we look at overall completion rates or inequality of opportunity, clearly we are not close to where we need to be. My three broad themes today will guide our approach to reauthorization of the Higher Education Act, as they guided our work from the very beginning. First, we will be seeking to make college more affordable, financial aid more accessible, and loan repayment easier. Second, we will concentrate on boosting student success through shared responsibility and accountability for outcomes. And third, we will promote innovation and competition through transparency and evidence of what works.

While these two proposals are a step in the right direction from the federal level to improve postsecondary outcomes, the states hold the primary ability to improve educational attainment (McLendon & Perna, 2014). Two-year institutions of higher education play the dual role of workforce and economic development and transfer to four-year institutions. Both roles are important and needed to increase educational attainment. If two-year institutions of higher education are to contribute effectively to state educational attainment goals, policies addressing this significant portion of undergraduate enrollment will need to focus on the success of the institutions at scale. The student higher education pipeline is presented in Figure 2.3.

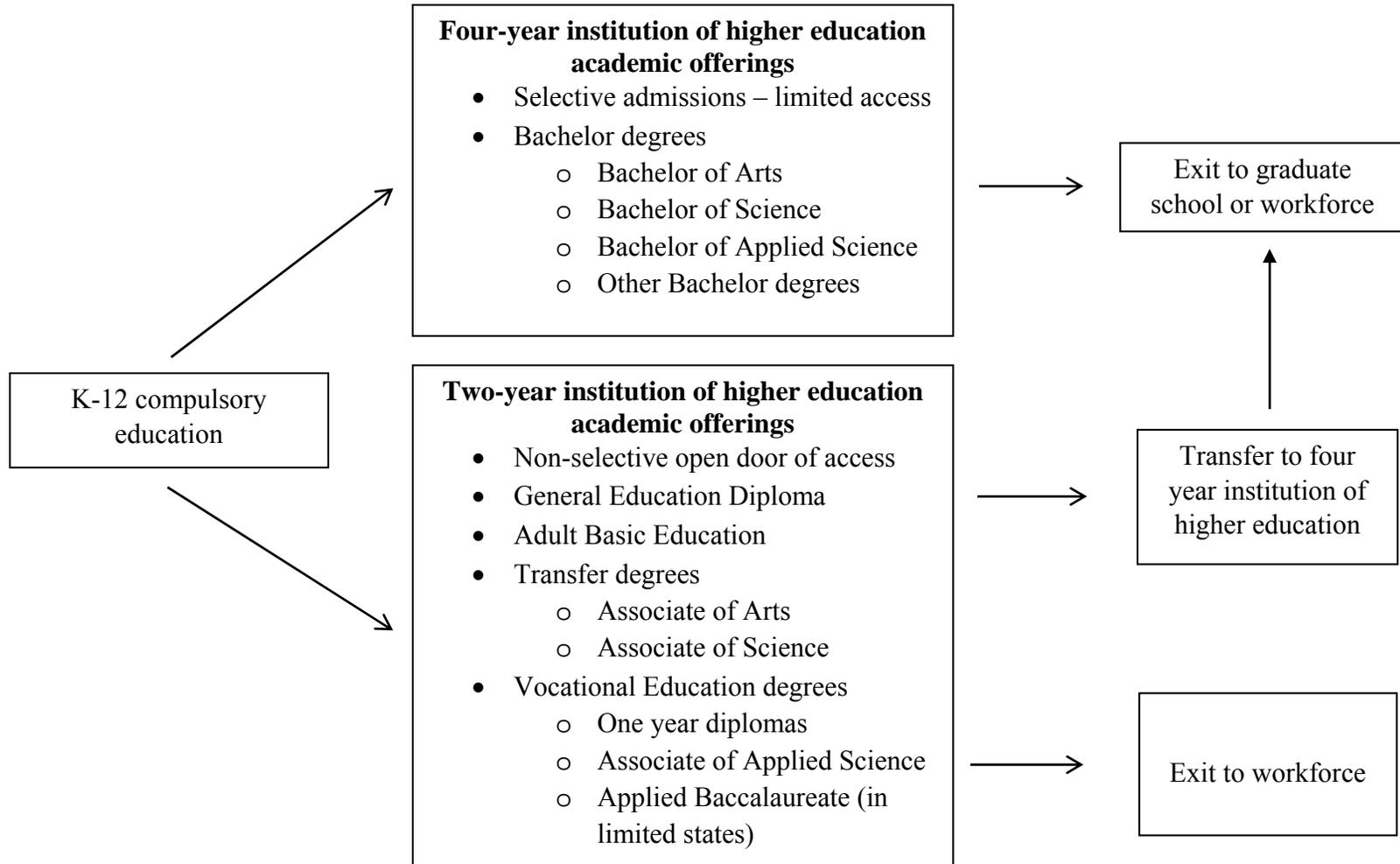


Figure 2.3. The higher education student pipeline to the workforce

Chapter Summary

This chapter summarized select literature focused on governance theory, Kingdon's multiple streams model, governance of higher education, the history and development of two-year institutions of higher education, and the educational attainment problem in the United States. The chapter explained the importance of studying state higher education governance arrangement and its potential influences on two-year institutions of higher education in contributing to the challenge faced by states for increasing educational attainment. The chapter also described the differing functions of governance structures and the influence of higher education governance structures on the type of policy enacted. The next chapter presents the research methodology and research design.

CHAPTER THREE: METHODOLOGY

This chapter describes the study's research methodology. The research design is described, followed by an explanation of the research process and the QCA steps. The dichotomization of QCA conditions is described and decision making documented to create an audit trail. The study's cumulation in Appendix D contains source documentation and screens shots of the QCA steps. The outcome of interest is patterns of educational attainment policy making, and specifically for QCA analysis, states enacting 12 or more educational attainment policies for the period 2005-2012. The purpose of this study was to explore how state higher education governance arrangement shapes the contribution of two-year institutions of higher education to improved state educational attainment. Prior to initiation of the research, the research proposal was submitted to the Institutional Review Board of North Carolina State University where it was reviewed and deemed Exempt from Human Subject Review under the Administrative Review process (see Appendix E).

Research Design

The study utilized descriptive statistics and QCA to analyze educational attainment policies enacted from 2005-2012. Data were derived from the publicly available Boosting College Completion dataset collected by the National Center for Higher Education Management Systems and the Education Commission on the States ("Boosting College Completion for a New Economy," 2012). State governance classification and higher education regional compact membership was derived from the National Center for Higher Education Management Systems Postsecondary Structures database ("National Center for Higher Education Management Systems Postsecondary Governance Structures Database,"

n.d.). State socio-economic development, state educational development, and state population were derived from the 2000 U.S. Census American Community Survey (“Census 2000 Gateway,” 2000).

This study utilized a case-based configurational comparative design and analytic method known as Qualitative Comparative Analysis (QCA). QCA enables an understanding of complex combinations of causal conditions rather than the individual effect of a condition (Ragin, 1987). The methodology returns multiple causal pathways resulting in the same outcome, rather than one causal model as explanatory of the outcome (Blackman et al., 2013). Qualitative comparative research can assist in understanding the complex nature of educational political contexts (J. Hudson & Kühner, 2013). Qualitative comparative methods seek to draw attention to both differences and similarities while considering endogenous as well as exogenous factors (Lewis, 2003). Lewis points out that the value of qualitative comparative methods is in *understanding* rather than *measuring* difference (Lewis, 2003).

The chapter begins with a brief overview of qualitative comparative practices followed by an explanation of the Qualitative Comparative Analysis (QCA) principles and core assumptions. Subjectivity and bias is addressed. The chapter then presents the three phases of QCA and the steps contained within each step, including the dichotomization process. QCA qualitative decisions are documented in the chapter and in the study’s cumulation (Appendix D) for replication. Readers can refer to Chapter One for the methodology definition of the terms used in this chapter.

The reader is reminded that QCA has three phases as indicated in Figure 3.1. Following Figure 3.1, two of the three steps are described and documented in this chapter,

the researcher's subjectivities are noted, and the validity, reliability, and trustworthiness of the study according to QCA best practices is presented. QCA Phase II, the interpretation of results, is contained within Chapter Four.

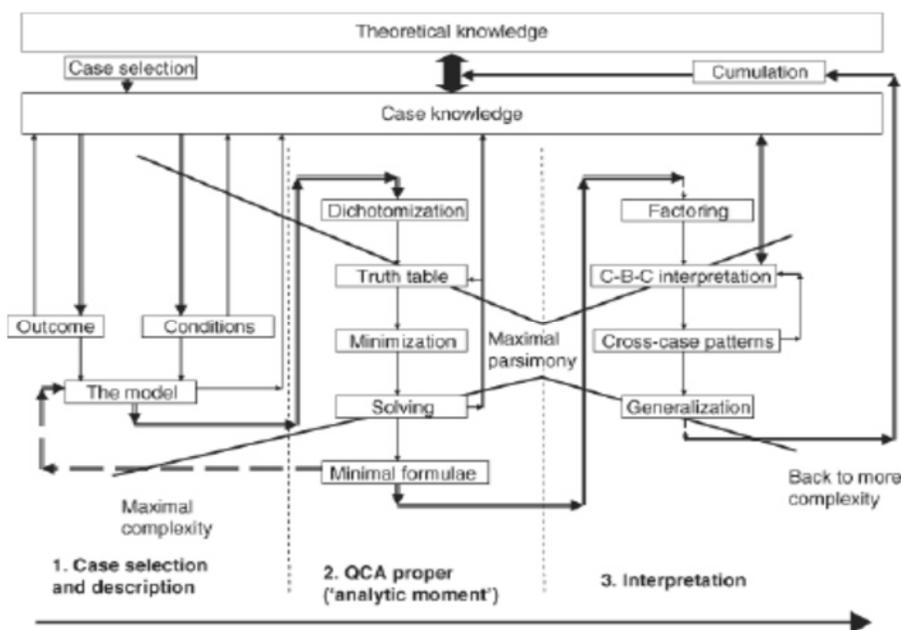


Figure 3.1. QCA phases, steps and feedback loops. Adapted from “The Case for Qualitative Comparative Analysis (QCA): Adding Leverage for Thick Cross-Case Comparison,” by B. Rihoux and B. Lobe, 2009, *The SAGE Handbook of Case-Based Methods*, p. 233. Copyright SAGE Publishing, Ltd.

Phase 1: Case Selection and Description

In keeping with QCA cumulation practice, qualitative decisions made throughout the QCA research process are documented in the chapter and cumulation in Appendix D. Case selection included all 50 states. The first step in this study's research process was to gain familiarity with the states (cases) by building a case report for each of the fifty states. In QCA methodology, this step is referred to as “gaining case knowledge”. Given the large

amount of information required for each state in the case report, the sorting and categorizing of the data needed, and the type of descriptive statistic calculation needed, I determined that Excel was the best technology solution as it contains sufficient features to organize and sort the information as a database and it contains the necessary data analysis tools to derive descriptive statistics.

Following the Case Report, the process to code the policies in the Boosting College Completion dataset is described. The case report included the following information for each state:

1. Type of state-level governance arrangement according to McGuinness' classification system (McGuinness Jr., 1997) from 2005-2012 (Appendix A),
2. Education Commission on the States Postsecondary Structures State Profile (www.ecs.org),
3. Number of governance structures in the state according to McGuinness' classification,
4. Type of four-year institution of higher education governance arrangement according to McGuinness' classification of governance (McGuinness Jr., 1997)
5. Four-year governance website,
6. Type of two-year institution of higher education governance arrangement according to McGuinness' classification system (McGuinness Jr., 1997),
7. Two-year governance website,
8. Significant changes to state-level governance arrangements according to the Education Commission on the States (Smith & Fulton, 2013) from 2000-2012,

9. Four-year institution of higher education academic and program approval responsibilities of governance according to McGuinness' classification of governance (McGuinness Jr., 1997)
10. Two-year institution of higher education academic and program approval responsibilities of governance according to McGuinness' classification of governance (McGuinness Jr., 1997),
11. Four-year higher education budget responsibilities of governance according to McGuinness' classification of governance (McGuinness Jr., 2014a),
12. Two-year higher education budget responsibilities of governance according to McGuinness' classification of governance (McGuinness Jr., 1997)),
13. Number of governance structures in the state according to McGuinness' classification of governance (McGuinness Jr., 1997),
14. Significant historical educational attainment policies as reported to the Boosting College Completion project (i.e., transfer and articulation),
15. State socio-economic development as of 2000 according to the U.S. Census,
16. State educational development as of 2000 according to the U.S. Census, and
17. State population as of 2000 according to the U.S. Census.

In building the Case Report, I recognized that it would be useful to have additional information about two-year institutions within their state context. Therefore, I added the following two-year institution governance categories from McGuinness' classification of two-year institutions (McGuinness Jr., 1997, 2014b) to the Case Report.

1. Four-year institutions have two-year branch campuses (yes/no),

2. Postsecondary technical institutes organized separately from community colleges (yes/no),
3. Some four-year institutions offer associate degrees (yes/no),
4. Notes for states from McGuinness' Classification of State Higher Education Structures (McGuinness Jr., 1997),
5. Notes for states from McGuinness' Pattern of State Coordination and Governance of Community Colleges and Other Two-Year Institutions (McGuinness Jr., 1997),
6. State legislative code archive web address.

Coding the Policy Data

The Boosting College Completion dataset contained a total of 769 policies reported by states to NCHEMS and ECS during the period 2005-2012. Each record of policy contained the following fields; legislation title (Description), the legislative Citation from state code (Citation), the State, the Year of enactment and legislative session, an internet link, and a brief text (Summary) of the bill. The brief Summary text was useful for gaining a basic understanding of the scope and intent of the legislation, however, as I studied the legislation summaries, I determined it would be valuable to secure an actual copy of the legislation for reference and for the QCA return to the cases.

With the basic information provided in each Boosting College Completion policy record (the legislative code identifier, state name, internet link, and year of enactment), I was able to have a computer science coder write a script to “scrape” the Internet and download the policies from state archives. The computer code was able to accurately locate, download, and save over 75% of the policies in Portable Document Format (PDF) from state archive

websites in less than five minutes. Each policy was saved with the naming protocol of the year of enactment, the state, and the legislative citation. For example, the policy “*Relating to Tennessee Lottery Scholarship Awards*” was saved with the file name 2010 Tennessee S.B. 2683. The remaining 25% of the policies the computer code was not able to locate either had a broken web link or a redirected web link to the state archives. I located these policies individually through a search of state legislative archives and I corrected the link in the Case Report.

I read each of the 769 policies to gain case knowledge of state educational attainment policy activity during the study period of 2005-2012. This case knowledge led me to create three criteria for each policy record to determine whether the record was included in the study. If a policy did not meet one of the three criteria, it was removed from the dataset and documented in the cumulation in Appendix D. To track the policies removed from the Boosting College Completion dataset, I created a “deletions” worksheet within the Case Report Excel workbook. The three policy inclusion criterion are discussed next.

Policy inclusion criterion one. The first criterion to determine inclusion in the analysis was whether the policy was enacted during the data collection period of 2005-2012. Some policies reported by states for the Boosting College Completion dataset were legacy policies outside of the time-bound parameters of the Boosting College Completion data collection period. As an example, the 1996 Alabama (Alabama Code, Section 16-5-7) policy “*Creating a Statewide Student Unit Record System*” was not enacted during the project period and therefore, the policy was deleted from the dataset and not included in the analysis.

The oldest policy reported was the 1974 Illinois “*Specifying the Duties of the Illinois Community College Board*”.

The legacy policies of significant educational attainment activity were recorded in the Case Report. The policy deletions are noted in Appendix D. Although the more recent (2000-2004) deleted policies were not enacted within the study’s time period, the policies were important for two reasons. First, the policies legacy policies were useful for understanding what a state had already completed prior to the Boosting College Completion data collection. Second, of particular interest was the period 2000-2004 where states reported twenty-five policies related to increasing education attainment.

For example, in 2003 Texas enacted *Creating a “Common Core Curriculum”* (19 TAC 1 Ch 4B, Rules 4.28, 4.35, 4.36) and in 2004 Texas enacted, *Creating a Statewide Articulated Transfer Curriculum* (19 TAC 1.9a.9.1). These 2000-2004 policy enactments provided a view of the direction the state was taking and the priority it was placing on improving educational attainment. Regardless of the importance of the historical policy action, these policies were not included in the analysis of the dataset, because they were outside of the project’s data collection timeframe. A total of 38 policies were removed from the dataset based on criteria one and added to the Deletions summary in Appendix D.

Policy inclusion criterion two. Based on my global review of the policies, I was aware that some policies should not be included in the analysis because the policy was not directly related to postsecondary education. For example, Maine’s 2011 Executive Order 2011-12 “*Establishing the Governor’s Business Advisory Council*” addressed economic

development and startup company development, but did not tie directly to postsecondary education or to educational attainment. Therefore, the policy was removed from the dataset

Another example of a policy that was deleted was the Arkansas 2007 “*Creating the Science, Technology, Engineering, and Math (STEM) Fund*” which directed state funds toward teacher recruitment and retention for secondary education. While the policy merits value in helping to prepare secondary students for postsecondary education, it is outside the scope of this analysis and it was deleted from the dataset. A final example of policies deleted from the dataset were state efforts at the secondary level. The West Virginia 2011 (S.B. 228/Code §18-5B-11) Dropout Prevention and Early Warning Systems policy addressed secondary education efforts, but it did not involve any elements of postsecondary educational attainment. Therefore, the policy was removed from the dataset of policies to be analyzed. A total of 25 policies were deleted from the dataset based on criteria two and added to the Deletions summary in Appendix D.

Policy inclusion criterion three. Criterion three for deleting policies was to screen for policies that were either vetoed or repealed during the data collection period. An example of a vetoed policy is the New York 2010 Senate Bill 2293 “*Creating the Technology Employment Community Hub (TECH) Centers*”. The legislation would have awarded grants of up to \$100,000 to community colleges to upgrade their educational, occupational and training services including their facilities, labs and high technology equipment. It required that applications for the grants include, among other elements, (1) demonstration of need in the region for skilled workers in the high-technology fields and (2) evidence of any

collaboration with a New York state four-year institution or New York state business. It was not enacted and therefore deleted from the set of policies for analysis.

The Utah 2012 House Bill 285 “*Ending a Need-based Aid Program*” is an example of a repeal of a policy. Utah House Bill 285 repealed Utah Code 53B-7-502, which enacted the Higher Education Tuition Assistance Program. The program had provided need-based grants to low income students attending community colleges and the off-campus centers of Utah State University.” A total of 13 policies were deleted based on criteria three and added to the Deletions summary.

In sum, a total of 78 policies were removed based on the three criteria. The next step was to code the remaining 691 policies according to policy type to enable calculation of descriptive statistics and QCA technical analysis.

Policy type. The Boosting College Completion dataset as downloaded from the project’s website was organized into the following categories; Accountability, Affordability, College Completion and Workforce Development Task Forces, Economic and Workforce Development, Finance, Postsecondary Remediation, Postsecondary Transitions, Student Assessments, and Transfer and Articulation.

The dataset did not include a codebook, but had organized the policies into the previously noted categories. I created a codebook documented in the cumulation in Appendix D to align with this study’s purpose. Based on my case knowledge, I modified the Boosting College Completion types. The first modification was to more clearly frame the definitions of the College Completion and Workforce Development Task Forces and Economic and Workforce Development categories. Based on my career knowledge, I know

that states organize workforce development and training in multiple ways and assign the duties of workforce development based on the arrangement of postsecondary education in the state. Workforce development is partially funded by the federal Workforce Investment Act to target specific populations of workers. In most cases, the workforce system is tied to the two-year or technical institutions in the state. Workforce Development initiatives may or may not overlap with College Completion initiatives.

After examination of the policies within the two categories, I determined it was best to combine the task force policies addressing workforce and economic development (from the College Completion and Workforce Development Task Forces Boosting College Completion category) with the Workforce and Economic Development policies. This created a category exclusively dedicated to Workforce and Economic Development. In separating the workforce policies from the college completion policies, the data more accurately represented a state's recognition of the problem of educational attainment (College Completion) and the state's need for training, continuing education, and advanced credentials beyond high school (Workforce and Economic Development).

As a distinct category, I defined College Completion as a system-level goal, a recognition of a problem to study, or efforts to create a master/strategic plan to improve statewide education attainment. States engaged in creation of P-20 Councils, task forces on Science, Technology, Engineering and Math outcomes, setting degree completion state goals, efforts to increase specific populations of students (i.e., minorities or adult completers), and studies of higher education systems. An example of a College Completion policy is the 2009 Mississippi House Bill 488 "*Convening the Graduation Rate Task Force*" which

Creates a Graduation Rate Task Force to assist the Legislature in shaping public policy to improve student outcomes and educational opportunities for all students in the Institutions of Higher Learning and the State Community and Junior Colleges [Task Force recommended the creation of the Mississippi Education Achievement Council in 2010--H.B. 1071].

In the category of Workforce and Economic Development, states actively engaged in job training in specific high need fields, initiatives to improve workforce preparedness and continuous advancement, capacity building for facilities and technology, customized employment training programs for recruitment and retention of industry, science, technology, engineering and math initiatives, internship and apprenticeship programs, education and training integration, initiatives to increase competitiveness through trained workforce, or initiatives to respond to critical workforce needs. An example of a Workforce and Economic Development policy is the 2006 Virginia Senate Bill 40 *Providing Education and Workforce Opportunities in Southern Virginia* which

...establishes New College. Intends to improve accessibility of training beyond the associate's degree level. Institute partners with other postsecondary institutions, public and private bodies and state and regional organizations to provide baccalaureate and master's degrees for southern Virginians. Charges institution with diversifying economic development activities, creating trained workforce, expanding educational opportunity, and implementing cooperative academic programs.

The second category modification was combining the two categories of Postsecondary Remediation and Student Assessments into one category. The Postsecondary Remediation policies in the original Boosting College Completion dataset addressed the recognition of the problem of a high rate of remediation, a specific action to designate remediation practices in the state (i.e., which institutions offer remedial education), or designation of how to offer remedial education (i.e., embedded remediation in college level courses and determining need for remedial education). Student Assessment policies in the original dataset were focused on testing practices and benchmarks, using assessments for advising purposes, using multiple assessment scores for placement in remedial education, or required testing during high school to reduce the need for remediation.

In general, it was difficult to distinguish the two categories, because assessment and remediation are closely linked in practice. Given the overlapping focus of the two categories, I determined a combined category would create a better representation of state activity to address under-prepared students entering postsecondary education. Therefore, the two categories were collapsed to the new category of Postsecondary Assessments and Remediation.

An example of Postsecondary Assessments and Remediation policy is Georgia 2011 House Bill 186 “*Ensuring Exemption of Developmental Education*” which

Directs the state board of education, the board of regents and the board of technical and adult education to a) develop policies to ensure that students who complete the high school core curriculum will meet admission requirements to any postsecondary institution without need for remedial

coursework; b) define college readiness standards; c) identify one or more assessments to be used statewide; and d) develop remedial education courses in 11th and 12th grade to reduce college remediation rates.

The final types of policy were; Accountability, Affordability, College Completion, Finance, Postsecondary Remediation, Postsecondary Transitions, Transfer and Articulation, and Workforce and Economic Development. A brief summary of the codebook is presented in Table 3.1. The complete Boosting College Completion Codebook developed for this study is presented in the study's cumulation in Appendix D.

Table 3.1

Boosting College Completion Abbreviated Codebook

Policy type	State actions included in policy category
Accountability	Reports, reporting requirements, longitudinal data systems, etc.
Affordability	Need-based aid, merit scholarships, special scholarships, etc.
College Completion	Study of attainment problem, setting attainment goals, master planning, etc.
Finance	Tuition formulas, performance funding, funding allocations, lottery revenues, etc.
Postsecondary Remediation and Assessments	Institutions to offer remediation, embedded remediation, assessment during high school, readiness assessments, etc.
Postsecondary Transitions	Specific actions to increase movement of students toward credentials through competency based credit, dual enrollment, AP/IB credit, reverse transfer, etc.
Transfer and Articulation	General education core defined, common course numbering, reverse transfer, etc.
Workforce and Economic Development	Job training, internships, apprenticeships, customized training, etc.

With the categories modified, the coding process continued with duplication of policy records described next. The duplication process resulted in a final count of 816 records.

Duplicating records process. In gaining case knowledge through reading each policy, I was aware that some single policy records in the Boosting College Completion dataset belonged in multiple policy categories. Therefore, I created a duplicate record (or records) in the Boosting College Completion dataset according to this study's codebook definition when there was more than one action per policy. Each policy record was represented by a row in a worksheet in the Excel file. The policy categories were columns. A "1" was entered into the policy category column for the row. A row could be coded in one

category only. Screen shots are provided in Appendix D demonstrating the process. When the process was complete, I conducted the duplicate records check in Excel. The software indicated there were no duplicate records in the final set of policy records used for this study.

An example of policy duplication is Louisiana's 2010 *The Louisiana GRAD Act* (H.B. 1171/LRS 17:3139) which was entered as one policy in the Boosting College Completion dataset as a Transfer and Articulation policy. A review of the legislation revealed the policy created new initiatives that addressed multiple categories including: (1) setting new standards for student success (College Completion), (2) establishing a statewide articulation agreement (Transfer and Articulation), (3) creating standards for workforce alignment (Workforce and Economic Development), (4) eliminating remedial education at four-year institutions (Postsecondary Remediation and Assessments), (5) creating new rules on institutional autonomy for tuition and fees (Finance), and (6) setting new standards for efficiency and accountability (Accountability).

In sum, the policy embodied six separate actions to improve educational attainment in Louisiana. To account for each separate action, Louisiana 2009 House Bill 1171 was divided into six separate records to represent the individual policy actions embodied in the legislation. Results of coding indicate between 2005 and 2012, states enacted a total *duplicated* count of 816 policies addressing educational attainment.

Coding State Arrangement of Governance

The fifty state arrangement of two-year institutions as McGuinness indicates “defies easy classification”. The history of two-year institutions in states, the political climate, and local control are all factors that create the context for two-year institutions. McGuinness’

classification of community colleges and two-year institutions is comprised of five categories of state governance and/or coordination arrangement. McGuinness' categories are states arranged with a (1) *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges*, (2) *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges*, (3) *Independent State Board Coordinates Community Colleges and/or Technical Institutions*, (4) *An Independent State Board Governs Community Colleges and/or Technical Institutions*, or (5) *State Board Of Education Coordinates And Regulates Community Colleges*.

McGuinness' classification of two-year governance categorizes some states in two governance categories. This created a coding issue for QCA purposes. Therefore, I expanded McGuinness' classification and created a sixth category of *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions*. This classified all states in no more than one category during the QCA process. Five states (Arizona, Colorado, Georgia, Idaho, and Oregon) are classified as *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* category. Arizona has no centralized coordination or governance for the state. Colorado, Georgia, Idaho, and Oregon have coordinating functions at the state level with multiple boards providing oversight for two-year institutions. A description of each state is provided in Phase III of the QCA analysis contained in Chapter Four. This study's categorization of two-year governance arrangement for the fifty states is presented in Table 3.2. The categorization was used for both descriptive statistical analysis and QCA.

Table 3.2

Categories of State Arrangement of Two-Year Governance and States in the Category

Consolidated Governing Board for Both Two- and Four-Year Institutions Governs
Community Colleges (14 states)

Alaska
Hawaii
Kansas
Massachusetts
Minnesota
Montana
Nevada
New York
North Dakota
Rhode Island
South Dakota
Tennessee
Utah
Vermont

Coordinating Board for All Higher Education Coordinates Locally Governed
Community Colleges (10 states)

Arkansas
Maryland
Missouri
Nebraska
New Jersey
New Mexico
Ohio
Oklahoma
Pennsylvania
Texas

Table 3.2 (continued)

Independent State Board Coordinates Community Colleges and/or Technical Institutions
(6 states)

California
Illinois
Mississippi
Washington
Wisconsin
Wyoming

Independent State Board Governs Community Colleges and/or Technical Institutions (11
states)

Connecticut
Delaware
Indiana
Kentucky
Louisiana
Maine
New Hampshire
North Carolina
South Carolina
Virginia
West Virginia

State Board of Education Coordinates and Regulates Community Colleges (4 states)

Alabama
Florida
Iowa
Michigan

Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions
(5 states)

Arizona
Colorado
Georgia
Idaho
Oregon

Descriptive Statistics Data Analysis

With the policy coding completed, the state causal conditions entered into the case report, and the classification of state two-year governance arrangement, the data were ready for descriptive statistics and QCA analysis. A series of pivot tables within Excel were created to summarize the coded policies by state, by policy type, and by two-year arrangement of governance. Descriptive statistics resulted are reported in Chapter Four. The descriptive statistics became the foundation for decision making to dichotomize the conditions for QCA. The process to dichotomize the QCA causal conditions is described next.

Phase II: Dichotomizing the Causal Conditions for QCA Analysis

To conduct QCA, the policy data (816 records) and the causal conditions (socio-economic development, state educational attainment, state population, state governance arrangement, and state higher education regional compact) were formatted in an Excel worksheet which served as the raw data table. The total number of policies (from the descriptive statistical analysis) became the outcome of interest for QCA. Each state was represented by one row in the worksheet. A description of the five causal conditions and the outcome of interest (Pol) are indicated in Table 3.3. The raw data table is included in the cumulation in Appendix D.

Table 3.3

Causal Conditions and Outcome of Interest for QCA Analysis

Causal Condition	Definition
Sed	State per capita income in 2000 (Census)
Eddev	State educational development in 2000 (Census)
Pop	State population in 2000 (Census)
Govarr	State governance arrangement <ol style="list-style-type: none"> 1. governing board all types (gov), 2. coordinating board all types (coor), 3. State Board of Education and Two or more boards/agencies (other)
Reg	State higher education regional compact membership: <ol style="list-style-type: none"> 1. Western Interstate Commission on Higher Education (wiche), 2. Southern Regional Education Board (sreb), 3. Midwest Higher Education Compact (mhec), 4. New England Board of Higher Education (nebhe), 5. No Regional Compact Membership (none), and
Outcome of interest	
Pol	The count of policies enacted for the state 2005-2012

The raw data table was saved as Comma Separated Variable format and loaded into the fsQCA software. The software created its own version of the file for QCA analysis. The fsQCA raw data table can be found in the cumulation in Appendix D. With the data loaded into the fsQCA software, the next step was to dichotomize the causal conditions for the technical QCA analysis.

Crisp-set fsQCA dichotomization and coding. fsQCA software conducts crisp-set analysis based on a case's membership as either 1 (present) or 0 (absent) in a causal condition. Both the outcome and the causal conditions are assigned to membership through the dichotomization process. To assign cases to membership in a causal condition, each of the conditions is dichotomized based on a qualitative decision by the researcher. This step in the process is iterative and lengthy as each condition's dichotomization can influence the overall outcome of the analysis. As noted previously, the outcome was dichotomized as states enacting 12 or more educational attainment policies for the period 2005-2012, and states enacting fewer than 12 educational policies for the period 2005-2012. The process to dichotomize states is described next.

Dichotomizing the outcome. To dichotomize the outcome of interest, I reviewed the descriptive statistics for the states. The state median policy enactment was 12 and the state mean enactment was 16.32 for the period 2005-2012. As indicated by the range, some states made a large number educational attainment policies, and some states did not. Eight states enacted between 30 and 48 policies skewing the distribution and the mean. Because QCA is a qualitative methodology, a dichotomization cutoff point is based on the researcher's knowledge of previous research, the study's purpose, and the researcher's familiarity with the data. The summary statistics are shown in Table 3.4.

Table 3.4

Summary Statistics Boosting College Completion State Policy Enactment (2005-2012)

Mean	16.32
Median	12
Mode	6
Standard Deviation	11.80
Range	46
Minimum	2
Maximum	48
Count of Policies	816
State Count	50

Descriptive statistics revealed twenty-one states enacted the mean number of 16 or more policies. This fact limited the number of states that could be considered in the outcome to less than 50% of the cases. Because the policy enactment mean was greater than the median, I chose to dichotomization the cutoff at the median of 12 policies. I returned to the descriptive statistics for review of the number of states needed to achieve acceptable QCA coverage and consistency scores. I saw that twenty states enacted from two-ten policies. I ran a QCA analysis and it did not achieve adequate consistency or coverage scores. Two states enacted 11 policies. I ran a QCA analysis and it did not achieve adequate consistency and coverage scores. Twenty-eight states enacted 12 or more policies. I ran a QCA analysis with greater than 12 policies and made the qualitative decision that the median was an appropriate dichotomization cutoff point for states to be considered in the outcome set of cases, because it gave appropriate consistency and coverage scores for QCA.

The fsQCA step to compute the outcome set of states enacting 12 or more educational attainment policies for the period 2005-2012 is shown in Appendix D. The fsQCA software assigned each state either a 1 (the state enacted 12 or more policies) or a 0 (the state had fewer than 12 policies) for the period 2005-2012. The process of dichotomization next focused on the causal conditions of socio-economic development, educational attainment, population, regional higher education compact, and state governance arrangement.

Dichotomizing state socio-economic development. The cutoff point to delineate a low-wealth state was determined after examination of the raw data and descriptive statistics shown in Table 3.5.

Table 3.5

Summary Statistics State Socio-Economic Development (2000 Census)

Mean	20,767
Median	20,565
Standard Deviation	2,848
Range	12,913
Minimum	15,853
Maximum	28,766
Number of states	50

The state mean and median per capita income were within \$205 with a standard deviation of approximately \$2,900. I returned to review the raw state per capita income range of data to determine how many states were within one standard deviation of the mean. I noted that 14 states had a per capita income of less than \$19,000 with four of the states

having a per capita income between \$18,093 and \$18,795. Three of these four states (\$18,093, \$18,185, and \$18,189) were within \$102 of each other. The remaining state with a per capita income of \$18,975 was qualitatively much closer to \$19,000.

After multiple QCA iterations with dichotomization at less than \$22,000, less than \$20,000, and less than \$18,000, I made the qualitative decision that \$18,500 would be reflective of a low wealth state. A state per capita income of \$18,500 is near the lower range of one standard deviation (\$17,919) and it provided sufficient coverage and consistency scores. The dichotomized cutoff of \$18,500 created a group of 13 states that could be considered low wealth and achieved sufficient coverage and consistency scores to meet QCA standards. A screen shot of the fsQCA software process to dichotomize the states as members of low wealth causal condition set is shown in Appendix D.

Dichotomizing state educational attainment. The cutoff point to delineate low educational attainment set membership was determined after examination of the raw data and descriptive statistics shown in Table 3.6. As the summary statistics indicate, the mean and median are nearly identical. The states had a range of greater than 21% with the highest educational attainment for the population ages 25-64 with an Associate degree or higher in Massachusetts (40.40%) and the lowest educational attainment in West Virginia (19.10%). Twenty-four states were below the mean of 30.29 and the median of 30.20. Nine states were below 25% of the population ages 25-64 with an Associate degree or higher.

Table 3.6

Summary Statistics State Educational Attainment (2000 Census)

Mean	30.29
Median	30.20
Standard Deviation	5.00
Range	21.30
Minimum	19.10
Maximum	40.40
Number of states	50

There was a natural break in the data between 27.1% and 28.4% with an increase of 1.3% in educational attainment. After multiple QCA iterations, I made the qualitative decision to dichotomize the cutoff for low educational attainment as states with less than 28% of the population ages 25-64 with an Associate's degree or higher. This created a group of 13 states with low educational attainment. With this dichotomization, coverage and consistency score thresholds were achieved. The fsQCA software dichotomized the cases and created a new variable. The final values for state educational development are documented in Appendix D for each state.

Dichotomizing state population. The cutoff point to delineate high population set membership was determined after examination of the raw data and descriptive statistics shown in Table 3.7. As the summary statistics indicate, very large population states impact the mean which is higher than the median. Additionally, the standard deviation is higher than the mean. The range for population was 33,377,866 with the highest population in

California (33,871,648) and the smallest population in Wyoming (493,792). Seven states had fewer than one million residents, nine states have between one and two million residents, and five states have between two and three million residents 2000. After multiple QCA iterations at 5,000,000, 4,000,000, 3,000,000, 2,000,000, and 1,000,000, I made the qualitative decision to set the dichotomized cutoff to be states with a population over three million. This dichotomization established a group of 21 states below and 29 states above the high population membership cutoff point and QCA coverage and consistency score thresholds were achieved. The dichotomized values for each state's population are documented in Appendix D in the raw data table.

Table 3.7

Summary Statistics State Population (2000 Census)

Mean	5,616,997
Median	4,026,891
Standard Deviation	6,185,580
Range	33,377,866
Minimum	493,782
Maximum	33,871,648
Number of states	50

Coding state two-year governance arrangement. State governance arrangement was dichotomized based on the arrangement of governance shown in Table 3.8 for the Governing board states, Coordinating states, and Mixed types of state arrangement. The process to

dichotomize the states for QCA is shown in Appendix D and each state's category is shown in the raw data table in Appendix D.

Table 3.8

Classification of State Arrangement of Governance and States for QCA

QCA category of governance	McGuinness' classification of state arrangement of governance*	States
Governing	Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges	Alaska, Hawaii, Kansas, Massachusetts, Minnesota, Montana, Nevada, New York, North Dakota, Rhode Island, South Dakota, Tennessee, Utah, and Vermont
	Independent State Board Governs Community, Colleges and/or Technical Institutions arrangement of governance	Connecticut, Delaware, Indiana, Kentucky, Louisiana, Maine, New Hampshire, North Carolina, South Carolina, Virginia, and West Virginia
Coordinating	Independent State Board Coordinates Community Colleges and/or Technical Institutions	California, Illinois, Mississippi, Washington, Wisconsin, and Wyoming
	Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges	Arkansas, Maryland, Missouri, Nebraska, New Jersey, New Mexico, Ohio, Oklahoma, Pennsylvania, and Texas
Mixed	Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions	Arizona, Colorado, Georgia, Idaho, and Oregon
	State Board of Education Coordinates and Regulates Community Colleges	Alabama, Florida, Iowa, and Michigan

*McGuinness' classification (McGuinness Jr., 2014b) was modified for this study as described in Chapter Three.

Coding state higher education regional compact membership. States were coded by regional compact. For QCA purposes, two regional compacts were analyzed because they represented a large number of states. The Western Interstate Commission on Higher Education (WICHE) represents 13 states and the Southern Regional Education Board (SREB) represents 16 states. WICHE regional compact as a causal condition is examined in Model 2 and SREB regional compact as a causal condition is examined in Model 3. The Models dichotomized state regional higher education compact membership as either in or out. Model 2 determined whether the WICHE region was a causal condition and Model 3 examined whether the SREB was a causal condition in states enacting 12 or more policies for the period 2005-2012. The state membership coding dichotomization can be found in Appendix D and identification of state membership can be found in the raw data table in Appendix D.

Summary of Dichotomized Causal Conditions and the Outcome of Interest

QCA practice required testing multiple dichotomizations of the causal conditions to test the impact on the outcome of interest as previously described. Solution coverage of at least .50 and solution consistency of at least .80 was achieved through the final dichotomized conditions for this study as follows;

1. The outcome was dichotomized as states enacting greater than or equal to 12 attainment policies between 2005-2012.
2. Low socio-economic development was dichotomized as states with per capita income less than \$18,500 in 2000.

3. Low educational attainment was dichotomized as states with less than 28% of the population ages 25-64 with an Associate's degree or higher in 2000.
4. High population was dichotomized as states with greater than 3,000,000 residents in 2000,
5. Governance was dichotomized as a governing board state, and
6. Region was dichotomized as either a WICHE or an SREB state.

Testing Necessity of the Causal Conditions

A Test of Necessity was conducted in the fsQCA software for each of the causal conditions and the outcome of 12 or more educational attainment policies for the period 2005-2012. None of the causal conditions was indicated as necessary to produce the outcome. The fsQCA output can be found in the study's cumulation in Appendix D.

Testing Sufficiency of the Causal Conditions

A number of dichotomizations were tested for the causal conditions prior to specifying the three final QCA models. The dichotomizations did not produce strong evidence of consistency or coverage for producing the outcome of interest of 12 or more educational attainment policies. Through the multiple trials of causal condition dichotomization, three models produced results that could be interpreted for this study. The dichotomized values and three models selected for the study exhibited strong Solution consistency (.80 or higher for producing the outcome set of 12 or more educational attainment policies) and Solution coverage (.50 or higher for cases with the outcome) scores. The three models analyzed were:

1. Model 1 tested states with greater than or equal to 12 educational attainment policies from 2005-2012, per capita income less than \$18,500, educational attainment less than 28% of the population ages 25-64, a high population of over three million, and a Governing board arrangement;
2. Model 2 tested states with greater than or equal to 12 educational attainment policies from 2005-2012, per capita income less than \$18,500, a high population of over three million, membership in the WICHE higher education compact region, and a Governing board arrangement;
3. Model 3 tested states with greater than or equal to 12 educational attainment policies from 2005-2012, per capita income less than \$18,500, with a high population of over three million, membership in the SREB higher education compact region, and a Governing board arrangement.

Researcher Subjectivities

Unlike quantitative research, where perspectives, interests, and experiences of the researcher are imagined to not be a factor, in qualitative research the researcher is the primary data instrument (Given, 2008; Patton, 2002), and it is critical to understand what assumptions and perspectives that person brings to the research effort. My personal and professional career experiences have provided me the opportunity to gain a wide range of K-12 and higher education experience and knowledge in both two- and four-year institutional and governance contexts. My perspective is based in my broad experience described next.

In beginning my educational journey at a two-year institution through the open door of access, I gained the perspective of a two-year college student and ultimately a transfer

student to a four-year institution of higher education. Through my career experiences in both economic and workforce development in North Carolina, I gained a perspective of the workforce system and its linkages to the student pipeline into and through higher education. Through my Master's degree in Public Administration and doctoral studies, I gained perspective on the dual state roles of equity and efficiency for higher education, and the state and federal role in secondary and postsecondary education. As a result of these experiences and my studies, my perspective is broad on the subject of higher education and its linkage to the labor force.

In six years of employment at the largest community college in North Carolina, I gained experience and perspective on the federal role in postsecondary and workforce development through management of the colleges' federal policy agenda. During my time with the college, I also managed the articulation process creating agreements for specific degree programs with public and private colleges and universities enabling student transfer. It was at this college that I recognized the linkages of the postsecondary and workforce systems and my interest in pursuing doctoral studies in the state governance of higher education began. In my current work, I have a perspective into the connections between policy and practice in moving first-generation students into and through postsecondary education. This combination of personal and professional experience guides my perspective and my interest in the study's subject.

I do not have a specific relationship to the states in the study with the exception of the University of North Carolina (UNC) 16 institution system where my work is to develop the pipeline of students from secondary to postsecondary. My day-to-day work in this state

policy context gives me firsthand knowledge of some of the challenges of achieving an increase in state educational attainment through the policy environment created by state arrangement of two- and four-year governance.

Validity, Reliability, and Trustworthiness

QCA is a set-theoretic approach analyzing complex structures, processes, and outcomes through the notion of sets and their relations (Ragin, 1987). It is both an approach and a data analysis method. It is a method for building general knowledge from case-oriented knowledge of specific cases in specific contexts. The intent of QCA is to articulate the different contexts and conditions that enable or disable specific empirical connections and outcomes (Ragin, 2008a). The cases are always central to the analysis and description of the outcome is provided in terms of the cases. The goal of the research is to identify common causal conditions linked to a specific outcome. In essence, QCA generates understanding through a series of steps that are controlled by the researcher. The decisions made by the research are considered qualitative.

QCA is described by Ragin (Ragin, 1987) as the “middle path” between quantitative and qualitative research. QCA does not intend to describe human experience, nor does it intend to have quantitative predictive powers. Rather, Ragin intended QCA to transcend some of the limitations of conventional quantitative and qualitative research by extending and elaborating set-theoretic principals of social research (Ragin, 2008b). Although there are elements of quantitative analysis involved in the QCA process, the method is considered qualitative for generalizing in case specific contexts.

To QCA researchers, the process of conducting QCA (and its required documentation of decision making) addresses the issues of quality embodied in validity and reliability. Strictly, qualitative researchers think in other ways about validity and reliability, and the concept of validity is described by a wide range of terms. Some qualitative researchers argue that the concept of validity is not a single, fixed or universal concept, but it is a contingent construct, grounded in the processes and intentions of particular research methodologies and projects (Golafshani, 2003). Further, many qualitative researchers have developed their own concept of validity and have generated the term trustworthiness for establishing confidence in the findings (Schwandt, 2007). Merriam leans toward a definition mirroring the quantitative paradigm and writes that validity in qualitative research ensures what is intended to be measured is what is measured, and that reliability in qualitative research a measure of the reproducibility of the results or the dependability of the study (Merriam, 2002). Other researchers in the qualitative paradigm utilize the terms credibility, neutrality, confirmability, consistency, dependability, and transferability as the essential criteria for evaluating the quality (validity and reliability) of a study (Golafshani, 2003).

Most QCA researchers are silent in specifically referencing the validity and reliability of studies, and instead refer to the quality of a QCA study in reference to a set of best practices and the documentation of the study through what is known as cumulation (Wagemann & Schneider, 2007). This study followed each of the QCA best practices describe next to achieve validity, reliability, and trustworthiness. This study's steps are described in response to each of QCA's best practices.

First, QCA as a data analysis technique should be used for its original aims of determining combinations of causal conditions producing an outcome. The study examined the entire population of the 50 states and their educational attainment policy making from 2005-2012. This study set out to determine four causal conditions that may (or may not) combine with governance arrangement of higher education. The study used an existing dataset collected by the National Center for Higher Education Management Systems (NCHEMS) and the Education Commission on the States (ECS). The two organizations collect ongoing policy enactment data from states on all policy issues and make it publicly available for analysis. The Boosting College Completion dataset is a subset of data collected by the two organizations specifically for a grant funded by the Bill and Melinda Gates Foundation. The data were publicly available. Second, QCA should not be applied as the only data analysis technique in a research project. This study analyzed data through descriptive statistics to assess patterns of policy making. This study also placed the findings in the context of theory and previous empirical findings to explain the outcome. In a sense, the data were “triangulated”, but the data were derived from a single source.

Third, QCA best practice dictates that the approach should never be applied in a mechanical way; instead, it should always be related to the cases of interest. The fifty states and their policy making patterns were central at all times in the analysis. Fourth, familiarity with the cases is a requirement before, during and after the analytical moment of a QCA analysis. As noted in Chapter Three, all of the 816 policies were reviewed and a Case Report was built for each state that was continually referenced throughout the analysis. The “return to the Case Report or Case History” is noted throughout Chapter Four.

Fifth, every QCA analysis must contain the solution formula(s) and the consistency and coverage measures should always be reported. Each of these items is reported, interpreted, and described in Chapter Four. Further, Chapter Five includes an interpretation of each state not included in the causal pathways for comparative purposes. Sixth, the appropriate QCA terminology should be followed. The study's technical consultant verified proper use of QCA terminology. Seventh, there should always be an explicit and detailed justification for the (non)selection of cases. This study included the entire population of 50 states and made an interpretation of the context of each state.

Eighth, the number of causal conditions should be kept moderate. With just 50 cases, the number of conditions was limited to four in a model at one time. This limited the number of combinations of causal conditions for each model to 16 (4^2). This is a moderate number given the number of cases. Ninth, the dichotomization of conditions should be discussed in detail. Each causal condition (population, socio-economic development, educational development, governance arrangement, and state higher education regional compact) is discussed in detail with documentation of decision making in the text of this chapter. The data coding process included multiple checks utilizing features within Excel to remove duplicate items and restricting each policy record to one category of policy type classification. The criteria for including a single policy in the study is clearly defined in this chapter, and in the coding dictionary included in the study's cumulation (See Appendix D). The process to dichotomize within the fsQCA software is documented in the cumulation in Appendix D.

Tenth, the solution formulas should be linked back to the cases. In Chapter Four, a state by state description is provided for each causal pathway in each of the three QCA models. States included in the outcome set that did not combinations of the conditions are also described. There were no “contradictory” cases to be explained as the combination of causal conditions either led to the outcome or they did not. Further, the solutions are linked to previous findings in Chapter Five. Eleventh, the solution formula alone does not demonstrate a causal relationship between the conditions and the outcome, rather a description of each case is required. Cases are described individually and grouped by arrangement of governance. Lastly, all qualitative decisions are documented in the text and within the study’s cumulation in Appendix D to ensure replicability. The qualitative decisions are documented in Chapter Three for dichotomization of the conditions, and in Chapter Four in the return to the cases for interpretation.

Each of these best practices helps to reduce bias and each step is openly transparent throughout the process of QCA. All qualitative decision making is documented in Chapter Three and Four. The technical steps to dichotomize data and the data sources are included in the cumulation in Appendix D. The next section discusses the procedures for descriptive statistics and QCA analysis of the Boosting College Completion dataset.

Chapter Summary

This chapter described the study’s research methodology. The research design was described, the dichotomization of the causal conditions was outlined, the outcome of interest was specified, followed by an explanation of the research process and the QCA steps. Chapter Four presents findings from the descriptive statistics and QCA analysis.

CHAPTER FOUR: FINDINGS

Chapter Four presents results of the descriptive statistical and QCA analysis described in Chapter Three. The research questions were:

1. How does higher education attainment policy vary in type, quantity, and focus across state two-year governance arrangements?
2. How does region, population, socio-economic development, and state educational development combine with state two-year governance arrangements to impact attainment policy? and
3. How does the arrangement of higher education governance shape the contribution of two-year institutions to foster improved state educational attainment?

This chapter is comprised of three sections. The first section presents descriptive statistics in response to Research Question One. Descriptive statistics are presented for the 50 states by policy type, for policy enactment with states grouped by two-year arrangement of governance. The second section presents QCA Phase II and III results in response to Research Question Two. Findings for the three QCA models are presented with a description of each state identified in the causal pathways. Each state is described for its specific arrangement of two-year governance and for the priority type of policy enacted. The third section presents results for Research Question Three with description of states enacting fewer than 12 policies, and exploration of the benefits and constraints of governance arrangement shaping the contribution of two-year institutions to educational attainment. The entire population of the 50 states is described in response to Research Question Two and Three.

Research Question One

Research Question One was “*How does state educational attainment policy vary in type, quantity, and focus across state-level higher education governance arrangements?*”

Descriptive statistics are presented for the overall state policy enactment by policy type for the eight types of Boosting College Completion policy and for policy enactment with states grouped by two-year arrangement of governance.

The reader is reminded that the Boosting College Completion dataset was organized into eight categories for this study; Accountability, Affordability, College Completion, Finance, Postsecondary Assessments and Remediation, Postsecondary Transitions, Transfer and Articulation, and Workforce and Economic Development as described in Chapter Three.

State Overall Policy Enactment

A total of 816 educational attainment policies were enacted by states during the Boosting College Completion data collection period. States enacting the largest number of educational attainment policies for the period 2005-2012 were Washington (48 policies), Louisiana (46 policies) and Texas (44 policies). Eighteen states adopted from three-ten policies (Alabama, Alaska, Connecticut, Delaware, Indiana, Kansas, Montana, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Rhode Island, South Dakota, Vermont, Wisconsin, Wyoming), 18 states adopted 11-20 policies (Georgia, Hawaii, Idaho, Iowa, Kentucky, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, Ohio, Oklahoma, Pennsylvania, Utah, West Virginia), four states adopted 21-30 policies (Arizona, Illinois, Oregon, Tennessee), and five states adopted 31-40 policies (Arkansas, California, Colorado, Florida, Virginia). States enacting the fewest

educational attainment policies were Massachusetts and South Carolina (two policies each). The ranking for states by number of policies enacted can be found in the study's cumulation in Appendix D.

Across the fifty states, the mean number of policies enacted per state was 16.32 (SD 11.80), the median number of policies enacted was 12, and the mode was 6. States enacted a minimum of 2 and a maximum of 48 policies. States enacted Affordability policy most often (157 policies, 19.24% of total policy enactment, $M=3.14$, $SD=2.17$ policies per state), followed by Postsecondary Transitions policy (130 policies, 15.93% of total policy enactment, $M=2.60$, $SD=2.83$ policies per state), Accountability (126 policies, 15.44% of total policy enactment, $M=2.52$, $SD=2.26$ policies per state), and Workforce and Economic Development (118 policies, 14.46% of total policy enactments, $M=2.36$, $SD=2.90$ policies per state) from 2005-2012.

States enacted fewer Finance (98 policies, 12.01% of total, $M=1.96$, $SD=1.75$ policies per state), College Completion (71 policies, 8.70% of total, $M=1.42$, $SD=1.37$ policies per state), Transfer and Articulation (69 policies, 8.46% of total, $M=1.38$, $SD=2.10$ policies per state), and Postsecondary Remediation (47 policies, 5.76% of total policy enactments, $M=0.94$, $SD=1.71$ policies per state) policies for the period 2005-2012.

The range of policy enactment differed widely. The greatest range was Workforce and Economic Development where state activity ranged from zero policies (Alaska, Colorado, Delaware, Indiana, Kansas, Maine, Montana, New York, and Wisconsin) to 17 policies (Washington). The smallest range was College Completion where states ranged from zero policies (Alabama, Georgia, Idaho, Indiana, Kansas, Kentucky, Massachusetts,

Michigan, Montana, Nebraska, Nevada, New Hampshire, Rhode Island, South Carolina, South Dakota, Utah, and Wyoming) to five policies (Virginia).

These data are presented graphically in Table 4.1. Following Table 4.1, the analysis continues with states grouped by two-year arrangement of governance. The six categories of governance arrangement are compared and described in terms of the mean number of policies enacted and which type of policy was enacted most often (referred to as state policy focus or priority).

Table 4.1

State Boosting College Completion Policy Enactments 2005-2012*

Per state policy enactment	Boosting College Completion Policy Type							
	ACC	AFF	COM	FIN	REM	PST	TRA	WED
State count	50	50	50	50	50	50	50	50
Mean	2.52	3.14	1.42	1.96	0.94	2.60	1.38	2.36
Median	2	3	1	2	0	2	0.5	2
Standard Deviation	2.26	2.17	1.37	1.75	1.71	2.83	2.10	2.90
Range	9	8	5	6	7	13	9	17
Minimum	0	0	0	0	0	0	0	0
Maximum	9	8	5	6	7	13	9	17
Total policy type	126	157	71	98	47	130	69	118
Boosting College Completion policy type percentage of total policy enactments 2005-2012	15.44%	19.24%	8.70%	12.01%	5.76%	15.93%	8.46%	14.46%

* ACC (Accountability), AFF (Affordability), COM (College Completion), FIN (Finance), REM (Postsecondary Assessments and Remediation), PST (Postsecondary Transitions), TRA (Transfer and Articulation), WED (Workforce and Economic Development).

State Two-year Governance Arrangement Policy Enactment Patterns

California, Illinois, Mississippi, Washington, Wisconsin, and Wyoming (organized with an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* two-year arrangement of governance) enacted the highest mean number of policies ($M=24$, $SD=16.78$) from 2005-2012. The six states focused on Accountability and Affordability policy (27 policies each), Workforce and Economic Development (26 policies), and Finance (22 policies).

Arizona, Colorado, Georgia, Idaho, and Oregon (organized with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* two-year arrangement of governance) enacted a mean number of 21 ($SD=9$) policies from 2005-2012. The five states focused on Postsecondary Transitions (25 policies), Affordability (17 policies), and Accountability (15 policies).

Alabama, Florida, Iowa, and Michigan (organized with a *State Board of Education Coordinates and Regulates Community Colleges* two-year governance arrangement) enacted a mean number of 19 ($SD=14.35$) policies from 2005-2012. The four states focused on Finance (16 policies), Postsecondary Transitions (15 policies) and Accountability (12 policies).

Arkansas, Maryland, Missouri, Nebraska, New Jersey, New Mexico, Ohio, Oklahoma, Pennsylvania, and Texas (organized with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* two-year arrangement of governance) enacted a mean number of 18.60 ($SD=11.28$) policies from 2005-2012. The ten

states focused on Affordability (38 policies), Postsecondary Transitions (29 policies), and Accountability (28 policies).

Connecticut, Delaware, Indiana, Kentucky, Louisiana, Maine, New Hampshire, North Carolina, South Carolina, Virginia, West Virginia (organized with an *Independent State Board Governs Community Colleges and/or Technical Institutions* two-year arrangement of governance) enacted a mean number of 15.55 (SD=12.89) policies from 2005-2012. The 11 states focused on Affordability (30 policies), Accountability (28 policies), and Postsecondary Transitions and Workforce and Economic Development (26 policies each).

Lastly, Alaska, Hawaii, Kansas, Massachusetts, Minnesota, Montana, Nevada, New York, North Dakota, Rhode Island, South Dakota, Tennessee, Utah, and Vermont (organized with a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* two-year arrangement of governance) enacted the lowest overall mean number of policies (9.57, SD=6.03) from 2005-2012. The 14 states focused on Affordability (37 policies), Postsecondary Transitions (23 policies), and Workforce and Economic Development (21 policies). These data are presented graphically in Table 4.2. Following Table 4.2, the categories of governance arrangement are compared in terms of the highest and lowest mean number of policies enacted. The categories of governance arrangement enacting the highest mean number of policies for each type of policy are identified, and the categories of governance arrangement enacting the lowest mean number of each type of policy are identified.

Table 4.2

Two-Year Governance Arrangement Count and Mean Number of Policy Enactments 2005-2012

State Two-Year Arrangement of Governance	Boosting College Completion Policy Type*								Count	M	SD
	ACC	AFF	COM	FIN	REM	PST	TRA	WED			
Consolidated Governing Board for Both Two- And Four-Year Institutions Governs Community Colleges (14 States)	16	37	12	16	2	23	7	21	134	9.57	6.03
Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges (10 States)	28	38	15	20	18	29	15	23	186	18.60	11.28
Independent State Board Coordinates Community Colleges and/or Technical Institutions (6 States)	27	27	12	22	3	12	15	26	144	24.00	16.78
Independent State Board Governs Community Colleges and/or Technical Institutions (11 States)	28	30	17	13	11	26	20	26	171	15.55	12.89
State Board of Education Coordinates and Regulates Community Colleges (4 States)	12	8	7	16	4	15	5	9	76	19.00	14.35
Two Or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions (5 States)	15	17	8	11	9	25	7	13	105	21.00	9.00
Total	126	157	71	98	47	130	69	118	816		

*. ACC (Accountability), AFF (Affordability), COM (College Completion), FIN (Finance), REM (Postsecondary Assessments and Remediation), PST (Postsecondary Transitions), TRA (Transfer and Articulation), WED (Workforce and Economic Development), Count (Total policy count enacted by the state two-year arrangement of governance), M (Mean number of policies enacted), SD (Standard Deviation).

State Two-year Governance Arrangement Mean Policy Type Patterns

California, Illinois, Mississippi, Washington, Wisconsin, and Wyoming (organized with an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* two-year arrangement of governance) had the highest number of mean policies in five of the eight policy types (Accountability, Affordability, Finance, Transfer and Articulation, Workforce and Economic Development).

In contrast, Alaska, Hawaii, Kansas, Massachusetts, Minnesota, Montana, Nevada, New York, North Dakota, Rhode Island, South Dakota, Tennessee, Utah, Vermont (organized with a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* two-year arrangement of governance) had the lowest number of mean policies enacted in seven of the eight policy types (Accountability, College Completion, Finance, Postsecondary Remediation, Postsecondary Transitions, Transfer and Articulation, and Workforce and Economic Development). The 14 states ranked fifth of six in the remaining category (Affordability policy) for the mean number of policies enacted.

Alabama, Florida, Iowa, Michigan (organized with a *State Board of Education Coordinates and Regulates Community Colleges* two-year arrangement of governance) enacted the highest number of mean policies in Finance. Arizona, Colorado, Georgia, Idaho, and Oregon (organized with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* two-year arrangement of governance) had the highest number of mean Postsecondary Transitions policies. These same states tied with Arkansas, Maryland, Missouri, Nebraska, New Jersey, New Mexico, Ohio, Oklahoma, Pennsylvania, and Texas (organized with a *Coordinating Board for All Higher Education Coordinates Locally*

Governed Community Colleges two-year arrangement of governance) for the highest number of mean policies enacted in Postsecondary Remediation.

Table 4.3 displays the eight types of policy and the mean number of policies enacted for each category of state arrangement of governance. The highest and lowest mean number of policies enacted for each of the governance arrangement categories is indicated by bolded text. An expanded set of descriptive statistics for Affordability, Postsecondary Transitions, Accountability, and Workforce and Economic Development policy types for the six governance arrangement categories is presented for reference and included in the study's cumulation in Appendix D.

Table 4.3

Two-Year Governance Arrangement Mean Number of Policies Enacted for Boosting College Completion Policy Types 2005-2012

Boosting College Completion Policy Type	State Arrangement of Two-Year Governance Mean* Number of Policies Enacted**					
	Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges (14 states)	Coordinating Board for All Higher Education Locally Governed Community Colleges (10 states)	Independent State Board Coordinates Community and/or Technical Institutions (6 states)	Independent State Board Governs Community and/or Technical Institutions (11 states)	State Board of Education Coordinates and Regulates Community Colleges (4 states)	Two Or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions (5 states)
Affordability	2.64 (2.47)	3.80 (2.20)	4.50 (2.59)	2.73 (2.00)	2.00 (0.82)	3.40 (1.14)
Postsecondary Transitions	1.64 (1.82)	2.90 (3.07)	2.00 (2.19)	2.36 (2.34)	3.75 (6.18)	5.00 (2.24)
Accountability	1.14 (1.17)	2.80 (1.48)	4.50 (2.88)	2.55 (2.73)	3.00 (2.58)	3.00 (2.45)
Workforce and Economic Development	1.50 (1.74)	2.30 (1.25)	4.33 (6.50)	2.36 (2.62)	2.25 (1.26)	2.60 (3.13)
Finance	1.14	2.00	3.67	1.18	4.00	2.20
College Completion	0.86	1.50	2.00	1.55	1.75	1.60
Transfer and Articulation	0.50	1.50	2.50	1.82	1.25	1.40
Postsecondary Remediation	0.14	1.80	0.50	1.00	1.00	1.80

*The two-year governance arrangement with the highest mean policy enactment is bolded for each Boosting Policy Completion category of policy. The two-year governance arrangement with the lowest mean policy enactment is bolded and italicized for each Boosting Policy Completion category of policy.

**Standard deviations for the four highest categories of policy enactment are in parentheses for each mean.

Summary of Research Question One Results

A total of 816 policies were enacted from 2005-2012 with a mean of 16.32 (SD 11.80) policies per state. The median number of educational attainment policies enacted per state was 12 and the mode was 6. States enacted a minimum of 2 and a maximum of 48 policies.

States enacted four types of policy in greater numbers. States enacted 157 Affordability policies (19.24% of total policy enactment, M=3.14 policies per state, SD 2.17), 130 Postsecondary Transitions policies (15.93% of total policy enactment, M=2.60 policies per state, SD=2.83), 126 Accountability policies (15.44% of total policy enactment, M=2.52 policies per state, SD=2.26) and 118 Workforce and Economic Development policies (14.46% of total policy enactments, M=2.36 policies per state, SD=2.90) from 2005-2012.

States enacted four types of policy in fewer numbers. States enacted 98 Finance policies (12.01% of total policy enactments, M=1.96 per state, SD=1.75), 71 College Completion policies (8.70% of total policy enactments, M = 1.42 per state, SD=1.37), 69 Transfer and Articulation policies (8.46% of total, M=1.38 per state, SD=2.10), and 47 Postsecondary Remediation policies (5.76% of total policy enactments, M=0.94% per state, SD=1.71),.

Policy enactment patterns in the data reveal that California, Illinois, Mississippi, Washington, Wisconsin, Wyoming (organized with an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* arrangement of two-year governance arrangement) enacted the highest mean number of policies in five of the eight Boosting

College Completion types (Affordability, College Completion, Transfer and Articulation, Workforce and Economic Development, and Accountability). Alabama, Florida, Iowa, Michigan (organized with a *State Board of Education Coordinates and Regulates Community Colleges* two-year arrangement of governance) enacted the highest number of mean policies in Finance. Arizona, Colorado, Georgia, Idaho, and Oregon (organized with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* two-year arrangement of governance) had the highest mean number of Postsecondary Transitions policies, and tied with Arkansas, Maryland, Missouri, Nebraska, New Jersey, New Mexico, Ohio, Oklahoma, Pennsylvania, and Texas (organized with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* two-year arrangement of governance) for the highest number of mean policies enacted in Postsecondary Remediation.

Alaska, Hawaii, Kansas, Massachusetts, Minnesota, Montana, Nevada, New York, North Dakota, Rhode Island, South Dakota, Tennessee, Utah, Vermont (organized with a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* two-year governance arrangement) had the lowest mean number of policies enacted in seven of the eight Boosting College Completion policy types (Accountability, College Completion, Finance, Postsecondary Remediation, Postsecondary Transitions, Transfer and Articulation, Workforce and Economic Development). The 14 states ranked fifth out of six in Affordability policy.

The analysis next focused on Research Question Two and Phase II and III of QCA methodology to uncover causal conditions in combination with state two-year arrangement of

governance. The findings from Research Question Two utilizing QCA methodology are presented next.

Research Question Two: QCA Phase II and III

Research Question Two was “*How does region, population, socio-economic development, and state educational development combine with state two-year governance arrangements to impact attainment policy?*” QCA was utilized to uncover combinations of causal conditions resulting in states enacting 12 or more policies for the period 2005-2012. Five causal conditions were examined; 1. low state socio-economic development (per capita income less than \$18,500 in 2000); 2. low state educational development (less than 28% of the population ages 26-64 with an Associate’s degree or higher in 2000); 3. high population (greater than 3,000,000 in 2000); 4. state two-year governance arrangement (Governing, Coordinating, Mixed); and 5. state regional compact membership. The reader is referred to Chapter Three for a description of the process to dichotomize the conditions for QCA analysis. The reader is reminded the four regional higher education compacts are the Western Interstate Commission on Higher Education (WICHE), the Southern Regional Education Board (SREB), the Midwest Higher Education Commission (MHEC), and the New England Board of Higher Education (NEBHE). Three QCA models were tested as described previously in Chapter Three and presented here.

1. Model 1 tested states with greater than or equal to 12 educational attainment policies from 2005-2012, per capita income less than \$18,500, educational attainment less than 28% of the population ages 25-64, a high population of over three million, and a Consolidated governance arrangement;

2. Model 2 tested states with greater than or equal to 12 educational attainment policies from 2005-2012, per capita income less than \$18,500, a high population of over three million, membership in the WICHE higher education compact region, and a Consolidated governance arrangement;
3. Model 3 tested states with greater than or equal to 12 educational attainment policies from 2005-2012, per capita income less than \$18,500, with a high population of over three million, membership in the SREB higher education compact region, and a Consolidated governance arrangement.

In this section, the QCA causal pathway results are described for each of the three models. A QCA Test of Necessity was conducted indicating none of the causal conditions was “necessary” to produce the outcome of interest. The results reported this chapter are for the QCA Test of Sufficiency indicating a combination of causal conditions in a subset of cases that are “sufficient” to produce the outcome of interest.

For each of the three QCA models, the overall Solution Coverage and Consistency scores are presented. The reader is reminded of two important features of QCA methodology. First, the overall Solution Coverage score indicates the proportion of cases in the outcome subset explained by the causal pathways (Legewie, 2013). Each of the causal pathways has a raw coverage score that combine to create the Solution Consistency. When there are multiple pathways to the outcome, the raw coverage of an individual pathway may be small and can be thought of as representing the relative importance of the causal pathway in producing the outcome of interest. A Solution Coverage score of greater than .50 is recommended to be suggestive of a causal claim.

Second, the overall Solution Consistency score is a representation of the degree to which the cases sharing the causal conditions in the causal pathways also share membership in the outcome of interest (Ragin, 2006). In short, the score is based on the presence of both the causal conditions indicated in the causal pathways and the presence of the outcome. Each of the causal pathways has a pathway consistency score representing how often the combination of conditions in the causal pathway were present in the cases identified. The Solution Consistency score can be thought of as a “goodness of fit”. It is the combined representation of the individual pathways and how the pathways “fit” in explaining the combination of conditions leading to the outcome of interest. In other words, the cases identified by the pathway share the conditions of the pathway and share membership in the outcome. A Solution Consistency score of greater than .80 is recommended to be suggestive of causation for the combination of causal conditions. Model 1 is presented next.

QCA Model 1

Model 1 was specified as a state having the presence of educational attainment below 28%, the presence of per capita income below \$18,500, the presence of a population over three million, and the presence of a governing board governance arrangement. The fsQCA software returned three causal pathways explaining the combination of causal conditions in states enacting 12 or more educational attainment policies for the period 2005-2012. The fsQCA software output is presented for reference. The complete fsQCA output for all three models can be found in the study’s cumulation contained in Appendix D.

```
Model: active12 = f(education28, percapital185, population3,
governanceg)
```

	raw coverage	unique coverage	pathway consistency
	-----	-----	-----
percapital185*~population3*~governanceg	0.142857	0.142857	1.000000
~percapital185*population3*~governanceg	0.500000	0.500000	0.875000
education28*percapital185*governanceg	0.107143	0.107143	1.000000

Solution Coverage: 0.750000 (21 of 28 states enacting 12 or more policies are identified by the pathways)

Solution Consistency: 0.913043 (21 of 23 states share the causal conditions of the pathways and the outcome)

For Model 1, the Solution Coverage of .75 indicates that 75% of the cases in the outcome subset of states enacting 12 or more policies were explained by the three pathways. This leaves 25% (seven) of the cases in the outcome set not explained by the three pathways. The cases not explained by the three causal pathways (but having the presence of outcome of 12 or more policies) will be explored later in the chapter.

The Solution Consistency score of .91 for Model 1 indicates the combined consistency of the three causal pathways for the subset of states enacting 12 or more policies. The combination of conditions indicated by the causal pathways are 91% consistent in producing the outcome. Two of the individual causal pathways (Model 1 causal pathways one and three) have perfect (1.0) pathway consistency indicating all of the states identified share the causal conditions and share the outcome of 12 or more policies. Model 1 causal pathway two has a Pathway Consistency of .875 indicating that 87.5% (14 of 16 states) identified by the pathway share the conditions and share the outcome of interest (12 or more policies). The two cases sharing the causal conditions of the pathway but not sharing membership in the outcome of 12 or more policies are discussed when the interpretation of

the individual pathway is presented. Overall Model 1 identifies combinations of conditions represented in the causal pathways for 21 of 28 states (75%) enacting 12 or more educational attainment policies for the period 2005-2012. Each of the individual causal pathways will be described next.

Model 1 causal pathway one. Model 1 causal pathway one (percapita185*~population3*~governanceg) has a raw overage score (.14) indicating 14% of the 28 states enacting 12 or more policies for the period 2005-2012 can be explained by the presence of low per capita (percapita185) in combination with the absence of high population (*~population3) and the absence of a governing board arrangement (*~governanceg). The four states share the commonality of being lower wealth, rural, and having a two-year governance arrangement not classified as a Governing board. The fsQCA output is presented for reference.

Model: active12 = f(education28, percapita185, population3, governanceg)

	raw coverage	unique coverage	pathway consistency
	-----	-----	-----
percapita185*~population3*~governanceg	0.142857	0.142857	1.000000

The pathway consistency score of 1.0 for Model 1 causal pathway one indicates all four of the cases represented by the pathway share the causal conditions and have membership in the outcome (enacted 12 or more policies). The software identified the four states as Arkansas, Idaho, Mississippi, and New Mexico. After reviewing the fsQCA output for Model 1 causal pathway one, I returned to each state's Case Report and descriptive

statistics to examine the state's two-year governance arrangement and priority policy focus to gain understanding of how the governance arrangement may shape the two-year institutions in each state. Each state will be presented in brief.

Arkansas. In Arkansas, two-year institutions are organized through a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement. The Coordinating Board is the Arkansas Department of Higher Education, a cabinet level department within state government. Some four-year colleges have two-year branch campuses, the University of Arkansas System includes six community colleges, and some four-year institutions offer Associate degrees (McGuinness Jr., 2014c). A significant change since 2000 in Arkansas was the 2003 establishment of the Coordinating Commission for Educational Efforts. The Commission is charged with making recommendations on policies of P-16 efforts ("Postsecondary Governance and Structures Database," 2007). Arkansas is a member of the SREB compact.

Arkansas enacted a total of 32 educational attainment policies from 2005-2012 ranking seventh among the 50 states. Arkansas prioritized Affordability and Postsecondary Remediation policies, enacting seven policies of each type. Affordability policy supported multiple need-based scholarships for two- and four-year degrees, specialized scholarships (nursing, military and military family), and modified requirements for the state's Academic Challenge Scholarship. Arkansas enacted Postsecondary Remediation policies to require college and career planning, require standardized assessments of college readiness, establish minimum admissions requirements for two- and four-year institutions, and require testing of all entering freshman to determine the need for remediation.

Idaho. In Idaho, two-year institutions are organized through a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* governance arrangement. The Idaho State Board is responsible for all levels of education, including coordinating two locally governed community colleges, the governing board universities that have community college missions, and the technical colleges. (McGuinness Jr., 2014d; “Postsecondary Governance and Structures Database,” 2007). Some institutions within the University of Idaho system offer Associate degrees. There were no significant changes in higher education governance since 2000 in Idaho. Idaho is a member of the WICHE compact.

Idaho enacted a total of 13 educational attainment policies ranking 24th among the 50 states. Idaho prioritized Postsecondary Transitions policies enacting six policies in support of dual enrollment programs, credit for prior learning, and an accelerated high school curriculum to assist students in graduating more quickly and incentivizing seamless enrollment in postsecondary education.

Mississippi. The state of Mississippi organizes two-year institutions with an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* governance arrangement. The State Board of Community and Junior Colleges functions as a coordinating agency for the state's 15 public junior colleges. A significant change since 2000 in Mississippi was in July 2007, a *Director of P-16 Initiatives* was hired by the Institutions of Higher Learning to revive P-16 efforts in the state (“Postsecondary Governance and Structures Database,” 2007). Mississippi is a member of the SREB compact.

Mississippi enacted 14 policies ranking 22nd among the fifty states. From 2005-2012 Mississippi prioritized Finance and Postsecondary Transitions policies enacting four policies

of each type. Finance policy was enacted to study the effectiveness of state aid, establish a waiver for out of state tuition to recruit out of state students to Mississippi, add a research and evaluation duty to study funding formulae for two- and four-year institutions, and support industry through a workforce tax credit for tuition paid by the employer in public institutions. Postsecondary Transitions policy was enacted to study early college and dual enrollment programs and allow alternative schools for dropouts to participate in workforce training programs.

New Mexico. The state of New Mexico organizes two-year institutions through a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement. The New Mexico Commission on Higher Education functions as the state coordinating agency for postsecondary education (“Postsecondary Governance and Structures Database,” 2007). Some four-year institutions have two-year branch campuses and some four-year institutions offer Associate degrees (McGuinness Jr., 2014b). All public two-year campuses are members of the New Mexico Association of Community Colleges, a voluntary membership organization that advocates for 2-year campuses' interests and provides various programs for its members. New Mexico is a member of the WICHE compact.

New Mexico enacted a total of 19 educational attainment policies from 2005-2012 tying with Iowa and ranking 14th among the 50 states. The state prioritized Accountability policy enacting four policies creating a common student identifier across educational sectors, creating a longitudinal database to track student progress and outcomes, required reporting of first year student outcomes and annual reporting on all student outcomes.

Summary of Model 1 causal pathway one states. Taken together, the four states in Model 1 causal pathway one (Arkansas, Idaho, Mississippi, New Mexico) exhibited some commonality in regards to two-year governance arrangement. Each of the four organize two-year governance through some form of a Coordinating board arrangement. Two of the four states (Arkansas and New Mexico) have a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement, Idaho has a *Two or more Boards/Agencies Coordinate and/or Govern Two-Year Institutions Arrangement*, and Mississippi has an *Independent State Board Coordinates Community Colleges and/or Technical Institutions Arrangement*.

Two of the states (Idaho, New Mexico) hold membership in the WICHE higher education regional compact, and two of the states (Arkansas, Mississippi) hold membership in the SREB higher education regional compact. Three of the four states (Arkansas, Idaho, and New Mexico) allow four-year institutions to offer Associate degrees, and in two of the four states some four-year institutions have two-year branch campuses (Arkansas, New Mexico). Findings for Model 1 causal pathway two are presented next.

Model 1 causal pathway two. The fsQCA software returned a second causal pathway as indicated by the QCA output displayed below. Discussion of results follow the output.

Model: active12 = f(education28, percapital185, population3, governanceg)

	raw coverage	unique coverage	pathway consistency
	-----	-----	-----
~percapital185*population3*~governanceg	0.500000	0.500000	0.875000

This causal pathway indicates the absence of low per capita income (~percapita185) and the presence of high population (*population3) and the absence of a governing board arrangement (*~governanceg) combined across the cases in a subset relationship in states enacting 12 or more policies. In short, wealthier states with large populations and with no Governing board arrangement enacted 12 or more policies.

The raw coverage score indicates that 50% (14 of 28) of the cases in the outcome subset of states enacting 12 or more policies can be explained by Model 1 causal pathway two. The Pathway Consistency score of .875 indicates not all cases with the combination of causal conditions had membership in the outcome. Sixteen states were identified by the software as sharing the combination of causal conditions. Fourteen states; Arizona, California, Colorado, Florida, Georgia, Illinois, Maryland, Michigan, Missouri, New Jersey, Ohio, Oregon, Pennsylvania, Texas, Washington, and Wisconsin shared the combination of per capita income greater than \$18,500, a population over 3,000,000, and no Governing board arrangement in 2000. New Jersey and Wisconsin both had the causal conditions, but neither state enacted 12 or more educational attainment policies during the 2005-2012 period. This fact lowered the pathway consistency score to .875 (14 of 16).

The sixteen states identified by Model 1 causal pathway two adopted a total of 289 policies accounting for nearly 35% of the total Boosting College Completion policy enactments from 2005-2012. I returned to each state's Case Report and descriptive statistics to examine the two-year governance arrangement and priority policy focus. In the event of a tie for the priority policy focus, each policy type is discussed. The states identified by Model

1 causal pathway two are described next in alphabetical order. New Jersey and Wisconsin are described following the 14 states sharing both the causal conditions and the outcome.

Arizona. The state of Arizona is organized with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* governance arrangement. In 2003, the legislature abolished the State Board of Directors for Community Colleges. To this date, there has been no action to replace the board with another governing entity (“Postsecondary Governance and Structures Database,” 2007). Primary responsibility for Arizona’s Community Colleges resides at the local level with Governing Board members elected by district voters. Arizona is a member of the WICHE compact.

Arizona enacted a total of 22 policies ranking 12th among the 50 states in policy enactment. Arizona prioritized Affordability and Postsecondary Transitions enacting five policies in each type. Arizona enacted Affordability policy to provide a scholarship to accelerate postsecondary completion, incentivize early high school graduation through a scholarship, establish standards for Advanced Placement credit, and create military friendly tuition policy. Arizona enacted Postsecondary Transition policies to improve dual enrollment opportunities, create an alternative high school credential, improve workforce training for the incarcerated, create competency-based pathways for postsecondary credentialing, and create early college opportunities for high school students.

California. Two-year institutions are organized in California with an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* governance arrangement (“Postsecondary Governance and Structures Database,” 2007). The California Community College system is the largest system of higher education in the nation, with 2.1

million students attending 113 colleges. The 113 colleges are coordinated by the California Community Colleges Board of Governors and the Chancellor's Office. A significant change since 2000 occurred in 2011 when the California Postsecondary Education Commission (CPEC), the state's independent agency for higher education policy planning, research and analysis, closed its doors. CPEC coordinated planning for the state's three public higher education systems and independent universities. California is a member of the WICHE compact.

California enacted a total of 38 policies for the period 2005-2012 ranking 5th among the 50 states in policy enactment. California prioritized Accountability and Transfer and Articulation enacting nine policies in each type. California enacted Accountability policies to improve community college workforce development, study the overlapping workforce training programs for consolidation and efficiency, regulate private postsecondary education, expand customized training for workforce development, improve accountability reporting for concurrent/dual enrollment, enable colleges to access longitudinal workforce data, and create a longitudinal data system across education sectors.

California enacted Transfer and Articulation policies to address deficiencies in articulation of credit from community colleges to the state's universities, promote discipline specific articulation agreements, require a statewide General Education Core between the community colleges and the university system, require four-year institutions to accept vocational credits earned in high school for transfer, create a general education core for career and technical education for transfer to California State institutions, require an articulated pathway for nursing from the community colleges to California State University,

create specific transfer degrees, create a guarantee of credits for transfer general education degrees, and give priority admissions to transfer students from California community colleges.

Colorado. The state of Colorado organizes two-year institutions through a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* governance arrangement. The Commission on Higher Education is the statutory agency for planning and coordination of postsecondary education in Colorado. The 12 institutions comprising the state system of community colleges are under the control of the State Board for Community Colleges and Occupational Education, which also serves as the state's board for vocational education and has oversight for much of the programming of the state's 3 local district colleges and area vocational schools. A Board of Directors of the Auraria Higher Education Center has special responsibilities with respect to nonacademic programming at the Community College of Denver (“Postsecondary Governance and Structures Database,” 2007). Colorado is a member of the WICHE compact.

Colorado enacted a total of 34 educational attainment policies between 2005-2012 ranking sixth among the 50 states in policy enactment. Colorado prioritized Postsecondary Transitions enacting eight policies to promote dual and concurrent enrollment between secondary and postsecondary to increase postsecondary credentials, create an online university with moderately selective admissions to offer bachelor and master’s degrees, require students enroll in an online college planning tool, approve community colleges to offer dropout recovery programs, develop criteria for prior learning credit, and implement a reverse transfer program for awarding of Associate degrees.

Florida. The state of Florida organizes two-year institutions through a *State Board of Education Coordinates and Regulates Community Colleges* governance arrangement. The Florida Department of Education's jurisdiction includes both the coordinating board for community colleges and the administrative entity for technical institutions but these units function separately (McGuinness Jr., 2014b). There are 28 locally-governed public colleges in the Florida College System, all of which award Associate degrees. While governed by local boards, the colleges are coordinated under the jurisdiction of the State Board of Education. Administratively, the Chancellor of Florida Colleges is the chief executive officer of the system, reporting to the Commissioner of Education who serves as the chief executive officer of Florida's K-20 System ("Florida College System," n.d.). Florida is a member of the SREB compact.

Florida enacted a total of 39 policies ranking fourth among the fifty states in policy enactment. Florida prioritized Postsecondary Transitions enacting 13 policies to provide priority course enrollment to military members and veterans, create an online catalog of postsecondary programs across the state, require a statewide student advising system, establish a pilot program for adult student near completers, establish a single point of contact for near completers, establish standards for prior learning credit, detail structure of dual enrollment agreements, allow high school students to graduate and enroll early in postsecondary, require two-year institutions to provide employment report to students, require four-year institutions to provide information to students on the top 25% and lowest 10% of job placement and employment outcomes from degree programs, require rules for competency-based learning for military credit, expand the charge of Higher Education

Coordinating Council, provide that the Articulation Coordinating Committee monitor P-20 alignment and review state transfer policies and data, and direct the Department of Education to use performance data to determine amount of college credit awarded for Advanced Placement and International Baccalaureate tests, and to establish career and professional academies to promote industry recognized credentials.

Georgia. The state of Georgia organizes two-year institutions through a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* governance arrangement. The University System of Georgia (USG) oversees 35 institutions: 4 research universities, 2 regional universities, 13 state universities, 7 state colleges, and 9 2-year colleges. The Technical College System of Georgia provides workforce development training, two-year degrees with articulation agreements, and industry recognized certifications. The USG Board (“Postsecondary Governance and Structures Database,” 2007). Georgia is a member of the SREB compact.

Georgia enacted a total of 12 educational attainment policies for the period 2005-2012 tying for 25th place among the 50 states in policy enactment. Georgia prioritized its educational attainment policy focus on Affordability and Postsecondary Remediation (three policies each). In the category of Affordability, Georgia created a loan program specifically for public service occupations with the repayment terms based on years of public service, created a loan program with repayment terms based on how quickly a student completes a bachelor’s degree, and created a supplemental scholarship for students entering postsecondary with a 3.3 GPA. In the category of Postsecondary Remediation policy, Georgia required the State Board of Education (K-12), the USG Board of Regents and the

Technical College System of Georgia to develop policies that ensure high school graduates meet minimum admission requirements for postsecondary education and to create a process to assess readiness.

Illinois. Two-year institutions in Illinois are organized through an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* governance arrangement. The Illinois Community College Board serves as the coordinating board for 39 public community college districts that have a combined total of 48 campuses. Each public community college district is governed by a locally elected board of trustees. (“Postsecondary Governance and Structures Database,” 2007). Illinois is a member of the MHEC compact.

Illinois enacted a total of 28 educational attainment policies for the period 2005-2012 ranking ninth among the 50 states. Illinois prioritized Affordability policy enacting seven policies from 2005-2012 to establish a scholarship program for aspiring teachers, provide grants to low-income individuals for workforce training, create a scholarship for nurses to pursue graduate education to become nurse educators, create a merit scholarship, create a transfer scholarship to encourage students to complete a bachelor degree, create a diversity in engineering grant aid program, and create a scholarship for former foster youth.

Maryland. Two-year institutions in Maryland are organized through a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement. The Maryland Higher Education Commission (MHEC) was created in 1988 to serve as the coordinating body for Maryland's postsecondary education system, which includes the following 6 segments: University System of Maryland, Morgan

State University, St. Mary's College of Maryland, community colleges, independent colleges and universities, and private career schools (“Postsecondary Governance and Structures Database,” 2007). Maryland is a member of the SREB compact.

Maryland enacted a total of 17 educational attainment policies for the period 2005-2012 ranking 18th among the 50 states. Maryland prioritized Affordability enacting six policies to create a transfer grant program for community college students to continue education at a four-year institution, establish a public career scholarship, study repayment of loans for certain areas with a workforce shortage, create a tuition exemption for a student with a disability, redefine the tuition exemption for foster youth, and modify a tuition waiver for students with disabilities.

Michigan. Two-year institutions are organized through a *State Board of Education Coordinates and Regulates Community Colleges* governance arrangement. Under the 1963 state constitution, very limited state postsecondary coordinating functions are assigned to the State Board of Education, which has primary responsibility for elementary and secondary education. The Board's responsibilities are limited to: the coordination of services for public two-year and four-year colleges and universities through policy recommendations to the Legislature with regard to budgetary and programmatic matters; licensing authority for vocational and proprietary institutions; and reimbursement authorization for private colleges awarding certain degrees (“Postsecondary Governance and Structures Database,” 2007). Some four-year institutions offer Associate degrees (McGuinness Jr., 2014e). The 29 public two-year community colleges each have regionally elected governing boards

(“Postsecondary Governance and Structures Database,” 2007). Michigan is a member of the MHEC compact.

Michigan enacted a total of 12 policies for the period 2005-2012 tying for 12th place among the states. Michigan prioritized Finance policy enacting four policies to authorize community colleges to sell bonds to pay for training program infrastructure, expand dual enrollment, create a dual enrollment finance formula, and institute performance funding formula for higher education with special funding provisions for encouraging transfer students.

Missouri. Two-year institutions in Missouri are organized through a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement. The Missouri Coordinating Board for Higher Education, staffed by the Department of Higher Education, functions as the constitutional coordinating agency for postsecondary education in the state. The coordinating board is a cabinet-level agency and its executive officer, the Commissioner of Higher Education, is appointed by the board and serves at its pleasure. Postsecondary technical institutes are organized separately from community colleges and some four-year institutions offer Associate degrees (McGuinness Jr., 2014e). Missouri is a member of the MHEC compact.

Missouri enacted a total of 12 educational attainment policies for the period 2005-2012 tying for 25th place among the 50 states. Missouri prioritized Affordability enacting three policies to create the Access grant for bachelor degrees, create a recruitment and retention scholarship to encourage minority participation in science, engineering, technology

and math careers, and expand eligibility to homeschools students for a state scholarship program.

Ohio. Two-year institutions of higher education are organized in Ohio through a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement. The Ohio Board of Regents serves as the statutory coordinating agency in the state. The board has statutory authority for planning and coordination for private institutions and public senior, community and technical institutions (“Postsecondary Governance and Structures Database,” 2007). Some four-year institutions have two-year branch campuses, postsecondary institutes are organized separately from community colleges, and some four-year institutions offer Associate degrees (McGuinness Jr., 2014b). Ohio is a member of the MHEC compact.

Ohio enacted a total of 20 educational attainment policies between 2005-2012 ranking 13th among the 50 states. The state prioritized Affordability, Postsecondary Transitions, and Workforce and Economic Development with four policies in each category. Ohio enacted Affordability policy establish the Ohio First scholarship to recruit and retain students into the state in high demand fields, expand student aid funding for nursing scholarships, and expand opportunities for homeschool students to receive state aid.

Postsecondary Transitions policy was enacted to standardize awarding of Advanced Placement credits across higher education sectors, create a conditional admission for students who may need remedial education, direct the Board of Regents to adopt educational service standards across higher education, and adopt dual enrollment standards for career and technical education.

Workforce and Economic Development policy was enacted to direct the establishment of workforce training standards to streamline programs, establish the Governor's Workforce Advisory Council, encourage internship opportunities through workforce relations with higher education, and create a Cybersecurity and Economic Development Council to link education and workforce training.

Oregon. Two-year institutions in Oregon from 2005-2011 were organized through *Two Or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* governance arrangement. The Department of Higher Education functioned as a statutory cabinet department of state government. It was charged with coordination of the Oregon University System, the public postsecondary higher education system in Oregon. The State Board of Education had statutory authority for the supervision and regulation of 17 community colleges. A significant change in governance occurred in 2011 when Oregon implemented a consolidation of higher education coordination through the Oregon Higher Education Coordinating Commission (HECC). Oregon's HECC higher education and workforce system is inclusive of seven public universities, 17 public community colleges, private and independent colleges and universities, workforce programs, and private career and trade schools ("Postsecondary Governance and Structures Database," 2007). Oregon is a member of the WICHE compact.

Oregon enacted a total of 24 educational attainment policies from 2005-2012 ranking 10th among the 50 states. The state prioritized Workforce and Economic Development enacting eight policies to plan for green jobs, focus efforts on economically distressed workers for training, create a college and career readiness certification, specify certain

training programs be offered at community colleges, direct collaboration between the workforce investment board and the community colleges, align apprenticeships with needs, and create a workforce development advisory council.

Pennsylvania. Two-year institutions are organized through a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement. The Pennsylvania State Board of Education has statutory authority for the planning and coordination of Pennsylvania's postsecondary education sectors ("Postsecondary Governance and Structures Database," 2007). Some four-year institutions have two-year branch campuses, postsecondary institutes are organized separately from community colleges, and some four-year institutions offer Associate degrees (McGuinness Jr., 2014b). Pennsylvania is the only state in Model 1 causal pathway two that is not a member of a state higher education compact.

Pennsylvania enacted a total of 12 educational attainment policies from 2005-2012 and is one of four states ranked 25th in number of policies enacted among the 50 states. The state prioritized Accountability policy enacting three policies to require postsecondary institutions to implement course equivalencies for transfer, create a committee to oversee the work and reporting, and to create degree, major, and program rules for private postsecondary institutions with 10 or more years of operation in the state.

Texas. Two-year institutions are organized through a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement in Texas. The Texas Higher Education Coordinating Board serves as the statutory coordinating agency for public postsecondary education in the state. Some four-

year institutions have two-year branch campuses, some four-year institutions offer Associate degrees, and technical institutes are organized separately community colleges (McGuinness Jr., 2014b). Texas is a member of the SREB compact.

Texas enacted a total of 44 educational attainment policies from 2005-2012 ranking third among the 50 states. The state prioritized Postsecondary Transitions enacting 11 policies for the period to encourage postsecondary institutions to develop certificate programs as less than degree credentials, authorize summer bridge and intensive programs for students at risk of not completing postsecondary education, authorize a study of expanding baccalaureate degrees at community colleges in engineering fields, authorize dual enrollment programs for high school students, modify military training rules, authorize community colleges to provide dropout recovery programs, direct the Coordinating Board to provide consumer information on major and degree programs on its website, require teaching institutions to offer financial literacy training, require the Coordinating Board to recognize competency based learning as a valid approach to credentials, and create a requirement that students have a formal degree plan.

Washington. Two-year institutions in Washington are organized through an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* governance arrangement. The State Board for Community and Technical Colleges is the central administrative agency for the 27 public community colleges and 5 technical colleges. The state board is responsible for policies covering concerns of a statewide nature (budget and funds allocations, standard policies and institutional locations). There were no significant changes to governance arrangement during the study period, however, in 2012,

the Legislature created the Washington Student Achievement Council. By statute, the Council provides strategic planning, oversight, advocacy, and programs to support increased student success and higher levels of educational attainment in Washington. The Council provides centralized coordination for the two- and four-year institutions of higher education. Washington is a member of the WICHE compact.

Washington enacted a total of 48 educational attainment policies from 2005-2012, ranking first among the 50 states. Washington prioritized Workforce and Economic Development with 17 policies to assist employers entering the state with customized training needs, create a plan to increase higher education graduates by 10,000 by the year 2020, create Opportunity Partnerships to identify and create credentials for high demand occupations, identify programs to reduce young adult unemployment, expand job skills training programs at two-year institutions, expand green jobs, expand job placement partnerships with businesses, require workforce board and higher education coordinating board to work together on a strategic plan, require the State Board of Community Colleges to expand the programs for displaced workers, expand postsecondary programs in aerospace and forestry, and expand dual enrollment opportunities in high schools.

New Jersey and Wisconsin. New Jersey and Wisconsin were both identified in Model 1 causal pathway two as having the combination of causal conditions, but neither state enacted 12 or more educational attainment policies for the period 2005-2012. Two-year institutions in New Jersey are organized through a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* governance arrangement. Two-year institutions in Wisconsin are organized through an *Independent State Board*

Coordinates Community Colleges and/or Technical Institutions governance arrangement.

New Jersey is not a member of a regional higher education compact. Wisconsin is a member of the MHEC compact.

New Jersey enacted eight policies prioritizing Workforce and Economic Development with two policies to establish apprenticeship within higher education and reform the workforce system. Wisconsin enacted six policies prioritizing Accountability with three policies to establish a P-20 longitudinal data system, monitor scholarship recipient progression, and workforce outcomes of Wisconsin college graduates.

Model 1 causal pathway two summary. The sixteen states identified in Model 1 causal pathway two had per capita income over \$18,500, a population over 3,000,000 and no Governing board arrangement of governance in 2000. Across the 14 states enacting 12 or more educational attainment policies for the period 2005-2012 (Arizona, California, Colorado, Florida, Georgia, Illinois, Maryland, Michigan, Missouri, New Jersey, Ohio, Oregon, Pennsylvania, Texas, Washington, Wisconsin), three states are organized through an *Independent State Board Coordinates Community Colleges and/or Technical Institutions Arrangement*, four states are organized through a *Coordinating Board For All Higher Education Coordinates Locally Governed Community Colleges Arrangement*, five states are organized through a *Two Or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* arrangement, and two states are organized through a *State Board of Education Coordinates And Regulates Community Colleges* governance arrangement.

Five of the states (Arizona, California, Colorado, Oregon, Washington) have membership in the WICHE regional compact, five of the states have membership in the

SREB regional compact (Florida, Georgia, Maryland, Missouri, Texas), four of the states have membership in the MHEC regional compact (Illinois, Michigan, Ohio, Wisconsin), and two of the states (New Jersey, Pennsylvania) do not hold membership in any regional compact.

A common priority policy focus for the states enacting 12 or more educational attainment policies for the period 2005-2012 was Affordability (six of 14 states). In three of the states (Ohio, Pennsylvania, Texas) the following characteristics are present; some four-year institutions have two-year branch campuses, postsecondary technical institutes are organized separately from community colleges, and some four-year institutions offer Associate degrees. In Florida and New Jersey, postsecondary technical institutes are organized separately from community colleges (McGuinness Jr., 2014b). The analysis next addresses Model 1 causal pathway three.

Model 1 causal pathway three. The fsQCA software returned a third causal pathway presented below for reference. Discussion of the pathway follows.

Model: `active12 = f(education28, percapita185, population3, governanceeg)`

	raw coverage	unique coverage	pathway consistency
	-----	-----	-----
<code>education28*percapita185*governanceeg</code>	0.107143	0.107143	1.000000

Model 1 causal pathway three indicates the presence of low educational attainment (education28), the presence of low per capita income (*percapita185), and the presence of a governing board arrangement (*governanceeg) combined in states enacting 12 or more

educational attainment policies for the period 2005-2012. The raw coverage score indicates that approximately 11% of the 28 states in the outcome set have membership in Model 1 causal pathway three. The fsQCA software identified the three states in the subset of Model 1 causal pathway three; Kentucky, Louisiana, and West Virginia. The pathway consistency score of 1.0 for Model 1 causal pathway three indicates all three of the cases shared the causal conditions and enacted 12 or more policies. In short, three states with educational attainment below 28%, per capita income below \$18,500, and a Governing board arrangement enacted 12 or more policies from 2005-2012. I returned to the Case Report and descriptive statistics for each of the three states presented next.

Kentucky. Two-year institutions of higher education in Kentucky are organized through an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement. The Council on Postsecondary Education (CPE) is the statutory coordinating agency for Kentucky's state-supported universities, and the Kentucky Community and Technical College System is comprised of 13 community colleges and 15 postsecondary vocational-technical schools (“Postsecondary Governance and Structures Database,” 2007). Some four-year institutions in Kentucky offer Associate degrees (McGuinness Jr., 2014b). Kentucky is a member of the SREB compact.

Kentucky enacted 18 educational attainment policies from 2005-2012 ranking 16th among the 50 states. The state prioritized Postsecondary Remediation and Postsecondary Transitions enacting four of each policy type. Kentucky enacted Postsecondary Remediation policy to require the CPE to establish minimum admissions requirements with ACT cut scores, require the CPE and the State Board of Education to create a unified strategy to

reduce remediation at the postsecondary level, and require mandatory assessment of college readiness in high school.

Kentucky enacted Postsecondary Transitions policy to authorize the Kentucky Community and Technical College System (KCTCS) to recommend evidence-based models for at-risk learners, create secondary career and technical education academies for dual enrollment, create a comprehensive articulation agreement and credit by exam competency standards, and require postsecondary institutions to establish core academic content standards.

Louisiana. Two-year institutions of higher education in Louisiana are organized through an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement. The Louisiana Board of Regents serves as the constitutional statewide coordinating and policymaking agency for public higher education (“Postsecondary Governance and Structures Database,” 2007). The Louisiana Community and Technical College System's Board governs community and technical colleges in the state. Some four-year institutions have two-year branch campuses and some four-year institutions offer Associate degrees (McGuinness Jr., 2014e). Louisiana is a member of the SREB compact.

Louisiana enacted a total of 46 educational attainment policies from 2005-2012 ranking second among the 50 states. The state prioritized Accountability and Transfer and Articulation enacted nine of each policy type. Louisiana enacted Accountability policy to require the Board of Regents to adopt a common core of courses for transfer, report on articulation and transfer annually, eliminate duplicative programs (especially remedial

programs), transfer all adult education programs to the community and technical colleges and create performance measures, require the Board of Regents to report on Master Plan goals and to track graduate workforce outcomes, revise performance accountability standards, tie performance to tuition funding authority, and create a common course numbering system to track outcomes. Louisiana enacted Transfer and Articulation policy to create a comprehensive articulation agreement across institutions, create and fund a Statewide Articulation and Transfer Council, and set graduation standards for transfer students.

West Virginia. Two-year institutions of higher education in West Virginia are organized through an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement. The West Virginia Higher Education Policy Commission is the state-level coordinating agency for public postsecondary education in West Virginia (“Postsecondary Governance and Structures Database,” 2007). The West Virginia Community and Technical College System is comprised of nine colleges and 27 campuses. Some four-year institutions in West Virginia offer Associate degrees (McGuinness Jr., 2014b). West Virginia is a member of the SREB compact.

West Virginia enacted 18 educational attainment policies from 2005-2012 tying for seventh among the 50 states. The state prioritized Accountability and Affordability policy with five of each type of educational attainment policy. West Virginia enacted Accountability policy to direct the Higher Education Policy Committee to institute performance measurement, develop a longitudinal student data system, dictate master planning components, define dual enrollment curriculum standards, and to evaluate institutional performance. West Virginia enacted Affordability policy to establish a Financial

Aid Board, create a scholarship, establish a loan program for medical professions, allow a waiver of tuition for teachers in high demand areas, and create a financial incentive program for low income adults to pursue postsecondary training.

Model 1 causal pathway three summary. QCA results reveal three states with a Governing board, low per capita income, and low educational attainment in 2000 enacted 12 or more educational attainment policies for the period 2005-2012. Each of the three states (Kentucky, Louisiana, West Virginia) organizes two-year institutions through an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement. The three states all have membership in the SREB regional compact. Kentucky has some four-year institutions offering Associate degrees. Louisiana has four-year institutions with two-year branch campuses and some Louisiana four-year institutions offer Associate degrees. West Virginia has some four-year institutions offering Associate degrees. Of particular interest is the fact that each of the three states has some form of statewide higher education coordination in addition to the independent governing board for the two-year institutions.

Kentucky prioritized Postsecondary Remediation and Postsecondary Transitions (four policies each), Louisiana prioritized Accountability and Transfer and Articulation (nine policies each), and West Virginia prioritized Accountability and Affordability (five policies each). Model 2 findings are presented next.

QCA Model 2

Model 2 was specified as a state having the presence of per capita income below \$18,500, the presence of a population over three million, the presence of membership in the

WICHE regional compact, and the presence of a governing board two-year governance arrangement. The Model was specified to test for a regional influence for states with membership in the WICHE higher education regional compact. The fsQCA software returned three causal pathways explaining the causal combinations in states enacting 12 or more educational attainment policies for the period 2005-2012. The fsQCA Model 2 output is presented for reference.

Model 2: `active12 = f(percapi185, population3, regionwiche, governanceg)`

	raw coverage	unique coverage	consistency
	-----	-----	-----
<code>percapi185*~population3*~governanceg</code>	0.142857	0.142857	1.000000
<code>~percapi185*population3*~governanceg</code>	0.500000	0.500000	0.875000
<code>percapi185*population3*governanceg</code>	0.071429	0.071429	1.000000

Solution Coverage: 0.714286 (20 of 28 states enacting 12 or more policies are identified by the pathways)

Solution Consistency: 0.909091 (20 of 22 states share the causal conditions of the pathways and the outcome)

For Model 2, the Solution coverage of .714 indicates that 71.4% of the cases (20) in the outcome subset of 28 states enacting 12 or more educational attainment policies for the period 2005-2012 are explained by the three causal pathways. The cases not explained by the three causal pathways (but enacting 12 or more educational attainment policies for the period 2005-2012) will be explored later in the chapter. The Solution Consistency score of .909 for Model 2 indicates that in 90.9% of cases (20 of 22) sharing the combination of causal conditions represented by the three pathways, the states enacted 12 or more policies.

As with Model 1, two of the Model 2 individual causal pathways (causal pathways one and three) have perfect pathway consistency with the cases represented by the pathway. All of the cases identified by the pathway share the causal conditions and they enacted 12 or

more policies. Model 2 causal pathway two has a Consistency of .875 indicating 87.5% of the states sharing the causal conditions of the pathway enacted 12 or more policies.

The fsQCA software identified Model 2 states as identical to Model 1 results with the exception of Model 2 causal pathway three. In this pathway, West Virginia does not have membership thereby reducing the raw coverage to .07 (compared to .10 in Model 1) and the overall Solution coverage to .714 (compared to .75 in Model 1). As a comparison, Model 1 causal pathway three explained the combination of low educational attainment and low per capita income, both conditions in West Virginia. Model 2 causal pathway three indicated the combination of low per capita income and high population combined in producing the outcome, but this is not the case in West Virginia. West Virginia is a low population state.

Model 2 causal pathway one states are Arkansas, Idaho, Mississippi, New Mexico. Model 2 causal pathway two states are Arizona, California, Colorado, Florida, Georgia, Illinois, Maryland, Michigan, Missouri, New Jersey, Ohio, Oregon, Pennsylvania, Texas, Washington, and Wisconsin. Model 2 causal pathway three states are Kentucky and Louisiana. Model 2 causal pathways explain 20 of the 28 states enacting 12 or more policies. The reader is referred to Model 1 pathways for a description and governance characteristics of the states. The fsQCA output from Model 2 does not indicate that the WICHE region was a causal condition (either the presence or the absence) in combination with other conditions for states enacting 12 or more policies for the period 2005-2012. The findings from Model 3 are presented next.

QCA Model 3

Model 3 was specified as a state having the presence of per capita income below \$18,500, the presence of a population over three million, the presence of membership in the SREB regional compact, and the presence of a governing board two-year governance arrangement. The Model was specified to test for a regional influence on states with membership in the SREB states. The fsQCA software returned three causal pathways explaining how the causal conditions combined with governance arrangement in states enacting 12 or more educational attainment policies for the period 2005-2012. The fsQCA Model 3 output is presented for reference.

Model 3: `active12 = f(governancecg, regionsreb, percapita185, population3)`

	raw coverage	unique coverage	consistency
<code>~governancecg*percapita185*~population3</code>	0.142857	0.142857	1.000000
<code>~governancecg*~percapita185*population3</code>	0.500000	0.500000	0.875000
<code>governancecg*regionsreb*percapita185</code>	0.107143	0.107143	1.000000

Solution Coverage: 0.750000 ((21 of 28 states enacting 12 or more policies are identified by the pathways)

Solution Consistency: 0.913043 (21 of 23 states share the causal conditions of the pathways and the outcome)

Model 3's Solution Coverage and Solution Consistency scores are identical to Model 1 and the same states were identified as having membership in the pathways. The Model 3 causal pathway one subset of states are Arkansas, Idaho, Mississippi, New Mexico. The Model 3 causal pathway two subset states are Arizona, California, Colorado, Florida, Georgia, Illinois, Maryland, Michigan, Missouri, New Jersey, Ohio, Oregon, Pennsylvania, Texas, Washington, and Wisconsin. The Model 3 causal pathway three states are Kentucky,

Louisiana, and West Virginia. The reader is referred to Model 1 causal pathways one and two for an interpretation of Model 3 causal pathways 1 and 2.

Model 3 causal pathway three indicates that the presence of membership in the SREB regional compact can substitute for the presence of low educational attainment for states with a governing board arrangement and the presence of low per capita income. This finding is derived from comparing Model 3 causal pathway three with Model 1 causal pathway three. The same states have membership in causal pathway three for both models. The three states with membership in Model 3 causal pathway three are Kentucky, Louisiana, and West Virginia previously described in Model 1 causal pathway three findings. The SREB is a causal influence in three states enacting 12 or more policies.

In general, the Model pathways indicate that in low population states (less than 3,000,000), the absence of a Governing board combined with low per capita income, in high population states, the absence of a Governing board combined with a per capita income above \$18,500, and in low per capita income states in the SREB region, the presence of a Governing board combined in states enacting 12 or more policies. The greatest occurrence of combination occurred in Model 3 causal pathway two with 50% of the cases in the outcome set sharing both the causal conditions and the enacting 12 or more policies. The 14 states in this pathway have either a Coordinating or Mixed arrangement of governance for two-year institutions.

Seven states enacted 12 or more for the period 2005-2012, but the states were not indicated in the causal pathways through the combination of causal conditions. The seven states are described next.

States Enacting 12 or More Policies Not Identified in the Causal Pathways

Seven states did not have the combination of causal conditions as specified in the three models, but the states enacted 12 or more policies. The states are Hawaii, Iowa, Maine, Minnesota, Tennessee, Utah, and Virginia. I identified these states through comparison of the list of 28 states enacting 12 or more policies for the period 2005-2012 through descriptive statistics analysis and the states identified through the fsQCA software. Six of the seven states arranges two-year institutions through some form of a Governing board arrangement. A synthesis and analysis of the context of the seven states is presented next in alphabetical order.

Hawaii. Two-year institutions of higher education in Hawaii are organized through a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* governance arrangement. The Board of Regents of the University of Hawaii, serves as the constitutional governing board for the University of Hawaii, a statewide multi-campus system of 7 community colleges, a complex land-grant university campus, a comprehensive undergraduate campus and an upper-division campus. The Board has statutory authority in all areas of system policy, budgeting, programming, evaluating and governance. Hawaii is a member of the WICHE regional compact.

Hawaii enacted 16 policies from 2005-2012. The state prioritized Affordability with seven policies to provide scholarships from political campaign funds, provide need based aid to foster youth, provide stipends to science and math majors, guidance to need-based career and technical education students, need-base aid to community college workforce development programs, and provide need-based aid at the University of Hawaii.

Iowa. Two-year institutions in Iowa are organized in a *State Board of Education Coordinates and Regulates Community Colleges* governance arrangement. The State Board of Education's Bureau of Community Colleges and Workforce Preparation has jurisdiction over the community colleges in Iowa. Community Colleges are governed by locally elected boards of directors. Iowa is a member of the MHEC regional compact.

Iowa enacted 19 policies from 2005-2012. The state prioritized Accountability and Finance enacting four policies in each category. Iowa enacted Accountability policy to establish regulation and oversight for postsecondary programs being offered online, direct the Board of Regents to measure the effectiveness of undergraduate programs, direct the Iowa Institute for Tomorrow's Workforce to create a plan for improving efficiency and effectiveness, establish a new educational delivery system, and direct the Department of Education to conduct a study of student outcomes.

Iowa enacted Finance policy to provide funds for workforce shortage grants, establish a funding model for online programs, provide financial incentive to community colleges to develop programs to streamline academic and workforce training, and make an appropriation to establish a grant for students attending private institutions in the state.

Maine. Two-year institutions in Maine are organized in an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement. The Board of Trustees of the Technical College System of Maine is the governing body responsible for the governance of public postsecondary vocational-technical education. Some four year institutions offer Associate degrees. Maine is a member of the NEBHE regional compact.

Maine enacted 16 policies from 2005-2012. The state prioritized Postsecondary Transitions enacting six policies to reform the role of adult education in the state, create a subcabinet position to address multicultural student progression, create an innovative one-stop model for secondary and postsecondary education and workforce development offerings, establish a science, technology, engineering and math council to align education and the workforce, expand early access to secondary students through dual enrollment, and enhance career and technical education offerings.

Minnesota. Two-year institutions of higher education in Minnesota are organized through a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* governance arrangement. The governor-appointed, 15-member Board of Trustees of the Minnesota State Colleges and Universities (MnSCU) governs the technical colleges, community colleges and state universities consolidated under the MnSCU system. The board has responsibility for planning and coordination, institutional budget review and recommendation, and program approval. Minnesota is a member of the MHEC regional compact.

Minnesota enacted 16 policies from 2005-2012. The state prioritized Postsecondary Transitions, Transfer and Articulation, and Workforce and Economic Development enacting three policies of each type. Minnesota enacted Postsecondary Transitions policy to allow dual enrollment of high school students in the Minnesota State Colleges and Universities, direct the colleges and universities to provide counseling and information on career and technical education offerings, and to reduce barriers for veterans to complete credentials.

Minnesota enacted Transfer and Articulation policy to direct the University of Minnesota and the Minnesota State Colleges and Universities to improve credit transfer, adopt credit for prior learning standards, and direct that credit earned at community colleges should transfer to baccalaureate programs within the systems. Minnesota enacted Workforce and Economic Development policy to direct the Minnesota State Colleges and Universities to award stackable credentials in high demand workforce need areas, direct the institutions to implement a surgical technology program to meet workforce demand, and direct the local workforce boards to engage with the institutions to better align workforce and education.

Tennessee. Two-year institutions of higher education in Tennessee are organized through a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* governance arrangement. The Tennessee Higher Education Commission serves as the statutory coordinating agency for postsecondary education in Tennessee with responsibility for planning and coordination for technology centers, public technical institutes, community colleges and 4-year institutions, and some policy for private institutions. Tennessee is a member of the SREB regional compact.

Tennessee enacted 24 policies for the period 2005-2012. The state prioritized Postsecondary Transitions policy enacting six policies to establish cooperative and innovative high schools offering dual enrollment, require postsecondary institutions to disclose transferability of credits, accommodate credit for prior learning for non-traditional students, require interest inventories for all high school students aligned to postsecondary state offerings, provide registration and enrollment priority for combat veterans, and authorize reverse transfer agreements between community colleges and four-year institutions.

Utah. Two-year institutions of higher education in Utah are organized through a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* governance arrangement. The State Board of Regents, has statutory governing authority for a total of 10 public institutions: 4 universities, 2 state colleges, 3 community colleges and 1 college of applied technology. The Board of Regents has statutory authority for coordinating and planning for all segments of public postsecondary education (junior, senior and vocational-technical). Utah is a member of the WICHE higher education regional compact.

Utah enacted 14 policies for the period 2005-2012. The state prioritized Affordability enacting eight policies to grant in-state residency and tuition to military members and their families, establish a need-based aid program, establish a scholarship to accelerate high school graduation with dual enrollment credits, changed a math and science loan program to a scholarship, authorize the State Department of Agriculture to make grants for agriculture majors, offer a good neighbor in state residency to certain border communities, and award merit scholarship to students completing a rigorous course of study in high school.

Virginia. Two-year institutions of higher education are organized through an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement. The Virginia State Council of Higher Education serves as the statutory coordinating agency in the state. The council has statutory responsibility for planning and coordination, program approval for public senior and junior institutions, and responsibility for the development of all budget guidelines and formulas. The State Board for

Community Colleges is the Independent governing board and has statutory authority for 23 public junior colleges under the council's coordination.

Virginia enacted 31 policies from 2005 – 2012 ranking eighth among the 50 states. Virginia prioritized Accountability and Affordability enacting five of each policy type. Virginia enacted Accountability policies to share de-identified student data to measure institutional effectiveness and student success, require public institutions to report on employment outcomes, maximize education and training aspect of community colleges, and establishing an annual report on student transfer, and establishes oversight of the Virginia College Savings Plan program. Virginia enacted Affordability policy to establish in state tuition for military members and their families, provide scholarships for medical and engineering programs, create a loan program for career and technical education teachers, establish a two-year college grant program for transfer students with demonstrated financial need, and provide grants to in-state students pursuing math, science, and engineering majors.

Summary of states enacting 12 or more policies not represented in the three QCA models. Per capita income in six of the seven states (Hawaii, Iowa, Maine, Minnesota, Tennessee, Virginia) was above \$18,500 with the exception of Utah (\$18,150). Educational attainment for the seven states was above the cutoff of less than 28% of the population 25-64 with at least an Associate degree, with the exception of Tennessee (24.3%). Four of the seven states (Hawaii, Iowa, Maine, Utah) had a population of less than 3 million; and all but one of the states (Iowa) had some form of Governing board two-year governance arrangement.

Four of the seven states (Hawaii, Minnesota, Tennessee, Utah) have a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* two-year governance arrangement, two of the states (Maine, Virginia) have an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement, and one state (Iowa) has a *State Board of Education Coordinates and Regulates Community Colleges* two-year governance arrangement. Regional compact varied across the seven states. Two states (Hawaii, Utah) are members of the WICHE regional compact, two states (Tennessee, Virginia) are members of the SREB regional compact, and two states (Iowa, Minnesota) are members of the MHEC regional compact. Maine is a member of the NEBHE regional compact.

Summary of Research Question Two Results

QCA analysis was conducted to analyze the combinations of causal conditions of low per capita income, low educational development, high population, and regional higher education compact with two-year governance resulting in states enacting of 12 or more educational attainment policies for the period 2005-2012. Three models were specified based on the dichotomization described in Chapter Three.

Overall, 21 of the 28 states (75%) enacting 12 or more policies from 2005-2012 were explained by combinations of causal conditions with governance in Models 1 and 3. The presence and absence of low per capita income, the presence and absence of a high population, and the presence of low educational attainment were causal influences combining with governance in states enacting 12 or more policies. A regional influence was found in

three SREB states in combination with a Governing board arrangement and the presence of low per capita income.

The findings reveal that the absence of a Governing board arrangement (the presence of a Coordinating or Mixed governance arrangement) combined with both the presence and absence of low per capita income and with both the presence and absence of high population resulting in state enactment of 12 or more educational attainment policies. The absence of a Governing board combined with population over 3,000,000 and with per capita income over \$18,000 in 14 of the 28 states enacting 12 or more policies.

The presence of a Governing board arrangement was found to combine with the presence of low educational attainment and the presence of low per capita income in three states enacting 12 or more educational attainment policies for the period 2005-2012. The presence of a Governing board also combined with the presence of low per capita income and the presence of state membership in the SREB higher education regional compact.

The Solution Consistency score of .91 for Models 1 and 3, and .90 for Model 2 indicates the causal conditions were consistent in combining with governance in the identified states enacting 12 or more policies. The combinations can be considered causal in the context of the identified states.

Seven states enacted 12 or more educational attainment policies for the period 2005-2012 that were not included in any of the QCA Model subsets. The seven states are Hawaii, Iowa, Maine, Minnesota, Tennessee, Utah, and Virginia. The causal conditions were not sufficient to combine in any way in these states. Four of the seven states (Hawaii, Minnesota, Tennessee, Utah) have a *Consolidated Governing Board for Both Two- and*

Four-Year Institutions Governs Community Colleges two-year governance arrangement, two of the states (Maine, Virginia) have an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement, and one state (Iowa) has a *State Board of Education Coordinates and Regulates Community Colleges* two-year governance arrangement.

The Model specifications, causal pathways, and states identified with membership in the pathway are presented in Table 4.15. Research Question One summarized policy activity by state governance arrangement and states with descriptive statistics. Research Question Two conducted QCA to determine which causal conditions combine with governance arrangement in states enacting 12 or more educational attainment policies for the period 2005-2012. Research Question Three will examine the states enacting fewer than 12 educational attainment policies for the period 2005-2012 and compare those states to the states enacting 12 or more. Following Table 4.4, the analysis will address Research Question Three. The complete fsQCA output is presented for reference in the study's cumulation in Appendix D.

Table 4.4

QCA Model Specification, Causal Pathways, and State Subsets Summary

Model	Model Specification and Causal Pathways*	States with Membership in the Causal Pathway
Model 1	active12 = f(education28, percapita185, population3, governanceg)	
	PERCAPITA185*~population3*~governanceg	Arkansas, Idaho, Mississippi, New Mexico
	~percapita185*POPULATION3*~governanceg	Arizona, California, Colorado, Florida, Georgia, Illinois, Maryland, Michigan, Missouri, New Jersey**, Ohio, Oregon, Pennsylvania, Texas, Washington, and Wisconsin**.
	EDUCATION28*PERCAPITA185*GOVERNANCEG	Kentucky, Louisiana, and West Virginia.
Model 2	active12 = f(percapita185, population3, regionwiche, governanceg)	
	percapita185*~population3*~governanceg	Arkansas, Idaho, Mississippi, New Mexico
	~percapita185*POPULATION3*~governanceg	Arizona, California, Colorado, Florida, Georgia, Illinois, Maryland, Michigan, Missouri, New Jersey**, Ohio, Oregon, Pennsylvania, Texas, Washington, and Wisconsin**.
	PERCAPITA185*EDUCATION28*GOVERNANCEG	Kentucky and Louisiana
Model 3	Model 3: active12 = f(governanceg, regionsreb, percapita185, population3)	
	~governanceg*PERCAPITA185*~population3	Arkansas, Idaho, Mississippi, New Mexico
	~governanceg*~percapita185*POPULATION3	Arizona, California, Colorado, Florida, Georgia, Illinois, Maryland, Michigan, Missouri, New Jersey**, Ohio, Oregon, Pennsylvania, Texas, Washington, and Wisconsin**.
	GOVERNANCEG*REGIONSREB*PERCAPITA185	Kentucky, Louisiana, and West Virginia.

*In the causal pathway combinations ~ denotes the absence of the condition; * denotes AND (in combination with). Causal conditions in ALL CAPS denote the presence of the condition. **New Jersey and Wisconsin share the causal conditions in the pathway, but the states did not enact 12 or more policies for the period 2005-2012.

Research Question Three

Research Question Three was “*How does state higher education governance arrangement shape the contribution of two-year institutions in achieving educational attainment goals?*” Results from Research Question Three are presented as follows; 1. states enacting fewer than 12 educational attainment policies for the period 2005-2012 are described, 2. the shaping benefits of two-year arrangement of governance are discussed, and the 3. the shaping constraints of two-year arrangement of governance arrangement is discussed. The section concludes with a summary.

States Enacting Fewer than 12 Educational Attainment Policies 2005-2012

This section presents a description of the 22 states enacting fewer than 12 educational attainment policies for the period 2005-2012. Ten of the 14 (72%) states with a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges*), three of the 10 (30%) states with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges*, two of the six (33%) states with an *Independent State Board Coordinates Community Colleges and/or Technical Institutions*, six of the 11 (55%) states with an *Independent State Board Governs Community Colleges and/or Technical Institutions*, one of the four (25%) states (Alabama) with a *State Board of Education Coordinates and Regulates Community Colleges*, arrangement of governance enacted fewer than 12 educational attainment policies for the period 2005-2012. One hundred percent of the states with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* enacted 12 or more policies.

These data are presented graphically in Table 4.5, with the states organized into one of the five two-year arrangements of governance. Following Table 4.5 a description for each of the states is presented with the state's priority policy focus.

Table 4.5 *Two-Year Governance Arrangement and States Enacting Fewer Than 12 Educational Attainment Policies 2005-2012*

Two-year Governance Arrangement and States	Number of policies enacted 2005-2012
Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges	
Vermont	10
North Dakota	9
Rhode Island	8
Kansas	8
New York	7
Nevada	7
South Dakota	6
Montana	4
Alaska	3
Massachusetts	2
Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges	
Nebraska	11
Oklahoma	11
New Jersey	8
Independent State Board Coordinates Community Colleges and/or Technical Institutions	
Wyoming	10
Wisconsin	6
Independent State Board Governs Community Colleges and/or Technical Institutions	
Connecticut	10
Indiana	10
North Carolina	8
Delaware	6
New Hampshire	6
South Carolina	2
State Board of Education Coordinates and Regulates Community Colleges	
Alabama	6
Total educational attainment policies enacted for states with fewer than 12 policies for the period 2005-2012	158

Note. The category of *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* is not shown. Each of the five states enacted 12 or more policies for the period 2005-2012.

Consolidated governing board for both two- and four-year institutions governs community colleges arrangement of governance. Ten of the 14 (72%) *Consolidated Governing Boards for Both Two- and Four-Year Institutions Governs Community Colleges* governance arrangement states enacted fewer than 12 educational attainment policies for the period 2005-2012. Eight of the ten states has a population less than 3,000,000, one of the states has educational attainment below 28%, and three of the states has per capita income less than \$18,500. Three of the ten states has membership in the NEBHE (Massachusetts, Rhode Island, Vermont), five of the states (Alaska, Montana, Nevada, North Dakota, South Dakota) have membership in the WICHE, none of the states has membership in the SREB, one of the states has membership in the MHEC (Kansas), and one state (New York) holds no regional compact membership. North Dakota and South Dakota hold membership in both the MHEC and WICHE regional compacts.

Each state's arrangement of governance and educational attainment policy focus is summarized next. The ten states are presented in rank order (highest to lowest) by number of policies enacted for the period 2005-2012.

Vermont. The state of Vermont had a population of 608,827, educational attainment of 37.1%, and per capita income of \$20,625 in 2000. The Board of Trustees of the Vermont State Colleges exercises statutory authority for 3 senior colleges, a single technical college offering 2- and 4-year degrees and a statewide, open, non-campus community college ("Postsecondary Governance and Structures Database," 2007). Vermont is a member of the NEBHE regional compact.

Vermont enacted a total of 10 policies for the period 2005-2012 prioritizing Workforce and Economic Development. The state enacted policy to coordinate the state's workforce education and training policies, create a Next Generation Initiative Commission to ensure that postsecondary education is accessible and affordable through grants, loans, and scholarships, and to integrate Vermont's secondary and postsecondary workforce training programs with Vermont's postsecondary institutions to stimulate high-demand industry sectors' strategic investments.

North Dakota. The state of Nevada had a population of 642,200, educational attainment of 31.4%, and a per capita income of \$17,769 in 2000. The State Board of Higher Education functions as the constitutional governing body and the policy-setting body for North Dakota's six publicly supported universities, three 2-year branches, and five 2-year colleges ("Postsecondary Governance and Structures Database," 2007). Some four-year institutions offer Associate degrees (McGuinness Jr., 2014a). North Dakota is a member of both the WICHE and MHEC regional compacts.

North Dakota enacted a total of nine policies for the period 2005-2012 prioritizing Affordability. North Dakota enacted Affordability policy to establish a technology occupations student loan program to encourage college students to pursue technology-based studies, establish a career/technical education merit-based scholarship with GPA and enrollment restrictions, extended student aid to students attending two-year institutions (2009).

Rhode Island. The state of Rhode Island had a population of 1,048,319, educational attainment of 32.6%, and a per capita income of \$21,688 in 2000. The Board of Governors

for Higher Education serves as the statutory governing agency for the Community College of Rhode Island, Rhode Island College and the University of Rhode Island (“Postsecondary Governance and Structures Database,” 2007). Rhode Island is a member of the NEBHE regional compact.

Rhode Island enacted a total of eight policies for the period 2005-2012 prioritizing Workforce and Economic Development. Rhode Island enacted policies to establish research centers at universities, establish apprenticeship programs at vocational schools, provide students with access to any career-preparation program in the state, not only to those in their district of residence, establish a commission to elevate the role of community colleges in the workforce pipeline, establish a career pathways system, and reform the mission of the Community College of Rhode Island Reforms to include workforce development.

Kansas. The state of Kansas had a population of 2,688,418, educational attainment of 31.6%, and a per capita income of \$20,506 in 2000. The State Board of Regents functions as the constitutional governing agency for six public universities in the state, and coordinates community colleges which are under individual governing boards that are supervised by the State Board of Education (“Postsecondary Governance and Structures Database,” 2007). Some four-year institutions offer Associate degrees (McGuinness Jr., 2014a). Kansas is a member of the MHEC regional compact.

Kansas enacted a total of eight policies for the period prioritizing Finance policy to create a new funding model for Career and Technical Education, eliminate state funding for remedial education at community colleges, establish a pilot colleges savings plan, and institute a \$1,000 grant per program term (maximum of two program terms) for eligible

students enrolled in a postsecondary program that has been identified by the Kansas board of regents, as a high-cost, high-demand or critical industry field program.

New York. The state of New York had a population of 18,976,457, educational attainment of 34.6%, and a per capita income of \$23,389 in 2000. The University of the State of New York consists of all elementary, secondary and postsecondary education institutions, which are incorporated in the state as well as state libraries, museums, institutions, schools, organizations and agencies for educational purposes (“Postsecondary Governance and Structures Database,” 2007). The State University of New York system includes both community colleges that are partially financed at the county level, as well as five state-funded colleges of technology. The City University of New York includes several community colleges. New York is not a member of any regional higher education compact.

New York enacted a total of seven policies for the period 2005-2012 prioritizing Affordability policy to add credit accumulation and GPA benchmark performance requirements for scholarships and grants, made grants for nursing programs, and made loans available for graduate programs.

Nevada. The state of Nevada had a population of 1,998,257, educational attainment of 24.4%, and a per capita income of \$21,989 in 2000. The Board of Regents of the Nevada System of Higher Education functions as the constitutional governing agency for postsecondary education in the state. The Board sets policies and approves budgets for the entire public system of higher education in the state: four community colleges, one state college, two universities and one research institute (“Postsecondary Governance and Structures Database,” 2007). Nevada is a member of the WICHE regional compact.

Nevada enacted a total of seven policies for the period 2005-2012 prioritizing Accountability. Two of the Accountability policies requiring the Board of Regents to report on remedial education and participation of women and minorities in the system of higher education. The Regents were “encouraged” to audit programs at all levels to create efficiency. The Regents were also authorized to work with the Nevada K-12 system to create information for students and families regarding the entrance requirements for the Nevada System of Higher Education.

South Dakota. The state of South Dakota had a population of 754,844, educational attainment of 28.6%, and a per capita income of \$17,562 in 2000. The South Dakota Board of Regents serves as the constitutional governing body for the 6 public universities. There are no public junior colleges in the state (“Postsecondary Governance and Structures Database,” 2007). Postsecondary technical institutes are organized separately and some four-year institutions offer Associate degrees (McGuinness Jr., 2014a). South Dakota is a member of both the WICHE and MHEC regional compacts.

South Dakota enacted a total of six policies for the period 2005-2012 prioritizing Affordability. The state passed legislation to create a need-based grant fund with eligibility and retention requirements for the scholarship, provides that high school students graduating in three years are eligible to receive a Jump Start Scholarship, exempt veterans for the twelve-month residency requirement, and establish a teacher education scholarship for recruitment and retention of teachers in state.

Montana. The state of Montana had a population of 902,195, educational attainment of 30.3%, and a per capita income of \$17,151 in 2000. The Board of Regents of Higher

Education functions as a constitutional governing agency for the Montana University System and has supervisory and coordinating authority over the state's community colleges.

Montana is a member of the WICHE regional compact.

Montana enacted a total of four policies for the period 2005-2012 prioritizing Finance to revise the governor's postsecondary scholarship program, redirect workforce training to high poverty areas, create an incumbent worker training program, and define the organizations that can administer adult basic education.

Alaska. The state of Alaska had a population of 626,932, educational attainment of 31.9%, and a per capita income of \$22,660 in 2000. The University of Alaska is the single, multi-campus public institution of postsecondary education in the state. The University is governed by the Board of Regents, which has statutory authority for all public postsecondary education, which includes three regional university campuses, community colleges and centers ("Postsecondary Governance and Structures Database," 2007). Some four-year institutions have two-year branch campuses, and some four-year institutions offer Associate degree programs (McGuinness Jr., 2014a). Alaska is a member of the WICHE regional compact.

Alaska enacted a total of three policies for the period 2005-2012 prioritizing Affordability to study the problem of educational attainment and college readiness. The state established the Alaska Merit Scholarship.

Massachusetts. The state of Massachusetts had a population of 6,349,097, educational attainment of 40.4%, and a per capita income of \$25,952 in 2000. Massachusetts ranked highest in educational attainment for the fifty states. The Massachusetts Board of

Higher Education is responsible for overall coordination and broad policy development with respect to the University of Massachusetts and its 5 campuses, the 9 state colleges and 15 community colleges (“Postsecondary Governance and Structures Database,” 2007).

Massachusetts is a member of the NEBHE regional compact. Massachusetts enacted only two policies for the period 2005-2012 both focused on green jobs for the establishment of a clean energy sector.

Coordinating board for all higher education coordinates locally governed community colleges arrangement of governance. Three of the eleven states (27%) with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* arrangement of governance enacted fewer than 12 policies for the period 2005-2012. One of the three states has a population less than 3,000,000, none of the states has educational attainment below 28%, and one of the states has per capita income less than \$18,500. Nebraska is a member of the MHEC regional compact, Oklahoma is a member of the SREB regional compact, and New Jersey is not a member of any regional higher education compact. Of the three states, two enacted 11 policies missing the cutoff for states enacting 12 or more policies by just one policy. The three states are described next.

Nebraska. The state of Nebraska had a population of 1,711,263, educational attainment of 31%, and a per capita income of \$19,613 in 2000. The Coordinating Commission for Postsecondary Education has statutory responsibility to review and recommend modification of public institutions' budgets to the Legislature and governor, and to review and approve capital construction projects and new academic programs at public postsecondary institutions (“Postsecondary Governance and Structures Database,” 2007).

There are 6 community college areas, each governed by a locally elected board of 11 members. Nebraska is a member of the MHEC regional compact.

Nebraska enacted a total of 11 policies for the period 2005-2012 and prioritized two policy categories; Affordability and Finance. Nebraska enacted Affordability policy to provide early college financial assistance to low-income students for courses to be taken for credit from a qualified postsecondary educational institution while still enrolled in high school, focused scholarship funding on low-income students through the Nebraska Opportunity Act, and clarified the college savings plan. Nebraska enacted Finance policy to fund job training at community colleges, amend the mill levy for funding community colleges at the local level, and establish a grant for machinery and equipment at community colleges in support of expanded training programs.

Oklahoma. The state of Oklahoma had a population of 3,450,654, educational attainment of 28.4%, and a per capita income of \$17,646 in 2000. The State Regents for Higher Education is the coordinating board for all public postsecondary education (“Postsecondary Governance and Structures Database,” 2007). Four year institutions have two-year branch campuses and postsecondary technical institutions are organized separately from community colleges (McGuinness Jr., 2014a). Oklahoma is a member of the SREB regional compact.

Oklahoma enacted a total of 11 policies for the period 2005-2012 prioritizing Affordability policy to provide early access to postsecondary education allowing 11th or 12th grade students to participate in the Higher Learning Access Program (Oklahoma’s Promise),

modify scholarship guidelines for adopted students, and provide in-state tuition for military members and their families.

New Jersey. The state of New Jersey had a population of 8,414,350, educational attainment of 35.1%, and a per capita income of \$27,006 in 2000. The Commission on Higher Education is the coordinating agency for the 31 governing boards for public institutions in the state of New Jersey. There are 19 individual community college boards in the state. Postsecondary technical institutions are organized separately from community colleges (McGuinness Jr., 2014a). New Jersey is not a member of any regional higher education compact.

New Jersey enacted a total of eight policies from 2005-2012 prioritizing Workforce and Economic Development to establish the Center for Occupational Employment Information to support career guidance programs, make information and planning resources available to workforce development professionals, and to ensure apprenticeship programs earned higher education credit.

Independent state board coordinates community colleges and/or technical institutions arrangement of governance. Two of seven (Wisconsin, Wyoming) states (29%) in the governance arrangement of *Independent State Board Coordinates Community Colleges and/or Technical Institutions* enacted fewer than 12 educational attainment policies for the period 2005-2012. Wyoming's population is less than 3,000,000, Wisconsin's population is above 3,000,000. Both Wyoming and Wisconsin's educational attainment is above 28%. Both of the states have per capita income above \$18,500. Wyoming is a member of the WICHE regional compact, and Wisconsin is a member of the MHEC regional

compact. The states enacted a combined total of 16 policies for the period. The two states are described next.

Wyoming. The state of Wyoming had a population of 493,782, educational attainment of 29.9%, and a per capita income of \$19,134 in 2000. The Community College Commission sets overall policy for the seven community colleges in the state, each of which has a local board. The Community College Commission has membership participation in the Wyoming Education Planning and Coordinating Council as a means to identify goals for education in Wyoming and coordinate a means to attain those goals (“Postsecondary Governance and Structures Database,” 2007). Wyoming is a member of the WICHE regional compact.

Wyoming enacted a total of ten policies from 2005-2012, prioritizing Affordability policy to offer scholarships for career and technical education programs, teacher education programs, need-based scholarships and performance and honor scholarships.

Wisconsin. The state of Wisconsin had a population of 5,363,675, educational attainment of 29.9%, and a per capita income of \$21,271 in 2000. The Wisconsin Technical College System Board governs 16 technical college districts operating 42 campuses, with 3 offering a lower-division, college-level liberal arts program (“Postsecondary Governance and Structures Database,” 2007). Some four-year institutions have two-year branch campuses (McGuinness Jr., 2014a). Wisconsin is a member of the MHEC regional compact.

Wisconsin enacted a total of six policies for the period 2005-2012 prioritizing Accountability policy to coordinate educational systems to monitor the development, training, and retraining of employees for current and future agricultural industries, report on

Wisconsin scholarships, to require all education sectors to establish a longitudinal data system.

Independent state board governs community colleges and/or technical institutions arrangement of governance. Six of the 11 (55%) states arranged with an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement enacted fewer than 12 educational attainment policies for the period 2005-2012. Two of the six states (Delaware, New Hampshire) has a population less than 3,000,000, two of the states (Indiana, South Carolina) have educational attainment below 28%, and none of the states has per capita income less than \$18,500. Two of the six states have membership in the NEBHE (Connecticut, New Hampshire), none of the states has membership in the WICHE, three of the states (Delaware, North Carolina, South Carolina) have membership in the SREB, and one of the states has membership in the MHEC (Indiana). The six states enacted a combined total of 42 policies for the period. The six states are described next.

Connecticut. The state of Connecticut had a population of 3,405,565 educational attainment of 38%, and a per capita income of \$28,766 in 2000. The Board of Trustees of the Community-Technical Colleges is responsible for 12 two-year colleges. The Board of Governors for Higher Education, staffed by the Department of Higher Education, is the overall coordinating agency for the public higher education system. Connecticut is a member of the NEBHE regional compact.

Connecticut enacted a total of ten policies from 2005-2012 prioritizing its focus on Postsecondary Remediation and Postsecondary Transitions policy to study a common course

numbering system to ensure transfer of credits, require postsecondary institutions to enact a common core of courses at the secondary level to ensure college readiness standards, and to prohibit remedial education at the postsecondary level but stipulated embedded remediation and refresher courses for students prior to the academic year.

In June 2011, the legislature passed Public Act 11-48 reorganizing the structure of the public system and eliminating the Board of Governors and its administrative arm, the Department of Higher Education. A new Board of Regents for Higher Education replaced the Board of Governors, parts of the former Department of Higher Education as well as the Boards of Trustees of the Connecticut State University System, the Community-Technical Colleges and the Board for State Academic Awards.

Indiana. The state of Indiana had a population of 6,080,485, educational attainment of 25.2%, and a per capita income of \$20,397 in 2000. Ivy Tech State College Board of Trustees with authority over 22 two-year campuses and centers and the newly created Community College of Indiana in partnership with Vincennes University. Overall coordinating of higher education in the state is organized through the Indiana Commission of Higher Education. Indiana is a member of the MHEC regional compact.

Indiana enacted a total of ten policies for the period 2005-2012 prioritizing Postsecondary Transitions policy to offer early college, dual credit, or dual enrollment programs for 11th, 12th graders, offer early college for earning certifications and Associate degrees, award full academic credit for advanced placement exams, limit the number of credits at postsecondary institutions to 60 for an Associate degree and 120 for a bachelor

degree, and require postsecondary institutions to award competency based credit for military service.

North Carolina. The state of North Carolina had a population of 8,049,313, educational attainment of 29.3%, and a per capita income of \$20,307 in 2000. The State Board of Community Colleges has governing authority for the 58 comprehensive public 2-year institutions and 1 technology center. The state is a member of the SREB regional compact.

North Carolina enacted a total of eight policies for the period 2005-2012 prioritizing Workforce and Economic Development policy to designate the Community College System Office as the lead agency for delivering workforce development training, adult literacy training, and adult education, establish the Joining Our Businesses and Schools (JOBS) Study Commission to study issues related to economic development, and to prioritize increasing the number of students earning postsecondary credentials in the fields of science, technology, engineering, and mathematics (STEM) to reduce workforce shortages of labor.

Delaware. The state of Delaware had a population of 783,600, educational attainment of 31.6%, and a per capita income of \$23,305 in 2000. The Board of Trustees of Delaware Technical and Community Colleges has statutory authority over 4 public community colleges (1 community college with 4 campuses). The Delaware Higher Education Commission coordinates all postsecondary education in the state. Delaware is a member of the SREB regional compact.

Delaware enacted a total of six policies for the period 2005-2012 prioritizing Affordability policy to establish a scholarship program for students to attend a community

college as an incentive to reduce the high school dropout rate, establish a scholarship for high achievers to attend Delaware State University, and to establish a scholarship for students leaving foster care to complete a postsecondary credential.

New Hampshire. The state of New Hampshire had a population of 1,235,786, educational attainment of 37.4%, and a per capita income of \$23,844 in 2000. The Community Technical College System has statutory authority for seven vocational institutions. The New Hampshire Postsecondary Education Commission functions as the statutory coordinating agency for postsecondary education in the state. New Hampshire is a member of the NEBHE regional compact.

New Hampshire enacted a total of six policies for the period 2005-2012 prioritizing Affordability (two policies) and Finance (two policies) to establish a tuition waiver for foster children, establish a tuition waiver for children of firefighters and police officers, study and create recommendations to keep young professionals in the state, and create an attestation for in state tuition.

South Carolina. The state of South Carolina had a population of 4,012,012, educational attainment of 27.1%, and a per capita income of \$18,795 in 2000. The State Board for Technical and Comprehensive Education governs 16 two-year technical colleges in the state. The Commission of Higher Education is the statutory coordinating agency for higher education across all levels. South Carolina is a member of the SREB regional compact. South Carolina enacted a total of two policies for the period 2005-2012 enacting one policy in Postsecondary Transitions to encourage greater participation in postsecondary

education, and one policy in Workforce and Economic Development enabling four-year institutions to offer doctorate in Marine Science.

State board of education coordinates and regulates community colleges arrangement of governance. One of four states (25%) in this category enacted fewer than 12 educational attainment policies during the study period. Alabama has a population greater than 3,000,000, educational attainment below 28%, and per capita income less than \$18,500. Alabama is an SREB state. The state is described next.

Alabama. The state of Alabama had a population of 4,447,100, educational attainment of 24.2%, and a per capita income of \$18,189 in 2000. The State Board of Education is a constitutional entity with responsibility not only for K-12, but also for governing 1 upper-division college, 3 junior colleges, 18 community colleges and 7 technical colleges (“Postsecondary Governance and Structures Database,” 2007). Alabama is a member of the SREB regional compact.

Alabama enacted a total of six policies for the period 2005-2012 prioritizing Finance policy to fund technical education dual enrollment programs, address a deficit in the prepaid tuition program, and regulate non accredited independent postsecondary institutions for the purposes of receiving Alabama Student Grant Program funds.

States enacting fewer than 12 educational attainment policies summary. In general, the 22 states enacting fewer than 12 policies had per capita income greater than \$18,500, and educational attainment greater than 28%. Twelve of the 22 states had a population less than 3,000,000. The 22 states had a variety of policy priorities. Nine of the 22 states prioritized Affordability policy (Alaska, Delaware, Nebraska, New Hampshire,

New York, North Dakota, Oklahoma, South Dakota, Wyoming), six of the 22 states prioritized Workforce and Economic Development (Indiana, Massachusetts, New Jersey, North Carolina, Rhode Island, and Vermont), three of the 22 states (Alabama, Kansas, Montana) prioritized Finance policy, two of the 22 states (Connecticut, South Carolina) prioritized Postsecondary Transitions, and two of the 22 states (Nevada, Wisconsin) prioritized Accountability. The shaping benefits of two-year arrangement of governance are discussed next.

Two-Year Arrangement of Governance Policy Shaping Benefits and Constraints

State policy enactment patterns provide an indication of the policy environment for two-year institutions (Mahroum, 2013). States enacting a higher number of overall policies represent a policy environment where the three streams (problem, policy, and politics) combine to produce greater numbers of policy outputs (Kingdon, 2011; Richardson Jr. et al., 1999a). This study explored patterns of policy making in the context of two-year institutions of higher education governance arrangements. The descriptive statistics and fsQCA analysis uncovered some patterns of governance arrangement and patterns of policy type suggestive of a policy environment benefitting the contribution of two-year institutions to state educational attainment increases. The shaping benefits of the policy environment are presented next.

Policy environment shaping benefits. The contribution of two-year institutions to educational attainment were found to be shaped through both the arrangement of governance and through the type of policy enacted. Descriptive statistics and QCA analysis revealed patterns of policy making and contexts where states enacted 12 or more policies more often.

The policy environment in these states is suggestive of benefits for two-year institutions through the function of coordination across the student pipeline (Richardson Jr. et al., 1999a). In some states, the coordination came from the primary governance structure and in others the coordination came from a higher level state coordinating structure.

For example, in Washington state 48 policies were enacted from 2005-2012. Washington has an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* governance arrangement. Although Washington's independent board organizes the community colleges in the state, the colleges benefit from the coordination of higher education through the Washington Student Achievement Council. The priority policy focus in Washington during the period 2005-2012 was Workforce and Economic development. The state made numerous policies to link the workforce and education system to enable community colleges to play a larger role in educational attainment.

Louisiana enacted 46 policies from 2005-2012. Although Louisiana has an *Independent State Board Governs Community Colleges and/or Technical Institutions* arrangement of governance, the independent board benefits from coordination of all state higher education through the Louisiana Board of Regents. Louisiana prioritized Accountability and Postsecondary Transitions policy directing the higher education system to incorporate the role of two-year institutions into the overall higher education plan.

Texas enacted 44 policies from 2005-2012. Texas has a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* two-year arrangement of governance. The Texas Higher Education Coordinating Board incorporates the locally governed community colleges within overall higher education planning for the state. Texas

enacted 11 Postsecondary Transitions policies making a concerted effort to leverage the contribution of two-year institutions to increase educational attainment.

This study's QCA analysis revealed some states have a regional context benefitting two-year institutions of higher education. Three SREB states (Kentucky, Louisiana, and West Virginia) all have an *Independent State Board Governs Community Colleges and/or Technical Institutions* arrangement of governance. In addition, the three states all have a coordinating function for higher education linking the independent governance of the two-year institutions to the larger state attainment agenda. While the governing board is able to govern the two-year institutions independently, two-year institutions benefit from the statewide coordination of the higher education commission/agency and from the policy agenda of the SREB. Two-year institutions benefit through coordination that results from the policy environment associated with the arrangement of governance (Brewer & Tierney, 2011; Lynn et al., 2000a). The type of policy prioritized by states appears to yield benefits for two-year institutions through making attendance more affordable, creating pathways for progression of students, establishing state goals for educational attainment, and for addressing postsecondary remediation. A more in-depth description of the types of policy benefitting two-year institutions is described next.

Policy type benefits for two-year institutions. States enacted the greatest number of policies in the categories of Affordability (157 policies) and Postsecondary Transitions (130 policies), both policy categories of benefit to the students who attend two-year institutions and to the institution's overall contribution to education attainment. States enacting 12 or more policies accounted for nearly 74% of Affordability policy and 87% of

the Postsecondary Transitions policy, and were most often arranged with a Coordinating or Mixed arrangement of governance.

Affordability policies for need-based and merit aid have potential to increase student momentum. Postsecondary Transitions policy to develop career or degree pathways, allow early high school graduation and enrollment in postsecondary education, share online credits between colleges (cooperative agreements), limit the number of credits for degree programs, launch student success initiatives, and other innovative initiatives undergird the efforts of two-year institutions to contribute to state educational attainment goals.

The problem of educational attainment was also addressed more often in Postsecondary Remediation and Transfer and Articulation categories of educational attainment policies in states enacting 12 or more policies for the period 2005-2012. The Coordinating and Mixed form of governance states addressed the problem for two-year institutions by enacting Postsecondary Remediation policy to address placement testing of first time students, eliminate remediation at the postsecondary level, and embed remediation in college level courses.

A final example comes from states enacting Transfer and Articulation policies to create cooperative agreements for awarding credits between institutions, create seamless transition between 2- and 4-year institutions, create common course numbering across two- and four-year institutions, provide priority registration for transfer students, define General Education Core requirements, and promote reverse transfer agreements to award postsecondary credentials.

Policy environment shaping constraints. The arrangement of governance in the 22 state states enacting fewer than 12 educational attainment policies appears to constrain the contribution of two-year institutions through the policy environment. As shown in Table 4.3, the two state governance arrangements (*Consolidated Governing Board for Both Two- And Four-Year Institutions Governs Community Colleges* and an *Independent State Board Governs Community Colleges and/or Technical Institutions*) consistently made less policy. Lack of policy production is suggestive of an environment that may not recognize a problem, that may not be able to agree on a policy solution, or that may not have political support to make policy a reality. As a result, the arrangement of governance may be inadequate to achieve significant educational attainment increases (McLendon & Perna, 2014; Perna & Finney, 2014c).

In these states, a mismatched policy environment appears to be limiting the contribution of two-year institutions of higher education to state attainment goals. Whatever the reason, the three streams did not come together as often in the states within the two types of Governing board arrangements. As a result of the limitations of the policy environment, the state arrangement of two-year governance may subsequently limit the contribution of the two-year institutions to educational attainment increases through the inability to make policy and through lack of policy production. Further, the arrangement of governance may limit overall increases in state education attainment.

Policy type and focus constraints. In terms of the type of policy enacted, the 22 states enacted the highest mean number of Affordability policies, but enacted very low mean numbers of policies in the other seven types (Accountability, College Completion, Finance,

Postsecondary Remediation, Postsecondary Transitions, Transfer and Articulation, and Workforce and Economic Development). Postsecondary Transitions was the second highest category for the *Consolidated Governing Board for both Two- and Four-Year Institutions Governs Community Colleges* while Accountability and Workforce and Economic Development tied for the second highest type of policy for the *Independent State Board Governs Community Colleges and/or Technical Institutions* states. While all three types of policies are meaningful to two-year institutions, the overall number of policies appears to signal limited innovation.

Summary of Research Question Three Results

Patterns in state policy enactment for the Boosting College Completion data were uncovered through descriptive statistics analysis and using fsQCA. The findings of both analyses point to policy environments where two-year institutions receive benefit for addressing the problem of educational attainment through the state arrangement of higher education governance.

Two-year institutions receive policy benefits in states with an *Independent State Board Coordinates Community Colleges and/or Technical Institution*, in states with a *State Board of Education Coordinates and Regulates Community Colleges*, in states with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions*, and in states with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* arrangement of governance. In contrast, two-year institutions in states with an *Independent State Board Governs Community Colleges and/or Technical Institutions*, and the *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs*

Community Colleges appear to be constrained in increasing educational attainment through the policy environment of low policy outputs addressing the problem, and potentially mismatched policy environment.

Policy benefits for two-year institutions came in the type of policy enacted and in the number of policies enacted to address the problem. All eight Boosting College Completion policy types were enacted more often in the 28 states (80.64% of total enactments) enacting 12 or more policies for the period 2005-2012 than in the 22 states (19.36% of total enactments) enacting fewer than 12 policies for the period.

Chapter Summary

This chapter presented findings addressing three research questions. Research Question One utilized descriptive statistical analysis to answer “*How does higher education attainment policy vary in type, quantity, and focus across state two-year governance arrangements?*” A total of 816 Boosting College Completion policies were enacted from 2005-2012 with a mean of 16.32 (SD 11.80) policies per state. The median number of educational attainment policies enacted per state was 12 and the mode was 6. States enacted a minimum of 2 and a maximum of 48 policies for a range of 46 policies.

The four Boosting College Completion policy categories with the highest count of policy enactments from 2005-2012 were Affordability (157 policies), Postsecondary Transitions (130 policies), Accountability (126 policies), and Workforce and Economic Development (118 policies). The four Boosting College Completion categories with the fewest policies were Finance (98 policies), College Completion (71 policies), Transfer and Articulation (69 policies), and Postsecondary Remediation (47 policies).

Policy enactment patterns in the data reveal that the six states (California, Illinois, Mississippi, Washington, Wisconsin, Wyoming) with an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* arrangement of two-year governance enacted a higher mean number of policies in five of the eight Boosting College Completion educational attainment policy categories than the other arrangements of governance. In contrast, the 14 states (Alaska, Hawaii, Kansas, Massachusetts, Minnesota, Montana, Nevada, New York, North Dakota, Rhode Island, South Dakota, Tennessee, Utah, Vermont) with a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* two-year governance arrangement had the lowest mean policy enactment in seven of the eight (50%) Boosting College Completion categories of policy.

Research Question Two was addressed through Qualitative Comparative Analysis methodology to answer “*How does region, population, socio-economic development, and state educational development combine with state two-year governance arrangements to impact attainment policy?*” The QCA test of necessity indicated none of the causal conditions of low socio-economic development, low educational development, high population, regional higher education compact or state two-year governance arrangement was necessary to produce the outcome of 12 or more Boosting College Completion policies for the period 2005-2012. QCA results were for the test of sufficiency to produce the outcome.

QCA revealed that the absence of a Governing board arrangement (states with an *Independent State Board Coordinates Community Colleges and/or Technical Institution*, or a *State Board of Education Coordinates and Regulates Community Colleges*, or a *Two or More*

Boards/Agencies Coordinate and/or Govern Two-Year Institutions, or with a Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges) combined with both the presence and absence of low per capita income and with both the presence and absence of high population resulting in state enactment of 12 or more educational attainment policies. In 14 states with per capita income over \$18,500 and a population over 3,000,000, the absence of a Governing board combined resulting in 12 or more policies. These 14 states were the largest group of states enacting 12 or more policies.

The presence of a Governing board arrangement (an *Independent State Board Governs Community Colleges and/or Technical Institutions*) was found to combine with the presence of low educational attainment and the presence of low per capita income in three states enacting 12 or more educational attainment policies for the period 2005-2012. The presence of a Governing board arrangement (an *Independent State Board Governs Community Colleges and/or Technical Institutions*) also combined with the presence of low per capita income and the presence of state membership in the SREB higher education regional compact. The three governing states each had a coordinating function at the state level to achieve broader state goals.

Overall 21 of the 28 (75%) of the states enacting 12 or more educational attainment policies for the period 2005-2012 were explained by the combination of causal conditions as specified in the three QCA Models. Seven states enacted 12 or more educational attainment policies for the period 2005-2012, but the states were not identified in any of the subsets of states for the three Models. Each of the seven states arranges higher education governance through some form of a Governing board.

Research Question Three was addressed through a comparison and contrast synthesis of the findings from Questions One and Two to answer “*How does the arrangement of higher education governance shape the contribution of two-year institutions to foster improved state educational attainment?*”

State policy making patterns uncovered through descriptive statistics and QCA suggest there are some policy environments where two-year institutions receive benefit. Two-year institutions appear to benefit from policy environments where state higher education is coordinated. The coordination can be either at the level of governance for two-year institutions or at a higher level where all segments of higher education are coordinated. Specifically, results suggest beneficial policy environments exist in states with an *Independent State Board Coordinates Community Colleges and/or Technical Institution*, in states with a *State Board of Education Coordinates and Regulates Community Colleges*, in states with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions*, and in states with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* arrangement of governance. Results suggest some states enable two-year institutions to contribute more broadly to achieving improved state educational attainment.

In contrast, results from descriptive statistics and QCA suggest two-year institutions in some states with an *Independent State Board Governs Community Colleges and/or Technical Institutions*, and the *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* may be constrained in their contribution to

increasing educational attainment through a potentially mismatched policy environment of low policy outputs addressing the problem.

This chapter presented a comparison of states enacting 12 or more educational attainment policies for the period 2005-2012 with the states enacting fewer than 12 educational attainment policies for the period 2005-2012. The policy environment benefits and constraints for two-year institutions of higher education were discussed. Chapter Five will present a brief summary of the study and conclusions derived from the data analysis, a comparison of this study's findings with previous literature, implications for policy and practice, and recommendations for future research.

CHAPTER FIVE: CONCLUSIONS, DISCUSSION, IMPLICATIONS, AND FUTURE RESEARCH

The purpose of this qualitative comparative study was to explore how policy making patterns, and causal conditions (population, per capita income, educational attainment, and higher education regional compact) in combination with state higher education governance arrangement result in a policy environment that fosters the contribution of two-year institutions of higher education to achieving improved state educational attainment. The entire population of the 50 states was examined to answer the following research questions:

1. How does higher education attainment policy vary in type, quantity, and focus across state two-year governance arrangements?
2. How does region, population, socio-economic development, and state educational development combine with state two-year governance arrangements to impact attainment policy? and
3. How does the arrangement of higher education governance shape the contribution of two-year institutions to foster improved state educational attainment?

This chapter contains four sections. The first section provides a brief summary of the study and discusses conclusions derived from the data analysis. The second section compares this study's findings with previous literature. The third section provides implications for policy and practice, and the fourth section provides recommendations for future research and a conclusion.

Summary of the Study

This qualitative comparative study utilized descriptive statistics and QCA methodology to explore how state arrangement of higher education shapes the contribution of two-year institutions to state educational attainment. Policy data were derived from the National Center on Higher Education Management Systems and the Education Commission on the States Boosting College Completion dataset for the period 2005-2012. State governance classification and higher education regional compact membership was derived from the National Center for Higher Education Management Systems Postsecondary Structures database (“National Center for Higher Education Management Systems Postsecondary Governance Structures Database,” n.d.). State socio-economic development, state educational development, and state population were derived from the 2000 U.S. Census American Community Survey (“Census 2000 Gateway,” 2000).

The Boosting College Completion data were organized into eight types of policy; Accountability, Affordability, College Completion, Finance, Postsecondary Remediation, Postsecondary Transitions, Transfer and Articulation, and Workforce and Economic Development. A total of 816 policies were examined. The 50 states were organized into six two-year governance arrangement categories for descriptive statistics and three categories for QCA analysis. The six governance arrangements and QCA grouping of states were examined as follows (see also Tables 3.2 and 3.8);

1. California, Illinois, Mississippi, Washington, Wisconsin, and Wyoming
(organized with an *Independent State Board Coordinates Community Colleges*

and/or Technical Institutions arrangement of governance) were categorized as a Coordinating state;

2. Arkansas, Maryland, Missouri, Nebraska, New Jersey, New Mexico, Ohio, Oklahoma, Pennsylvania, and Texas (organized with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* arrangement of governance) were categorized as a Coordinating state,
3. Arizona, Colorado, Georgia, Idaho, and Oregon (organized with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* arrangement of governance) were categorized as a Mixed state,
4. Alabama, Florida, Iowa, and Michigan (organized with a *State Board of Education Coordinates and Regulates Community Colleges* arrangement of governance) were categorized as a Mixed state,
5. Connecticut, Delaware, Indiana, Kentucky, Louisiana, Maine, New Hampshire, North Carolina, South Carolina, Virginia, and West Virginia (organized with an *Independent State Board Governs Community, Colleges and/or Technical Institutions* arrangement of governance) were categorized as a Governing state, and
6. Alaska, Hawaii, Kansas, Massachusetts, Minnesota, Montana, Nevada, New York, North Dakota, Rhode Island, South Dakota, Tennessee, Utah, and Vermont (organized with a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* arrangement of governance) were categorized as a Governing state.

Descriptive statistics findings

Descriptive statistics were calculated to determine patterns of educational attainment policy production across the 50 states. States enacted a mean of 16.32 (SD 11.80), a median 12, a mode of 6, a minimum of 2 and a maximum of 48 policies per state from 2005-2012. The study found four types of policy were enacted most often; Affordability, Postsecondary Transitions, Accountability, and Workforce and Economic Development.

This study found California, Illinois, Mississippi, Washington, Wisconsin, Wyoming (organized with an *Independent State Board Coordinates Community Colleges and/or Technical Institutions* two-year arrangement of governance, Coordinating states) enacted the highest mean number of policies in five of the eight Boosting College Completion policy types (Affordability, College Completion, Transfer and Articulation, Workforce and Economic Development, and Accountability). Alabama, Florida, Iowa, Michigan (organized with a *State Board of Education Coordinates and Regulates Community Colleges* two-year arrangement of governance, Mixed states) enacted the highest mean number of Finance policies.

Arizona, Colorado, Georgia, Idaho, and Oregon (organized with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions* two-year arrangement of governance, Mixed states) had the highest mean number of Postsecondary Transitions policies, and the five states tied with Arkansas, Maryland, Missouri, Nebraska, New Jersey, New Mexico, Ohio, Oklahoma, Pennsylvania, and Texas (organized with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* two-

year arrangement of governance, Coordinating states) for the highest mean number of Postsecondary Remediation policies.

Alaska, Hawaii, Kansas, Massachusetts, Minnesota, Montana, Nevada, New York, North Dakota, Rhode Island, South Dakota, Tennessee, Utah, Vermont (organized with a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* two-year governance arrangement, Governing states) had the lowest mean number of policies in seven of the eight Boosting College Completion policy types (Accountability, College Completion, Finance, Postsecondary Remediation, Postsecondary Transitions, Transfer and Articulation, Workforce and Economic Development). The 14 states ranked fifth out of six in Affordability policies.

Connecticut, Delaware, Indiana, Kentucky, Louisiana, Maine, New Hampshire, North Carolina, South Carolina, Virginia, and West Virginia (organized with an *Independent State Board Governs Community, Colleges and/or Technical Institutions* arrangement of governance, Governing states) had neither the highest or lowest mean policy enactment in any category. The eleven states ranked third lowest in Affordability, Postsecondary Transitions, College Completion, and Postsecondary Remediation, second lowest in Finance, third highest in Workforce and Economic Development, and second highest in Transfer and Articulation.

QCA methodology findings

QCA methodology was used to examine three state demographic contexts in combination with a Coordinating, Governing, or Mixed form of state governance arrangement; 1. state per capita income in 2000, 2. state educational attainment in 2000 (the

percentage of the population 25-64 with an Associate degree or higher), and 3. state population in 2000. State higher education regional compact membership was a fourth causal condition in combination with state governance arrangement. The regional higher education compacts examined were the Western Interstate Commission on Higher Education (WICHE), the Southern Regional Education Board (SREB), the Midwest Higher Education Commission (MHEC), and the New England Board of Higher Education (NEBHE).

The outcome of interest was educational attainment policy production (or outputs), which was viewed through the lens of Kingdon's multiple streams model (problem, policy solutions, and political support) of understanding the policy process (Kingdon, 1995). The number of policies enacted by states was useful as a surrogate for policy innovation and a state's focus on two-year institutions as a strategy for increasing educational attainment. As such, in states enacting 12 or more educational attainment policies Kingdon's three streams coupled more often. The states enacting 12 or more policies recognized a problem, they were able to craft policy solutions addressing the problem (McLendon, 2003b), and they had the political support to enact policy (Tandberg, 2013; Volkwein & Tandberg, 2007). The research design did not examine which of Kingdon's three streams mattered more than another, nor did the design set out to examine individual variable effects. Rather, the study explored policy environments associated with state arrangement of higher education governance and the associated patterns of state policy production.

Three QCA models were run to determine how state contexts of per capita income, population, educational attainment, and regional higher education compact membership combined with governance in 28 states enacting 12 or more policies for the period 2005-

2012. Twelve was chosen as the cutoff point for the crisp-set QCA analysis for two reasons; it created a sufficient number of cases (28 states) in the outcome set to conduct QCA and it was the median number of policies enacted by states from 2005-2012.

QCA indicated some contexts combined with governance arrangement in the 28 states, and some contexts did not. The presence and the absence of low per capita income and high population combined with a Coordinating or a Mixed arrangement in 18 of the 28 states enacting 12 or more policies for the period. In three of the 28 states enacting 12 or more policies from 2005-2012, QCA revealed low per capita income and low educational attainment combined with a Governing arrangement. In the same three states, QCA also revealed state membership in the SREB regional compact and low per capita income combined with the Governing arrangement in states enacting 12 or more policies. In two of these same three states, QCA revealed low per capita income and high population combined with the Governing arrangement in producing 12 policies.

In seven of the 28 states enacting 12 or more policies, QCA did not reveal any combination of governance and state context. Four of the seven states had a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* two-year governance arrangement, two of the states had an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement, and one state had a *State Board of Education Coordinates and Regulates Community Colleges* two-year governance arrangement.

States enacting fewer than 12 policies had a different pattern of two-year governance arrangement. Descriptive statistics showed the Governing states (25 states) were the

majority of the 22 states enacting fewer than 12 policies for the period. Sixteen of the 25 (64%) Governing, five of the 16 (31%) Coordinating, and one of the nine (11%) Mixed states enacted fewer than 12 educational attainment policies for the period.

Conclusions and Discussion

This study revealed some state governance arrangements leverage the role of two-year institutions more effectively as a strategy to increase state educational attainment. This is achieved through the broad policy focus of the Coordinating and Mixed arrangements and was seen in the pattern of the number, type, and focus of attainment policies enacted by states from 2005-2012. The number of educational attainment policies enacted by states was important for two reasons. First, the number of policies can signal whether a state's approach to educational attainment and two-year institutions of higher education is innovative, and second, the number of policies can signal a state's focus on two-year institutions as a means to increase educational attainment.

This study found that state policy making patterns uncovered through descriptive statistics and QCA suggest two-year institutions benefit from policy environments where state higher education is coordinated. The coordination can be either at the level of governance for two-year institutions or at a higher level where all segments of higher education are coordinated. Overall, each state's governing arrangement and structure reflects and/or causes different policy production results with either a broad focus (Coordinating and Mixed arrangements) or a narrow policy focus (Governing arrangements).

Specifically, beneficial policy environments appear to exist in states with an *Independent State Board Coordinates Community Colleges and/or Technical Institution*, in

states with a *State Board of Education Coordinates and Regulates Community Colleges*, in states with a *Two or More Boards/Agencies Coordinate and/or Govern Two-Year Institutions*, and in states with a *Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges* arrangement of governance. The policy environment appears to leverage the contribution of two-year institutions in achieving improved state educational attainment.

In contrast, two-year institutions in the majority (16 of 25) of Governing states appear to be constrained in contributing to increased educational attainment through the policy environment of low policy production addressing the problem. In these states, the structure and arrangement of higher education governance potentially effects two-year institutions related to Kingdon's multiple streams model. First, the political stream may not couple as often in the Governing board states because the boards for the four-year schools may hold historical political power overshadowing the role and function of two-year institutions in the higher education pipeline. In the case of the *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* and the *Independent State Board Governs Community Colleges and/or Technical Institutions*, political forces may gather to marginalize the two-year institutional leaders. The historical power may control the political process and the focus of the state legislature causing the political process to work against two-year institutions. Second, the Governing structures may not be able to agree on the problem to be solved, or the solutions to be pursued, resulting in a lack of policy solutions.

This study's findings support and expand previous governance research filling a gap in the literature addressing state governance of two-year institutions of higher education. The

study did not intend to measure the effects of individual policies, but rather to examine patterns of state educational policy production as a means to expand understanding of the shaping influence of governance arrangement on two-year institutions. The findings of this study are reviewed next against the previous literature.

Governance and College Cost

The study supports previous findings that a state's governance arrangement impacts the adoption of higher education finance and accountability policies (Knott & Payne, 2004; Lowry, 1998; McLendon et al., 2007). Coordinating and Mixed states enacted affordability, finance, and accountability policies with higher mean numbers than the Governing states. This study also supports previous research indicating governance influences tuition and student aid in the form of policy production (Knott & Payne, 2004; McLendon et al., 2011; Zhang, 2008). The Coordinating and Mixed governance arrangements enacted policies addressing tuition and student aid in higher mean numbers than the Governing states.

This study's findings contrast with Hearn and Griswold's (1994) study which found no difference between Coordinating and Governing arrangements in enacting policies to address affordability for postsecondary attendance. This study found clear a difference between the states in the pattern of affordability policy production. Coordinating states enacted a higher mean number of affordability policies than the Governing or Mixed states.

Governance as Buffer and Intermediary

Tandberg previously found the political process may operate differently based on governance arrangement and that the arrangement can result in positive and negative buffering effects (Tandberg, 2013). This study supports Tandberg's conceptualization of

governance as a boundary-spanning organization. A positive buffering pattern was found in the Coordinating and Mixed states. In these states there was higher policy production across all types of policy. The policy environment allowed the political stream to couple with the problem and policy streams more often. The resultant policy was beneficial to the contribution of two-year institutions for increasing educational attainment.

In contrast, the Governing states enacted a lower mean number of policy in seven of the eight types. This pattern signals a negative buffering effect of the governance arrangement. In Tandberg's conceptualization of governance arrangement as a boundary-spanning buffer, the political process is altered by having one entity (or competing entities) buffering the relationship with the governor and legislature. There may be instances where the four-year institutions enjoy what Tandberg notes as a higher "ranking" resulting from historical preferences within states.

Other reasons for the potential negative buffering may come from the scope of duties assigned to Governing boards. McGuinness notes that a Governing board is charged with representing the interests of the institutions it represents, not overall state attainment. Strategic planning, budgeting (operating and capital), and allocating resources between and among the institutions within the board's jurisdiction is another responsibility of Governing boards. The Governing boards do not consider matters outside of their scope of duties; including state educational attainment which may not be within their assigned scope. These states would have less incentive to voluntarily take steps to increase attainment and the contribution of two-year institutions to increasing educational attainment.

Hearn and Griswold (1994) noted the structural arrangement of higher education governance may be beneficial at one point in history and constraining in another. This study's findings suggest this is the case in Governing states. The wider interest of the state is not addressed through the narrow policy focus limited to the institutions governed in the Governing states. Therefore, the structural arrangement of higher education governance may be impeding the contribution of two-year institutions in the Governing states to improving state educational attainment through the narrow policy focus as compared to the broad policy focus of the Coordinating and Mixed governance arrangements.

Governance and Higher Education Performance

McLendon, et al. (McLendon et al., 2005) previously found weak empirical support for the influence of governance on the propensity to adopt financial reforms; and no connection between governance and the propensity to adopt new accountability policies. This study found the Coordinating and Mixed states enacted both Accountability and Finance policy in higher mean numbers than the Governing states. Finance and accountability policy was enacted to establish benchmarks and to reward institutions for improved student outcomes through Performance Based Funding.

Richardson et al (Richardson Jr. et al., 1999a) found the arrangement of governance (system design) determines system performance. This study's findings support Richardson's previous finding and suggest the Coordinating and Mixed states have a structural advantage over the Governing states for improved performance. The structural advantage is achieved through the coordination to achieve state educational goals. McGuinness (McGuinness Jr., 2001a) documents that Coordinating arrangements focus on state and system needs and

priorities rather than on advocating the interests of a particular institution or system of institutions. The Coordinating arrangements are also charged with planning for the state postsecondary education system as a whole creating a broad policy environment inclusive of two-year institutions as a means to increase state attainment. In most coordinating board states, this planning can include both public and private institutions, and in some states, for-profit institutions.

Governance and Policy Innovation

Previous research found centralized higher education governance is most influential in the core educational activities of a state's postsecondary enterprise (Hearn & Griswold, 1994; McLendon et al., 2007) and that policy priorities vary by structure type. This study found decentralized governance was most influential. The Coordinating and Mixed states enacted a higher mean number of more policies than Governing states in the core educational policy areas of Affordability, Postsecondary Transitions, Workforce and Economic Development. The states enacted higher mean policies in all eight policy types. In contrast, the centralized Governing states enacted the lowest mean number of policies in seven of the eight policy types, and ranked second to lowest in the remaining policy type. These findings support the previous literature indicating policy priorities vary by structure type (Hearn & Griswold, 1994).

Other research on governance and policy innovation previously found that academic reforms associated with student outcomes were positively associated with Governing board centralization (Hearn & Griswold, 1994; Marcus, 1997). This study found the opposite. Coordinating and Mixed states had higher mean policy enactments than the Governing states

in the academic reform categories of Postsecondary Transitions and Postsecondary Remediation. The coordinating function of governance was found to be influential in addressing the problem of educational attainment through policy innovation.

Findings from this study support previous findings on the regional effect of policy innovation diffusion (Hearn et al., 1996; McLendon et al., 2007). The SREB region was found to combine with governance arrangement in three states (Kentucky, Louisiana, and West Virginia). This finding suggests the SREB has some influence in the educational attainment policy agenda in these state contexts. The implications for policy and practices are discussed next.

Implications for Policy and Practice

The implications of this study's findings are important for policy and practice. This section provides an overview of the study's implications for state arrangement of higher education governance followed by the implications for states for each type of Boosting College Completion policy.

Governance Arrangement Implications for States

If states are to increase educational attainment, all segments of the student pipeline need to support student progression into and through higher education (Hauptman, 2012; Kelly & Schneider, 2012b; McLendon & Perna, 2014; Perna & Finney, 2014a; Shapiro & Dunder, 2013). Findings from this study suggest some states may need to address coordination of higher education to ensure the pipeline of students is functioning adequately to achieve increases in educational attainment to meet projected labor market demand.

States with a Governing arrangement should pay special attention to the policy environment created by the arrangement of governance. For example, the function of Governing boards is to govern institutions (see Chapter Two and the previous section), not to address broader state goals (McGuinness Jr., 2014a) of educational attainment. This may be problematic for Governing states trying to increase educational attainment as it is a broad state goal outside of the scope of duties assigned to Governing boards, rather than their limited scope of representing the interests of their institutions before the legislature and governor (McGuinness Jr., 2014a). The 25 Governing states are structured with a narrow policy focus to act in the best interests of the institutions they represent, not to address the broad goals of the state. The key implication of this finding is that states without a coordinating function for higher education may be unable to increase educational attainment in any significant way due to the narrow focus of the Governing board arrangement of governance (Perna & Finney, 2014b). The two categories of Governing arrangements examined for this study account for 25 states, a significant portion of the national potential for attainment. If the arrangement of governance in these states is limiting policy innovation and the role of two-year institutions, the states are also limiting the potential for increases in national educational attainment.

The challenges of the influence of governance arrangement and a narrow policy focus may be especially pronounced in the 11 states (Connecticut, Delaware, Indiana, Kentucky, Louisiana, Maine, New Hampshire, North Carolina, South Carolina, Virginia, and West Virginia) arranged with an *Independent State Board Governs Community Colleges and/or Technical Institutions* governance arrangement. In these 11 states, the independent board

may compete with the four-year board (and/or K-12) for political support from the governor and the legislature, but the historical political power of the four-year Governing board may overshadow the two-year institutions. This competition for political support could result in Tandberg's (Tandberg, 2013) negative buffering effect resulting in a lack of policy production. Additionally, policy efforts to improve performance of the two-year institutions and to increase attainment may be disconnected from the four-year institutions through the separate governance arrangements. The policies may be limited in scope because the policy environment is mismatched with the broader problem of attainment. The implication is these 11 independent governing states may have the most difficulty increasing educational attainment without some form of coordination between the two- and four-year governance structures.

In the 14 governing states arranged with a *Consolidated Governing Board for Both Two- and Four-Year Institutions Governs Community Colleges* (Alaska, Hawaii, Kansas, Massachusetts, Minnesota, Montana, Nevada, New York, North Dakota, Rhode Island, South Dakota, Tennessee, Utah, and Vermont), where one might assume that higher education is coordinated, it is not the legislated responsibility of the governing board to increase state attainment. The Governing board is to govern the two- and four-year institutions, and (by legislated scope of duties) does not have not to be concerned with larger state goals. The implication is these governing states may have a mismatched policy environment where the problem cannot find policy solutions or political support. Alternately, the history in the state is likely dominated by the four-year institutions of higher education which may leverage the political process to their advantage at the expense of the two-year institutions. It is also

possible that both two- and four-year institutions of higher education are overshadowed politically by the K-12 education system which is supported through mandatory rather than discretionary funding. These states should determine where or if coordination is needed to achieve increased educational attainment.

In contrast with the Governing states, the states with a Coordinating and Mixed arrangement of governance have a wider scope of responsibilities. Governance in these states is charged with addressing state educational attainment and coordinating the pipeline of students (in some cases inclusive of the K-12 system). This function and responsibility to coordinate the student pipeline is suggestive of a beneficial policy environment for two-year institutions of higher education and their contribution to increasing state educational attainment. The pattern of policy making findings from this study is representative of the focus and scope of the broader state goal of attainment. The implication for these 25 states with Coordinating and Mixed governance arrangements is that addressing the problem of educational attainment may be easier through the coordination of higher education.

While it is true all types of two-year governance arrangements enacted 12 or more policies, the pattern of policy making suggests the four Coordinating and Mixed arrangements draw from the contribution of two-year institutions more broadly than the Governing arrangements. As a result, the policy environment in these states enables a greater contribution from two-year institutions for improved educational attainment. Specific examples of state actions for each type of policy are presented later in this section.

This study's findings have implications for states considering a restructure of governance for the P-16 pipeline. McGuinness (McGuinness, 2015) notes that states should

examine the political processes associated with state governance of higher education, in addition to the arrangement of higher education to ensure the state is able to increase educational attainment. He also notes state coordination of higher education is extremely complex and there are no easy answers. Governance reform can be costly, and changes to the arrangement of governance influences higher education finance and performance accountability policy (Tandberg, 2013). Systemic or transformative policy innovations such as a change of the arrangement of governance are context specific and not common (Mahroum, 2013), however, given the current context of economic and social pressure on states and higher education, restructuring of governance may be under consideration in some states. Policy leaders should recognize that a good system of higher education balances the needs of the state, society, and the needs of institutions (McGuinness, 2015), and that wholesale reorganization may not be necessary to achieve state attainment goals. Rather, better coordination across segments of the student pipeline may produce better attainment.

There is no one size fits all arrangement of higher education governance. Each state needs to assess its educational attainment goals, determine the best and highest potential for improvement, and enact and monitor policies to achieve those goals (McGuinness, 2015). Improving state educational attainment will require an examination of the state's role, developing a regulatory framework that protects students but encourages new methods of content delivery, and an environment that provides incentives for improved student outcomes (Brewer & Tierney, 2011). To dramatically improve educational outcomes means improving all stages of the pipeline, including two-year institutions.

The multiple missions of two-year institutions, and the nearly 50% of all undergraduate enrollment, provides perhaps the largest potential for increasing educational attainment (Perna & Finney, 2014a; Rosenbaum, Deil-Amen, & Person, 2006). In the long term, the policy environment within states is one piece of the puzzle and policy enactment is not the same as policy effectiveness. Regardless of the arrangement of governance, the type of policies supportive of two-year institutions and the students they serve is important if states are to improve educational attainment. The next section summarizes implications for states by type of policy.

Policy Implications for States

This study found that policy type varied across two-year governance arrangement suggesting differing contexts influence the policy process. The type of policy enacted by states will determine increases in attainment. States need to be cognizant of all types of students entering and exiting the higher education pipeline (Figure 2.3). Ideally, states should conduct a holistic review of the educational attainment pipeline from secondary to postsecondary education to determine the proper *type* of policy to best address student momentum roadblocks and barriers. Some specific implications for states for each type of Boosting College Completion policy is presented next.

State affordability policy. This study found Affordability policy to be enacted most often among the fifty states regardless of arrangement of governance. The implication of this finding is two-fold for states. States with high Affordability policy production from 2005-2012 should determine whether the enacted policy has made postsecondary education more affordable for the typical two-year student. Financial aid in the form of merit scholarships is

not likely to be of benefit to the majority of students with the greatest need who often come from poorly equipped high schools (Dowd & Grant, 2006; Jaoul-Grammare, 2007). Merit aid is more likely to benefit higher income students and families who would have been able to pay (McLendon, Tandberg, & Hillman, 2014). Merit aid should be balanced with need-based financial aid to ensure the lowest income students have an equitable chance to participate. With limited state appropriations, states should at least consider the fact that awarding merit aid to a few constricts affordability for students most in need (Delaney, 2014). A wholesale review of financial aid policies is warranted (Wildavsky, Kelly, & Carey, 2011a)

Many states enacted need-based aid with GPA requirements for continued funding. The outcome of these policies should be examined using longitudinal data to determine if students receiving need-based aid are completing postsecondary credentials as intended. Adding a GPA and other requirements for continuation of aid may do a disservice to two-year students and may derail student progression. If full-time enrollment is a requirement of need-based aid, the aid award should be sufficient to support cost of living. Otherwise, students will continue to have to work either full or part-time to support themselves. If this is the case, it is likely students may not complete and the policy has negative unintended consequences. If states do not have need-based aid programs, a re-examination of financial aid distribution is warranted and need-based policy is needed.

As college costs rise, students and families are making hard choices about whether to attend postsecondary education (M. Schneider & Yin, 2011; M. Schneider, 2010). All college choices have societal impacts, especially for students from lower socio-economic

status, first generation, and minority populations who are most likely to enroll in two-year institutions. Pricing out students through inflated tuition prices does a disservice to students and society. States can draw attention to two-year institutions as an economic solution to the high cost of college and encourage students to consider the option of a two-year transfer degree or a two-year applied science degree with transfer potential. The “free” community college movement is in its infancy, but it holds potential to assist many students as an economical first step on the pathway to educational attainment.

Cost is not the only factor in the equation. Two-year institutions need to be able to transition students toward completion. States should align financial aid closely with Postsecondary Transitions policy and attainment goals.

State Postsecondary Transitions policy. This study found Postsecondary Transitions policy to be the second highest enacted policy type. In common institutional vernacular, many Postsecondary Transitions policies addressed student success. These success measures are important for retention and completion of postsecondary credentials, but the initiatives need to target the proper “treatment” to identified student need. Better data will be required to implement early warning systems and to address issues of retention and student progression. Better data may also point to the need for reform rather than adjustment of practices. The majority of the policies enacted during the study period increased student momentum and efficiency by providing remediation in high school, dual enrollment opportunities, accelerated high school diplomas, and some less than baccalaureate credentials at four-year institutions. These policies may be effective strategies for some portion of students, but the policies are reliant on secondary schools for success. Higher education

institutions cannot be held accountable for secondary initiatives. Campus based success initiatives should be created, implemented, measured, and improved with real time data to reduce the student loss points. States should examine the outcomes of the policies enacted from 2005-2012 and continue efforts in coordinating K-12 and higher education systems to create student momentum.

As with Affordability policy, states should consider the effect of Postsecondary Transitions policy to ensure the policies are assisting all students. For example, early high school graduation may benefit higher income students in wealthier school districts but not benefit disadvantages students in poor performing high schools. Additionally, nontraditional and underrepresented student populations have specific needs that may or may not currently be addressed in policy. Nontraditional students are becoming the majority of students enrolling on campuses, and this is not likely to reverse as lifelong upskilling is required in the Knowledge Economy (Rosenbaum et al., 2006). Previous research has indicated little or no effect of student success programs (Bailey, 2012; Kelly & Schneider, 2012a). Addressing all student progression is important to improve educational attainment for both state equity and efficiency purposes. States need a reform agenda that includes all students, including first generation and nontraditional students.

State Accountability Policy. This study found states enacted numerous Accountability policies creating longitudinal data systems and performance metrics. The implication for states in the area of Accountability policy is the need to recognize not all students are ready for postsecondary education, some enter but cannot achieve at necessary levels, and that some students take longer to become successful. The open door policy of

two-year institutions places them at risk of being viewed as underperforming in Accountability metrics. Policy makers need to recognize the enormous challenge of supporting students moving into and through two-year institutions, and create accountability metrics that do not unfairly punish two-year institutions (Wildavsky et al., 2011c).

Longitudinal data systems, efficiency measurement, and performance measurement policies are needed to improve the performance of higher education, however, the initiatives need to have adequate funding and highly trained staff to effectively monitor improvement. Accountability performance metrics should reflect both two- and four- year contributions to educational attainment by measuring part-time enrollment, short-term stackable credentials, and reverse transfer completions to accurately capture the contribution of two-year institutions. For example, a short-term certificate in a technical occupation may be sufficient to attain living wage employment, but his type of credential has not historically been captured in labor market or Census data.

Another performance measurement to capture the contribution of two-year institutions is to disaggregate by degree type. Students in vocational degrees may or may not be retained and graduate at higher rates than students in transfer degrees. Data should reflect this gradation rather than aggregating all degree seekers into a composite measurement. States should measure the outcomes of current Accountability policy and ensure two-year institutions are not disadvantaged in performance metrics.

State Workforce and Economic Development Policy. This study's findings indicate various efforts by states to link secondary education to postsecondary education and the workforce. The implication of this finding is that states may be making progress in better

aligning systems, but need to ensure the enacted policies are having the intended effect. Kelly and Schneider note that sub-baccalaureate credentials hold the greatest promise for contributing to attainment increases (Kelly & Schneider, 2012b). As labor demand evolves to a wider range of short-term and competency-based credentials, states should examine their workforce goals to better align higher education credentials and the role of two-year institutions to labor market demand. States should recognize the value of two-year and sub-baccalaureate credentials to avoid a future workforce shortage of middle skill labor. Finally, states should ensure proper career decision making information is available to students and parents early in the K-12 pipeline.

States should examine the outcome of the Workforce and Economic Development policies enacted from 2005-2012 to ensure the policy achieved its intended effect. New policies should be enacted to further expand the beneficial aspects of connecting the linkages across secondary and postsecondary education and the workforce.

State Finance Policy. This study found Finance policy was not enacted as often as Affordability, Postsecondary Transitions, Accountability and Workforce and Economic Development, Finance policy has important implications for two-year institutions. Depending on the historical practice and tuition policy in the state, the cost of postsecondary education may limit participation. This may be the case in states with higher levels of high school graduation that have been previously found to be associated with higher levels of tuition (Mclendon et al., 2011).

Funding formulas for tuition and fees can open or close doors of opportunity. States should examine funding formulas for two- and four-year institutions to ensure two-year

institutions are adequately funded for the numbers of students served. Educating an underprepared student is likely to cost more than educating highly prepared students. Funding formulas should take this fact into consideration to support retention, student success, and the future workforce. Finance and Accountability policies need to align.

At the federal level, the U.S. House of Representatives Concurrent Resolution for the fiscal year 2017 budget (*Concurrent Resolution on the Budget Fiscal-Year 2017*, 2016) freezes PELL grant spending for low-income students for ten years. The impact to states of this budget proposal is that low income families would have less spending power for four-year degrees. States should monitor and consider federal financial aid policies when establishing student aid funding formulas to ensure two-year students have adequate financial aid opportunities. As with the previous policy types, states should examine the outcomes of policy to ensure the policy is having the intended effect and that two-year institutions are not disadvantaged in the funding formula process.

State College Completion policy. This study's findings indicate many states studied various aspects of college completion from 2005-2012. States studied institutional funding, planning and design of new educational delivery systems, reducing remedial education, improving student progression/articulation/finance and other means to improve attainment. A study is a first step and recognition of a problem, but the implication is that a study is not a policy for improvement. States should follow through on study recommendations and enact policy to create improved educational attainment. Multiple policy organizations recommend more formalized and guided pathways to assist students in determining the best outcome for their career selection whether it be workforce entry or transfer to a four-year institution

(Bosworth, 2012; *Lessons from the Aspen Prize for Community College Excellence*, 2015; J. S. Levin, 2001; Symonds et al., 2011). States should work to provide this information early and often to students and families as a means to avoid a market failure through lack of information.

Educational attainment of 67% is a stretch for all states to achieve, but this study's findings suggest the Coordinating and Mixed forms of arrangement of governance are better positioned to remedy the problem. Governing board states should take steps to better coordinate the pipeline, especially for nontraditional students entering and reentering the pipeline at multiple points (Longanecker, 2006). Funneling resources into the same old system won't solve the problem (Wildavsky, Kelly, & Carey, 2011b). The mature enterprise of higher education (which is overall resistant to innovation) needs disruptive innovation to address the attainment challenge (*A Test of Leadership: Charting the Future of U.S. Higher Education*, 2006). States should act to create policy solutions that reflect all types of completion.

Policies supportive of non-selective two-year students are not the same as those that benefit four-year selective institutions. The Aspen Institute has created five themes characterizing two-year institutions that achieve exceptional outcomes for students: 1. strong leadership and culture, 2. guided pathways to continuing education and well-paying jobs, 3. intentional focus on improving teaching and learning, 4. strategic data use to improve practice and close equity gaps, and 5. partnerships and structures aligned to defined student outcomes (*Lessons from the Aspen Prize for Community College Excellence*, 2015). Institutions that embody these five characteristics far exceed the national average for two-

year institutional student success performance outcomes. States should adopt these measures of excellence in ensuring Completion policy is reflective of what is known for increasing student success.

State Transfer and Articulation policy. The study found Transfer and Articulation policy was not widely enacted across the 50 states. Existing policy may have already addressed the problem prior to 2005 in some states, however, states should examine student outcomes to determine the effectiveness of transfer. In states without clear transfer and articulation pathways, policy needs to be enacted to create seamless pathways for student progression. Policy does not entirely solve the problem. Students need accurate and timely information (McLendon & Perna, 2014). Requiring institutions to provide this information may assist in student transfer. In states with a common course numbering system, the effectiveness of the transfer process should be analyzed and policy should be “tweaked” to ensure ease of transfer. In states with without common course numbering or in states with an articulation agreement, the entire transfer process should be examined to remove barriers for progression and completion.

State Postsecondary Remediation policy. This study found Postsecondary Remediation policy to be enacted least often among the 50 states. The implication of this finding is that Postsecondary Remediation is most problematic for two-year institutions and policy solutions are needed to create student progression. In states enacting Postsecondary Remediation policy, the outcomes of the policy should be examined to determine if the policy achieved its intended effect without negative consequences. In states not enacting

Postsecondary Remediation policy, remediation outcomes should be examined to determine if change is needed to improve student progression and completion.

States should also examine the K-12 system and assessments of college readiness to ensure students are graduating from high school with the ability to succeed in college. States should make strong efforts to remediate in high school so taxpayers do not pay twice for the same course. Additionally, the coordination between K-12 and higher education should be examined to ensure standards are aligned (Perna & Armijo, 2014).

In summary, states should monitor the outcomes of all policy types enacted from 2005-2012 to determine if the policy is having the intended effect. In states with fewer policy enactments, a fresh examination of the arrangement of governance to address the problem of educational attainment and workforce readiness is recommended. The implications for practice are presented next.

Implications for Practice

This study's findings have multiple implications for practitioners. Increasing educational attainment is a complex undertaking and it is not an "either or" affair. States cannot have increased educational attainment without addressing academic preparation in K-12, without addressing poor completion rates of two-year students, and without a broad policy agenda for access and completion. States must address all of the above. Two-year institutions serve an important role in any strategy to increase attainment. All states need to draw attention to underprepared students and to the specific role that two-year institutions play in workforce and economic development strategies. The economy requires a variety of job skills and credentials. States should inventory their employment needs and projected

needs, and segment their educational attainment strategy across two- and four-year institutions.

This study's findings suggest two-year institutions are constrained in Governing states through the policy environment. Practitioners in these states need to recognize the policy environment and be proactive in developing policy solutions amenable to their specific environment. The Aspen Institute indicates two-year practitioners need to be able to communicate a clear vision focused explicitly on student success, and ensure that all the institution's work and resources aim towards that goal (*Lessons from the Aspen Prize for Community College Excellence*, 2015). These practitioners also need to be able to advocate on behalf of the functional utility of two-year institutions in the higher education pipeline.

Two- and four-year practitioners need to find ways to work together, especially in states with Governing arrangements, and in all states enacting fewer than 12 educational attainment policies. If Governing state practitioners are able to craft policy solutions conducive to political support, the legislature will be less likely to impose solutions upon them. If two- and four-year leaders in Governing states are not able to craft solutions amenable to the policy environment, they run the risk of having solutions imposed upon them. Even if two- and four-year system leaders are able to craft politically palatable solutions in the short-term, the long-term problem of a mismatched policy environment exists. Ultimately, the leaders themselves will not be able to sustain momentum for change without the state addressing the mismatched policy environment. Two-year practitioners should advocate for a strong voice in the discussion of any restructuring of governance arrangement, rather than having the restructuring imposed upon them.

This study found Postsecondary Remediation policy was enacted least often compared to other types of policy. The implication of this is two-fold. First, there may not be recognition of the problem of remedial education and its impact on postsecondary attainment. Therefore, increases in educational attainment are not likely to be achieved. Second, remediation policy may already be in place and it may or may not be achieving the intended outcomes, or it may be having an adverse impact on student enrollment. Either of these scenarios will stymie increases in educational attainment. The remediation policy should be monitored for positive and negative effects on student progression.

Two-year leaders in all states should advocate for these underprepared and underserved students through policy to ensure the open door remains open. The mismatch of K-12 and higher education standards is problematic and two-year institutions should not be penalized for this fact (Kurlaender, 2014; Perna & Armijo, 2014). Early assessment of college readiness is needed in secondary education. Interventions need to ensure students graduate ready to enter college level coursework without remediation. States need to ensure the assessments of readiness utilized as an entrance exam to their two-year institutions and the remedial interventions used to consider students ready for college level coursework have a minimal impact on student progression. Two-year practitioners need to make the case that educating underprepared students costs more than educating students through a selective admissions process. Funding formulas should reflect this disparity.

This study found the majority of states enacted Accountability and Finance policies. The implication for two-year system leaders is the need to advocate to ensure performance measures (and associated funding formulas) do not favor four-year institutions at the expense

of their institutions. This will likely be easier in Coordinating and Mixed governance states, and harder in states with Governing arrangements due to the mismatch of policy environment. Practitioners should advocate for performance measures that are meaningful and specific to two-year institutions with regard to the students they serve, and not identical to four-year performance measures. Practitioner advocacy should focus on the dual roles of equity and efficiency provided by two-year institutions. System and institutional leaders should be vocal in protecting the open door of access for the purposes of equity and they should be vocal in promoting the economic value of a two-year degree to both the general public and policy makers for the purposes of efficiency. They should shine a light on the increasing role of two-year institutions in state educational attainment.

The study's findings indicate some states are creating ways to coordinate higher education through system design and through policy. The overall implication for two-year practitioners is the need to elevate the role of the open door in the higher education pipeline that is celebrated for access but maligned for completion. Democracy benefits from the open door. With the national dialogue focused on attainment, completion, and "free" community college, two-year system and institutional leaders should work to find their voice in the dialogue. Practitioners should give voice to the counter-narrative of success achieved through two-year institutions, rather than allowing the historical narrative of two-year institutions as being institutions to "*keep out of college those who have no taste for higher education*" (Lucas, 1994a) to perpetuate.

Across all states the findings of this study (and the current political climate) should incentivize two-year systems and institutions to mobilize and advocate more strongly for

recognition of the role of two-year institutions for increasing state educational attainment. In Kingdon's terms, the window of opportunity is currently open to link the problem, the policy solutions, and the political streams to create a policy environment supportive of two-year institutions. In Coordinating and Mixed governance arrangement states, practitioners should expand their policy agenda for two-year institutions. Two-year practitioners in Governing states need to leverage the open window of opportunity and work to couple the three streams to ensure their institutions retain an open door of access and that they are positioned to ensure completion. In Governing arrangement states, practitioners should also expand their influence in the educational attainment discussion and loudly steer any efforts toward coordination or restructuring to their own benefit.

Limitations of the Study

This study was limited to state-level educational attainment policies as reported to the Boosting College Completion project administered by the National Center for Higher Education Management Systems and the Education Commission on the States from 2005-2012, to publicly available data on governance arrangement as reported to the National Center for Higher Education Management Systems (NCHEMS) Postsecondary Structures Database by states, and to publicly available data from the 2000 U.S. Census. The study did not examine the factors related to individual student degree attainment, institutional degree attainment, the politics of trustee selection and political bias, or other individual factors related to institutional degree attainment policy innovation. Rather, the study focused exclusively on the patterns governance arrangement with an agenda setting educational

attainment policy environment leveraging the public investment through the contribution of two-year institutions of higher education to improving state educational attainment.

The study recognizes the limitations to crisp-set QCA as a methodology and its inherent loss of variability. It was not the intent of this study to examine individual effects. Rather, this study was intended to understand the agenda setting policy environment of governance arrangement to determine which governance environment is more favorable to two-year institutions.

Future Research Directions

Additional research is needed to address current knowledge gaps surrounding both the policy environment context and the policy outcomes for two-year institutions. The findings from the current study provide a number of potential research pathways. The two areas of research are described next.

Governance research

Multiple opportunities exist for future research focused on the governance of two-year institutions. The future research opportunities are outlined next.

Governing board policy environment mismatch. Findings from this study suggest governance context matters for two-year institutions of higher education. Research should be conducted to examine the specifics of how the Governing board arrangements are influencing policy and where, or if, there is a policy mismatch resulting from the arrangement. Research questions should focus on the role of the legislature, the role of the governor, the role of system presidents, and the role of institutional presidents/chancellors and how each role influences policy production. The history of the arrangement should be examined to

determine where the policy making patterns originated. Insights gathered could be useful for improving Governing board policy production and innovation.

This study found four states with low educational attainment (below 28%) and very low policy production (Alabama, Indiana, Nevada, South Carolina). Three of the four states has a Governing board arrangement of governance. Multiple case study research should examine the three states to examine why the state enacted fewer than 12 educational attainment policies for the period 2005-2012 in the context of the policy environment. This study could assist in understanding the specific challenges of the states during the time period. States in similar contexts could benefit from the insights.

States with restructured governance. This study found multiple states reorganized the arrangement of governance prior to 2005, and during the study period of 2005-2012. States have reorganized since the study period as well. Future research should compare and contrast states which have restructured higher education governance to determine the benefits and challenges before and after the restructuring process. The restructuring process itself could be the topic of research to determine the reasons for restructuring and the political power utilized to attain a restructured system of higher education. Future research should examine the focus of policy resulting from the restructured arrangement to determine how the arrangement is shaping the contribution of two-year institutions to state educational attainment. Future research should also examine whether educational attainment was impacted from the change in governance arrangement.

Regional policy influences. The four regional higher education compacts are policy influencers. They have a longstanding relationship with, and they are supported by,

governors to provide advice on policy matters impacting states. The regional effect of the SREB regional compact should be examined, as well as other regions. Future research should examine why and how the SREB is a policy influencer and how the other regions may benefit from similar work of their regional compact.

Meta-narrative of higher education success. Lastly, future governance research should employ narrative policy analysis to create a meta-narrative of the student pipeline of educational attainment. The meta-narrative would enable advocates for two- and four-year institutions to see the benefits of each segment of the student pipeline. The meta-narrative could serve to frame state discussions around a restructure of governance to create common ground for policy to speed the debate over restructuring and its possible effects. The meta-narrative would point to the promise of improved performance for states by expanding the role and focus of two-year institutions. As a result, a restructuring of governance arrangement may (or may not) be necessary, but policy focused on two-year institutions may gain more political support.

Policy research

The type of policy states enacted will set the stage for the success of two-year institutions. A number of opportunities for future policy research are outlined next.

Quantitative measurement of policy outcomes. This study found four types of policy enacted more often by states; Affordability, Postsecondary Transitions, Accountability, and Workforce and Economic Development. Each type of policy is a subset of the state's attainment policy agenda aimed at delivering change. The study was not able to assess the outcome and impact of any of the policies. Future research should utilize

quantitative methods to measure the outcomes against the intended effect to determine modification or repeal of the policy.

This study did not distinguish between need-based or merit-based aid in Affordability policy. The type of aid will matter greatly to two-year students, as their academic performance is not likely to garner merit-based financial aid. Clarification of the type of financial aid most beneficial to student progression can inform future policy. Future research should conduct quantitative analysis to determine the change in outcomes resulting from specific policies.

Findings from this study indicate states did not enact a large number of Transfer and Articulation policies. Existing policies may already provide a sufficiently clear pathway for student progression, however, there may be points in the student progression pipeline that remain problematic for student progression. For states that made (or revised) Transfer and Articulation policy, study of the duration of student progression from two-year institution to transfer to completion at a four-year institution could be informative to reveal areas for future policy improvements. Future research should compare student progression pre-transfer and articulation and post-transfer and articulation policy.

This study's findings indicate states enacted various Postsecondary Remediation policies, but in very small quantities. Remediation is a challenge for both students and two-year institutions. Future research should examine the states that enacted remediation policy banning postsecondary institutions from providing remedial education. Questions related to the impact of the policy on student enrollment, progression, and completion should be

conducted to determine if entering students were more college ready and if they completed in less time than prior to the ban on postsecondary remediation.

Qualitative analysis of policy innovation. Another line of future research should be to study each of the types of policy and determine how the policy arose within specific frameworks of public policymaking (Mahroum, 2013). This research can inform state policy makers (and policy advocates) to system issues surrounding identification of the problem being properly matched to a policy solution.

This study found a myriad of Postsecondary Transition policies initiating new student progression models. Narrative study of the lived experiences of under-prepared two-year college students should examine the impact of specific policies on their experience and progression through higher education. These insights could inform policy makers considering solutions for how to improve educational attainment and supporting the students they serve, and how the arrangement of governance should be aligned to ensure student success.

This study is one of a handful of studies examining the arrangement of governance for two-year institutions as part of the overall mission of state educational attainment. Future research should continue this examination to enable states and policy makers to effectively utilize two-year institutions to increase educational attainment.

QCA as a research methodology

The use of QCA as a methodology in educational research should be expanded. QCA offers many unexplored opportunities for educational research and policy analysis. The configurational nature of the methodology enables a new perspective for understanding and

analysis of complex contexts and questions. Rather than trying to determine which individual variables interact, QCA allows all conditions to combine in explaining the outcome of interest. QCA's consistency and coverage scores uncover meaningful information about how often the conditions combine and how one combination of conditions may be more impactful than another. Studies in QCA focus on how different conditions or causes fit together in one setting and contrast that with how they fit together in another setting to unravel the complexity contained within the cases (Blackman et al., 2013). This feature is especially useful in educational settings where determining causality is problematic due to the difficulties of randomization.

QCA is well suited to educational evaluation. This study utilized crisp-set QCA methodology, but the fuzzy-set QCA methodology would allow for more diversity. In fuzzy-set QCA, conditions can be calibrated into a range of "in" or "out" of the set, rather than a purely "in" or "out" which is the case with crisp-set QCA. This feature would likely be useful in many QCA educational research and evaluation studies. QCA could also be used as a complement to purely quantitative or purely qualitative research for comparison purposes. Previous studies conducted with purely quantitative methodologies could be conducted with QCA methodology for comparison of results.

QCA methodology could be used to in many ways to examine educational settings including student, departmental, institutional, and state level contexts to test for combinations of conditions explaining a phenomenon of interest. For example, at the student level, a study could be conducted to determine the combination of contextual conditions that lead to retention. The combination of individual student demographic characteristics, college

characteristics (small, large, urban, rural), financial aid award, first-generation versus non-first generation and other factors combining for students who are retained in courses rather than not-retained could be examined. The combination of conditions may uncover new knowledge that could guide student pathways and assist in retention, especially for first-generation and non-majority populations.

At a university or college departmental level, a study could examine what contextual environments create effective teaching. This information could be used in planning for greater student retention, especially in undergraduate gatekeeper courses. The study could examine how the combination of teaching style (flipped versus traditional classroom, large versus small class size, etc.), student characteristics (major versus elective), instructor characteristics (tenured versus non-tenured), time of day the course is offered (AM versus PM), use of technology (active versus passive engagement), assessment types (formative versus summative), and other factors combine for student retention and successful completion in gatekeeper courses. This understanding could aid in determining when to schedule courses or which type of instruction and assessment of learning benefits a new generation of learners with the ultimate goal of student retention.

At the institutional level, a study could be conducted to determine the contextual influences on the overall retention of college students. The cost of tuition, the amount of financial aid award, distance from home, degree major, on-campus versus off-campus housing, entering grade point average, student engagement in extra-curricular activities, and other known factors of retention could be examined to determine how the factors combine to influence retention. This understanding could aid in the establishment and justification of

funding for student success programs and supports. Alternately, the understanding could assist in the institution changing its selection process for admission of students, or requests for funding for student supports and adjustments in campus life policies.

At the state level, a university or community college system could examine overall student outcomes and graduation rates. Researchers could examine the combination of admissions criteria, student support systems, cost of attendance, available financial aid as a percentage of cost, size of the institution, average class size, student demographics, and other factors influencing student outcomes and on-time graduation rates. Understanding the combination of factors necessary for student success could lead to restructuring of state finance and performance policy.

In sum, QCA's ability to explore multiple pathways leading to the same outcome (rather than the net effect of individual variables) is an extremely important feature in educational research. Use of the methodology, and the knowledge it creates, could change many narratives within the discussion of higher education. The combination of conditions, rather than the net effects of individual variables, creates an easily understood and practical explanation of educational phenomenon that can be especially useful in policy discussions. QCA's roots in sociology are very transferable to the educational context. This author recommends wide use of QCA in educational research.

Conclusion

This dissertation explored how the state arrangement of higher education governance shapes the contribution of two-year institutions to educational attainment. The study looked broadly at the types of educational attainment policies enacted by states for the period 2005-2012. The study found states with a Coordinating or Mixed governance arrangement for two-year institutions of higher education enacted a higher mean number of attainment policies in all eight types. In contrast, the study found states with a Governing board arrangement enacted the lowest mean number of policies in seven of the eight types, and the states were the second lowest in the remaining type. The number of policies enacted was found to be important as a potential surrogate for both policy innovation and a state's focused approach on two-year institutions as a strategy to improve state educational attainment.

QCA revealed 18 of the 28 states enacting 12 or more policies for the period 2005-2012 were characterized by either a Coordinating and Mixed governance arrangement in the contexts of high and low population and high and low per capita income. Six more states enacting 12 or more policies were organized with some form of a Coordinating arrangement. In these states, demographic contexts did not combine with governance.

Three Governing board states in the contexts of low educational attainment, the SREB regional higher education compact, and high and low per capita income, enacted 12 or more policies. Seven states enacting 12 or more policies had no combination of context with governance. Twenty-two states enacted fewer than 12 educational attainment policies for the period 2005-2012. Sixteen of the 22 states were Governing arrangement states. Overall, state demographics (per capita income, population, state educational development) did not

consistently combine with the arrangement of governance in states enacting 12 or more policies for the period. Rather, the arrangement of governance and the type of governance structure was found to be crucial empirically.

The arrangement of governance and governance structures potentially affect two-year institutions for two reasons; politics and culture. Politics is reflected in Governing states where four-year institutions may have dominant power and long-standing relationships with legislative power bases. These political relationships can cause the political process to work against two-year institutions. The result is the contribution of the two-year institutions to increasing state educational attainment is constrained through lack of policy innovation and a coordinated state effort. The second effect of the arrangement of governance is the culture created by the structures which may reflect or cause either a narrow or broad focus on educational attainment. Coordinating and Mixed arrangements have a broad focus whereas Governing arrangements have a narrow focus.

Results suggest the arrangement and structure of governance is important for increasing educational attainment. Two-year institutions of higher education benefit from the broad policy environments and the policy priorities of the Coordinating and Mixed arrangements. Results also suggest Governing arrangements may constrain the contribution of two-year institutions of higher education to increasing state educational attainment through a mismatched policy environment and narrow focus. Future research should expand the study of state governance arrangement of two-year institutions and examine the outcomes of the enacted policies. These findings have implications for governors, system leaders, and state

legislators considering governance arrangement changes to improve performance of higher education to meet state educational attainment goals.

Overall, the study suggests that Coordinating and Mixed governance arrangement states may benefit the contribution of two-year institutions of higher education through a coordinated policy environment. In contrast, Governing board states may be constraining the contribution of two-year institutions of higher education through the function of governing (and its focus on the interest of the institutions it governs) rather than addressing broader state goals of education attainment.

The study produced a set of findings that increased understanding of the role of governance in higher education. Much more research is needed into both the specific outcomes of the enacted policies and of the intended outcome of the policy. The study showed the category of Affordability was the highest priority policy from 2005-12, which may be reflective of the Great Recession of 2007-2012, and current policy patterns may not reflect the same priority. Changes since the economic recovery in state policy may yield different patterns of policy enactment by the state arrangement of higher education governance.

The contributions of this study are important for states, governors, legislators and two-year practitioners, because policy is the means to increase state educational attainment. The suggestion that some governing arrangement states may be limiting the contribution of two-year institutions through a mismatched policy environment is important to states, governors, and policy makers. Two-year institutions enroll nearly 50% of all

undergraduates. The institutions must be successful if states are to achieve the intended increases in education attainment.

All states have a significant challenge to increase attainment to either “double the numbers” or to reach specific goals for attainment. As the policy debate transitions from access to completion and attainment, states will need to ask hard questions about campus practices and practice reform at scale (Delott Baker, 2012; Kelly & Schneider, 2012a). Achieving the lofty goals for increased state attainment may or may not be realistic, but states would be wise to create comprehensive reform inclusive of community and two-year institutions of higher education. The current longitudinal data is incomplete for some forms of workforce credential and it may skew actual attainment numbers. How attainment is measured, and having access to complete data, will be an important element in any discussion of setting and measuring progress toward state attainment goals (Jones, 2010; Kelly & Schneider, 2012a; Perna & Finney, 2014c).

This study was also not able to address the effectiveness of any of the policies enacted or the long-term outcome of the individual policy effects. Future studies should examine specific policies and the outcomes associated with the policy both qualitatively and quantitatively to determine which category will best shape the contribution of two-year institutions to improving state educational attainment goals. Future qualitative research should be conducted to determine the causes of limited policy activity in the Governing board arrangement states. Lastly, future research should expand the literature focused on governance two-year institutions.

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APPENDICES

Appendix A: Classification of State Higher Education Structures

(McGuinness Jr., 2014a)

Aims McGuinness

National Center for Higher Education Management Systems (NCHEMS)

The attached table displays all states, the District of Columbia and Puerto Rico according to three broad categories: states with consolidated governing boards, states with coordinating boards, and states with higher education service agencies. The figure organizes states according to the extent of the formal authority of the board or agency for academic policy and budget. Reading from left to right, the boards/agencies in the states on the left have more formal authority in these policy domains than those to the right. Consolidated governing boards have broad authority for both academic policy and budget related to the institutions under their authority. The states with coordinating boards/agencies are divided according to those with program approval authority and those with only program review authority. Within these two categories, the states are grouped according to the board/agency's authority in the budget process.

- Twenty-six (26) states plus the District of Columbia and Puerto Rico are consolidated governing board states. These states organize all public higher education under one, two or three statewide governing boards. None of these states has established a statewide coordinating agency with significant academic policy or budgetary authority between the governing boards and state government. Nine of these states organize all public higher education under a single governing board. The other 16 states have two or three boards: most often a governing board for universities and a governing or coordinating board/agency for locally governed community colleges and/or technical colleges.
 - Twenty-one (21) states are coordinating board/agency states.
 - Fifteen (15) of these boards have significant budgetary authority
 - Four (4) have limited budget authority.
 - Two (2) states have no authority to review individual institutional budgets. Washington State's Office of Student Achievement has authority to make strategic budget recommendations but does not review and make recommendations on institutional budgets. The New York Board of Regents has no budgetary authority.
 - Three (3) states (Alaska, Minnesota and Pennsylvania) and Puerto Rico have state higher education service agencies that carry out functions such as administration of student assistance, licensure and approval of non-public degree granting institutions, administration of federal and state categorical programs, and data collection and analysis. These agencies generally do not have significant roles in either program approval/review or the budget

process for the higher education system as a whole. Delaware, the District of Columbia and New Hampshire have higher education departments within the state education department under the chief state school officer.

- The Governor plays an increasingly central role in several states. In two (2) states, New Jersey and New Mexico, the higher education policy entities directly to the Governor. In addition, the executive officers of four (4) coordinating boards/agencies (Arkansas, Colorado, Massachusetts, Ohio and Washington State) and four (4) states with higher education services agencies are appointed by and/or service at the pleasure of the Governor.
- One (1) state (Michigan) has no statutory statewide higher education board or agency. The Michigan State Board of Education has Constitutional authority for overall planning and coordination of the state's education system, but because of the Constitutional autonomy of the state universities and local governance of community colleges, the State Board does not function as a statewide higher education coordinating agency.
- Five states (5) (Florida, Idaho, New York, Oregon, Pennsylvania and Rhode Island) have state boards with formal authority for all levels of education (early childhood education through higher education). Nevertheless, as illustrated in the attached table, the formal authority of these boards for higher education varies significantly. The Idaho and Rhode Island boards have governing authority for the state higher education institutions. In Florida and Pennsylvania, the state boards have limited authority related to higher education. In New York, the Board of Regents has no authority in the budget process. The newly established Oregon Investment Board has responsibility for overall policy and budgetary coordination but sector-specific coordination of higher education is the responsibility of the Higher Education Coordinating Commission.

Appendix B: Authority of State Boards and Agencies of Higher Education

(McGuinness Jr., 2014a)

Type of Board	Consolidated Governing Boards*		Coordinating Boards/Agencies			Policy Office Linked to Governor and no statewide board	Higher Education Service Agencies	No Statewide Higher Education Board or Agency
	One Board for All Public Institutions	Two or More Boards/Agencies Encompassing All Public Institutions						
Budget Role	Yes	Yes	Consolidated or Aggregated Budget (f)	Budget Review Recommendation (f)	No budget role	Yes	None	N/A
States	Alaska (b)* Hawaii Idaho (a) Kansas (d) Montana Nevada North Dakota Rhode Island (a) South Dakota DC PR*	Arizona (m) California (c) Connecticut (o)(w) Delaware Florida (a) (l) Georgia (n) Iowa (c) Maine (n) (e) Minnesota (b)* Mississippi (c) New Hampshire (n) North Carolina (n))*) Utah (n) Vermont (k) Wisconsin (n) Wyoming (c)	Alabama Arkansas (w) Colorado (w) Illinois Indiana Kentucky Louisiana Massachusetts (j) (w) Maryland Missouri Ohio (w) Oklahoma South Carolina Tennessee West Virginia (p)	Nebraska Oregon (q)(q)*(v)(a) Texas Virginia	New York (a) Washington (v)(w)	New Mexico (h)(w) New Jersey (u)(w)	Alaska (b)* Minnesota (b)(w)* Pennsylvania (a) (i)(w) PR*	Michigan

Type of Board	Consolidated Governing Boards*		Coordinating Boards/Agencies			Policy Office Linked to Governor and no statewide board	Higher Education Service Agencies	No Statewide Higher Education Board or Agency
	One Board for All Public Institutions	Two or More Boards/Agencies Encompassing All Public Institutions	Consolidated or Aggregated Budget (f)	Budget Review Recommendation (f)	No budget role			
Budget Role	Yes	Yes	Consolidated or Aggregated Budget (f)	Budget Review Recommendation (f)	No budget role	Yes	None	N/A
Total States	9 plus 2* (AK, PR)	17 plus 1* (MN,)	15	4	2	2	1 plus 3* (AK, MN, PR)	1
	26 (*3)		21			2	1 (3*)	1

NOTES: States listed in more than one column are noted with an asterisk “*” with the total number of duplicates at the bottom of the column. These states have consolidated governing boards and also higher education service agencies as noted.

(a) State board/agency responsible for all levels of education (P/K-16/20). State boards/agencies in Florida, New York and Pennsylvania have coordinating, not governing authority for public institutions. State boards in Idaho and Rhode Island have governing authority. State board in Oregon is a policy, planning and budgetary entity while responsibilities for each sector are carried out by sector entities. The Oregon Education Investment Board has strategic planning and coordinating authority for all levels of education, including the Higher Education Coordinating Commission (see (q)).

(b) State has both consolidated governing board(s) and coordinating or planning/service agency.

(c) One of the two boards is a statewide coordinating/regulatory body for locally governed community colleges and/or postsecondary technical institutions.

(d) Kansas Board of Regents is a consolidated governing board for universities and coordinating board for locally governed community colleges and Washburn University.

(e) Maine Maritime Academy is the only public institution with its own governing board outside a system.

- (f) Several states (e.g., Texas Coordinating Board for Higher Education) develop the formulae for allocation of state appropriations and/or make recommendations for overall system funding but do not review and/or make recommendations on individual institutional budgets.
- (g) Michigan State Board of Education has Constitutional authority for overall planning and coordination of the state's education system, but because of the Constitutional autonomy of the state universities and local governance of community colleges, the State Board does not function as a statewide higher education coordinating agency. State Board is the licensing authority for non-degree vocational-technical education and proprietary institutions and approves charters for private degree-granting institutions within the state.
- (h) The New Mexico entity is a cabinet-level department headed by a Secretary of Higher Education. The department has authority to review, adjust and approve public university budgets prior to submission to the department of finance and administration and limited authority primarily to review and study but not to take formal action to approve academic programs or other institutional decisions.
- (i) Pennsylvania State Board of Education's program approval authority is limited to specific areas (e.g., teacher education). Board also must approve new campuses or sites. Department of Education has budget responsibility for community colleges and regulatory responsibilities regarding for-profit institutions.
- (j) The Massachusetts Board of Higher Education serves as the coordinating board for all public higher education. The board also has overall state-level governing responsibilities for the state universities and community colleges, not the UMass. Each of the state universities and community colleges has a governing board which functions within the overall authority of the State Board of Higher Education.
- (k) Vermont has no statutory planning/coordinating entity. Vermont Higher Education Council is voluntary.
- (l) Florida State Board of Education has responsibility for policy direction and coordination of state's education system, P-20. Constitutional amendment passed in November 2002 created a Board of Governors for Universities, but the State Board of Education retains overall responsibility for policy coordination for all education. State Board of Education, through a chancellor for community colleges, coordinates locally governed community colleges.
- (m) State law enacted in 2002 eliminated most powers of the Arizona State Board of Directors of Community Colleges except for data collection and preparing an annual report. (n) The two boards in these states include a statewide governing board for universities and a statewide governing board for community colleges and/or technical institutions.
- (o) Effective July 1, 2011, the former coordinating board, the Board of Governors, was eliminated. The new Board of Regents for Higher Education is the policy-making authority for public higher education in Connecticut and as the governing body for the regional

community-technical college system, the Connecticut State University System and Charter Oak State College. The University of Connecticut retains its own governing board. The president is appointed by the Governor.

(p) West Virginia has two state-level coordinating boards: the Higher Education Policy Commission for four-year institutions and the Council for Community and Technical Education for community and technical colleges. The council and commission share coordinating responsibilities including developing a public policy agenda that is aligned with state goals and objectives and the role and responsibilities of each coordinating board.

(q) In June 2011, Oregon established a new Oregon Higher Education Coordinating Commission for planning and coordination of the whole postsecondary education sector, including the community colleges and the Oregon University System. New entity has authority to approve changes in missions but not approval of specific academic programs. In 2013, legislation was enacted strengthening the Higher Education Coordinating Commission, transferring responsibility for the community colleges to this Commission, and authorizing three public universities previously under the Board of Higher Education to have their own governing boards.

(r) Agencies in Delaware and New Hampshire are now units of the state department of education and are no longer independent entities.

(u) A Governor's reorganization plan in June 2011 eliminated the Commission on Higher Education and transferred its authority and duties to a Secretary of Higher Education who is appointed by the Governor and confirmed by the Senate. The Governor's Higher Education Council serves as an advisory body to the Secretary and the Governor.

(v) Entity makes overall recommendations on finance policy and strategic budget but does not review and make recommendations on institutional budgets.

(w) Entity executive officer is appointed by and/or serves at the pleasure of the Governor. Aims C. McGuinness Jr., NCHEMS. Draft March 2014

State	Consolidated Governing Board for Both Two- and Four-year institutions Governs Community Colleges States = 17	Independent State Board Governs Community Colleges and/or Technical Institutions States = 15		Coordinating Board for All Higher Education Coordinates Locally Governed Community Colleges States = 11	Independent State Board Coordinates Community Colleges and/or Technical Institutions States = 7	State Board of Education Coordinates and Regulates Community Colleges States=5		Four-year Institutions have Two-year Branches States = 11	Postsecondary Technical Institutes Organized Separately From Community Colleges States = 12	Some Four-year Institutions Offer Associate Degree Programs States = 19
Nebraska				X (12)						
Nevada	X									
New Hampshire		X								
New Jersey				X					X (13)	
New Mexico				X (19)			X	X		X
New York	X (14)									
North Carolina		X								
North Dakota	X									X
Ohio				X			X	X	X	X
Oklahoma		X		X			X	X		
Oregon				X						
Pennsylvania				X			X	X		X
Rhode Island	X									
South Carolina		X (15)					X			X
South Dakota								X		X
Tennessee	X									
Texas				X			X	X		X
Utah	X (21)								X (21)	
Vermont	X									
Virginia		X								
Washington					X					
West Virginia		X								X
Wisconsin		X					X			
Wyoming					X					

- (1) Community Colleges and technical institutions are both under jurisdiction of the State Board of Education, but organized separately.
- (2) Only one campus functions as a community college, other former community colleges have been integrated with regional UA institutions.
- (3) Colorado Board is a governing board for state-operated community colleges and coordinating board for locally governed colleges.
- (4) State Board of Education's jurisdiction includes both the coordinating board for community colleges and the administrative entity for technical institutions but these units function separately.
- (5) Technical College System of Georgia.
- (6) Idaho State Board is responsible for all levels of education, including coordinating two local governed community colleges, governing universities that have community college missions and the technical colleges.
- (7) Ivy Tech Community College Board of Trustees.
- (8) State Department of Education coordinates locally governed community colleges and administers the state operated technical institutions
- (11) Board of Regents has a coordinating responsibility for local community colleges. Former vocational/technical centers are now linked to one of the two universities.
- (12) In addition to the formal role of the coordinating board, a state association performs a voluntary coordinating role for the locally governed community colleges.
- (13) Vocational-technical institutions are under the authority of the Department of Education.
- (14) SUNY includes both community colleges that are partially financed at the county level, as well as five state-funded colleges of technology. CUNY includes several community colleges.
- (15) State Board of Technical and Comprehensive Education.
- (16) Indiana University branches transitioning to four-year campuses.
- (17) Kansas Board of Regents governs four-year institutions but coordinates locally governed community colleges.
- (18) Michigan Department of Education has limited authority to only approve certain career and technical programs as recommended by local community colleges
- (19) Statewide coordination by New Mexico Department of Higher Education
- (20) Community colleges and technical institutes/colleges are both under the state Board of Regents but function separately.
- (21) Utah College of Applied Technology and community colleges are both under the State Board of Regents but function separately. (McGuinness Jr., 2014d)

Appendix D: Cumulation of the Study

Items included in the cumulation of the study include;

1. Boosting College Completion Policy Coding Process
2. Boosting College Completion Policy Criterion for Inclusion in the Study
3. Boosting College Completion Coding Dictionary
4. Boosting College Completion Policy Deletions
5. Screen shot of data coding process in Excel
6. Screen shot of one duplicate coding check
7. Boosting College Completion Policy Type Totals
8. State policy enactment ranking highest to lowest
9. Descriptive statistics Affordability Policy
10. Descriptive statistics Postsecondary Transitions Policy
11. Descriptive statistics Accountability Policy
12. Descriptive statistics Workforce and Economic Development Policy
13. Screenshot fsQCA raw data table
14. Dichotomizing the Outcome Set Membership in fsQCA
15. Dichotomizing State Socio-Economic Development/Per Capita Income Set Membership in fsQCA
16. Dichotomizing State Educational Attainment Set Membership in fsQCA
17. Dichotomizing State Population Set Membership in fsQCA
18. Dichotomizing State Arrangement of Governance Set Membership in fsQCA
19. Dichotomizing State Regional Higher Education Compact Set Membership in fsQCA
20. Boosting College Completion fs/QCA Dichotomized Data Output
21. fsQCA Test of Necessary Conditions output
22. fsQCA Complete Output Models 1, 2, 3

Items not included in the cumulation, but available from the author;

1. Case Report for each of the fifty states

Boosting College Completion Policy Coding Process

The Boosting College Completion dataset as downloaded from the project's website (<https://boostingcollegecompletion.socrata.com/>) was organized into the following categories; Accountability, Affordability, College Completion and Workforce Development Task Forces, Economic and Workforce Development, Finance, Postsecondary Remediation, Postsecondary Transitions, Student Assessments, and Transfer and Articulation.

The final categories of policy were; Accountability, Affordability, College Completion, Finance, Postsecondary Remediation, Postsecondary Transitions, Transfer and Articulation, and Workforce and Economic Development.

Criteria for policy inclusion

The policy records reported to the Boosting College Completion dataset were reported by states. Some records did not fall within the purpose of this study and therefore were not included in the analysis. The process to determine a record's inclusion is outlined below.

1. Policies were included in the study based on the criterion below.
 - a. ***Policy inclusion criterion one.*** The first criterion to determine inclusion in the analysis was whether the policy was enacted during the data collection period of 2005-2012. Some policies reported by states for the Boosting College Completion dataset were legacy policies outside of the time-bound parameters of the Boosting College Completion data collection period.
 - b. ***Policy inclusion criterion two.*** Based on my global review of the policies, I was aware that some policies should not be included in the analysis because the policy was not directly related to postsecondary education.
 - c. ***Policy inclusion criterion three.*** Criterion three for deleting policies was to screen for policies that were either vetoed or repealed during the data collection period.
2. If a policy did not meet one of the three criterion, the policy record was moved to the Deletions summary.

Duplicating records process

Some single policy records in the Boosting College Completion dataset were across multiple policy categories. Therefore, I created a duplicate record (or records) in the Boosting College Completion dataset according to this study's codebook definition when there was more than one action per policy. In the Boosting College Completion Excel workbook, each policy record was represented by a row in the Policy Coding worksheet. The policy categories were columns. A "1" was entered into the policy category column for the row. A row could be coded in one category only. Excel features allow checking for duplicate records.

Boosting College Completion Coding Dictionary

Accountability: The legislation was categorized as Accountability if it addressed system and/or institutional accountability the following:

- reports and reporting requirements,
- performance measurement,
- program evaluation,
- efficiency monitoring initiatives,
- degree production (system, institutional, and by type) monitoring,
- regulation of proprietary education,
- common student identifier across education and workforce sectors,
- longitudinal data systems,
- monitoring and reporting labor market outcomes of graduates, or
- data sharing between sectors.

Affordability: The legislation was categorized as Affordability if it addressed the following:

- state scholarships (need and merit based aid),
- state loans,
- state grants,
- state financial aid to students attending private institutions,
- other direct state financial aid in support of students,
- “good neighbor” in state student tuition and fees to bordering states,
- student aid in specific degree programs (teaching, STEM),
- in-state tuition for military or other purposes,
- loan forgiveness,
- continued enrollment or credit requirements for retaining scholarships,
- in-state tuition residency requirements,
- student credit hour and retention requirements, or
- student tuition and fee waivers.

College Completion: Legislation was coded as College Completion if it addressed a *study and/or review and/or make recommendations/plans or set educational attainment or other improvement goals* on an identified problem including (but not limited to):

- student affordability,
- institutional funding,
- planning and design of new educational delivery systems,
- reducing remedial education,
- improving student progression/articulation/finance,
- setting state degree/educational attainment goals,
- licensing and certification of programs in state,
- setting enrollment, retention, and graduation goals,
- master and strategic planning,
- developing strategies for system improvement,
- review or study of effectiveness,
- system and sector alignment of resources,
- quality and effectiveness studies, or
- workforce initiatives to align labor market demand with degree production.

Finance: Legislation was coded as Finance if it addressed the following:

1. tuition and institutional fee formulas,
2. appropriations for private and for profit institution financial aid,
3. credit hour funding models,
4. directives to state aid authorities on how to distribute funds,
5. allocation of performance funding and/or student completion funding models,
6. establishment of revenue streams (lotteries or other),

7. reporting requirements to maintain state funds,
8. dual enrollment funding allocations,
9. institutional eligibility to administer state aid,
10. financial aid reporting,
11. appropriation and use of state funds for workforce programs,
12. incumbent worker and other workforce incentives,
13. state funds for apprenticeship, career and technical education, internship and cooperative education programs, or
14. tax credits for workforce development.

Postsecondary Remediation: Legislation was coded as Postsecondary Remediation if it addressed the following:

- placement testing of first time students,
- elimination of remediation at the postsecondary level,
- alternative credentials to demonstrate college readiness,
- assessment during high school for college and career readiness,
- core competencies and standards for college readiness,
- multiple measures of readiness,
- designated placement tests,
- minimum admission requirements,
- standardized test benchmarks, or
- online learning alternative assessments.
- specification of which institutions can offer remedial courses, or
- embedded remediation in college level courses.

Postsecondary Transitions: Legislation was coded as Postsecondary Transitions if it addressed the following:

- career or degree pathways,
- early high school graduation/accelerated degrees,
- limiting number of credits for degree programs,
- student success initiatives,
- awarding certificates at four-year institutions,
- demonstration of competency based or prior learning,
- cooperative and innovative high schools/early/middle colleges,
- dropout recovery initiatives,
- course equivalencies of Advanced Placement, International Baccalaureate credits,
- applied baccalaureate,
- advising and counseling on careers and majors
- two-year campuses offer four year degrees,
- priority registration for veterans, or
- information for students and families to improve access and progression.

Transfer and Articulation: Legislation was coded as Transfer and Articulation if it addressed the following:

- cooperative agreements for awarding credits between institutions,
- seamless transition between 2- and 4-year institutions,
- common course numbering,
- priority registration for transfer students,
- General Education Core requirements, or
- reverse transfer agreements.

Workforce and Economic Development: Legislation was coded as Workforce and Economic Development if it addressed the following:

- job training in specific high need fields,
- initiatives to improve workforce preparedness,
- capacity building for facilities and technology,
- customized employment training programs for recruitment and retention of industry,
- job creation initiatives,
- education and training integration,
- initiatives to increase competitiveness through trained workforce, or
- state response to critical workforce needs.

Boosting College Completion Policy Deletions

Description	Citation	State	Year	Deletion criteria
Advisory Council on Transfer & Articulation	Statute 10A-185-19a	Connecticut	1996	One
Specifying the Duties of the Illinois Community College Board	110 ILCS 805-2-11	Illinois	1974	One
Concerning Cooperation on Transfer Issues	ORS Code 348.470	Oregon	1987	One
Involving Developmental Education Plans & Programs	Code of Laws, Sec. 59-104-30	South Carolina	1988	One
Creating Standards for Credit Transfer	Ed Code Title 11, Sec. 207	Maryland	1988	One
Creating a Transferable General Education Core	Arkansas Code 6-61-218	Arkansas	1989	One
Defining Community College Mission	Neb. Rev. Stat. § 85-960.02	Nebraska	1993	One
Annual Reporting of Performance of Graduates	RsMO 173.750	Missouri	1993	One
Creating a Statewide Articulation Agreement	ACA 16-5-8	Alabama	1994	One
Concerning Program Articulation	Code 85-963	Nebraska	1994	One
Concerning the Powers and Duties of the UNC Board of Governors	NCGA 116-11 (Various Subsecs.)	North Carolina	1995	One
Creating a Statewide Student Unit Record System	Ala. Code, Section 16-5-7	Alabama	1996	One
Creating Joint Programming for Vocational/Occupational Training	KRS Title 164.296	Kentucky	1997	One
Involving Credit Transfer	Code Title 13, Secs. 53-43 & 53-44	South Dakota	1998	One
Providing Inter-Sector Articulation Agreements	Code 72-4454	Kansas	1999	One
Reducing Amount of State Funding for Remediation	S.B. 450/A.C.A. 6-62-107	Arkansas	1999	One
Requiring an Annual Report of System Productivity	T.C.A. § 49-7-210	Tennessee	2000	One
Financial Support for Skill or Occupational Training	S.B. 97A/LRS 3048.1(A)	Louisiana	2000	One
Establishing a Unified System of Higher Education	S.B. 2041/Century Code 15-10-01.2 & 15-10-14.2	North Dakota	2001	One
Concerning the Nursing Loan Repayment Program	H.B. 6240/Gen. Laws Sec. 16-62.1	Rhode Island	2001	One
Creating Strategic Goals to Improve College Completion Odds	O.R.C. 3301.0717	Ohio	2001	One
Hawaii Opportunity Program in Education (HOPE)	S.B. 2067/HRS §304A-503	Hawaii	2002	One

Involving Remediation Rates	OSA Title 70, Sec. 1210. 531	Oklahoma	2002	One
Creating the Innovative Education Initiatives Act	S.B. 656/Gen. Statutes Ch. 116C-4	North Carolina	2003	One
Establishes Employer Workforce Training Accounts	Executive Order No. 03-16	Oregon	2003	One
Developing a System Wide Articulation Agreement	Title 70, Sec. 3207.1	Oklahoma	2003	One
Concerning the Oklahoma's Promise Scholarship	S.B. 326/70 O.S., Sec. 2605	Oklahoma	2003	One
Creating the Higher Education Program Development Enhancement Fund	S.B. 370/NMSA 21-1-27.4	New Mexico	2003	One
Requiring a Comprehensive Statewide Plan for Postsecondary Education	Neb. Rev. Stat. § 85-1413	Nebraska	2003	One
Critical Needs Teacher Scholarship Incentive	S.B. 2482/Code 37-159-3	Mississippi	2003	One
Creating a Common Core Curriculum	19 TAC 1 Ch 4B, Rules 4.28, 4.35, 4.36	Texas	2003	One
Requiring an Annual, Statewide Accountability Report	Code Title 10a, Ch. 185, Sec. 10a-6b	Connecticut	2004	One
Arkansas Student Assessment & Educational Accountability Act of 2004	S.B. 33, Secs. 1 & 10/A.C.A. 6-15-404	Arkansas	2004	One
Advancement of Students in Higher Education Task Force	H.B. 2145	Oklahoma	2004	One
Student Tuition Assistance Reward Scholarship (STARS) Program	New Jersey Code 18A:71B-81	New Jersey	2004	One
Mississippi Comprehensive Workforce Training and Education Consolidation Act of 2004	H.B. 973/Code 37-153-1 through 37-153-13	Mississippi	2004	One
Common Course Numbering	S.B. 1415/Ed Code 66725.0-66725.3	California	2004	One
Creating a Statewide Articulated Transfer Curriculum	19 TAC 1.9a.9.1	Texas	2004	One
Creating a High School Core Curriculum	S.F. 245/Code Title 7, Ch. 256, Sec. 7	Iowa	2005	Two
Teacher Education Incentive Program	S.B. 737/LRS 17:3042.11	Louisiana	2006	Two
Involving Concurrent Awarding of High School Diploma & Associate Degree	S.B. 1546	California	2006	Three
Concerning Pre-Obligation of Workforce Development Training Funds	Administrative Rules, Ch. 3/W.S. 9-2-2602(b)(vi)	Wyoming	2006	Two
Creating Academic Standards for Career Education and Work	22 PA. Code Ch. 4	Pennsylvania	2006	Two
Governor's Council on Innovation and Technology	E.O. 2006-07	Arizona	2006	Two
Ingenuity Charter	H.B. 1670	Hawaii	2007	Three

Creating the Science, Technology, Engineering, and Math (STEM) Fund	H.B. 2414	Arkansas	2007	Two
Advancing Innovation & Technology in the State Economy	H.B. 499/Code Ch. 187-A:30 through 34	New Hampshire	2007	Two
Job Creation Tax Credits	H.B. 1/RsMO Sections 620.1878 & 620.511	Missouri	2007	Two
Supporting Job-Creating Research	H.B. 2413/Code 15-3-301	Arkansas	2007	Two
Establishing the Governor's Business Council	Executive Order No. 193	Wisconsin	2007	Two
Creating the Science and Research Council	H.B. 3229/Code §18B-18B-1 and 18B-18B-2	West Virginia	2009	Two
Creating a State Youth Council	H.B. 1463/Code Chapter 54-07	North Dakota	2009	Two
Creating a Certificate in Career Development Facilitation	H.B. 1400, Secs. 1 & 2; Century Code 15-20.1	North Dakota	2009	Two
Enacting the New Mexico Research Applications Act	S.B. 205/NMSA 53-7B-1 to 53-7B-10	New Mexico	2009	Two
P-20 Longitudinal Education Data System	S.B. 1828	Illinois	2009	Three
Creating the Technology Employment Community Hub (TECH) Centers	A.B. 356/S.B. 2293-B	New York	2010	Three
State Interagency Coordinating Council for Service-Disabled Veterans	A.B. 8296A/S.B. 7112	New York	2010	Three
Credit Transfer within MnSCU System	H.F. 1101, Sec. 16.	Minnesota	2011	Three
Promoting Early Graduation, Postsecondary Acceleration	H.F. 934	Minnesota	2011	Three
Creating the Green Jobs Workforce Subcommittee	A.B. 241	New York	2011	Three
Creating a "Utah Futures" Website	S.B. 305	Utah	2011	Three
Concerning a Strategic Plan for Aligning Delivery of Education and	A.B. 1310	California	2011	Three
Dropout Prevention and Early Warning Systems	S.B. 228/Code §18-5B-11	West Virginia	2011	Two
Providing Grants to Improve STEM Education	H.B. 2159/RCW 28A.700	Washington	2011	Two
Creating Career and Technical Education Metrics	H.B. 6219/Gen. Laws 16-45.1	Rhode Island	2011	Two
Requiring College Readiness Assessments	S.B. 479/Gen Stat. 115C-174.11 and 174.20	North Carolina	2011	Two
Encouraging High School to Work Transitions & Partnerships	H.B. 769/Gen. Stat. § 115C-47 (34a).	North Carolina	2011	Two
Creating State Economic Development Infrastructure	A.B. 449	Nevada	2011	Two

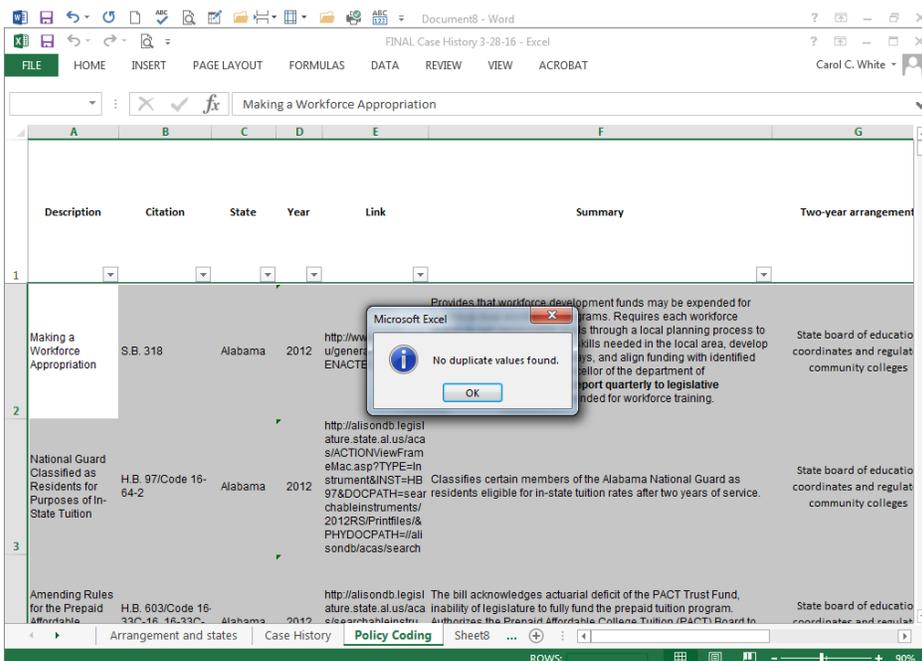
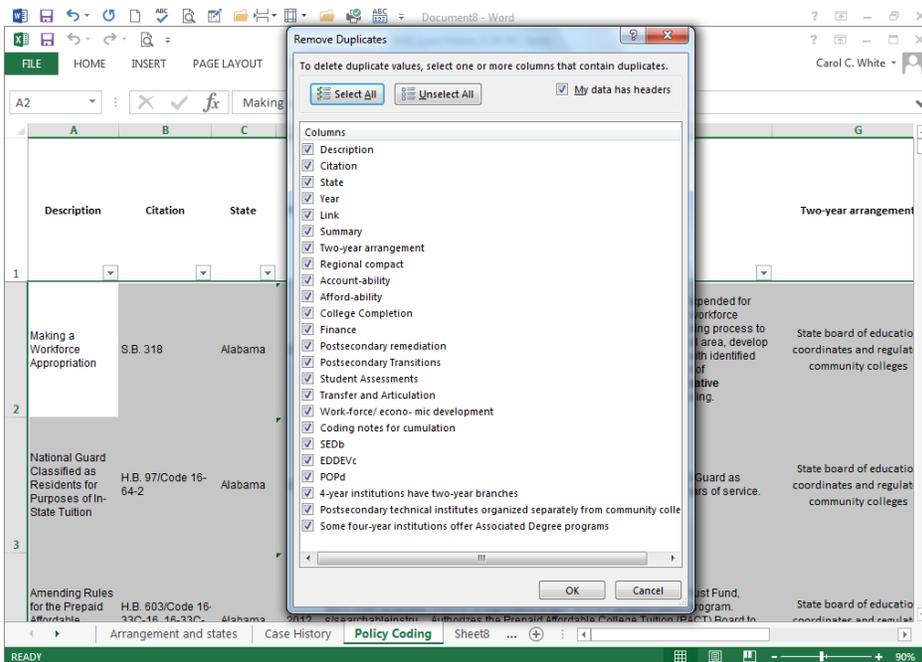
Establishing the Governor's Business Advisory Council	Executive Order 2011-12	Maine	2011	Two
Involving Higher Education Finance in Minnesota	H.F. 1101	Minnesota	2012	Three
Home Buying Assistance for College Graduates	S.B. 78	Connecticut	2012	Two
Business Tax Credit for Scholarship Contributions	H.B. 1607/Gen Laws Ch. 77-G	New	2012	Two
State Universities of Academic Research Excellence and National Preeminence Act	H.B. 7129/Florida Statutes 1001.765	Florida	2012	Three
Involving Non-Tenure Track Faculty	H.B. 1144/CRS 24-19-104	Colorado	2012	Two
Ending a Need-Based Aid Program	H.B. 285	Utah	2012	Three
Requiring College and Career Placement Exams in High School	S.F. 57	Wyoming	2012	Two
College and Career Success for All Students Act	H.B. 7108/Gen. Laws 16-96-1 to 16-96-5	Rhode Island	2012	Two

Screen Shots of Excel Data Coding Process

The screenshot shows an Excel spreadsheet with a data table. The table has the following columns: Description, Citation, State, Year, Link, Summary, Account-ability, Afford-ability, College Completi on, Finance, Postseco ndary remediat ion, Postseco ndary Transiti ons, Student Assessm ents, Transfer and Articulat ion, Work-force/ econom ic develop ment, and Coding notes for cumulation. A filter menu is open on the left side, showing options like 'Sort A to Z', 'Sort Z to A', 'Sort by Color', 'Clear Filter From "Description"', 'Filter by Color', 'Text Filters', and a search box. The search results show several items checked, including 'Concerning Financial Aid', 'Establishing the New York Higher Ed...', 'Joint Study on Postsecondary Remedi...', 'Measuring Student, Teacher Effective...', 'Reporting on the Tuition Assistance F...', 'Scholarships for Aspiring Nurses Stuc...', and 'Studying New York State Postsecond...'. The data rows show information for the years 2012, 2010, and 2009, with corresponding descriptions and coding values.

Description	Citation	State	Year	Link	Summary	Account-ability	Afford-ability	College Completi on	Finance	Postseco ndary remediat ion	Postseco ndary Transiti ons	Student Assessm ents	Transfer and Articulat ion	Work-force/ econom ic develop ment	Coding notes for cumulation
	http://assembly.state.ny.us/leg/?default_fld=&bn=A09057&term=2011&Summary=Y&Text=Y		2012		Directs the state university board of trustees and the city university board of trustees to conduct a study on postsecondary remediation, which must consider a variety of factors, including programs and strategies proven effective in addressing the needs of remedial students, efforts to support student transfer from colleges offering associate's degrees to baccalaureate-aw arding institutions, and methods for improving postsecondary completion rates. Requires that the study be submitted to specified legislative leadership by November 1, 2012.	0	0	1	0	0	0	0	0	0	Study to develop recommendations for remediation, transfer, and improved completion rates.
	http://assembly.state.ny.us/leg/?default_fld=&bn=A06391&term=2009&Summary=Y&Text=Y		2010		Requires report on student data, including: availability of state financial assistance as it pertains to student debt, increasing cost of attendance; number of student receiving assistance, how many credit hours completed; and how many students exhaust their allotment of grant funds each year.	1	0	0	0	0	0	0	0	0	student data reporting
	http://assembly.state.ny.us/leg/?default_fld=&bn=A00157&term=2009&Summary=Y&Text=Y		2009		Makes available loans for students enrolled at least half-time in 2- or 4-year, graduate or professional degree programs, or certificate programs at Title IV-eligible institutions in the state. Provides loans may cover tuition and fees, books, room and board, and other educationally related expenses. Provides that preference must be given to eligible borrowers demonstrating financial need based on the student's family gross income.	0	1	0	0	0	0	0	0	0	need based loan

Check for duplicate records in Excel



Boosting College Completion Policy Type Totals

State	Policy type								TOT
	ACC	AFF	COM	FIN	REM	PST	TRA	WED	
Alabama	0	2	0	3	0	0	0	1	6
Alaska	0	2	1	0	0	0	0	0	3
Arizona	4	5	1	2	1	5	2	2	22
Arkansas	5	7	1	4	7	2	4	2	32
California	9	4	2	6	1	4	9	3	38
Colorado	6	3	4	4	5	8	4	0	34
Connecticut	2	0	2	0	3	0	2	1	10
Delaware	1	3	2	0	0	0	0	0	6
Florida	6	3	4	5	1	13	3	4	39
Georgia	0	3	0	2	3	2	0	2	12
Hawaii	1	7	1	0	1	4	0	2	16
Idaho	1	4	0	1	0	6	0	1	13
Illinois	4	7	4	5	2	0	1	5	28
Indiana	0	1	0	1	0	5	3	0	10
Iowa	4	2	3	4	2	1	1	2	19
Kansas	2	2	0	3	0	1	0	0	8
Kentucky	2	3	0	1	4	4	1	3	18
Louisiana	9	6	3	5	3	5	9	6	46
Maine	2	3	1	2	1	6	1	0	16
Marvland	4	6	3	1	0	0	1	2	17
Massachusetts	0	0	0	1	0	0	0	1	2
Michigan	2	1	0	4	1	1	1	2	12
Minnesota	2	2	1	2	0	3	3	3	16
Mississippi	2	2	1	4	0	4	0	1	14
Missouri	1	3	1	1	1	2	2	1	12
Montana	0	1	0	2	0	1	0	0	4
Nebraska	1	3	0	3	0	2	0	2	11
Nevada	4	0	0	2	0	0	0	1	7
New Hampshire	1	2	0	2	0	0	0	1	6
New Jersey	1	1	1	1	0	1	1	2	8
New Mexico	4	3	2	2	2	3	2	1	19
New York	2	3	2	0	0	0	0	0	7
North Carolina	1	2	2	0	0	0	0	3	8
North Dakota	1	3	2	0	0	2	0	1	9
Ohio	3	4	2	1	1	4	1	4	20
Oklahoma	2	3	2	1	0	1	0	2	11
Oregon	4	2	3	2	0	4	1	8	24
Pennsylvania	3	1	1	2	0	3	0	2	12
Rhode Island	0	1	0	0	0	1	0	6	8
South Carolina	0	0	0	0	0	1	0	1	2
South Dakota	1	4	0	0	0	0	0	1	6
Tennessee	1	4	3	4	1	6	4	1	24
Texas	4	7	2	4	7	11	4	5	44
Utah	0	8	0	2	0	3	0	1	14
Vermont	2	0	2	0	0	2	0	4	10
Virginia	5	5	5	1	0	3	4	8	31
Washington	7	6	4	6	0	4	4	17	48
West Virginia	5	5	2	1	0	2	0	3	18
Wisconsin	3	1	1	1	0	0	0	0	6
Wvoming	2	7	0	0	0	0	1	0	10
Grand Total	126	157	71	98	47	130	69	118	816

State policy enactment ranking highest to lowest

State	Policy type								TOT
	ACC	AFF	COM	FIN	REM	PST	TRA	WED	
Washington	7	6	4	6	0	4	4	17	48
Louisiana	9	6	3	5	3	5	9	6	46
Texas	4	7	2	4	7	11	4	5	44
Florida	6	3	4	5	1	13	3	4	39
California	9	4	2	6	1	4	9	3	38
Colorado	6	3	4	4	5	8	4	0	34
Arkansas	5	7	1	4	7	2	4	2	32
Virginia	5	5	5	1	0	3	4	8	31
Illinois	4	7	4	5	2	0	1	5	28
Oregon	4	2	3	2	0	4	1	8	24
Tennessee	1	4	3	4	1	6	4	1	24
Arizona	4	5	1	2	1	5	2	2	22
Ohio	3	4	2	1	1	4	1	4	20
Iowa	4	2	3	4	2	1	1	2	19
New Mexico	4	3	2	2	2	3	2	1	19
Kentucky	2	3	0	1	4	4	1	3	18
West Virginia	5	5	2	1	0	2	0	3	18
Maryland	4	6	3	1	0	0	1	2	17
Hawaii	1	7	1	0	1	4	0	2	16
Maine	2	3	1	2	1	6	1	0	16
Minnesota	2	2	1	2	0	3	3	3	16
Mississippi	2	2	1	4	0	4	0	1	14
Utah	0	8	0	2	0	3	0	1	14
Idaho	1	4	0	1	0	6	0	1	13
Georgia	0	3	0	2	3	2	0	2	12
Michigan	2	1	0	4	1	1	1	2	12
Missouri	1	3	1	1	1	2	2	1	12
Pennsylvania	3	1	1	2	0	3	0	2	12
Nebraska	1	3	0	3	0	2	0	2	11
Oklahoma	2	3	2	1	0	1	0	2	11
Connecticut	2	0	2	0	3	0	2	1	10
Indiana	0	1	0	1	0	5	3	0	10
Vermont	2	0	2	0	0	2	0	4	10
Wyoming	2	7	0	0	0	0	1	0	10
North Dakota	1	3	2	0	0	2	0	1	9
Kansas	2	2	0	3	0	1	0	0	8
New Jersey	1	1	1	1	0	1	1	2	8
North Carolina	1	2	2	0	0	0	0	3	8
Rhode Island	0	1	0	0	0	1	0	6	8
Nevada	4	0	0	2	0	0	0	1	7
New York	2	3	2	0	0	0	0	0	7
Alabama	0	2	0	3	0	0	0	1	6
Delaware	1	3	2	0	0	0	0	0	6
New Hampshire	1	2	0	2	0	0	0	1	6
South Dakota	1	4	0	0	0	0	0	1	6
Wisconsin	3	1	1	1	0	0	0	0	6
Montana	0	1	0	2	0	1	0	0	4
Alaska	0	2	1	0	0	0	0	0	3
Massachusetts	0	0	0	1	0	0	0	1	2
South Carolina	0	0	0	0	0	1	0	1	2

Note. ACC (Accountability), AFF (Affordability), COMP (College Completion), FIN (Finance), REM (Postsecondary Assessments and Remediation), PST (Postsecondary Transitions), TRA (Transfer and Articulation), WED (Workforce and Economic Development), TOT (Total policy count).

Descriptive Statistics of State Two-Year Arrangement of Governance Affordability Policy Enactment 2005-2012

Affordability Policy Enactment	State two-year arrangement of governance						
	Consolidated governing board for both two- and four-year institutions governs community colleges	Coordinating board for all higher education coordinates locally governed community colleges	Independent state board coordinates community colleges and/or technical institutions	Independent state board governs community colleges and/or technical institutions	State board of education coordinates and regulates community colleges	Two or more boards/agencies coordinate and/or govern two-year institutions	
State Count	14	10	6	11	4	5	
Mean	2.64	3.80	4.50	2.73	2.00	3.40	
Median	2	3	5	3	2	3	
Standard Deviation	2.47	2.20	2.59	2.00	0.82	1.14	
Range	8	6	6	6	2	3	
Minimum	0	1	1	0	1	2	
Maximum	8	7	7	6	3	5	
Total policies	37	38	27	30	8	17	

Descriptive Statistics of State Two-Year Arrangement of Governance Postsecondary Transitions Policy Enactment 2005-2012

Postsecondary Transitions Policy Enactment	State two-year governance arrangement					
	Consolidated governing board for both two- and four-year institutions governs community colleges	Coordinating board for all higher education coordinates locally governed community colleges	Independent state board coordinates community colleges and/or technical institutions	Independent state board governs community colleges and/or technical institutions	State board of education coordinates and regulates community colleges	Two or more boards/agencies coordinate and/or govern two-year institutions
State Count	14	10	6	11	4	5
Mean	1.64	2.90	2.00	2.36	3.75	5.00
Median	1	2	2	2	1	5
Standard Deviation	1.82	3.07	2.19	2.34	6.18	2.24
Range	6	11	4	6	13	6
Minimum	0	0	0	0	0	2
Maximum	6	11	4	6	13	8
Total policies	23	29	12	26	15	25
Number of states	14	10	6	11	4	5

Descriptive Statistics of State Arrangement of Two-Year Governance Accountability Policy Enactment 2005-2012

Accountability Policy Enactments	State two-year governance arrangement					
	Consolidated governing board for both two- and four-year institutions governs community colleges	Coordinating board for all higher education coordinates locally governed community colleges	Independent state board coordinates community colleges and/or technical institutions	Independent state board governs community colleges and/or technical institutions	State board of education coordinates and regulates community colleges	Two or more boards/agencies coordinate and/or govern two-year institutions
State Count	14	10	6	11	4	5
Mean	1.14	2.80	4.50	2.55	3.00	3.00
Median	1	3	3.5	2	3	4
Standard Deviation	1.17	1.48	2.88	2.73	2.58	2.45
Range	4	4	7	9	6	6
Minimum	0	1	2	0	0	0
Maximum	4	5	9	9	6	6
Total policies	16	28	27	28	12	15

Descriptive Statistics of State Arrangement of Two-Year Governance Workforce and Economic Development Policy Enactment 2005-2012

	State two-year governance arrangement					
	Consolidated governing board for both two- and four-year institutions governs community colleges	Coordinating board for all higher education coordinates locally governed community colleges	Independent state board coordinates community colleges and/or technical institutions	Independent state board governs community colleges and/or technical institutions	State board of education coordinates and regulates community colleges	Two or more boards/agencies coordinate and/or govern two-year institutions
Mean	1.50	2.30	4.33	2.36	2.25	2.60
Median	1	2	2	1	2	2
Standard Deviation	1.74	1.25	6.50	2.62	1.26	3.13
Range	6	4	17	8	3	8
Minimum	0	1	0	0	1	0
Maximum	6	5	17	8	4	8
Total policies	21	23	26	26	9	13
Number of states	14	10	6	11	4	5

Comparison of Total Boosting College Completion Policy Enactment Count and Policy Enactment Percentage for States Enacting 12 or More Policies Compared to States Enacting Fewer Than 12 Policies for the Period 2005-2012

Boosting College Completion policy type	Policy count	Percentage of	Policy count	Percentage of
	for states enacting 12 or more policies	total policy category for states enacting 12 or more policies	for states enacting fewer than 12 policies	total policy category for states enacting fewer than 12 policies
Accountability	100	79.30%	26	20.60%
Affordability	116	73.88%	41	26.11%
College Completion	54	76.05%	17	23.95%
Finance	78	79.59%	20	20.41%
Postsecondary Remediation	44	93.62%	3	6.38%
Postsecondary Transitions	113	86.92%	17	13.08%
Transfer and Articulation	62	89.86%	7	10.14%
Workforce and Economic Development	91	77.12%	27	22.88%
Total policies	658		158	
Percentage of total		80.64%		19.36%

Comparison of Four Types of Policy Enacted Most Often for States Enacting 12 or More Policies Compared to States Enacting Fewer Than 12 Policies for the Period 2005-2012

	Fewer than 12 policies ACC	Twelve or more policies ACC	Fewer than 12 policies AFF	Twelve or more policies AFF	Fewer than 12 policies PST	Twelve or more policies PST	Fewer than 12 policies WED	Twelve or more policies WED
Mean	1.18	3.57	1.86	4.14	0.77	4.04	1.23	3.25
Median	1	4	2	4	0	4	1	2
SD	1.10	2.39	1.67	1.99	1.19	2.92	1.51	3.41
Range	4	9	7	7	5	13	6	17
Minimum	0	0	0	1	0	0	0	0
Maximum	4	9	7	8	5	13	6	17
Sum of policies enacted	26	100	41	116	17	113	27	91
State Count	22	28	22	28	22	28	22	28

Note. ACC (Accountability), AFF (Affordability), PST (Postsecondary Transitions), WED (Workforce and Economic Development).

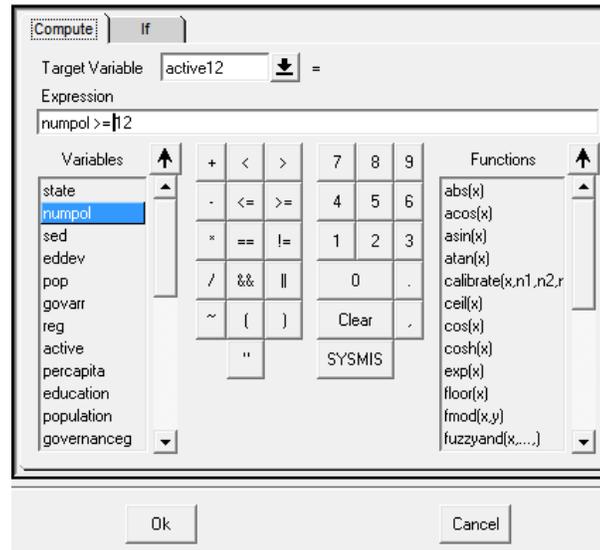
Screenshot fsQCA Raw Data Table

7% FS/QCA Data Sheet

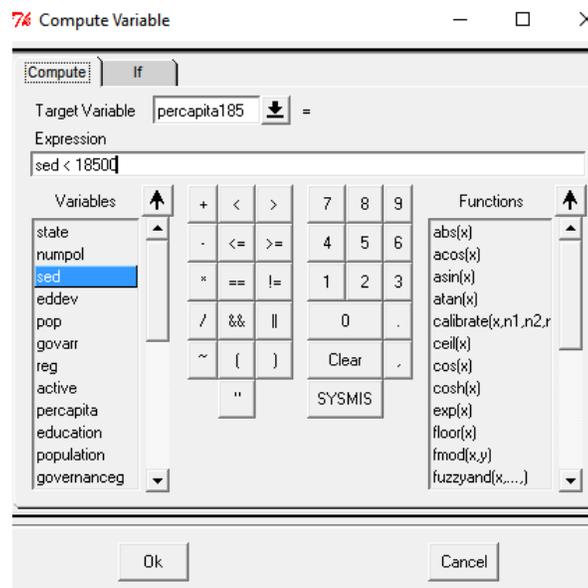
File	Variables	Cases	Analyze	Graphs			
Case	state	numpol	sed	eddev	pop	govarr	reg
1	Alabama	6	18189	24.4	4447100	other	sreb
2	Alaska	3	22660	31.9	626932	gov	wiche
3	Arizona	22	20275	30.2	5130632	other	wiche
4	Arkansas	32	16904	20.7	2673400	coor	sreb
5	California	38	22711	33.7	33871648	coor	wiche
6	Colorado	34	24049	39.7	4301261	other	wiche
7	Connecticut	10	28766	38	3405565	gov	nebhe
8	Delaware	6	23305	31.6	783600	gov	sreb
9	Florida	39	21557	29.3	15982378	coor	sreb
10	Georgia	12	21154	34.3	8186453	other	sreb
11	Hawaii	16	21525	34.3	1211537	gov	wiche
12	Idaho	13	17841	28.9	1293953	coor	wiche
13	Illinois	28	23104	32.2	12419293	coor	mhec
14	Indiana	10	20397	25.2	6080485	gov	mhec
15	Iowa	19	19674	28.6	2926324	other	mhec
16	Kansas	8	20506	31.6	2688418	gov	mhec
17	Kentucky	18	18093	22	4041769	gov	sreb
18	Louisiana	46	16912	22.2	4468976	gov	sreb
19	Maine	16	19533	30.2	1274923	gov	nebhe
20	Maryland	17	25614	36.7	5296486	coor	sreb
21	Massachusetts	2	25952	40.4	6349097	gov	nebhe
22	Michigan	12	22168	28.8	9938444	other	mhec
23	Minnesota	16	23198	35.1	4919479	gov	mhec
24	Mississippi	14	15853	22.6	2844658	coor	sreb
25	Missouri	12	19936	26.7	5595211	coor	mhec
26	Montana	4	17151	30.3	902195	gov	wiche
27	Nebraska	11	19613	31	1711263	coor	mhec
28	Nevada	7	21989	24.4	1998257	gov	wiche
29	New Hampshire	6	23844	37.4	1235786	gov	nebhe
30	New Jersey	8	27006	35.1	8414350	coor	none
31	New Mexico	19	17261	29.2	1819045	coor	wiche

File: 1-17-16 fsqca final dataset.csv

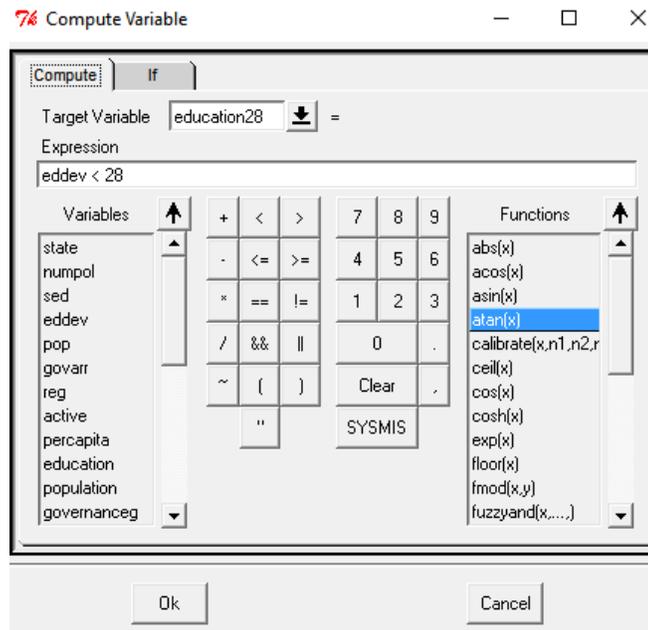
Dichotomizing the Outcome Set Membership in fsQCA



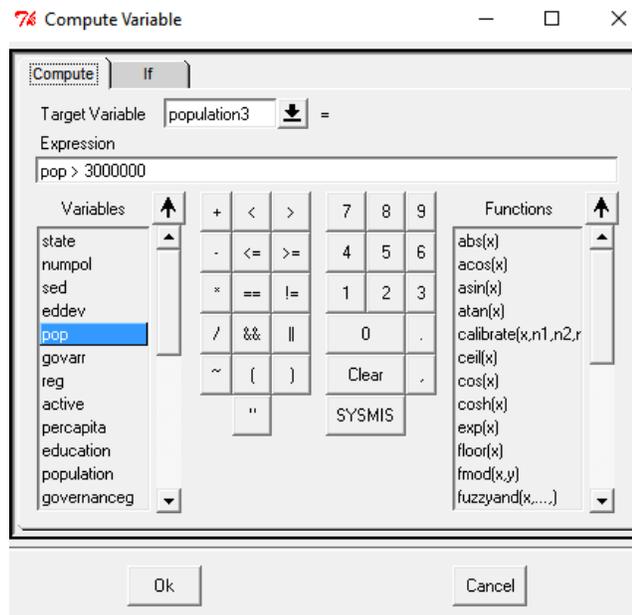
Dichotomizing State Socio-Economic Development/Per Capita Income Set Membership in fsQCA



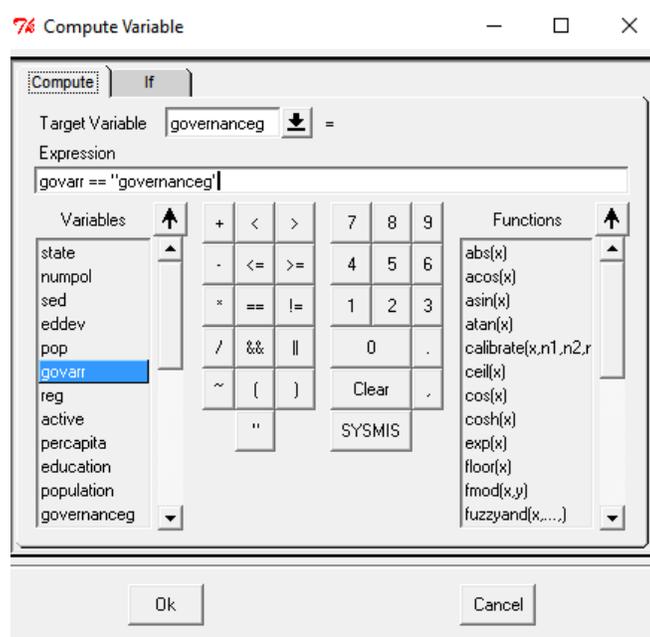
Dichotomizing State Educational Attainment Set Membership in fsQCA



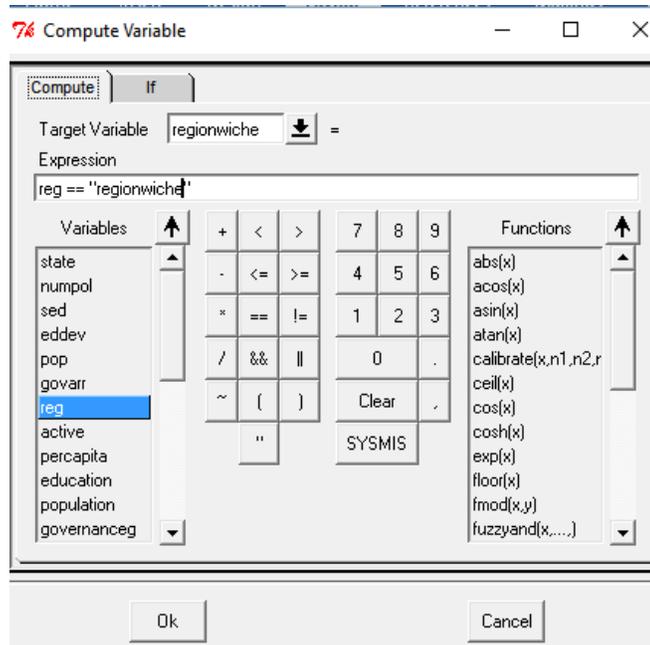
Dichotomizing State Population Set Membership in fsQCA



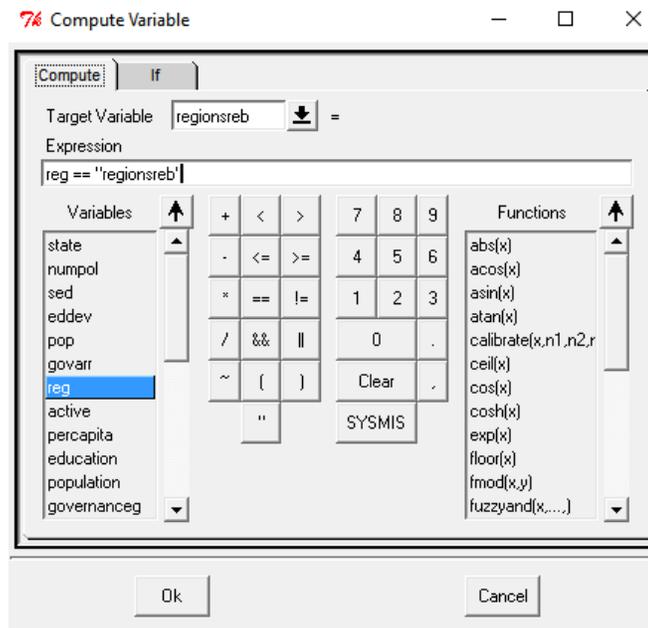
Dichotomizing State Arrangement of Governance Set Membership in fsQCA



Dichotomizing State Regional Higher Education Compact Set Membership in fsQCA



Dichotomizing the Southern Regional Education Board region in fsQCA



Boosting College Completion fs/QCA Dichotomized Data

state pol stper sed eddev pop govarr reg active socioec educ population govern region

```

Alabama 6 0.01 18189 24.4 4447100 other sreb 0 0 1 1 0 0
Alaska 3 0.00 22660 31.9 626932 gov wiche 0 1 1 0 1 1
Arizona 22 0.03 20275 30.2 5130632 other wiche 1 0 1 1 0 1
Arkansas 32 0.04 16904 20.7 2673400 coor sreb 1 0 0 0 0 0
California 38 0.05 22711 33.7 33871648 coor wiche 1 1 1 1 0 1
Colorado 34 0.04 24049 39.7 4301261 other wiche 1 1 1 1 0 1
Connecticut 10 0.01 28766 38 3405565 gov nebhe 0 1 1 0 1 0
Delaware 6 0.01 23305 31.6 783600 gov sreb 0 1 1 0 1 0
Florida 39 0.05 21557 29.3 15982378 coor sreb 1 0 1 1 0 0
Georgia 12 0.01 21154 34.3 8186453 other sreb 1 0 1 1 0 0
Hawaii 16 0.02 21525 34.3 1211537 gov wiche 1 0 1 0 1 1
Idaho 13 0.02 17841 28.9 1293953 coor wiche 1 0 1 0 0 1
Illinois 28 0.03 23104 32.2 12419293 coor mhhec 1 1 1 1 0 0
Indiana 10 0.01 20397 25.2 6080485 gov mhhec 0 0 1 1 1 0
Iowa 19 0.02 19674 28.6 2926324 other mhhec 1 0 1 0 0 0
Kansas 8 0.01 20506 31.6 2688418 gov mhhec 0 0 1 0 1 0
Kentucky 18 0.02 18093 22 4041769 gov sreb 1 0 0 1 1 0
Louisiana 46 0.06 16912 22.2 4468976 gov sreb 1 0 0 1 1 0
Maine 16 0.02 19533 30.2 1274923 gov nebhe 1 0 1 0 1 0
Maryland 17 0.02 25614 36.7 5296486 coor reb 1 1 1 1 0 0
Massachusetts 2 0.00 25952 40.4 6349097 gov nebhe 0 1 1 1 1 0
Michigan 12 0.01 22168 28.8 9938444 other mhhec 1 1 1 1 0 0
Minnesota 16 0.02 23198 35.1 4919479 gov mhhec 1 1 1 1 1 0
Mississippi 14 0.02 15853 22.6 2844658 coor sreb 1 0 0 0 0 0
Missouri 12 0.01 19936 26.7 5595211 coor mhhec 1 0 1 1 0 0
Montana 4 0.00 17151 30.3 902195 gov wiche 0 0 1 0 1 1
Nebraska 11 0.01 19613 31 1711263 coor mhhec 1 0 1 0 0 0
Nevada 7 0.01 21989 24.4 1998257 gov wiche 0 0 1 0 1 1
NewHampshire 6 0.01 23844 37.4 1235786 gov nebhe 0 1 1 0 1 0
NewJersey 8 0.01 27006 35.1 8414350 coor none 0 1 1 1 0 0
NewMexico 19 0.02 17261 29.4 1819046 coor wiche 1 0 1 0 0 1
NewYork 7 0.01 23389 34.6 18976457 gov none 0 1 1 1 1 0
NorthCarolina 8 0.01 20307 29.3 8049313 gov sreb 0 0 1 1 1 0
NorthDakota 9 0.01 17769 31.4 642200 gov mhhecwiche 0 0 1 0 1 0
Ohio 20 0.02 21003 27 11353140 coor mhhec 1 0 1 1 0 0
Oklahoma 11 0.01 17646 28.4 3450654 coor sreb 1 0 1 0 0 0
Oregon 24 0.03 20940 31.7 3421399 other wiche 1 0 1 0 0 1
Pennsylvania 12 0.01 20880 23.3 12281054 coor none 1 0 0 1 0 0
RhodeIsland 8 0.01 21688 32.6 1048319 gov nebhe 0 0 1 0 1 0
SouthCarolina 2 0.00 18795 27.1 4012012 gov sreb 0 0 1 1 1 0
SouthDakota 6 0.01 17562 28.6 754844 gov mhhecwiche 0 0 1 0 1 0
Tennessee 24 0.03 19393 24.3 5689283 gov sreb 1 0 1 1 1 0
Texas 44 0.05 19617 28.4 20851820 coor sreb 1 0 1 1 0 0
Utah 14 0.02 18185 34 2233169 gov wiche 1 0 1 0 1 1
Vermont 10 0.01 20625 37.1 608827 gov nebhe 0 0 1 0 1 0
Virginia 31 0.04 23975 35.1 7078515 gov sreb 1 1 1 1 1 0
Washington 48 0.06 22973 35.7 5894121 coor wiche 1 1 1 1 0 1
WestVirginia 18 0.02 16477 19.1 1808344 gov sreb 1 0 0 0 1 0
Wisconsin 6 0.01 21271 29.9 5363675 coor mhhec 0 0 1 1 0 0
Wyoming 10 0.01 19134 29.9 493782 coor wiche 0 0 1 0 0 1

```

fsQCA Test of Necessary Conditions output

Analysis of Necessary Conditions

Outcome variable: active12

Conditions tested:

	Consistency	Coverage
education28	0.321429	0.692308

Analysis of Necessary Conditions

Outcome variable: active12

Conditions tested:

	Consistency	Coverage
percapita185	0.285714	0.615385

Analysis of Necessary Conditions

Outcome variable: active12

Conditions tested:

	Consistency	Coverage
governanceg	0.321429	0.360000

Analysis of Necessary Conditions

Outcome variable: active12

Conditions tested:

	Consistency	Coverage
population3	0.678571	0.655172

Analysis of Necessary Conditions

Outcome variable: active12

Conditions tested:

	Consistency	Coverage
regionwiche	0.321429	0.692308

Analysis of Necessary Conditions

Outcome variable: active12

Conditions tested:

	Consistency	Coverage
regionsreb	0.392857	0.687500

COMPLETE FSQCA OUTPUT

MODEL 1

 TRUTH TABLE ANALYSIS

File: E:/DISSERTATION/Chapters 4 and 5/Data/1-17-16 fsqca final dataset.csv

Model 1: active12 = f(education28, percapita185, population3, governanceg)

Rows: 6

Algorithm: Quine-McCluskey
 True: 1
 0 Matrix: 0L
 Don't Care: -

--- INTERMEDIATE SOLUTION ---

frequency cutoff: 1.000000
 consistency cutoff: 0.846154
 Assumptions:
 education28 (present)
 percapita185 (present)
 population3 (present)
 governanceg (present)

	raw coverage	unique coverage	consistency
	-----	-----	-----
percapita185*~population3*~governanceg	0.142857	0.142857	1.000000
~percapita185*population3*~governanceg	0.500000	0.500000	0.875000
education28*percapita185*governanceg	0.107143	0.107143	1.000000

solution coverage: 0.750000
 solution consistency: 0.913043

Cases with greater than 0.5 membership in term percapita185*~population3*~governanceg:
 Arkansas (1,1), Idaho (1,1), Mississippi (1,1), New Mexico (1,1)

Cases with greater than 0.5 membership in term ~percapita185*population3*~governanceg:
 Arizona (1,1),
 California (1,1), Colorado (1,1), Florida (1,1),
 Georgia (1,1), Illinois (1,1), Maryland (1,1),
 Michigan (1,1), Missouri (1,1), New Jersey (1,0),
 Ohio (1,1), Oregon (1,1), Pennsylvania (1,1),
 Texas (1,1), Washington (1,1), Wisconsin (1,0)

Cases with greater than 0.5 membership in term education28*percapita185*governanceg:
 Kentucky (1,1),
 Louisiana (1,1), West Virginia (1,1)

MODEL 2

 TRUTH TABLE ANALYSIS

File: E:/DISSERTATION/Chapters 4 and 5/Data/1-17-16 fsqca final dataset.csv

Model 2: active12 = f(percapi185, population3, regionwiche, governanceg)

Rows: 6

Algorithm: Quine-McCluskey
 True: 1
 0 Matrix: 0L
 Don't Care: -

--- INTERMEDIATE SOLUTION ---

frequency cutoff: 1.000000
 consistency cutoff: 0.818182
 Assumptions:
 percapi185 (present)
 population3 (present)
 regionwiche (present)
 governanceg (present)

	raw coverage	unique coverage	consistency
	-----	-----	-----
percapi185*~population3*~governanceg	0.142857	0.142857	1.000000
~percapi185*population3*~governanceg	0.500000	0.500000	0.875000
percapi185*population3*governanceg	0.071429	0.071429	1.000000

solution coverage: 0.714286
 solution consistency: 0.909091

Cases with greater than 0.5 membership in term percapi185*~population3*~governanceg:
 Arkansas (1,1), Idaho (1,1), Mississippi (1,1), New Mexico (1,1)

Cases with greater than 0.5 membership in term ~percapi185*population3*~governanceg:
 Arizona (1,1),
 California (1,1), Colorado (1,1), Florida (1,1),
 Georgia (1,1), Illinois (1,1), Maryland (1,1),
 Michigan (1,1), Missouri (1,1), New Jersey (1,0),
 Ohio (1,1), Oregon (1,1), Pennsylvania (1,1),
 Texas (1,1), Washington (1,1), Wisconsin (1,0)

Cases with greater than 0.5 membership in term percapi185*population3*governanceg:
 Kentucky (1,1), Louisiana (1,1)

MODEL 3

 TRUTH TABLE ANALYSIS

File: E:/DISSERTATION/Chapters 4 and 5/Data/1-17-16 fsqca final dataset.csv

Model 3: active12 = f(governanceg, regionsreb, percapita185, population3)

Rows: 6

Algorithm: Quine-McCluskey
 True: 1
 0 Matrix: 0L
 Don't Care: -

--- INTERMEDIATE SOLUTION ---

frequency cutoff: 1.000000
 consistency cutoff: 0.833333
 Assumptions:
 governanceg (present)
 regionsreb (present)
 percapita185 (present)
 population3 (present)

	raw coverage	unique coverage	consistency
	-----	-----	-----
~governanceg*percapita185*~population3	0.142857	0.142857	1.000000
~governanceg*~percapita185*population3	0.500000	0.500000	0.875000
governanceg*regionsreb*percapita185	0.107143	0.107143	1.000000

solution coverage: 0.750000
 solution consistency: 0.913043

Cases with greater than 0.5 membership in term ~governanceg*percapita185*~population3:
 Arkansas (1,1),
 Idaho (1,1), Mississippi (1,1), New Mexico (1,1)

Cases with greater than 0.5 membership in term ~governanceg*~percapita185*population3:
 Arizona (1,1),
 California (1,1), Colorado (1,1), Florida (1,1),
 Georgia (1,1), Illinois (1,1), Maryland (1,1),
 Michigan (1,1), Missouri (1,1), New Jersey (1,0),
 Ohio (1,1), Oregon (1,1), Pennsylvania (1,1),
 Texas (1,1), Washington (1,1), Wisconsin (1,0)

Cases with greater than 0.5 membership in term governanceg*regionsreb*percapita185:
 Kentucky (1,1), Louisiana (1,1), West Virginia (1,1)

Appendix E: Institutional Review Board Application

From: **IRB Administrative Office** <pins_notifications@ncsu.edu>

Date: Fri, Mar 4, 2016 at 1:16 PM

Subject: Chapman - 6427 - IRB Protocol reviewed, does not qualify as human subjects research

To: ddchapma@ncsu.edu

Dear Diane Chapman:

IRB Protocol 6427

Title: An exploratory Qualitative Comparative Analysis of how state governance arrangement shapes two-year institutions of higher education.

PI: Chapman, Diane

Thank you for providing this information. Based on what you have submitted, you are not conducting research with human subjects as defined by the regulations that govern the use of human subjects. You do not need IRB approval for this activity.

Please let us know if you have any questions or if you would like to talk about this more.

Thank you,
The IRB Team