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MANAGERIAL PERCEPTIONS AND DEMOGRAPHIC CHANGES WITHIN THE HIGHER EDUCATION LANDSCAPE AT PUBLIC FOUR-YEAR INSTITUTIONS

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Abstract

Drawing on theory from within public policy, administration, and several types of management this project looks to explore how campus leaders at public four-year higher education institutions have responded to shifts within their environments. Populations and institutional enrollments are always changing, and this project looks at shifts that have occurred within various segments of public four-year institutions over the last two decades. Having a more holistic view of higher education data, along with in-depth case studies, the ability to better understand responses by higher education leaders becomes available.

In recent years the term "demographic cliff" has begun to enter the literature and news often as a negative term to indicate that higher education enrollment will begin a free fall decline to its death. This view which is permeating policy-making spheres lacks management theoretical insight along with supporting data. While Raymond Miles and Charles Snow (1978) argued that there are four types of managerial responses, I argue that to better understand their definition of stability, the differences between declining and downsizing must be understood. Through case studies and data, I also look to refine those definitions and provide clarity to David Grawe's claims that nearly all institutions that are not Ivy League will face this idea of a demographic cliff. I find from two decades of population and enrollment data analysis that population does not always influence enrollment. Variations in Carnegie Classifications and Census regions play a factor into the outcomes. But, individual managerial responses at institutions can be a way to navigate the shifting environment.

Chapter One

Introduction

Higher education throughout the United States is facing what many are calling a demographic cliff and a decline in rural areas, often due to shifting populations. Whether it is at the meetings of regents for higher education institutions or in the news (Schroeder, 2021), managers within the systems are nervous about future growth. Often those running institutions run off a growth mindset, needing to grow to pay for new programs and ever-expanding budgets. The consumer price index (inflation) is at its highest level in nearly four decades as of June 2022 (Rugaber, 2022). Not only are increased costs affecting institutions they are also affecting everyday Americans. Concerns surrounding higher education only continue to increase as there are increasing costs from running an institution, discouraging enrollment predictions, and internal management challenges.

This study looks at two decades of shifting population within the United States and its relationship with institutional enrollment in the surrounding counties. Those within higher education administration, policy spheres, and state legislatures will need to understand what aspects go into demand for higher education and how institutions have weathered demographic shifts in the past. Throughout the institutional analysis, different Carnegie Classifications and Census regional categories are used to better understand shifts, avoiding blanket statements about one single trend in higher education. Additionally in Chapter Four, there are two specific case studies to better understand how two rural institutions are responding to shifts in their

environment through managerial frameworks. Some work has been done on shifts in populations, but there is a lack between organizational and management perspectives with those in the higher education landscape. Additionally, those studies do not break down the types of institutions in the same way leading to forecasting models which could paint a misleading picture of where the institution is heading. Often decline is considered organizational death in a culture where higher returns on investment are expected each year, or at least enough growth to cover rising costs. But, understanding the difference between decline and downsizing can help show that population shifts are not the end.

The United States Census Bureau is expecting the population to grow within the next several decades, with larger growth in the older population across the nation, and with rural areas seeing a decline in the younger generation (Ortman & Velkoff, 2014; Vespa et al., 2020). Rural areas saw their first decade-long population loss in history during the most recent decade (2010-2020) which is attributed to beginning after the 2007 Great Recession (Johnson, 2022). This population decline could affect rural institutions. Despite the older population increasing, the United States is predicted to see a population over the 400-million mark in the coming decades, with those under 18 years old seeing an 8.8 percent growth by 2060 mainly in urban areas (Vespa, Armstrong, Medina, 2020). Nearly 60 percent of incoming freshmen at four-year public colleges enrolled within 50 miles of their homes, according to the American Council on Education (2016). I myself attended a public four-year institution in an urban area within a 90-mile range of my house, instead of opting for a rural institution.

Those in policy spheres and in the media claim an impending demographic cliff is going to occur in the next several decades after birth rates have fallen. The future of higher education is one which can evoke great speculation on what the enrollment trends will look like. Calling it a "demographic headwind" (p. 6, 2018), Nathan Grawe states that "everyone in higher education agrees that a dramatic shift in demand lie ahead" (5). However, this idea of a national enrollment decline is nothing new in higher education as certain regions and types of institutions have seen declines in the past (Kerr, 1994). Grawe's work is a base for understanding enrollment in a more economic sense, but some more delineation among institution types and regions would be beneficial. Now due to lower immigration, migration of residents, and birth rates, Grawe describes that higher education is facing a demographic storm. However, his book which has gained media attention lacks an understanding of what type of institutions could see a possible enrollment loss along with how managers responded to external shifts. One main question that is not answered is whether population decline automatically means an institution will die off.

Rural versus urban

Within the United States, the divide between urban and rural counties has continued to grow over the last several decades. Population shifts have historically been dependent on factors affecting the lives of those who live within a region, including farming, manufacturing, and employment overall. Within the last decade, non-metro counties with persistent poverty saw around 345,000 fewer people residing there (Dobis et al., 2021). Much of this decline

occurred within states with counties heavily dependent on farming, manufacturing, and extraction of natural resources, but not shale oil and gas (USDA et al., 2010, 2020). One institution in this study, faces the challenges of being located in a regional area between two mountain ranges, while another one has historically attracted students from farming communities. This decline is compounded by those in rural counties facing challenges when it comes to accessing high-speed internet (Read & Wert, 2022) and being required to travel great distances to class. Many institutions are also still recovering from major shocks to their surrounding populations from the COVID-19 pandemic and a leeriness to attend higher education (Abdrasheva, 2022). The study explains that the pandemic exposed weaknesses in the infrastructure of many campuses and communities, specifically with online education. Whether rural counties can recover from the pandemic and the decline in populations over the last decade will be seen in the 2030 Census or through earlier estimates.

The urban and rural divide also has extended itself into the realm of educational attainment. Rural attainment of higher education has been lower historically compared to those in urban areas by several percentage points (Provasnik et al., 2007). In 2019, nearly 79 percent of those in rural regions within the United States did not receive a bachelor's degree or above. This is in contrast to only 65 percent of those within urban areas receiving a bachelor's degree, however, rates for college attainment results did increase since 2010 (Marré, 2017). Earnings for those with education above a high school diploma is also greater than their rural counterparts across the United States, according to the Rural Education at a Glance annual study. Migration among Americans has declined since the early 1980s according to the Current Population Survey

(Molloy et al., 2011). While those within the 18-24 age bracket have historically been more apt to move, those numbers have declined from 5.1 percent to 3 percent in the 2000-2010 decade (Molloy et al., p. 183, 2011).

Studies on what many call "brain drain" have occurred to map the migration of those with educational attainment across the United States. A Senate study specifically on brain drain across the United States found that between 1970-2010 the southeastern and Rust Belt portions of the country lost much of their educated population (Joint Economic Committee, 2019). This has resulted in not only economic divisions but also political socialization, according to the report. Often colleges face greater challenges in attracting first-generation students than ones with a family history of college attainment. After the Great Recession in 2008, regions with higher college attainment saw employment rebound at faster and higher rates, while non-metro counties with lower education levels saw slower growth (Hertz et. al, 2014). Having greater access to higher education and attainment levels can lead to stronger communities. But many rural institutions are of greater "importance to the regions in which they are located because many rural places have few postsecondary institutions nearby" (Koricich et al., 2022, 7). This can lead to education deserts in certain rural regions. If a community has "unchecked economic decline and social fragmentation," then often this decline will continue into the decline of primary and secondary educational institutions (Schafft & Jackson, 2010, p. 281).

One issue facing rural students is the low college-going rates and "rural adults are less supportive of postsecondary education than are urban or suburban adults" (Howley, 2006, p. 64). For rural America, the landscape is

changing with the number of farmers at a 140-year low and the number of ranches has continued to decline in recent decades with larger ones taking the place of small ranches (National Agricultural Statistics Service, 2017). At one institution, detailed in the Chapter Four case studies, campus leaders are seeing this issue firsthand. Administrators at Adams State University in rural Colorado face challenges in convincing the farmers to send their children to a university along with a decline in younger populations throughout the San Luis Valley. The decline in the number of farmers and ranchers does not look to be changing in the near future. Technology changes along with fewer workers being needed have come into play with farms and ranches at some of their largest sizes in United States history (National Agricultural Statistics Service, 2020).

This decline has shown a need for individuals to plan for a different type of workforce moving forward, often one with skills for the 21st century despite being in the rural landscape. One institution in this study is looking to pair technology alongside its traditional programs in an effort to expand enrollment. However, the college-going rate has declined nationally alongside income in rural areas, with 17,500 rural businesses being lost in a four-year time span after the 2007 recession (Porter, 2018). The central regions within United States have been undergoing population declines since before the 1950s and now the decline is increasing in rural counties at a faster rate (Johnson & Litcher, 2019). Rural populations are starting to age out of the traditional college-aged student bracket which could result in stiffer competition for a shrinking base of students who wish to attend college (Porter, 2018). How university

administrators are responding to these rural population shifts can bring new insight into management perspectives within higher education studies.

Managerial Responses

Organizations are often confronted with varying issues both internally and externally, and need to respond to those issues with strategy. By having periodic reviews, a business or government organization can continue having the capacity to "maintain a viable market for their goods or services" (Miles et al., 1978, p. 547). How this plays out within the organization's management structure can vary based on the makeup of those in charge. This idea from Miles et al., has led to the creation of their perspectives on different types of managers. Creating temporary solutions or a complete lack of structure can often occur within the management structures of organizations when they face decline (Miles, et al., 1978; Newman et al., 2018). Miles et al. state that organizational leader often falls into four categories including defenders, prospectors, analyzers, and reactors. For defenders, these types of individuals are often okay with the current process and any change must be strategically investigated with data support. While prospectors are often individuals searching for new approaches with less strategy. Then analyzers are a combination between defenders and prospectors, which makes them well suited to continue a stable managerial environment. Then there are reactors, which is a negative managerial response. This group is unable to strategically plan but instead reacts to incidents that may come forward, leading to instability within the organization (Boyne and Walker, 2010). Reactors often find their organization in a state of decline. All of these types respond to factors

in different ways, however, some mixtures between the categories of managerial response types are shown by administrators in the case studies.

Often higher education leaders can find itself in the defender or reactor model as it often looks to maintain the status quo and is slow to respond to changes within the market in comparison to some private organizations in certain areas (Bady & Konczal, 2012; Gilbert, 1996). Leaders can also be reactors in waiting for changes in the environment to occur before changing. Defenders are judicious in their decisions and often conservative when it comes to investing in innovative changes, instead, they focus on quality, price, and data-supported decisions (Miles et al., 1978). However, recent studies have shown instances in which the defender and prospectors can sometimes outperform reactors due to their lack of "consistent strategy or alignment" (Walker, 2013, p. 675). For this study, shifts in populations and enrollment will be the main variables that can affect higher education institutions, however, there are internal factors that also shape the management of an institution. Therefore, institutions need to strike a balance between stability and innovation to remain competitive in a changing environment.

Downsizing Versus Decline

If organizations are in decline versus downsizing it can greatly affect their service deliverability and the effectiveness with which it responds to changes in their environment, which could affect their mission (Jones, 2016). For Jones, he details a process in which downsizing occurs through environmental factors causing a process change through management using a strategy that ultimately leads to reorientation (2016). Examples of the

differences are explained in the Chapter Four case studies on two higher education institutions.

An overwhelming majority of universities across the nation are being funded at lower levels than they saw before the Great Recession. This is often leading to a lower per-student funding level of around 23 percent less (Mitchell et al., 2015; Mitchell et al., 2019). In 2018, Michael Mitchell et al., found that "public two-and four-year colleges in the school year ending in 2018 was more than $6.6 billion below what it was in 2008 just before the Great Recession" (2019, p. 1). Less funding coupled with rising costs and lower student enrollment has led to a variety of responses by select institutions. Many of these institutions have been private colleges (Higher Ed Dive Team, 2022), but several are in the midst of mergers including the Pennsylvania State System of Higher Education. In 2022, the system gave the green light in merging six universities into two through a multi-year merger (Whitford, 2021).

Downsizing an organization can be a difficult process as individuals can sometimes be reluctant to change. For Charles Levine, he argues that public organizations often have a greater challenge when it comes to cutbacks and downsizing. The issues come from their "compounded by their special status as authoritative, nonmarket extensions of the state" (1978, 318). However, the missing component to Levine's argument is how this work in a higher education institution which has both characteristics of an extension of the state while also having market competition. One would expect that this competition has only increased as state funding for higher education institutions has decreased over the last several decades (Li, 2017).

Cutback management theory was popularized in the 1970s through Levine's theoretical contributions, but would fade away as the United States economy came out of a point of high inflation in the mid-1980s, called the Great Inflation (Bank of Atlanta & Bryan, 2013). His contributions on the topic lend themselves well to discussing declines versus cutbacks within organizations as he defines cutback management as "managing organizational change toward lower levels of resource consumption and organizational activity" (1979, p. 180). This similarity with downsizing allows for discussions to occur regarding organizations, however, further discussion surrounding management styles and responses will further the discussion around changes at organizations.

Chapter Summaries

The main question overarching the three empirical chapters is how have higher education institutions responded to changes over the last two decades. This is coupled with investigating how possible regional population shifts have occurred and the institutional management behavior at the organizational level. This question will guide much of the discussion surrounding institutions and the surrounding population shifts over a time period. Researching the shifts in higher education will take several forms in this mainly quantitative research through three empirical chapters.

The dataset came from two primary sources of data along with a continuous county dataset to allow for county clusters. The primary dataset from IPEDS contains enrollment data at four-year public institutions. Ranging from Carnegie classifications to enrollment data based on instruction type and level of students, the IPEDS data gives an overview of each institution's change

over an 18-year period, ranging from 2002 to 2020 the most current year. This time frame was selected to incorporate a three-year lag on the population age category to show an effect. Much of the specific data surrounding online enrollment did not begin before the 2010 period. The second main dataset comes from the National Cancer Institute Surveillance, Epidemiology, and End Result Program (SEER), which contains all of the population estimates for each year from 2000-2020. This dataset is broken down by age category in four-year brackets. The purpose of this dataset is to see changes in population based on state and specific regions within the United States. Further use of this dataset includes the culmination of counties surrounding the higher education institution to show shifts in regional populations in counties that are adjacent to the university. The vast majority of students in universities across the nation traveled less than 75 miles to attend college, with the greatest percentage traveling less than 25 miles (Mattern & Wyatt, 2009, p. 22). However, some states like Hawaii and Montana showed the highest distance for students to travel according to the study. Often the challenges faced by high school students when looking for colleges boil down to distance from home with one in six seniors lacking a nearby college with around 70 percent going to college within two hours of their home (Wozniak, 2018).

Chapter two, the first empirical chapter, is a descriptive look at the population across the United States since the early 2000s. Focusing on county-level data, changes in populations in regions and age categories will set up for discussions surrounding how this change can be overlayed with institutional data. The main data set for this descriptive chapter is county population data from the SEER, which has data from 1969 to 2020, of which this project focuses

on data from 2000-2020. Additionally, the first empirical chapter will describe the higher education landscape among four-year public institutions, and whether there are trends in the types of institutions. Data for describing trends and other changes in the higher education sphere will come from the Integrated Postsecondary Education Data System which contains institutional-level data from 2002-2020 for all public four-year institutions.

The second empirical chapter looks at the heterogeneity affections within the higher education landscape. For independent variables, regional populations around institutions and Census region populations will be used based on a specific age category used by SEER for those aged 15-19. For dependent variables data on undergraduate and graduate enrollment will be used, then enrollment on online versus on-campus learning will be used. Controls for this study will include institutional, state fixed-effects, and market competition.

The final empirical chapter looks at the management roles that two specific institutions have used in response to changes within their environment. Specific individuals within higher administration will be looked at in terms of their management roles. One institution will be from a rural area located 70-miles outside a large metro area, as it provides a unique understanding of how rural and urban divides have affected higher education institutions and their strategy. The other institution is situated within the San Luis Valley, south central Colorado, offers a greater understanding of how different factors within a more isolated rural region can affect the institution. Often institutions in rural areas are the main employers and may be the only institution located within a several-hour drive (Ratledge et al., 2020). The financial state of the institution

will also come into play when looking at how the institution has changed over the last two decades. Management changes and responses at institutions will be framed around a discussion of Miles and Snow's management framework (Miles et al., 1978) and by also applying the work of Charles Levine on cutback management responses to declines in revenue (Levine, 1979).

In the final chapter, the conclusion and discussion will tie together the themes throughout the three empirical chapters and summarize the findings. Additionally, the implications and limitations of the study will be further discussed to inform policy along with future research in the areas of management styles in this area.

Table 1 An Overview of Dependent and Independent Variables

	EC1 **Descriptive Chapter**	**EC2** **Analysis** *Controls Included*	**EC3** **Qualitative**
DV(s)	Enrollment Shifts (Under Grad/Grad) & (online/on-campus learning)	Enrollment Shifts (Under Grad/Grad) & (online/on-campus learning), Carnegie Classification	In-depth case studies over two rural institutions
IV(s)	Population at county and state level (total & age)	Population Levels (Census Region) Age Included	

Theoretical Framework

Miles and Snow (1978) set out to frame the strategic typology that is found within organizations and how they move through the various types. The framework looks at defenders, prospectors, analyzers, and reactors. These four management styles are what the researchers believe to be the basis for how many organizations adapt to the changes within their environment. Management responses to declining populations will add to how and whether universities focus on a particular angle of the Miles and Snow framework or whether a mixture has proven successful at one of the institutions. Whether an organization is in decline or is downsizing can greatly affect its service deliverability and effectiveness. Within the reactor model, strategy by management is often challenging to trace due to its reactionary character and "rarely having to do with the organization's key results" (Osborne & Gaebler, 1993, p.156). However, falling into the reactor model can lead to more decline and a lack of institutional stability, which continues the downward spiral.

The management framework provides a common language for discussing behavior at an organizational level, but these frameworks do not discuss the implications for reactors when faced with changes in future populations of a given area. What happens when the organization is in a state of cutbacks in either a declining or downsizing the organization? All of the theories and frameworks discussed do not provide a strong differentiation between declines versus downsizing, as a distinction would strengthen the narratives surrounding the use of strategy. Often the difference boils down to strategy. Various management responses are inevitably found within

organizations that see external factors on the horizon or are experiencing active changes. Miles and Snow state that defenders, prospectors, and analyzers often find stability (557), but how will a reactor respond to changes in population? Whether prospectors can provide any level of control around the instability offset a decline is often not discussed. Does a population decline, or demographic cliff, specifically in urban versus rural areas always mean the death of an organization? Much of the discussions surrounding the doom of the demographic cliffs state that "many of those that do will be hit hard," (Kline, 2019) in terms of enrollment but many predict that four-year institutions will be hit hardest (Barshay, 2018; Boechenstedt, 2022).

Discussions surrounding whether an institution is downsizing versus declining in relation to its management style is one area that could prove useful in understanding enrollment response styles. Often management will label downsizing in various ways like cutbacks, contracting, reallocation, restructuring, or rightsizing, all of which equals a change in the organization (Jones, 1998). This downsizing is a goal of increasing efficiency, but a common solution of contracting out may cause management issues (Milward et al., 1993; Osburne & Gaebler, 1993, p.45-46). Often downsizing is considered a holistic strategy when it comes to bringing change to an organization's performance (Cameron, 1994). Contracting out can often have a loss of enforcement on the behavior of the individuals within the organization (Brown & Potoski, 2005), whether this happens to certain types of management has not been explored or when services like online classes are contracted out. Additionally, rural institutions can face challenges when it comes to contracting out due to a lack of

companies in the region. The differences between decline and downsizing should be coupled with the management styles proposed by Miles and Snow.

Organizations may choose to downsize but can avoid declining, or they may respond to a decline by downsizing which is more common (Jones, 1998, p.26). Decline is what Jones calls "negative consequences of maladaptation to a dysfunctional environmental condition, happens to an organization, is unintentional" (p. 26). Often these declines follow a shock to those within the organization that are unexpected. On the other hand, proactive downsizing is often connected with strategy and long-term goals. Examples could include natural attrition, buyout programs, reorganizations or other programs which offer some assistance to those who leave (Jones, 1998, p. 34). However, reactive downsizing is often "limited time frame, with constricted resources, often with little thought to the goals or desired future state of the organization." (Kozlowski, 1993, p. 7). When examining specific institutions and their reactions to a change within their environments, attention to the type of strategy will be discussed along with the specific management styles that organizational leaders chose when responding to external factors.

One study has looked at distinctive declines within higher education finding that often management within the organization has the greatest effect on morale and performance (Cameron And Smart, 1998). The researchers used a survey of administrators, department leaders, and trustees to measure the effect of declining revenue on the performance of the organization. Their findings are that "managers in institutions of higher education remain the key determinants of how their own institutions will perform, regardless of the condition of the external environment" (Cameron & Smart, 1998, p. 83).

However, they do not delineate between decline versus downsizing, stating that external conditions are not often having a strong effect on the institutional response. Case studies outlined in Chapter Four detail the differences between the two terms in a practitioner sphere.

Much of the management literature finds that external factors do affect the managerial response to changes in the external environment (Espahbodi, John, & Vasudevan, 2000; Gandolfi & Hansson, 2011). Often these external environmental changes are handled in haphazard ways and they do have consequences for finances, humans, and the organization as a whole. Sometimes decline can "wreak havoc on organizational capacity and decimate the ability of public organizations to offer valued services" (Pandey, 2010). However, the choice to downsize is left up to management, while the challenges are based on limitless external factors facing the organization.

Limitations

This study is of four-year public institutions within the United States and the transferability to private or two-year may not be possible. Additionally, the data is from a 20-year time span in which the financially devastating 2007 Great Recession (Federal Reserve History & Rich, 2013) affected many areas within the economy. Other events could have affected higher education enrollment, outside of just changes in population including Covid-19. Attempting to predict enrollment based on this quantitative study should not be done as unique outside external factors could have impacts on higher education institutions. However, fixed effects and other control measures have been implemented to ensure that certain variations are accounted for when considering national data.

Within the case studies, there are aspects that can be generalizable to other areas within higher education. Using managerial theoretical frameworks, several of the responses by campus administrators can be discussed across institutional types. However, these two institutions are located in unique rural geographic regions and the same challenges and opportunities may not exist for urban institutions

Implications

The three empirical chapters within this dissertation allow for an insight into the higher education landscape which many scholars have overlooked. While work has been done to describe a so-called demographic cliff, there has been little work to understand how universities manage and respond to shifts in their environments, let alone their perceptions of a demographic cliff in rural America. Additionally, a more nuanced understanding of different types of institutions will be beneficial. Having a theoretical base outlined in chapter two allows for many of the managerial responses to be understood and transferred to similar situations which may be affecting similar types of institutions. While the Miles and Snow management framework was developed around 40 years ago, it provides a baseline for understanding responses by higher education administrators in Chapter Four. This chapter takes a deeper dive into the types of institutions which have seen shifts in their enrollment in relation to population. Often other scholars make blanket statements that certain regions or the entire system will see a demographic cliff, while the data over the last twenty years show only certain types of institutions have been affected by population. This understanding will be crucial for discussing future shifts

within higher education. Lastly, two specific case studies take a deeper look at how institutions are responding to shifts in their environments. This section can be used by policymakers to understand that while shifts in population can affect institutions, there is a deeper layer of managerial responses that can affect the stability of an institution.

Definitions and Acronyms

FIPS: Federal Information Processing System are codes are numbers which uniquely identify geographic areas used by the Census.
IPEDS: Integrated Postsecondary Education Data System is the statistical database of the United States Department of Education.

Rural versus Urban: In this study rural is defined with several attributes by the USDA-ERS typologies. Having a combination of attributes allows for the specific term to differentiate between rural and urban. One attribute used by the USDA-ERS is that the county being discussed is in open countryside. The second is a more complex attribute, but any county with less than 50,000 in one urban center is considered metropolitan, while the rest are considered rural (Davis et al, 2022). For the case studies both institutions are located within rural, not urban areas which are referenced in chapter 4. Urban is any county with an urban center with more than 50,000 people who reside there.

Decline versus Downsizing: This study uses the definition of decline established by Jones who states that it is a "negative consequence of

maladaptation to a dysfunctional environmental condition, happen *to* an organization, is unintentional" and often does not have a strategy for improvement in efficiency or combating the original issue or set of problems (Jones, p. 26, 2016). Close to decline is downsizing which should be differentiated in order to demonstrate that it may not always be negative.

For downsizing, it involves a strategy by management within an organization that is looking to respond to environmental change factors (Jones, p. 132). Often the factors will lead to specific managerial responses. It can be a response to declines often called reactive downsizing versus proactive decline which anticipates the changes (Kozlowski, 1991, p. 13-14). The term began in the cutback management literature to describe changes to governmental declines and responses (Levine, 1978, 1979, 1980, 1982; Nutt 2004). Within the chapters, the term decline is sometimes used to describe population losses in certain counties, and within certain areas, mainly in chapter 4, it is used to describe a type of response by a specific institution.

Distance versus Hybrid Learning: Distance education is the use of one or multiple types of technology that allows an instructor and student to deliver "regular and substantive interaction between the students and the instructor synchronously or asynchronously" (IPEDS, 2022). Hybrid education while similar to distance learning is not exclusively online and has courses that have an in-person required component. A set number of on-campus hours is not required as long as a portion is in person. For the studies in chapter four, there is one campus with a large portion of their programs online, but they also host several programs in a hybrid format. The second institution hosts only a limited

number of its programs fully online, with a small majority of its total student population being online in any form.

HBCU versus HSI: Historically black college or university; Hispanic serving institution. The federal definition of an HBCU is "any historically black college or university that was established prior to 1964, whose principal mission was, and is, the education of Black Americans." (Higher Education Act of 1965, 1965). While an HSI must have 25 percent Hispanic full-time students and meet a list of other requirements (20 U.S. Code § 1101a, 1998).

Chapter Two

Literature Review

Much of the discussion surrounding higher education enrollment has centered around ideas of an impending decline and what many call the demographic cliff. Whether it be in the halls of higher education administration offices, state legislators, or institutional governing bodies, the discussion around college enrollment decline continues. Headlines routinely suggest the college-age population is going to crash leading to a looming contraction in higher education enrollment. While the headlines paint with a broad brush, the actual articles almost always give national figures related to enrollment with little delineation beyond that. Whether a specific university or type of one has seen shifts is rarely discussed. Many of the articles also are behind paywalls, leaving the average reader or one without a subscription the ability to infer from the headlines.

Fluctuations in enrollment at universities are nothing new and populations have been shifting across the country for decades. Many have speculated several dates for the impending demographic cliff that could devastate higher education. Some expect the declines to begin in 2025, while some say the 2030s, and some even in the early 1990s. Discussions surrounding mergers are also occurring as a way for institutions to survive a demographic cliff and how the organization respondes. One the other hand a Fitch Rating report suggests there will be relief in declines in higher education enrollment in 2025. During the late 1980s, there was dismal enrollment at universities across

the nation and declining state appropriations (NCES, 2021, 19). Earlier that decade, "demographers projected a substantial decline in the number of high school graduates," but there was little decline and enrollment would increase in the 1990s (NCES, 2021). Additionally, changes in the economy have affected higher education. But, how colleges respond and have to these shifts is often neglected. The rhetoric often places blame on demographics, the economy, or external factor that is often only a piece of the whole conversation.

Decline Does Not Mean Death

In *Demographics and the Demand for Higher Education* by Nathan Grawe, he explores projections in the higher education landscape through a higher education demand (HDI) index. Looking at the higher education landscape across the United States can bring various angles to the future and past trends within higher education, which get lost when only exploring specific institutions. The demographics presented in the book look at race, parental degree attainment, and those who fall within the traditional age bracket for entering college. Much of his book presents a doomed look at the future of almost every type of higher education institution, with a common theme of a mid-2030 drop-off in enrollment. The projections throughout the book are modeled off his Higher Education Demand Index (Grawe, 2018, p. 27). This index provides a projection for enrollment but understanding past relationships can better inform those who look to predict the future of higher education enrollment. Grawe's HDI logistic regression index looks at the projected number of 18-year-olds and what fraction of them are most likely to attend a specific type of institution, based on whether their parents' attended college

and a few smaller variables. Data from Grawe's study is from the 2002 Education Longitudinal Study is used for determining factors relating to the educational attainment and incomes of parents along with some coming from the 2011 American Community Survey.

Grawe places many limits on projecting past 2030 in his book, warning "nothing can be ruled out in the years 2030 and beyond" (133). Within his research, there are three main types of institutions on which Grawe focuses regional, national, and elite colleges and universities. Enrollment at each of the three categories is focused on at a national, regional level, and then state level, but to a lesser degree. This study takes a different approach by looking at Carnegie Classifications, which allows for more refinement within the national and regional categories. Grawe's projections lean heavily on positive discussions surrounding elite institutions. He mainly focuses on the rhetoric that they will fair best due to their ability to take students from different segments of the national population, despite them often only taking from those in higher socioeconomic groups (Grawe, 2018, p. 71). Much of the enrollment from elite and ivy league institutions comes from the top 5 percent of the wealth, with lower-income students not being able to attend those institutions (Chetty et al., 2017; Aisch et al., 2017). The ability to be a highly selective institution is an insulating factor that makes ivy leagues different than nearly every other type of institution.

One area that Grawe does address well is college attendance patterns. Examples he discusses are whether Congress will investigate loan support, changes to affirmative action, and technology changes in the higher education sphere (34). These shifts could be external shocks to higher education that affect

enrollment. Since the book was released, President Joe Biden has begun the process of forgiving student loans only to be held up in the Supreme Court (Leiber & Bernard, 2022), and the Supreme Court has taken on a case challenging affirmative action (Saul, 2022).

Historical examples such as the GI Bill, a federal policy, increased the number of individuals in higher education by millions for generations (Mettler, 2005). The total college and university enrollment between 1979 and 2010 increased to 18 million, even before then it had been growing faster since the introduction of the GI Bill (Belkin, 2022; Mettler, 2005; Snyder, 1993). Regarding technology, the increase in broadband internet could be one area in which enrollment at higher education shifts in new ways, with many predicting growth in future online enrollments (Hirsch & Varn, 2021). What policies could come about in future generations are unknown, but federal policies have historically played a role in the enrollment pipeline to universities. However, predicting enrollment could require an endless number of variables to be looked into, but historical trends can offer some clarity to the picture.

Across the world, the United States falls behind other developed nations in terms of bachelor's level attainment, with around 25 percent of adults having received a bachelor's degree, while only 12 percent receive a master's or equivalent (OECD, 2022). The master's level rates fall behind the average for other world countries in the latest Organization for Economic Cooperation and Development by two percentage points (45). In their worldwide study, females often have higher levels of degree attainment and saw larger growth in the last decade over males in tertiary educational attainment (46). While Grawe does not discuss gender in-depth in his book, the United States has seen females

obtaining bachelor's degrees at higher rates since the late 1990s (Parker, 2021). Looking at college-going rates among different genders along with races could provide insight into challenges that could face higher education in the future, but are not discussed in this study's data. It is no surprise that there are changes in demographics within the United States and historically they have proved useful in measuring changes with a certain level of accuracy.

There are two areas in which Grawe's analysis may miss important trends and other factors which could come into play. The first is variability within particular institution types and the second is participation rates among certain age groups. In a study done in the United Kingdom, Rachel Hewitt (2020), looked at how future population growth is correlated with projected participation rates for college-aged students. Hewitt argues that taking a look at current rates and the number of 18-year-olds there would be a good predictor for future growth in certain regions, despite the countries seeing slight increases in participation each year. Hewitt's analysis of population shifts and enrollment trends, accounts for not just the total number of 18-year-olds but explores the rate of those who actually attend a university. This model helps solidify the notion that population and enrollment could be related in certain regions within the United States, which will be explored in-depth in Chapter Three. Whether these projections persist into the future are often debated in the headlines, as questions of whether college is worth the investment continue (Belkin, 2020).

Not all Hope is Lost

In Grawe's second book, *The Agile College*, centered around what he calls the impending demographic cliff, he takes a milder approach to the idea that demographics equals death narrative, but instead he focuses on some solutions to the changes that could come. Much of his work in the 2018 book has been updated, with an even brighter future for elite institutions and less of a drop-off for other higher education institutions (43-44). While no discussion around variations within states was conducted, there was more discussion around changes within regions, but he still only focuses on three types of institutional categories.

In Grawe's analysis, he shows declines in nearly every region for most types of institutions (34). Exceptions to the long-term declines include regional four-year institutions in the west, and national four-year institutions in the south and Midwest, along with every elite institution seeing an increase up to 2034 (Grawe, 2018). He notes that migration patterns in the United States are not likely to increase much in the coming decades, as they have historically been declining since the 1980s (Molloy et al., 2011). One group that saw the largest decline in migration around the United States from 1980 to 2010 were those in the 18 to 24 age range, with those 25 to 44 seeing the second-largest decline in interstate migration (Molloy et al., 183, 2011). This pattern allows for regional analysis among those entering college to be explored with more confidence, as most college-aged individuals will stay within their respective areas.

Discussions surrounding online enrollment and its future are limited in scope in Grawe's books, but he gives two examples of how it could be used as a "particularly timely tool that enhances the institution's ability to recruit, retain, and support students" (Grawe, 2020, 44). While private for-profit universities have had heavy online programs, traditional brick-and-mortar schools were jolted to online learning when the Covid-19 pandemic came forcing all levels of education to move online. It is estimated that the total online education market will be valued at $585.5 Billion by 2027, doubling its value from 2021 (Research and Markets ltd, 2022). Future generations of students entering college will be more prepared for online learning than previous generations since much of K-12 incorporates more technology than ever before. During the Fall 2020 semester, nearly 75 percent of all undergraduates have enrolled in at least one online class a jump of nearly 97 percent from the 2019 fall (NCES, 2022). It is expected that this hybrid model will continue at high levels, but whether large numbers of students will transition to fully online seems unlikely as preliminary data suggests students have already returned to the classroom (Goodman S., 2022).

Solutions to a possible demographic cliff are one area that Grawe briefly mentions, including rightsizing and mergers of institutions (p. 166-167). While mergers and outright cuts have been found in the headlines recently, a short discussion on what constitutes a painful decline is given by one university president. Taking a national look at higher education can often miss one major question. This question is when does decline in enrollment begin to hurt? Merging institutions is nothing new in higher education, but since 2010 there has been a threefold increase (Azziz et al., 2017; Grawe, 2018). Often mergers

happen due to financial turmoil, consolidation plans, or to pursue a new source of students for the university (Thomas & King, 2022). While Grawe predicts enrollment growth in the south, one state, Georgia, has recently completed a merger of 14 institutions, combing them into seven. While enrollment has continued to increase at the University System of Georgia (USG) (Jones, 2021), along with high school graduation rates (Gardner, 2020), the reason for the mergers was presented as a way to better serve students and not centered around rightsizing or saving money (Kelderman, 2020). The USG Regents adopted six principles before they began assessing whether a university would be merged (Millsaps, 2011).

The jury is still out on consolidations, as Paul Valentine (2018) explains that while some areas of the university see a positive change, there are other areas in which are negatively affected. In Valetine's study, he points to a loss in federal funding leading to the institutions raising tuition for students. Cost savings often did not occur as there was still increases in support services and research (p. 147). Despite the increased costs and loss of funding, Valentine did find that the consolidations did bring about a growth with graduate programs, a small overall institutional growth, and indicators which could lead "to greater prestige and marketability" (p. 148).

While the long-term effects of the mergers have yet to be seen, Gardner suggests that the mergers have helped Black students on attaining graduation (Gardner, 2020). While other reports indicate mergers are costly, painful, and require a long-term analysis (Azziz, 2017). While some mergers have occurred due to declining enrollment, the urban and rural divides in higher education

may shape the future of higher education mergers and how institutions respond to these large shifts in their organization.

Rural America

Population declines in certain regions have been occurring since before the 1950s while this decline is now growing faster in rural counties (Johnson & Litcher, 2019). Rural areas in the United States have seen shifts throughout the history of the country with some years of growth while recent shifts have not been positive. One of the biggest issues facing rural counties is the number of them seeing natural population decreases. Nearly 35 percent of rural counties are seeing depopulation mainly in the form of natural decreases (Johnson & Lichter, 2019). The worst of the rural decline happened during the 1980s when economic policy issues hit rural America with the "farm crisis" and other economic declines occurred (Coward et al., 1990). However, during the 1990s there was what many called a "rural rebound" and during this period the total population increase was able to increase mainly from net migration, not natural births, as the natural increase of rural America has been in decline since the 1950s (Johnson, 1999). One positive trend in the rural discussion surrounds counties that are adjacent to urban areas. Nearly 35 percent of those counties saw their highest populations in the 2010 Census and showed continued growth in the next Census, much of which is attributed to their proximity to urban areas that have caused a spillover effect (Johnson & Lichter, 2019). However, counties not adjacent to urban areas often did not see growth. What has come from the loss of population is the demand for basic services like health care, schooling, and other basic community services. Additionally, fewer

people can "disproportionately harm" rural areas that have specialized economies and strict revenue structures (Haggerty, 2020, p. 8).

While urban and suburban areas continue to grow the number of those who are 65 or older continues to grow in all areas of the United States, but primarily in rural areas along with those who are foreign-born (Parker et al., 2018). Often the rural population is aging and not being replenished. Rural areas are often plagued with issues but not all rural areas are created the same. While farming is what people often think when discussing rural areas, many counties see animal slaughtering and processing as the largest manufacturing industry with vehicle production being second (Eckert et al., 2020; MacDonald et al., 2000). Rural America is also becoming more diverse than it ever has been. While the rural population is 76 percent white, that number has decreased by two percent in the last Census (Douglis, 2021). Much of the increase in diversity can be attributed to the growth of Hispanic youth in rural areas. While diversity is growing, the total number of youths in rural counties declined by 7 percent in the 2010-2020 decade (Johnson & Lichter, 2022). A decline in the next generation can be an issue for higher education which will not materialize for several decades.

The Higher Education Landscape

Data for this project was collected from a combination of sources including higher education enrollment data from the Integrated Postsecondary Education Data System (IPEDS) and county-level population data from the National Cancer Institute Surveillance, Epidemiology, and End Result Program (SEER). When choosing population data, the SEER data provided the most

continuous and best representation of various age groups within every county. Each of the age groups is originally broken down by five-year age brackets, race, sex, and origin, which for the scope of this project was a larger dataset than needed for analysis. To narrow the scope of the project, each county population estimation was kept, along with the age brackets for that specific county from 2000-2020. Other studies have looked at race projections by counties (Grawe, 2018), but he did not compare them to the projected race profiles of universities. This comparison would prove useful for future studies. Having both the county populations and the various enrollment data from universities allows for comparisons on how the two fluctuated over time. The primary goal of the IPEDS data is to account for changes at the specific university level from 2003-2020, 18 years of data. Data collection before 2003 was not collected by the National Center for Educational Statistics but changed under Section 153 of the Education Sciences Reform Act of 2002 (U.S., 2002). This act required a national dataset and the creation of IPEDS. These two main datasets allow for nearly 20 years of descriptive information to be gleaned from public four-year institutions in the United States.

Within the traditional public four-year institutions, there are 559 that fall within the Carnegie classification system. The majority of these institutions are either R1s, Doctoral Universities: Very High Research Activity, or M1s, Master's Colleges & Universities: Larger Programs. Of the total number of institutions, there is 41.8 percent within the research category, 230 institutions. These R1 institutions are often considered the state's flagship universities with very high research activity in the state. These institutions are required to have a certain number of doctoral programs along with requirements for research funding.

Within the master's level, there are 233 institutions making up 42.4 percent of the total. Of the total, there is 26 percent are larger master-level institutions, M1s, and these make up the largest single Carnegie Classification. This group is often considered the "workhorses" of higher education, producing graduates at a more affordable rate within their states (Elias, 2021). They are often considered regional universities within the state.

Finally, there are 86 baccalaureate colleges which make up 15.6 percent of the total breakdown with the Carnegie Classification. These institutions are often specialized colleges referred to as liberal arts colleges which often have a particular area of focus, smaller in headcount, and can be more expensive (Gordon et al., 2022). Within the baccalaureate colleges, the largest group is within the diverse fields category at 11.8 percent. These institutions are most likely to award degrees in general business, nursing, and psychology (Gordon et al., 2022). The other category is Arts & Sciences Focus, which has the smallest number of institutions.

Throughout the United States, there are a variety of universities in each state with an average of just over 10, but many states find themselves with more than that. California, Texas, and New York each have more than 30 universities within the states, with Texas leading the nation in the number of R1 institutions at nine while California leads in the number of large master's institutions. On the other end of the list are smaller states in the northeast and sparsely populated states in the west. Grawe often mentions that the northeast is the region which will see the steepest declines. While many of these less populated states do not lead in the number of total institutions, they do often have the highest number of baccalaureate colleges. New York has the most

institutions of any state, it also finds itself with the most baccalaureate colleges. These types of institutions are often questioned as being overpriced compared to other institutions and not worth the degree (Schroeder, 2021). These baccalaureate colleges are often smaller, under 2,500 students, and have often seen challenges historically in terms of enrollment with small changes having a greater impact on the university (Taylor & Morphew, 2010). Additionally, the study finds that baccalaureate colleges often look to go after a narrower type of student to fit their mission. States with these types of institutions could see more shifts in enrollment as these types of institutions could sway the totals, which will be investigated at the regional level. By looking at each region and the differentiation within it, a better picture of which intuitions have changed could be beneficial for understanding enrollment dynamics for future projections.

Within this dataset institutions which do not fall within the traditional university description have been removed. This removal took out fully online programs, those within U.S. territories, and military institutions. Those institutions will be studied separately as they often do not face the same type of state boundaries and cost requirements that a traditional university may (Liu, 2013). These removed institutions often have select markets and types of students which are better studied separately.

Much of the discussion surrounding higher education over the last two decades takes a national approach to study enrollment (Knox, 2022; Nadworny & Larkin, 2019) and paints a picture of a slow death and little hope for all institutions while not looking at more than a couple of years of data. While these narratives are often the ones the public hears on higher education a

deeper dive into what types of institutions have seen change and the variations among regions and states is crucial to understanding what has happened. Taking a nationwide look at enrollment over the last 18 years institutions have seen more growth years than years of loss. Of the traditional public four-year universities, there were 351 saw more growth years than loss, compared to 193 which saw more years of loss than growth. Only ten institutions saw less than four years of growth over the last 18 years. This shows that only a few institutions have seen declines with no stability/growth. Often the narrative among higher education literature is one of decline since 2000, but mixed results come into focus at regional levels. Over the time frame, 129 public four-year institutions saw growth at least 75 percent of the time. For total enrollment of all public four-year institutions, overall attendance at all universities has grown by 17 percent since 2003, with some variations over the years.

Nationwide, R1s and most likely flagships average around 31,000 students, often giving these institutions more flexibility to lose a certain percentage of students. Research institutions have been larger than their master-level counterparts and baccalaureate colleges trail compared to the other two. Master-level institutions, M1 specifically, averages around 15,700 students. Often these colleges are regional colleges that look to educate people in specific suburbs and often offer more robust master-level programs than do baccalaureate institutions. The reduced size often equates to less discretion when it comes to funds and the ability to weather an enrollment decline. Baccalaureate colleges are often some of the smallest campuses often averaging around 2,500 students nationally for total enrollment. With this small number of students often small changes in enrollment can bring about larger percent

changes in the budget. Those institutions are the ones Nathan Grawe (2018) discusses as ones that could be affected most by shifts in enrollment and population declines in the future. Analysis in Chapter Three will explore how these types of institutions have fared over the last 20 years.

Hispanic Serving Institutions

Beginning in the 2000 Census, the Hispanic Population within the United States increased to more than 35 million individuals, a 58 percent increase, causing it to be the largest minority population (U.S. Census Bureau, 2001). In 2020, that number would increase to 62.1 million Hispanic individuals (U.S. Census Bureau, 2021). Throughout the United States, the majority of institutions bearing HSI designation could see their enrollments increase. Hispanic enrollment in higher education is expected to exceed 4.1 million students by 2026, up from around 3.4 million in 2020 (NCES, 2020). One case study in Chapter Four details an HSI. Created in the late 1980s, the Hispanic Association of Colleges and Universities (HACU) looked to lobby for federal funding of HSIs, which came in 1992 when the Higher Education Act was renewed (Garcia & Taylor, 2017). Now HACU represents over 500 institutions with the HSI designation of having more than 25 percent of their students identifying as Hispanic. These institutions are able to apply for specific grants under Title III and Title V of the Higher Education Opportunity Act.

For many HSI-designated institutions across the country, there is a long tradition of serving Hispanic students even before the title, but a growing number of institutions will become HSIs in the future as the overall percentages of Hispanics will increases (Crisp & Nora, 2016). Little work has been done to

understand how these institutions will adapt to the changes and whether campus leaders can strategically plan for it. Often the students coming into HSIs are first-generation, less academically prepared, and come from low socioeconomic backgrounds (Nuñez, Hurtado, & Calderón-Galdeano, 2015). While specific enrollment at HSIs are outside the scope of the main data analysis, one institution within the Chapter Four case studies, Adams State University, allows for a better understanding of how one rural HSI is responding to shifts in its demographics.

Online Education

Online education is growing at all levels of higher education mainly due to the Covid-19 pandemic creating a sudden demand for remote learning (Research and Markets ltd, 2022). However, nationally online education is still only a fraction of what the overall enrollment is at public four-year institutions (Projections for University Students to 2028). Often the startup costs and creation of online courses can be expensive and require maintenance as new material comes about, often creating the best-structured courses is a challenge as well (Akyol et al., 2009; Ludwig-Hardman & Dunlap, 2003). Distance education is nothing new, as MOOCS and correspondence courses have been a part of higher education for decades, much of which occurred before today's higher-speed internet.

In 2006, Congress did help reduce one major barrier to online courses by reversing what was known as the 50 percent rule in the Higher Education Amendment of 1992, which stipulated that colleges had to offer half of the classes on campus to receive federal student aid (Dillion, 2006). This rule would

have caused issues for one institution detailed in Chapter Four. The group of institutions that benefited the most are private for-profit colleges; however, 70 percent of public institutions offer some online courses (National Center for Education Statistics, 2020). Of those public institutions, nearly 48 percent offer some exclusive distance education courses while private for-profit offer 89 percent. What has changed is more hybrid courses, total online courses, and the growth of high-speed internet. While one 2005 study on the future of online learning stated "once most courses are available in digital formats as well as on campuses, geographic monopolies, and barriers… will weaken" (Hiltz & Turoff, 2005).

While there has been growth in online education, a complete weakening of traditional universities still exists. Since COVID, reports show that nearly every university is back to in-person teaching similar to before the pandemic as of spring 2022 (Moody, 2022). In one study, Goodman et al. found that there was a total increase in the number of students and not just a transfer of the same students already planning to attend the university (2019). The question of access for students has not been well studied, but Goodman offers a look into a computer sciences program at Georgia Institute of Technology which was able to recruit new students who were in their mid-30s and employed (p. 12). Whether the students were in-state or out-of-state was not studied.

The majority, 68 percent, of first-year students at a public four-year university attend institutions come from within 90 miles of their home and the percent of those who do has been increasing since the 1990s (Wozniak, 2018). A similar study on community colleges found that each mile away a community college's enrollment could drop by nearly 5 percent, but it did not focus on

public four-year institutions (Jepsen & Montgomery, 2009). The ability to attract a new demographic of students who require flexible learning is touted by many online programs. While the geographic location has shown to be a major factor in what institutions first-year students attend, studies on whether online education can attract students from further away have not been studied in-depth. Online education could prove a new ground for increasing enrollment in future years as it could attract older learners and those within areas not served by higher education institutions.

When it comes to delivering online education there are two main deliver methods, in-house and online program managers (OPMs). By outsourcing online education, it allows universities the ability to remove many of the specialized tasks of running the program, including marketing and information technology. These OPMs do not provide instruction but instead focus more on the structural side of education. Often these OPMs take a hefty tuition revenue cut from each student who enrolls in the course, which can lead to aggressive recruitment (He et al., 2014; Hill, 2017). OPMs are able to help in many ways leading to an increase in students including powerful recruiting software, marketing, to streamlined interfaces for students and faculty (Ludwin, 2022). As of 2021, there are around 60 OPM companies with an estimated 550 colleges which they contract to support nearly 3,000 education programs (Emrey-Arras, 2022). Contracts for OPMs have continued to increase with 2020 seeing the most ever with more than 250 new ones signed, with 2021 seeing nearly 150 signed (Mendard, 2022). While oversight of OPMs remains a concern for both members of congress and academics (Wukich, 2022), their growth is only expected to

grow in the coming years. Within Chapter Four, both institutions host their online programming in-house as they are leery of contracting it out.

During the 2012 academic year, there was only 8.4 percent of the total number of students in public four-year institutions were exclusively enrolled in online education. This number would only grow to 14 percent nationally by 2019 with only about one percent yearly growth. Nationally there has been a major increase in online learning in both the exclusively online sector and hybrid models. The federal government began collecting data on online enrollment during the 2012 school year, previous to that universities were not required to submit data to IPEDS. Then, during the 2020 academic year, the number of online learners nearly tripled. During the 2020 pandemic year, 39 percent of students were exclusively enrolled in distance education. While this can be expected due to nearly every institution moving to distance education, it can be considered a paradigm shift for many institutions which had previously never considered moving students online (Ubell, 2021).

For undergraduates, those who were exclusively enrolled in online education saw a similar trend to that national trend. In 2014, around 7 percent of undergrads were enrolled in exclusively online courses; by 2019 that number had online increased to 11.6 percent, and 2020 would see enrollment increase to 37.3 percent. Providing four years of course work requires more up-front investment by the university, which could be one reason for hte lower full-time online enrollment.

During the 2012 year, nearly 18.5 percent of graduate students at public four-year institutions were enrolled in exclusively online courses. Each year from 2012 to 2019 saw about a three percent growth, faster than undergraduate

enrollment. Within graduate education at public four-year institutions, there is a different story. Graduate education can sometimes be geared toward older and working adults (EAB, 2022). These public four-year institutions have had a higher rate of online enrollment compared to other types of higher education since data collection began in 2012 on IPEDS. Then in 2020, nearly 52 percent of all graduate students moved to exclusive online education, the largest increase it had ever seen. Graduate education has been outsourced to OPMs more often than undergraduate education (Ubell, 2021). This could explain the higher amount of individuals enrolling in the programs due to a more competitive business environment, see *Table 2*. Additionally, the difference in age and stages of life could help explain the higher enrollment numbers.

Table 2 An Overview of Online Enrollment Percentage Growth

Year	Percent of students enrolled in exclusively distance education courses nationally	Students enrolled in some but not all distance education courses nationally
2012	8.24	15.42
2013	8.88	16.35
2014	9.65	17.46
2015	10.19	19.03
2016	10.77	20.81
2017	11.94	21.91
2018	12.76	22.93
2019	13.87	24.13
2020	38.49	39.54
Total	13.78	21.91

While graduate education saw heavy growth in exclusive online education, hybrid growth was not the same. In 2012, only 10.6 percent of graduate students were taking at least one course. And this number would only

grow to 12 percent during by the 2019 academic year. Over a seven-year period, hybrid education barely grew in graduate education at public four-year institutions, then it saw around a 7 percent increase in 2020, a smaller increase compared to exclusive enrollment. Whether this trend of one percent continues at the 2020 level or there is a drop-off in exclusively enrolled students, has not been released in federal data. However, news reports of students going back to campus to in-person classes could indicate that there will be a drop off in the exclusive percentages, but marketing for fully online graduate programs continues. In 2020, only 28 percent of graduate students at public four-year institutions were not enrolled in any distance education down from 70 percent in 2012. Rates for undergraduates enrolled in no distance education would drop from 76 to 24 percent over the nine years of data.

Table 3 An Overview of Undergraduate Online Enrollment Percentages

Year	Undergraduate students enrolled in some but not all distance education courses	Undergraduate students enrolled in some but not all distance education courses
2012	6.32	16.17
2013	6.82	17.35
2014	7.40	18.62
2015	7.70	20.34
2016	8.14	22.33
2017	9.03	23.60
2018	9.64	24.98
2019	10.18	26.49
2020	35.40	43.39

Table 4 An Overview of Graduate Online Enrollment Percentages

Year	Graduate students enrolled in some but not all distance education courses by percent	Graduate students enrolled in some but not all distance education courses by percent
2012	19.07	11.06
2013	20.70	10.73
2014	22.51	10.78
2015	24.02	11.34
2016	26.08	12.12
2017	27.94	12.80
2018	30.12	12.49
2019	32.77	12.13
2020	54.40	19.83
Total	28.66	12.58

Among the various states, there have been varying enrollment rates for those who look to enroll in exclusively online courses, but rurality explains some of the rates. Many states with more rural areas like Alaska, South Dakota, North Dakota, and Arizona all have more than 10 percent of their students enrolled in exclusively online programs. Leading the nation in the percentage of students enrolled in exclusive distance education at the public four-year college level is Maryland at 14.9 percent. On the opposite end of the enrollment spectrum is Vermont, which only has a 1.6 percent enrollment rate for exclusive distance education. States with low total enrollment for exclusively online rates, under 5 percent, are not concentrated in one region but several come from the northeastern United States.

In terms of most populous states, California has a 6.2 percent rate, while Texas has a 7.6 percent followed by Florida at a 9.2 percent rate of total students

enrolled in exclusive online higher education. Those states often have high percentages of total online enrollment within their state, but there are higher levels of differentiation within the state among institutions. California has the largest differentiation among institutions, but 16 states have more than a 10 percent deviation among institutions. Texas and Alaska, both states of large land masses, have a high level of differentiation among public four-year institutions, while Florida has smaller variations. This high differentiation indicates some institutions within the state have a higher percentage of students online, versus some which may be focusing on more traditional brick-and-mortar schools.

However, some states like New York and Delaware have lower total online enrollment along with small land sizes but have a high differentiation for exclusive online enrollment percentages. Those states are most likely seeing several institutions have a higher percentage of enrollment while several are seeing very low enrollment rates. For the rest of the United States, there is little variation in the percentage online enrollment among institutions. Online enrollment often rates average around 6.5 percent for the nation when it comes to exclusive online enrollment by state.

Nationally, research institutions have more students enrolled in exclusive distance education at 22.3 percent than master-level institutions at 21.9 percent, with baccalaureate colleges trailing at 19.4 percent. For R1s, they have a 19 percent rate for students enrolled in exclusively online courses over the last nine years of reporting, while M1s have a 21.4 percent rate. But R1 public institutions had some of the lowest rates for exclusively and hybrid online education. When it comes to hybrid education, master-level institutions

lead in terms of enrollment percentages for both undergrad and graduates. For exclusively online master-level institutions 12 percent of their students were online during the nine-year period from 2012 to 2020, compared to research universities at 8.8 percent. For hybrid education, master-level public four-year institutions had a 33 percent rate while research had 25 percent.

HBCU Online Enrollment

Historically Black Colleges and Universities (HBCUs) within the online education realm, find themselves lagging exclusive online enrollment by more than half. HBCUs have 7.1 percent of their students enrolled in exclusively online courses, while the average for non-HBCUs is at 14.5 percent over the last nine years (SEER, 2000-2020). While hybrid enrollment is 5 percent higher for HBCUs at 25 percent. Overall 67 percent of HBCU students are not enrolled in any distance education courses, higher than those at other public four-year institutions. Exclusive online enrollment for both groups is nearly half of the average for non-HBCUs.

Online education often requires upfront costs which require the university to have a funding stream to begin the work. While the quality of distance education can vary, since the Covid-19 pandemic there has been an increased trust in online education as investments by universities have increased (DePaul, 2022). HBCUs often have small endowments, limited affluent alumni, and external funding which could help in building online education programs (Gasman et al., 2010, 2016; Redd, 2003). Often OPMs and other online education providers can bring in more students through marketing practices than when the university conducts its own marketing for online

courses, but whether it always leads to success is mixed and tuition sharing can heavily cut into revenue (McKenzie, 2018).

Chapter Three

The Data Side of Higher Education

Shifts in higher education enrollment and population have occurred throughout the history of the United States. Regions throughout the country face different challenges and the higher education institutions within them have different viewpoints on responses to external changes. Additionally, the introduction of innovations within higher education have created changes in the way educational material is delivered, specifically online education. One narrative has become dominant recently surrounding a doom and gloom scenario for leaders within higher education. The aim of this chapter is to explore how population and enrollment have interacted over the last two decades within public four-year higher education institutions. Combining population data from SEER (Surveillance, Epidemiology, and End Results Program, 2000-2020) and IPEDS (Integrated Postsecondary Education Data System, 2000-2020) is used to explore variations among Census regions, within states, and within institutional Carnegie Classifications. The following research questions will guide much of the study for chapters three and four.

- Do shifts in population have a relationship to enrollment at public four-year institutions as a whole and within different categories?
- How has higher education enrollment shifted in ways which could indicate a sizeable change within their university and what are the managerial responses?

To answer these questions, I have analyzed data from the last twenty years and produced a variety of graphs and regression analyses that detail the shifts among various segments of the population and higher education data. Using bivariate analysis, relationships among certain types of institutions and the surrounding populations do occur in certain Census regions, states, and more specifically within certain types of Carnegie Classifications. Using this classification allows for shifts among different sectors of the higher education system to be analyzed. This study does not examine private institutions, community colleges, military colleges, or fully online institutions, as they are often completely different types of institutions with varying regulations and financial pressures.

Much of the literature surrounding higher education has focused on predicting enrollment trends to show whether or not a particular type of institution or state will see shifts in its higher education landscape (Grawe 2018 & 2021; Newman et al., 2010). These studies have often kept to a national or regional level, with even fewer making analyzing what is happening at a state level. However, the relationship between a state's population and its higher education enrollment is often complex with institutions seeing a wide variety. This study deviates from solely trying to predict enrollment to understanding how population and enrollment have interacted over the last twenty years.

With most institutions pulling from within a 50-mile range surrounding their institutions (Mattern & Wyatt, 2009) and migration rates throughout the United States at historic lows (Rupasingha et al., 2015; Cooke, 2017), I decided that looking at population levels at the county in which the university is located and surrounding counties would provide a good regional insight. Additionally,

the migration of college students has remained steady for decades (Hurtado et al., 2006). While there are always limitations to any data source, this method provides a more micro level of analysis than just looking at the entire state population.

The goal of this chapter is to show that there is variation among enrollment trends and that not every institution within a particular area is destined for a demographic cliff which could result in a closure. Showing that there are variations among the states, institutions, and county regions can provide insight into when population and higher education enrollment have had relationships over the past two decades. For many studies, the general population is used when determining future enrollment totals in general, but a closer look shows that variation exists when it comes to the relationship between population and enrollment.

Exogenous Shocks to Higher Education

Having a dataset of population and enrollment data from a twenty-year period is likely to include many instances in which there are exogenous shocks to both the population and enrollment. To ensure that the analysis excludes instances that cannot be predicated like major weather events or uncommon policy shifts, the following section includes instances when there are exogenous shocks to enrollment at a particular institution or policy changes occurred affecting populations of certain counties.

Maintaining the highest amount of variation among the data very few results had to be removed. However, over a 20-year time span, there are exogenous shocks to population and enrollment at four-year public

universities. One of the largest shocks was hurricane Katrina which caused 1,833 fatalities and approximately $170 billion in damage (LaFountain et al., 2020). The affected years, 2005 and 2006, were excluded from the data set to allow for analysis of other parts of the United States to still be understood. The enrollment shocks to the institution are not common and deserve a more in-depth study outside of this project. For the entire 17 years' worth of enrollment data, 46 universities had more than a 10 percent fluctuation in their enrollment. Several institutions had only been in session for one week and many closed for months only to return in January to portable buildings, only in the fall of 2006 did some normalcy begin (Brisbon, 2020). Two other issues showed up within the data. There was a change in county lines in Colorado causing an exogenous shock, along with Penn State aggregating the enrollment of all their various universities into one single reported total to IPEDS in 2019. Penn State "is not considered a system but rather is accredited as one institution geographically dispersed" (Chan, 2020).

In 2001, Colorado added its 64th county to alleviate issues surrounding the city of Broomfield being located within four different counties. While there is no public-four-year university in Broomfield, changes to surrounding county populations did occur. Broomfield County was created from parts of Adams, Boulder, Jefferson, and Weld Counties and became effective on November 15, 2001 (Holeman, 1998; U.S. Census Bureau, 2021). The largest population detachment came from Adams County with 15,870, followed by 21,512 being detached from Boulder County. Jefferson County had 1,726 detached and 69 from Weld County. By applying a three-year lag on populations significant issues would arise in the State of Colorado for the year 2005. County data for

the year 2005 was removed from Colorado to account for the significant changes within the greater Denver area.

Growing/Loss Institutions

To better understand the higher education landscape there are several institutions that had high growth and loss years. For the purpose of this study, any institution which saw a 33 percent increase or decrease in their enrollment was coded as an outlier. Much of these dramatic shifts came from mergers, significant changes to reporting requirements, growth of online programs, and other shocks to a university which often skewed the research as a whole. It is important to understand these larger shifts in enrollment, but not let them distract from what is considered normal enrollment shifts in higher education. The majority of the shifts in enrollment came at HBCUs, while the online-only institutions came next, followed by more traditional public four-year institutions. In 2015, Thomas Edison State University saw a 39 percent decline in enrollment. This shift was due to "changes in student counting methodology which caused decreases in both the traditional students and contract populations" (KPMG LLP, 2015, p. 5). While the majority of declines at institutions were below the 10 percent level of the six institutions which had severe declines the majority of the institutions were HBCUs. In total, only six public four-year institutions saw declines above 33 percent.

Enrollment Shifts at HBCUs

For HBCUs, there have been four institution years that saw decreases in the total enrollment which exceeded 25 percent for any given year. Bluefield

State College, a historically black college that now is majority white, had no abnormal changes in enrollment policies in 2005 or the years around it except for the appointment of Albert Walker in 2002, the first African American president since 1965. The university saw a decline of 51.2 percent in its 2005 enrollment from 3506 to 1708 total students. In 2018, Cheyney University of Pennsylvania saw a 38 percent decline in its enrollment compared to the previous year. The University had been battling enrollment declines for almost a decade and was on an accreditation probation period by its accrediting body the Middle States Commission on Higher Education (Snyder, 2019). While it has had a turnaround in enrollment, the 2018 year was the last year of low enrollment, and the University has seen steady growth since then (Cheyney University, 2022). In 2019, the university was able to grow by 32 percent, erasing a portion of the losses it had seen in previous years. The institution also saw a decline of 30.4 percent in 2015.

Another enrollment drop occurred at West Virginia State University in 2004, when enrollment dropped by 32.6 percent from 4,966 to 3,344. Looking further into the issue, spring enrollment that year was the biggest area of decline (WVSU, 2018). That year the West Virginia State Legislature approved a name change for the university, to be renamed from college to university (Owston, 2009). However, West Virginia State University would see a 33 percent increase in enrollment in 2009 with no major policy changes taking effect then. One institution purposefully cut its enrollment as a way to save money in 2014. Kentucky State University's interim president at the time who would become its permanent president, Raymond Burse, implemented a policy that removed any student who had an unpaid bill to the university (Schwarz,

2014). At the time, the roughly 650 students accounted for a $7 million deficit (Rivard, 2014).

While HBCUs have faced decades of steady enrollment losses in the last decade (U.S. Dept. of Education, 2021), there are a few institutions that have seen some increases within the last two decades. Albany State University saw a large increase in the number of students during the 2017 year due to the consolidation between Albany State University and Darton State College (McMurray et al., 2019). The official change occurred in 2017, but had been in the works for several years beforehand. One institution, Central State University, saw a 97 percent growth in its enrollment in 2020 from 2033 students to 4021. While no mergers or major leadership changes occurred at the university, one major one did and that was a partnership with Eastern Gateway Community College to create an online bachelor's degree called Central State Global. This shift was what independent auditors credit as one of the main reasons for growth in enrollment, however, the report indicates that there was only a roughly $500,000 increase in tuition revenue (Crowe LLP, 2020).

Growth Institutions

There are several institutions which stand out within the study when looking at the more extreme side of enrollment shifts of greater the 50 percent. In total there are fourteen occurrences in which institutions saw more than a 50 percent growth. Of these, four are from online schools. In recent years, these institutions often saw steep enrollment growths in general as they are a newer type of institution. In Pennsylvania, a change to the federal reporting system by the Pennsylvania State University system combined all universities into one

number, causing a large spike in enrollment with actual headcounts at the various universities staying relatively stable (Chan, 2020). Georgia Gwinnett College had begun the process of building its institution after opening in 2006 as the first public four-year institution to be created in Georgia in over a hundred years (Georgia Gwinnett College, 2022). For several years afterward it saw substantial growth, including an 88 percent increase in 2009, and would see multiple years afterward of more than 40 percent increases in enrollment. Another similar situation occurred at Nevada State College, which opened its doors in 2002, and would see significant growth years for several years after its inception (Nevada State College, 2010).

One institution, Utah State University, had an organic 62 percent increase in enrollment during the fall of 2011. That fall they had nearly 4,000 new undergraduates, almost 800 new graduate students, and 1,900 transfer students (Utah State University, 2011). The contributing factor is growth in several distance education programs and growth in faculty numbers at their Logan campus. While not as significant of a growth rate, the University of California Merced saw three years of 45 percent growth from 2006 through 2008, after the university made changes in its enrollment application process (UC Merced, 2007). In 2018, Northern Vermont University did see a significant change in enrollment after the institution was created after the merging of Johnson State College and Lyndon State College (Northern Vermont University, 2021). However, just two years later Northern Vermont University, Vermont Technical College, and Castleton University, would be merged into Vermont State University, after enrollment declined across the state and state appropriations dwindled (Leaderman, 2022).

Online universities made up the majority of institutions that saw enrollment growth when looking at the 33 percent growth level. Often these programs are connected with outside firms who work to enroll students in the program, create user-friendly websites, and host much of the content, all while having a tuition revenue-sharing agreement with the specific university. At the four-year institution level, the majority of students who enroll in exclusively online courses is concentrated at private for-profit and nonprofit universities (NCES, 2022). In total, there were seven occurrences in which enrollment growth at an online-only institution was above 33 percent.

Population and Higher Education Enrollment

To best study the bivariant relationships between enrollment shifts from 2003-2020 at public four-year institutions and the population of the university's county and surrounding counties. this study uses binned scatter plots to plot the continuous variables which span two decades. For each triangle within the binned scatter plot, there is 1/20th of all observations observed. This study used the default number of bins for all binned scatter plots. For this study that is each institution year. The binned scatter plot figure shows that enrollment changes at public four-year institutions have a nearly one-to-one relationship with the populations around their university. On average there is a strong positive relationship, however, there is variation among the different groups.

The population is broken down into the age range of 15-19, which is the traditional age bracket for freshmen at a university. From this plot higher education institutions often have mixed results when it comes to the population of surrounding counties and the enrollment at the university. For some areas of the United States, there has been a small growth in the 15-19-year-old age range with declining enrollment at universities. In total, a quarter of the observations have a positive population growth with a negative percent change in enrollment. Often higher education enrollment is linked directly to population shifts within an area in much of the literature surrounding changes in higher education like the National Student Clearinghouse, which provides annual enrollment predictions. Based on predictions one would expect more population loss to equal more loss in higher education enrollment. However, within the three bins which saw both population and enrollment loss, there was a variation in the two loss categories. Institutions that saw the greatest population loss, around 400, in the surrounding counties only saw about a 3-4 percent loss in enrollment. While areas that saw a population loss of around 150, saw the steepest declines in percent change in enrollment totals at around 12 percent. On the growth side of enrollment, much of the shifts were between zero and 5 percent, 11 bins, with

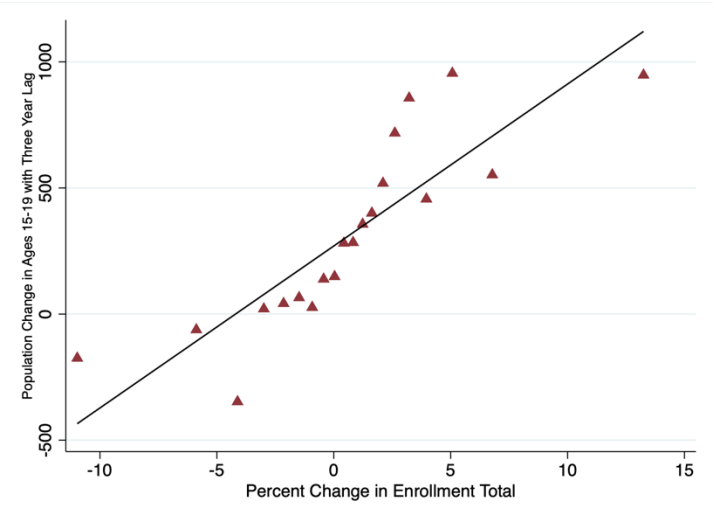

Figure 1 Percentage Enrollment Changes in Relation to Population

some wider variations in population growth. While regions with the largest population growth among those 15-19 years old did increase, the gains by institutions were often less than five percent. Only two bins were above the five percent change in enrollment total and saw population growth.

Estimating the Effects of Population on Enrollment Nationally

To estimate the effect on population and enrollment I implemented a regression analysis to estimate whether there were any effects and if there was a cut point for where the effect was. The regression model above shows support for the idea that within higher education there is a differentiation in the effects of population shifts on enrollment at the type of institutions. While the binned scatter plot, *Figure 1,* of the national higher education landscape with every Carnegie Classification included, a more detailed regression model shows that when splitting the samples, the significant relationship is different for R1 institutions. At the R1 level, there is no significant relationship between population and enrollment. Grouping all other Carnegie Classifications together shows that there is a significant relationship between population shifts at the 15-19 age range and the change in enrollment. For every one percent increase in the population of the county and surrounding counties, there is roughly a .42 increase in enrollment at a university, showing a relationship at the macro level. To obtain one student a university would need to see around a 2 percent increase in population. This model reveals that the cut point for the effects on population and enrollment is at the R1 and R2 levels and not between research and master-level institutions. For the vast majority of institutions population at the 15-19 age level combined with a three-year lag is shown to

have a relationship with enrollment. However, this model does not predict relationships between enrollment and population at the state level.

Breaking Down the Types of Institutions

Research Institutions

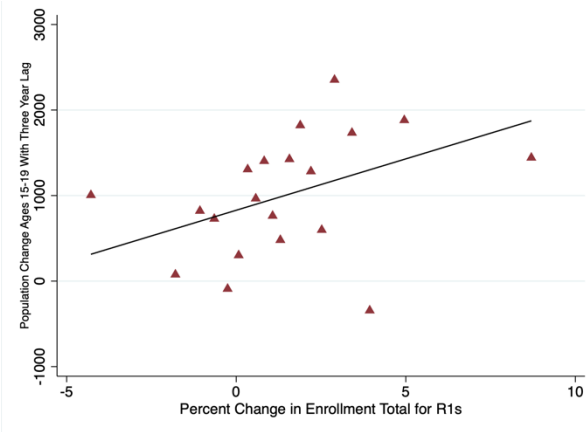

Figure 2 Percentage Enrollment Changes in Relation to Population for R1s

Within the higher education landscape, often public four-year research institutions provide the majority of research within a state. These institutions are often the flagships of higher education within a state. In the binned scatter plots, enrollment and population data are broken down by Carnegie Classification. This classification is used as a way to control and describe the institution based on a multitude of factors. Often the higher research institutions, R1s have the highest level of research funding and a larger enrollment base, while lower levels, R3s, are smaller and do not have as many resources as top institutions may have. In the data set, there are 95 R1s, 89 R2s, and 28 R3s total which have 20 years of data for each institution. For the

population, a three-year lag has been placed on the age group ranging from 15-19 years old. This was done to take into account new groups entering

Looking at the three above binned scatter plots, the best sample for seeing an effect on enrollment by population change is for R3s followed by R2s. For R3s, often when the population increase so will the enrollment at a university. Each bin in the above R3s scatter plot equates to 25.2 unique observations. This 20-year sample of data suggests that nationally these types of institutions are dependent on the population of surrounding counties and the county in which the university resides. For county clusters that saw a near zero percent change the institutions in those areas also saw declines in their institution's enrollment. While higher areas of population growth saw greater increases in their enrollment. These types of institutions are more dependent on population shifts. For R2s, there is still a stronger relationship between population and enrollment. However, when it comes to R1s there is a weaker relationship between enrolment and surrounding county populations. While the vast majority of enrollment

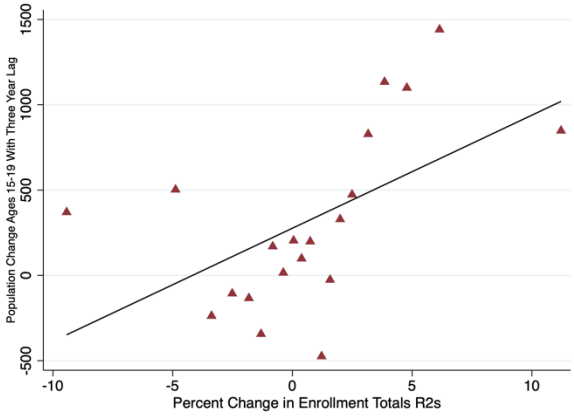

Figure 3 Percentage Enrollment Changes in Relation to Population for R2s

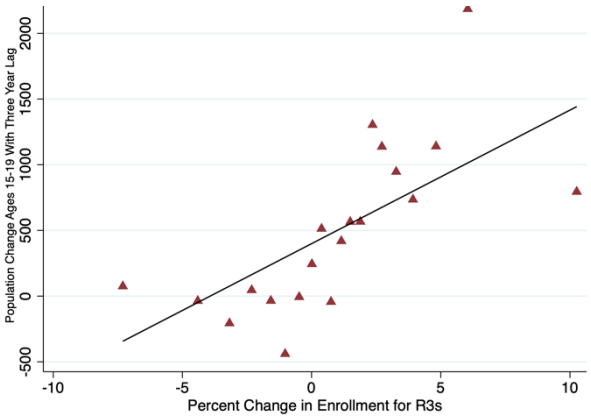

Figure 4 Percentage Enrollment Changes in Relation to Population for R3s

data from R2s over the last two decades is positive it cannot be linked to population, suggesting that they can pull students from farther away.

Often R1 institutions are often not controlled by the shifts in enrollment in their surrounding counties and are the flagships of their state (Warner, 2022). They have a broader base they can pull from. These institutions along with R3s are more suspectable than R1 institutions when it comes to shifts within the population. Larger research institutions often spend more time recruiting from out of state and in regions with affluent metropolitan communities, often not spending time in rural areas (Han et al., 2019; Jaquette, 2017). These types of institutions "compete for" students from a wider service region including out-of-state (Han et al., p. 44, 2019). In the research done by Han et al., they found that many of the research intuitions had varying recruiting behaviors and believe that it was an institutional leadership decision, as some institutions within the University of California system had varying recruiting practices. However, the study did not break down the Carnegie Classification of individual research institutions. Financially larger research institutions can also weather financial downturns and spend more to bring in new groups of students. These types of institutions, along with ivy leagues, often have large endowments allowing them to have a cash flow that is not constrained to enrollment numbers. These endowments can help provide scholarships, allow faculty lines to be financially supported, and support other programing across a campus.

Master-Level Institutions

Master-level public institutions are the workhorse of higher education with there being 225 in the total study, compared to 190 research institutions. These types of institutions produce the majority of degrees which are considered beneficial to the community versus a research degree. In recent years these types of institutions have begun investing heavily in master's degree programs, with business and computer sciences master's degrees seeing increases (June & O'Leary, 2021). Within the Carnegie Classification, there are three levels of master-level institutions. For the larger master level, M1 institutions, they awarded more than 200 bachelor degrees. While medium-sized institutions, M2s, had 100-199 degrees, and smaller ones, M3s, with 50-99 degrees. For master's programs, M1s and M2s, they have at least 50 master's degrees and no more than 20 doctoral degrees. The M3 level has less than 50 master's degrees awarded each school year.

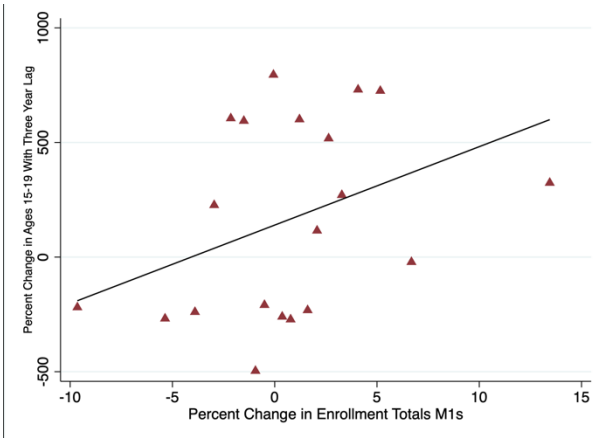

Figure 5 Percentage Enrollment Changes in Relation to Population for M1s

Examining the relationship between how population and enrollment interact shows some similarities to categories within the research university category. For M3s, there is a strong relationship between population and enrollment, with each bin in the above figure representing 32 unique observations. Overall, there is a slim majority of more positive years in terms of percent change in enrollment, however, those bins that have positive enrollment change also have positive population growth. Institutions that saw years of negative enrollment decline also saw population declines. The regions which also saw population declines had a steeper rate of decline than areas that had M2s or M1s in them. While the relationship was not as strong, M2 institutions had more years of heavier percent change in enrollment than M3s, but the populations did not see as much of a decline. Overall, M2s saw much of their annual percent change in enrollment range from negative five percent to positive five percent, while M3s had a larger swing.

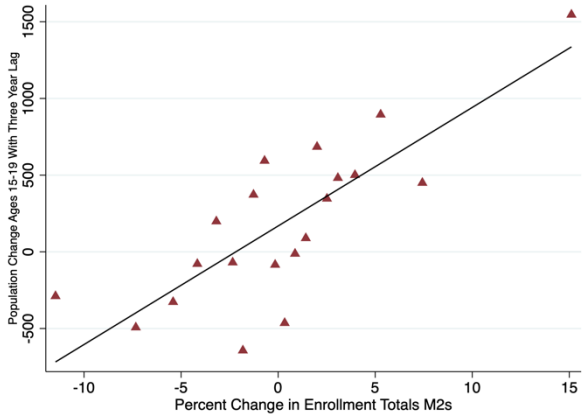

Figure 7 Percentage Enrollment Changes in Relation to Population for M2s

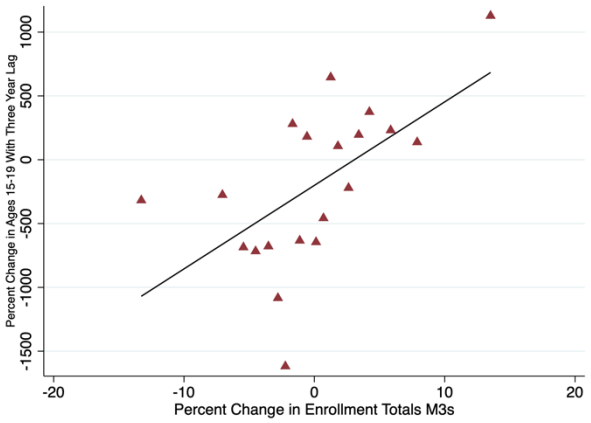

Figure 6 Percentage Enrollment Changes in Relation to Population for M3s

The largest master-level institutions often referred to as regional colleges, can pull a greater portion of their students from areas that span outside of just the county in which they reside. Within the binned scatter plot for M1s, there is a wide distribution of bins compared to other levels of mater institutions. While the relationship is weaker some inferences can be made. For one, growth at M1s is more likely to be less than five percent in any given year. While enrollment percent changes are more likely to not be in a high growth range, there is a disconnect to the population. Whether a county region had a positive rate of growth or negative there was a weak relationship to the enrollment in that area. For institutions within this category, this weak relationship could indicate that these institutions have factors outside just population shifts that are affecting their enrollment trends. These factors could include more internal management strategies and other competing factors.

Baccalaureate Institutions

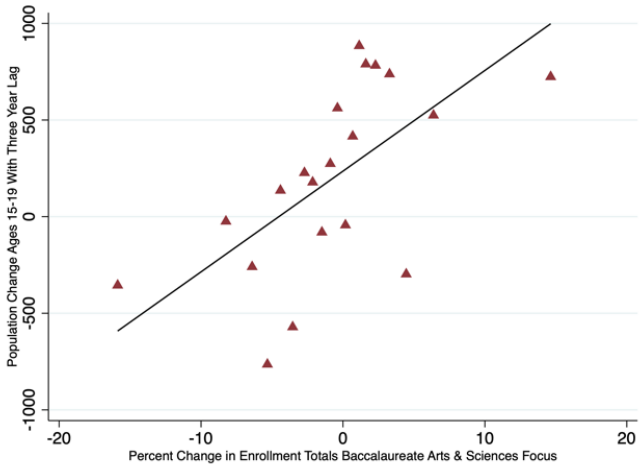

Figure 8 Percentage Enrollment Changes in Relation to Population for Baccalaureate Arts & Sciences Focus

Of all the three main levels of the Carnegie Classifications, baccalaureate institutions are often some which have some of the strongest relationships between population and enrollment. There are two main types of baccalaureate institutions

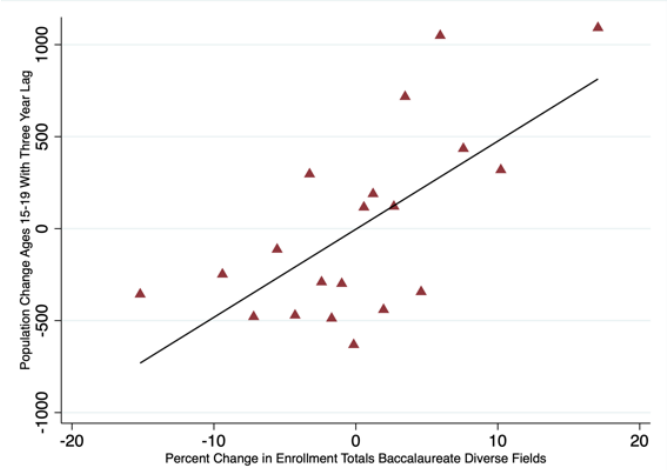

Figure 9 Percentage Enrollment Changes in Relation to Population for Baccalaureate Diverse Fields

within the dataset including arts and sciences focus and then diverse fields. These institutions must award a majority of bachelor's degrees, and have no more than 50 master's degrees awarded in a school year. For institutions that awarded at least half of their bachelor's degrees in arts and sciences fields are considered arts and sciences institutions. Other institutions which do not meet those criteria are included within the diverse fields category. In general baccalaureate institutions are smaller and enroll less than 3,000 students according to the data. These categories do not include community colleges that award some bachelor's degrees. These institutions often have different missions than public four-year institutions.

For arts and sciences institutions, there is a strong relationship between population changes in the 15-19 age bracket and the percent change in enrollment totals over the last two decades. Each bin in this category equals 20 unique observations from institutions. This is the smallest sample of all the Carnegie Classification institution breakdowns for this study. From the collected data it can be shown that when the population declines there are often enrollment drops at the universities and the same shows true for enrollment growth. However, many of these institutions only saw slight growth years with the majority less than a five percent growth or loss. For these types of

institutions the regions in which they are located have often seen more population growth in the 15-19 age bracket than loss, however the same is not true for institutions with diverse fields.

While there is a strong relationship between population and enrollment totals it is not as strong as arts and sciences institutions. For these types of institutions, many of the observations were in regions with population declines for those 15-19 years old. Each bin within this category of institution equates to 62 unique observations. For percent change in enrollment growth, there is a wide dispersion between enrollment and population shifts.

HBCU Enrollment

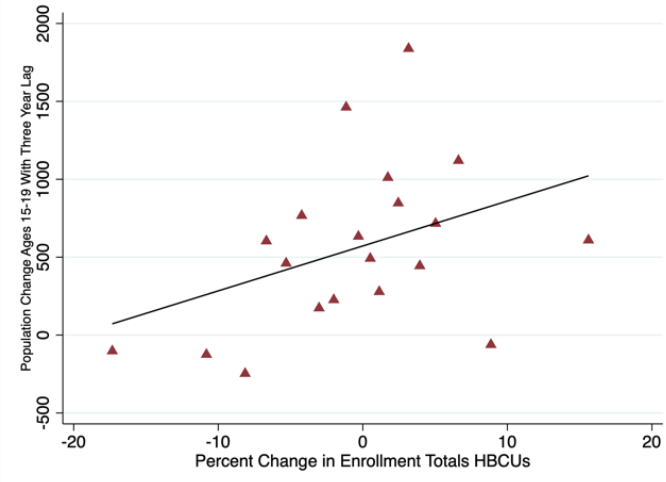

Figure 10 Percentage Enrollment Changes in Relation to Population for HBCUs

For HBCUs, the relationship between population shifts and the percent change in enrollment is a weak relationship. While the population may not be a good predictor for this category, it is shown that there is a wide variation in the populations of the areas surrounding HBCUs nationally. For much of the enrollment shifts, they fall between 10 percent either way showing that these types of institutions often see larger swings in their enrollment. Historically HBCUs have been on a downward trend in their enrollment and total share of higher education enrollment. Much of this is attributed to the rise of community colleges and the growth of blacks at non-

HBCU institutions after court decisions desegregating higher education in the late 1970s (Sissoko & Shiau, 2005).

Regional Differences

When looking at various regions throughout the United States, the relationship between population and the shift in enrollment varies greatly. Using the Census divisions of the United States, I broke up the states into nine different regions to better understand variation in Carnegie Classifications. Within each of the regions, a lincom command was used to estimate the relationship between population and enrollment at each level of Carnegie classification. This lincom feature allows for linear combinations of the various coefficients. While not every region had each level, only the doctoral/professional universities, R3s, were missing from the New England region, and the baccalaureate arts and sciences focus category was missing from the South Atlantic, East South Central, and Pacific Regions. These smaller baccalaureate institutions have specific purposes, while those regions did contain many baccalaureate colleges with diverse fields.

In certain Carnegie Classifications, the relationships between population and enrollment are often less than a one-to-one ratio with very little variation among the nine regions, specifically within research level one institutions (Carnegie 15 Classification). From this, it is shown that these types of institutions are often shielded from fluctuations in population, insulating them from the external shocks of changes. These types of institutions are often the flagships within a state and are able to have more resources to recruit students from outside a small regional area. However, within research level two and

three institutions (Carnegie 16 & 17), variation starts to be shown. Within the research level two institutional category (Carnegie 16), several regions began to see a nearly one-to-one relationship between population and enrollment change, specifically within the pacific and mountain regions. These relationships show that if the population increases by 1 percent, then the university's enrollment could increase by 1 percent, and when the population declines by one percent then the university sees a similar decrease in its enrollment. However, institutions within the research level two classification (Carnegie 17) variability begin to be shown. While every category has a positive relationship, those within the Middle Atlantic see a two percent shift in the population they see a one percent change in enrollment, however, there is some uncertainty, but the uncertainty is still positive. This relationship of population affecting enrollment continues into three other regions, with the mountain region having a large amount of uncertainty. This large uncertainty is due to few institutions being located in that region.

Within the master-level Carnegie Classifications, there are strong relationships in many of the various regions. For master level one institutions, Carnegie 18, there is variation among the various regions indicating that not all large master institutions are feeling the effects of the population equally. While there is a strong near one-to-one relationship between the population in both New England and the East North Central regions, there are positive relationships in nearly every region except the West North Central. Within this region, there is a negative relationship. From this analysis, it is shown that when the population declines by 0.5 percent in a region there is roughly a one

percent increase in populations at M1s within that region, but the trend continues for M2s and M3s within the same region.

Both of the institutions studied within Chapter 4, fall within the master level one institutional category. Adams State University, they are located within the Mountain region and when the population increases by around .75 percent then they see roughly a 1 percent change in population. But within the Adams State Region specifically, they are seeing the flip side of the coin with declining populations in its area. The second institution which is being studied falls within the West South-Central region where smaller increases in population can still affect an institution. This institution has seen declines in enrollment when the population declines in certain regions within its service area. Within the master level two and three category results, Carnegie 19 and 20, variability begins to increase as fewer institutions find themselves within these classifications. However, in most regions within the master level two institutional classification, the population affects their enrollment with the Mountain region seeing nearly a two-to-one relationship between population changes and enrollment. While there is some variability in that category, the estimates still point towards a positive relationship between the variables. Within master level three institutions, there are wide variations among the population affecting higher education enrollment, with several regions still seeing significant relationships, including the East North Central seeing a two-to-one relationship and Mountain seeing a one-to-one relationship. Those within the West North Central once enrollment gains when population declines. Further studies could investigate specific institutions within this region.

The final two Carnegie Classifications, baccalaureate colleges: arts & sciences focus and those with diverse fields, levels 21 and 22, are one which are most susceptible to shifts in their enrollment when the population changes. These types of institutions are often smaller baccalaureate colleges with total enrollments of less than 3,000. While many regions do not have baccalaureate colleges with arts and sciences focuses, those within the New England and Middle Atlantic see around a one-to-one relationship between population and enrollment changes. However, within baccalaureate colleges with an arts and sciences focus, there is a wide variation across the regions, with population change affecting enrollment in all but three regions. These smaller institutions should be more aware of shifts in populations as any positive or negative change can affect the institution.

From the regional regressions, it is shown that not every type of institution sees a direct relationship between the percent change in population and the percent change in enrollment. This analysis shows that over the last twenty years, there has not been one narrative of a national demographic cliff affecting higher education. While R1s can weather shifts in enrollment, M1s may see more effects when population shifts especially those in the New England and Mountain regions, but not in the West North Central region. Often larger types of institutions are able to absorb the shocks of shifts in population with a smaller effect on its enrollment, than smaller baccalaureate institutions. This variation should be taken into account when universities plan on making enrollment predictions based solely on population.

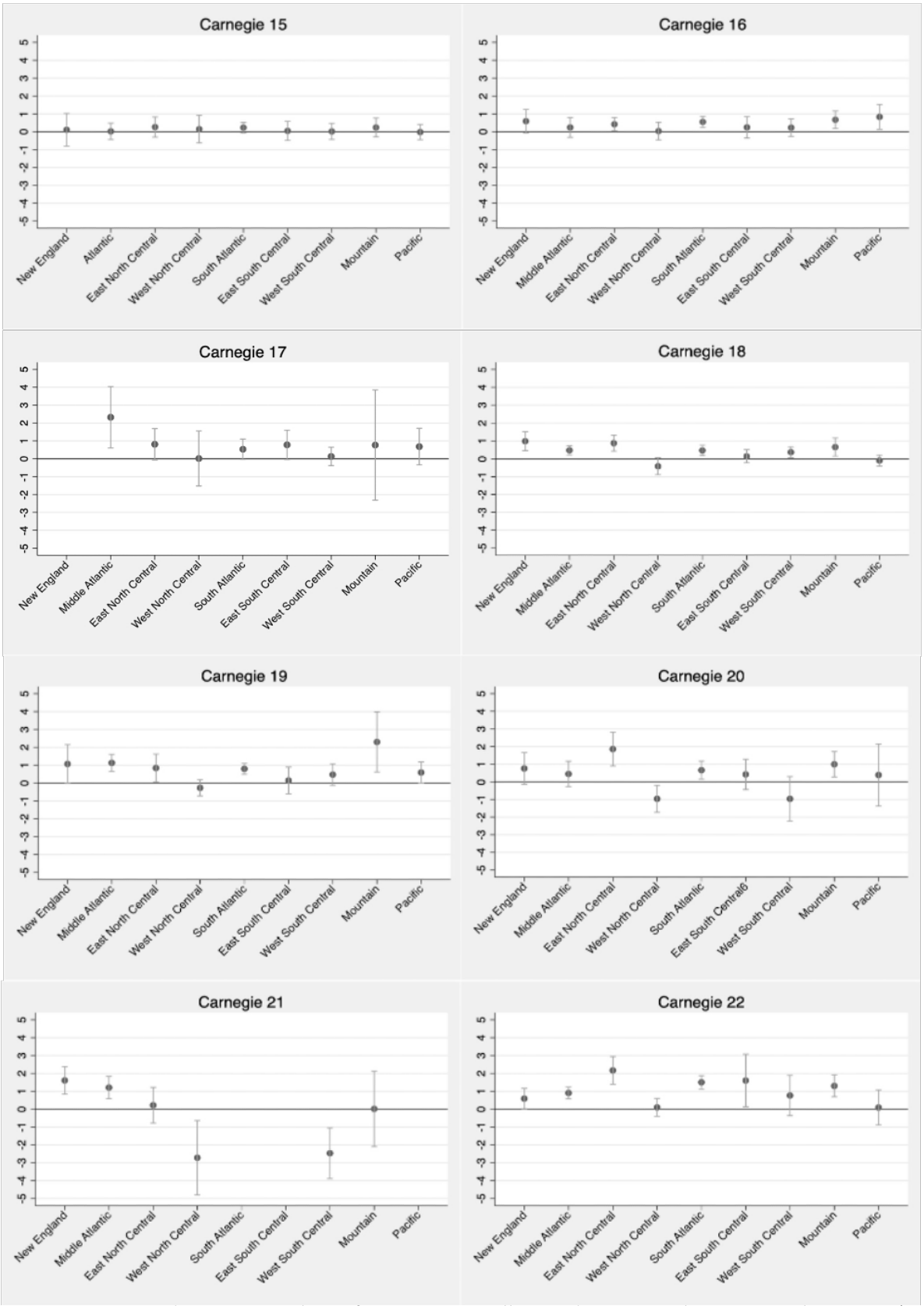

Figure 11 A Region-by-Region Analysis of Percentage Enrollment Changes in Relation to Population Based on Carnegie Classification

Chapter Four

Explaining Management Perspectives within Higher Education

The first two empirical chapters have taken a higher-level look at public four-year higher education institutions by looking at relationships and the demographics surrounding them. Throughout my dissertation, I have taken a look at the literature surrounding cutback management, and different styles of management responses, and took a national and regional look at different types of higher education institutions' enrollment compared to populations. There are two main questions leading the argument throughout, which include how does population and enrollment relate, and what are the managerial responses to changes. Much of the state, regional, and national higher education data provide a generalizable overview of what certain types of institutions are seeing surrounding enrollment and population. While this analysis provides an understanding into certain questions surrounding past demographic shifts, it can not provide any substantive insights into what is occurring on specific campuses and the human responses to those factors.

A term gaining prevalence among policymakers and higher education leaders is the idea of demographic shifts, often used in a negative sense. Much of the work shows how areas within the United States have experienced shifts within enrollment and projections around those numbers. The big question left unanswered is how do campus leaders think about challenges they have and may face. By using the management framework set out by Miles and Snow, along with points from Levine's cutback management literature, I look to

operationalize the response between the varying administrators through in-depth case studies. Saying all institutions or specific regions are going to face the death of their entire higher education system may not be what will come in the future, after looking at the analysis of population and enrollment trends. While certain types of institutions have been impacted more by population, it is not that way in various regions and among different Carnegie Classifications.

Why these two institutions?

In the first section, I sat down with leaders from Adams State University to better understand the challenges they are facing in Alamosa, Colorado and within their region, the San Luis Valley, and nationally. This institution has seen internal and external instability, along with declining enrollment and revenue. The study also shows how having variation among the Miles and Snow management framework can bring further instability. Next, I sat down with leaders from one institution, with multiple satellite locations, located nearly 70 miles from an urban area to understand how they are also facing problems as a rural institution. But they are making institutional changes to become closer to urban areas. This institution allows for a better understanding of how the Miles and Snow framework can be successful. Campus leaders at the second institution asked to remain anonymous to be able to freely speak about their institution. The ways campus leaders perceive the issue of a demographic cliff, internal issues, and their responses to them are best accomplished through campus visits and interviews.

Between the two institutions, several similarities exist including a rural population that is declining, increasing financial pressures, and many

unknowns which exist in the higher education markets. Having these similarities allows for a uniform comparison between institutions. Leaders at both institutions were leery of what has been referred to as a national demographic cliff affecting their institution in a negative way, with only one exception to that thought. At Adams State University there was a desire to reconnect with high schools in the San Luis Valley, despite data suggesting that a multi-decade decline in population is occurring there (SEER, 2000-2020). The second institution was working to invest in a new satellite campus and has been in the process of scaling back its footprint in one rural town. The responses of both institutions are detailed throughout this chapter with a discussion of the findings from the case studies at the conclusion of this chapter.

There are three main types of management perspectives which will be used to operationalize the responses by campus administrators. The first is prospectors, which are individuals who have a decentralized structure, yet through incremental formulation and implantation can have some positive results. But, prospectors have an uncertain environment and decentralized structure. The next type is defenders, which are individuals who have a stable and centralized environment. Everything from their formulation to implantation is rational with supporting data. This group may seem slow compared to reactors, but often has positive results. One type of individual, an analyzer, exhibits the qualities between a prospector and defender, some find this type redundant but could be useful in when an intermediary is needed between the two main types. The final main type is reactors, which are individuals who have an very little connection with planning throughout

formulation and implantation of policies. This group often has negative results and no alignment in their environment. This framework by Miles and Snow will help in identifying the various managerial types between the two institutions.

Understanding Instability and Its Effects: Adams State University

The University's Setting and Enrollment History

The San Luis Valley is known for two things, potato farming and mountains. Outside of those two attributes it has Adams State University, located in Alamosa, Colorado. The institution serves a wide range of southern Colorado residents while being a Hispanic-serving institution in the heart of the San Luis Valley. Created in May of 1921 by Senator Billy Adams it was chartered as a normal college to be a pipeline for teachers in rural areas. Adams State University is considered a general baccalaureate institution with moderately selective admissions standards, but classified as a larger master's level institution, M1. Over the institution's history of the infrastructure growth on the campus happened during the 1950s through a major investment by the state for the creation of buildings. At this time the institution expanded its focus to include more programs than teacher education. Now the institution has over 55 degrees, five teacher licensure programs, nearly 10 pre-professional programs, a large master's program, and has more than 20 students in its doctoral (Ph.D.) program. A majority of its graduate programs are fully online.

This wide range of programs allows for a diversity in missions and the ability to understand how campus leaders navigate with the diversity of programs.

In 2000, the university was designated as the state's first Hispanic Serving Institution (HSI). To be designated an HSI, an institution must an enrollment of 25 percent full-time Hispanic students. As of fall 2020, there are 451 HSIs throughout 24 states which serve just over two million Hispanic students. By being a designated HSI, leaders at Adams State University are able to apply for Title V grants from the Higher Education Act. The institution has applied for for many of the grants, leading to nearly $14 million in grants. Additionally, the university has applied for Title III grants which can help serve low-income students. Much of the San Luis Valley is low-income. The average household income in Alamosa County is half of the national average, yet it is the highest family income county in the San Luis Valley (DATA USA, 2023). Nearly 49 percent of households in Alamosa make less than $25,000 per year and around 30 percent live in poverty (RPI Consulting, 2016). In Alamosa County, only 25.6 percent of adults have a bachelor's degree (United States Census, 2023).

Over the last twenty years, enrollment at Adams State University saw a steady increase until 2015, when it hit its highest enrollment on record at 3,404 total students. In 2000, the campus had 2,261 total students and in 2020, the institution had 3,164 students. In the two decades, the number of full-time equivalent faculty has increased by nearly 50, from 126 FTE faculty in 2000. While the number of staff has only decreased less than one (.4) to its current level of 134.3 FTE. Both numbers come after several rounds of faculty and staff cuts by presidential administrations in an effort to balance the budget. The

decline in staff is being felt in many areas of administration who often find themselves reacting to situations and lacking strategy.

Colorado has 14 institutions across the state and one institution has seen 17 years of growth. The Colorado School of Mines has seen growth every year over the last 17 years and is one of the few institutions in the nation which has seen some growth every year. The next closest higher growth school is the University of Colorado at Colorado Springs, seeing 80 percent of the last 17 years as growth years. Colorado is a state which has seen both high variations across its public four-year institutions in terms of enrollment change from year to year along with high deviation in changes. Overall, there was growth 62 percent of the time over the last 17 years for all institutions, so a majority have seen more good years than declining ones. However, the rest of the state is barely keeping ahead in terms of more years of full-time enrollment growth. Research universities fair slightly better than master's and bachelor's institutions, but they often only have one or two more years of growth. The Metropolitan State University of Denver and Fort Lewis College have seen declines in 10 of the last 17 years, one being rural while the other is located in the middle of Denver.

A Reactionary Management Style

At Adams State University, I had the opportunity to interview the president, vice president of Academic Affairs, associate vice president of Academic Affairs, chief financial officer, and director of admissions. These individuals were selected at both institutions as a way to allow for comparisons, but also for their high-level decision-making authority and ability

to set forth stability through planning. To better understand similarities and differences in their perceptions of demographic shifts; external and internal factors; and their management perspectives, the following sections delve into each one of those subjects to provide insight into the main questions posed. The interviews with campus leaders occurred in January 2023 at Adams State University.

Leadership at Adams State University is facing many external and internal factors which are causing instability, ultimately causing variations in their management styles. With recent shakeups in administration (Cerny, 2022) and much of their current top administration having been around only a few years, there is a level of centralized control to stabilize many aspects of the University. Often this centralized control is found within those who are defenders. For years various individuals within specific departments internalized control within themselves, which resulted in a lack of collaboration. Over the last two decades, the university has faced many challenges leading it to become reactionary in its overall management strategy. A call to change occurred after several regulatory agencies brought about several findings.

An audit of the university had two findings in FY 17-18, after an audit done in FY14-15 revealed a grim future for its operations (Wall, Smith, Bateman Inc., 2018). The FY14-15 audit stated that "If the trend is not reversed, the University's financial condition will deteriorate and jeopardize the operations of the University" referring to its balance sheets (Wall, Smith, Bateman, 2015, p. 7). Leadership who was there during that period mentioned it as a time of severe turbulence. These audits led to the Department of Education doing a

campus visit where they found compliance violations of the Cleary Act and Drug-Free Schools and Communities Act (U.S. Department of Education, 2018). At the same time, the report found that over a ten-year period, the university failed to return over $84,000 in federal student aid to students. Additionally, the university was placed on academic probation by the Higher Learning Commission for other violations. This visit caused instability within the financial side of the university leading to an unnerved campus who were already reacting to the incidents.

In 2014, the university was placed on academic probation by the Higher Learning Commission for two years (Gellman-Danley, 2016) for issues surrounding its online programs, which stemmed from an article within The Chronicle of Higher Education (Wolverton, 2013). This probation caused significant issues and instability, according to one assistant vice president from the office of academic affairs, who came in after the incident. Confusion and fear began to spread on campus which she said caused morale issues leading to even more negative press for the university (Kelderman, 2016). Additionally, the relatively small team was forced to respond to the HLC probation with limited resources and staff turnover. After two years the university completed many upgrades to its online programs and was lifted off academic probation, but the stigma continued. Enrollment in exclusively online education makes up nearly three-fourths of graduate and around 40 percent of undergraduate enrollment in the most recent data, but has been constantly high within the state (SEER, 2000-2020). This segment of the institution is a large revenue generator and requires administration to provide a higher level of oversight compared to institutions which may not have high rates of online learning.

Trying to Change Despite a Lack of Resources

Several administrators mentioned that morale is a major issue that they are facing as campus leaders, whether it be from a lack of resources, issues that occurred during the previous administration, or mundane challenges faced at nearly every organization. Many of the administrators on the smaller campus work more than 40 hours, while also having a class each semester to teach. One administrator within the Office of Academic Affairs stated that she was a member on more than 20 faculty searches. One the other hand the CFO stated that this was the first time her office had been fully staffed in about three years. And another administrator mentioned that they are looking to cut back on underperforming programs despite resistance. Often organization change can lead to lead to lower job performances and higher rates of turnover which continues organizational decline (Lee, 2018).

Those who were interviewed understood that they faced issues both internally and externally, often not being able to strategically react to issues which arises. Since the previous administration, there was a renewed effort to become more stabilized in decision-making and retention of both personnel and students. While the campus has hovered in the mid 3,000 total enrollment range, its Carnegie Classification is a larger program in the master level category, M1. This is due to its larger offering of master programs and having a Ph.D. in Counselor Education and Supervision, which has around 40 students. Adams State University has faced high turnover of both faculty and staff over the last decade. Despite the turnover all of those who were interviewed mentioned that there has been an increase in meetings and information

transparency. While efforts to better understand their environment and communicate among various offices are occurring, stabilization takes time and resources which are scarce.

At Adams State University, their director of admissions, Kara Pettit, falls into the prospector category, with her innovative plans which had been missing on campus. Pettit was recruited from another Hispanic Serving Institution to help bring about change. While Miles and Snow describe prospectors as trying to be future focused and innovative, by having the ability to combine some attributes of the defender model has been shown to produce greater positive results within the individual's environment (Bryson, Berry, and Yang, 2010; Walker, 2013). Change is viewed on different levels by those who either fall within the prospector or defender camps, but looking for stability should be a common goal which would lead to the individual being an analyzer. For Pettit, she has created a four-part strategic plan for her department to increase enrollment while using data from past years to best target specific areas despite the limited resources in her department. Additionally, her plan calls for investment in recruiting more Hispanic students, which despite being an HSI, the university hovers around the low to mid 30 percent range. Out of those interviewed, she is the only one who discussed a written strategic plan, with others having a survival approach to responding to changes. Several stated that they have a couple of major goals but data supporting how to accomplish those goals was not available. With little strategic planning in place any major force, like a demographic cliff, could cause even more instability.

A National Narrative Comes Home

When it comes to the national narrative surrounding demographic cliffs and pressure from state legislators, there are varying responses. Of the five top administrators that were interviewed at Adams State University, every one of them was not extremely concerned about a demographic cliff affecting their local pipeline of students. Population data for the county and surrounding counties show that in the San Luis Valley, there have been steady declines in nearly every population category over the last two decades (SEER, 2000-2020). However, administration did not connect this decline with declines in enrollment. Each one of them believed that by investing in a pipeline of students from the San Luis Valley a stabilization would occur, in turn slowing down the decrease in enrollment that they have been facing. But, the president and vice president of academic affairs mentioned that by roughly 2029 there would be a possible strong decline in enrollment.

Current Interim-President David Tandberg stated he has overheard and partially seen the idea of a demographic cliff affecting schools within the northeastern United States. He stated that it could be causing them to send more recruiters to Colorado. Tandberg worried that recruiting could take away from their graduate student enrollment which makes up nearly 50 percent of the total enrollment. Tandberg hoped that the rise in the national Hispanic population would help buffer any demographic cliff. The president believed that any future demographic cliff in Colorado is unpredictable as he said models have higher variation the farther they extend. But, he has heard rumors at the state level that demographic cliffs being faced in other portions of the

country could be affecting Colorado's in-state student pool. Having universities recruit from inside the traditional service area of Adams State University could bring challenges to enrollment. This possible challenge could extend to management at the university along with their market monopoly with online enrollment. However, solutions to responding to an increase in competition for students could cause the defenders and prospectors to become misaligned in their strategies.

Despite not being overly concerned, there was variation in the reactions to this possible impending cliff. The Vice-President of Academic Affairs Kent Buchanan was propelled to be a defender under the former administration but had to adjust to a prospector quickly when he was selected as the one-month interim president. During this time, he made substantial changes within the hierarchy of Adams State University administration as a way to bring about a more cohesive administration which had been siloed. Buchanan believes that a demographic cliff could come from an expected competition to the graduate online programs at Adams State University. He stated that while many of their programs have a monopoly specific segment within the online market, he is projecting declines in the future and trying to plan for the shifts. In today's online world, course sharing and fast paced changes to programs is becoming more common (Marcus, 2022). Graduate enrollment makes up a considerable portion of the enrollment at Adams State University and managed internally.

While Buchanan agreed that competition for their graduate programs is a concern, specifically its online master's degree in counselor education, which he stated was a "cash cow," one difference was the how long administrators thought the growth would last. Online education had been growing over the

last decade (IPEDS, 2000-2020), but Buchanan says he is expecting only a year or two left of growth before declines begin to show. However, Tandberg believes in a possible decline seven to eight years away, but he is not confident when and to what area it could affect. No concrete plans exist on how the campus would respond to a decline in one of their largest revenue segments. Other administrators did not believe there was an immediate issue surrounding a demographic cliff and that the university needed to renew its commitment to the San Luis Valley area to stabilize enrollment.

A 'Spuddering' Future

Population data suggests that the future pipeline for counties in and around the San Luis Valley, point to a decline in total population and among various age groups. Since 2000, nearly every age group for the Alamosa County region has seen declines, with the future pipeline of students seeing some of the largest declines. While those in their middle 20s have only increased by a small portion, roughly 150 people, or 1.5 percent over the last twenty years. When administrators were questioned about their plan to invest in the San Luis Valley despite the population declining and the region having some of the lowest socioeconomic groups, they doubled down and often mentioned that there are still students that they could attract in the valley region. The below graph illustrates the percent change in population for those under 40 years old by their different age breakdown. Age groups in older groups also are seeing large decreases but are often not of the traditional college-going age for Adams State University.

Table 5 Population Changes by Age Category in the San Luis Valley Region

Age	**1-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**
Change 2000-2020	-27.2%	-16.6%	-15.2%	-19.6%	1.3%	5.1%	1.4%	-16.9%

Enrollment declines can affect every higher education institution differently. At Adams State, they hit their highest-ever total enrollment in 2015, with around 3,400 students. Since then, they have lost around 300 students, which equates to roughly 10 percent of their students, which mainly came in the form of losses in part-time students. While the total numbers have slightly declined, there is one area of enrollment that administrators brought up extremely worrisome. The number of full-time undergraduates has been declining since 2011. What has offset this decline is graduate enrollment and part-time enrollment increases. In 2020, graduate enrollment made up 40 percent of the total enrollment at Adams State, which mainly comes from its online programs. Of their graduate degree, the majority are online and hybrid, with only one being exclusively in-person. While administrators believe that this segment of revenue will shift, no plans exist on how to wean off of the high dependency were discussed.

Throughout the state of Colorado, there has been slow growth in rural areas for nearly 100 years, with the percentage of rural to urban population declining as the greater Denver area has seen explosive growth (Simpson & Brown, 2018). For much of the San Luis Valley, potato farming, along with some other crops, is a major source of revenue for both the farmers and those

hired to work there (Shinn & Goodland, 2021). While farming continues to decline, the administration at Adams State University is looking to regain its connection with farmers in the region, as they are considered one of the more affluent groups in the region. There is a twofold goal with the outreach, attract donors and possible students connected with those families. Each year the university football team hosts the Potato Bowl where farmers are given free tickets to the President's Suite at the football stadium. However, under the two former presidential administrations attendance by farmers nearly withered away, but has been growing in the last two years. This event is a big draw to attract students from that community while also cultivating donors, which campus donations saw a significant decline under the former administrations (Wall, Smith, Bateman, 2018 & 2020).

A Non-Cohesive Strategy

After interviewing various internal stakeholders within the university, a lack of strategic alignment came to light. Each individual stated that they are receiving pressure to change from multiple areas on campus, including trustees, the community, and those within the administration. Often those who were pressuring lacked skillsets in the area of governing a university, but most wanted stability in the financial and enrollment sectors. Achieving this stability may prove difficult with no overarching strategy that could align all stakeholders (Meier et al., 2010, Walker, 2013). While the Vice President of Academic Affairs outlined three talking points to help increase enrollment/retention, that strategy was barely spoken of by other administrators.

Atop the varying stakeholder pressures towards Adams State University, there is a severe lack of resources stemming from increasing costs, lower revenue, the rural location of the campus, and its ability to hire. Being a rural campus brings many challenges mainly in the form of securing public-private partnerships. Campus leaders have mainly looked to outsource cleaning and some food service operations but have been unable to due to the rural location. This issue has led to increased costs for its services, according to administrators.

Over the last decade, there have been several changes within the upper administration after audit findings and its HLC academic probation. Additionally, they have had two back-to-back presidents who had to be terminated by the board of trustees, including Drs. Beverlee McClure and Cheryl Lovell. This major shift within the administration has caused even more stability that comes atop the COVID-19 pandemic. Understanding the issues that surrounded Adams State University over the last two decades have mostly been erased by campus leadership during a 2018 website redesign which removed a large portion of press releases surrounding cuts, board of trustee minutes, and audits (Ledonne, 2018). Administrators who were interviewed and worked there during that time in different positions often stated that the issues surrounding upper administration were trickling down to other staff and faculty members across campus causing major morale issues. Now one administrator said they are "just trying to keep the wheels on the car."

Over the last two decades, Adams State University has had five permeant presidents and four interim presidents, with none of the interims transitioning into acting presidents. Two of those acting presidents were

terminated by the trustees. These actions are contributing to what many administrators believe as brining more instability to the campus, according to administrators who had been there throughout the two decades. This relatively constant change over in top administration coupled with regulatory agency findings, has led to a clear lack of strategic planning and implementation. Under one former president documents were kept secret from cabinet members. This extreme example of centralization, while often under the defender category, led to a complete decentralization with a very uncertain environment, often labeled under the environment category of the Miles and Snow management framework. One administrator also stated that the university's approach to spending has changed throughout the decades with a time of more "liberal" spending habits which were not financially sound.

At Adams State University hiring for positions have been cut back, investments in buildings are taking longer than expected, and uncertainty of growth remains a constant issue. Nearly every administrator interviewed believed the university was nearing stability in enrollment, despite seeing a slow overall decline over the last seven years, with full-time undergraduate levels dropping by nearly 500 students over the last decade. No administrator had strategic plans in case stability did not occur. Within the cutback management literature, there are often discussions surrounding management who do not believe there will be a decline but instead always painting a rosy future. Among administrators at Adams State University, there is a variation in what they believe future enrollment will be like. For some, it is a fight to become stable while some believe that they can meet the enrollment targets they set forth. Incorporating non-growth into strategic management planning

could prove useful as Charles Levine states that organizations with a "merit and career tenure system" often have challenges attracting new talent which is often more cost-effective (Levine, 1987, p. 317). But Levine states that inflation can often expand upon the already tough environment, which administrators at Adams State University find a current challenge. The perceived issues at Adams State University are both external and internal, which is one area in which current administrators agree on.

"Denver Eyes Are Watching"

Externally there are two groups that are keeping a watch on enrollment at Adams State University, including members of the state legislature and the university's board of trustees. While several administrators find that they are able to work with external stakeholders with relative ease, there are areas of friction. There is a strained relationship between the academic side of the administration and the trustees. While using defender tactics to evaluate academic programs across campus, the vice president of academic affairs founds several programs which no longer draw students. Despite looking to cut back on certain programs, he stated that several members of the board of trustees believed that cutting programs which they graduated from was not constructive. This leeriness could be two-fold as some may have an attachment to their specific degree program, while also remembering the former president looking to cut the number of colleges. This proposed massive cut to the university never went through but was instead met with fierce resistance. During the former administration, communication between the cabinet and board of trustees was restricted and members were not welcome on campus,

but the lines of communication have since opened up. These challenges continue to cause strain, but overall, the vice president of academic affairs believes their relationship has improved since the last president.

While the relationship with the board of trustees is improving there is still a level of surveillance at the state level. Due to audit findings and an HLC probation, those at the state are still asking for reporting of progress in improvements to various areas. While more reporting is being required, the state has cut its funding to the university by 30 percent annually over the last twenty years. The current interim president stated that what the university needs most is simply more money and a revision to the way it is funded, but he acknowledged that nearly every other institution is asking for the same thing. While other administrators believed that having projects for the state to fund would be more beneficial to insuring more funds from the state. However, Colorado has consistently ranked near the bottom nationally when it comes to funding institutions and students, with 39 percent of their total higher education funding coming from federal stimulus funds in 2021 (SHEEO, 2021). In regular years, the institution relies on tax appropriations at around the 90 percent level, higher than most any other state.

An Overview of a Stable Rural Institution

The University's Setting and Enrollment History

Located in a rural region with a declining population located near a larger metropolitan city, one institution is finding ways to innovate to address

shifts in the region. This institution has a long history of serving its community as a smaller regional university, but has seen stable growth over the course of its institution. During its early years around the turn of the 19th century, this institution came to fruition as a normal school, with the mission of training teachers. The institution had a unique offering for students who were not qualified for college admissions with two years of training and then four years of preparatory work, however this requirement would be eliminated within two decades.

Nearly two decades after it was founded the first baccalaureate degrees were offered, along with a name change. The institution has had three name changes over its more than 120-year history. Some administrators still believe that the teaching mission is one of its core programs, specifically teaching for rural schools. It would not be until the mid-1950s that advanced professional degrees were offered in education. Unique to the institution is a defined service region that is defined by the governing body of the institution, which encompasses both rural and one of the fast-growing areas in the United States. Now, the institution has grown into a larger master's program (M1) with a strong doctoral program in a specific medical field, but despite being a regional public four-year institution can still grant associate degrees.

More than 30 years ago, a merger occurred between a junior college and the institution in this study. The junior college was located nearly one hour away from the institution which it served with. Located in a rural area located off a major interstate, this junior college was the last remaining community junior college that began under the Community College Assistance Act. Throughout its history, the junior college continued to grow with several

buildings and a library, with much of the construction happening before the 1970s. The junior college town at the time of the merger had roughly 3,000 residents, but would grow to the mid-4000s after a prison was added during the late 90s. Since this time the population has stayed stagnant and recently begun to decline. When the merger was conducted the main institution in the study absorbed the building and maintenance requirements associated with them. In recent years many of the aging structures on campus have been removed. Now the main institution only leases space on the original junior college campus as a way to keep its footprint in the rural area. Additionally, the merger has allowed the main institution the ability to offer associate degrees to students.

Over the history of the main institution, it has stayed stable in terms of enrollment and leadership. Much of the enrollment at the institution comes from the surrounding area, but with a shift in technology due to the COVID-19 pandemic, institutional leaders are looking at how to serve both its eastern and western areas within the service region. The institution has more than 200 faculty and staff members who support more than 1,000 classes offered each semester.

A Strict Service Region

Unique to the main campus is its clearly defined service region throughout the state in which it resides. This service region is defined by its governing body, which is under a state regents board, which is under the direction of its own board and state legislature. Being a regional university, their recruitment strategies are mostly focused within a particular region, which administrators said is a challenge in rural areas. The institution's main

draw for students is within the county in which it resides and the counties surrounding the institution. However, the institution's service region does extend beyond those counties. Within the counties in which the institution receives the majority of students, there has been a decline over the last twenty years by roughly 2,000 people aged 15 to 19 years old. While this particular age category has seen a large decrease, over all other age categories have remained relatively stable or are seeing slight growth. This growth is an area that should allow the main institution to not see a large decrease in the number of local students applying. One future goal is to attract more Hispanic students from their service region, as they believe this is an underserved market in the rural area. While these numbers show changes in the county and surrounding counties, there is another county in its service area that is seeing large growth which campus leaders are focusing on, see *Table 7*.

Table 6 Population Changes by Age Category in the Region of the Second Institution

Age	**1-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**
Change From 2000-2020 Surrounding Counties	8.89%	6.95%	-8.38%	-22.25%	0.84%	15.9%	6.77%	10.89%

Less than 45 minutes from the main campus, one county is seeing some of the largest growths of any counties in the United States, mainly coming from younger generations. While every age category is seeing growth, the pipeline of future traditional college-aged students is seeing some of the largest increases.

In 2000, the single county had around 7,200 people aged 15-19 years old, while in 2020 that number would grow to more than 9,800. This single county in the institution's service region has more in that age bracket than the region surrounding the main institution. Every campus leader who was interviewed understood that this was an area in which they needed to invest in. While this growth has occurred over the last twenty years, the main institution has just recently begun to make a larger presence in the area. However, the institution is having to deal with a two-front challenge, in both the east and west.

Table 7 Population Changes by Age Category in One Specific County Adjacent to the Second Institution

Age	**1-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**
Change 2000-2020 Specific County	72.73%	68.81%	37.03%	76.06%	92.23%	101.41%	61.34%	36.41%

The Effects of Merging

Having merged with a junior college in the 1970s, the main institution in the study was able to enlarge its footprint in a more rural area within its service region. The junior college was often considered a gateway into a full university for those leaving high school, but also allowed those without diplomas the ability to enroll. Much of the programs which existed at the college filled local needs including health professionals and business degrees, while the cast

majority were general studies. During the 1980s and 1990s, the junior college looked to fulfill a gap in rural health professionals, which the current administration still finds a challenging demand from multiple stakeholder groups. When the junior college was absorbed into the main university, there were around 500 students enrolled, and by the mid-90s it had grown to more than 600 students most of which were full-time. Since the mid-90s the institution has been on a slow decline and flipped from mainly full-time students to part-time. During its last year of separating enrollment totals for the two campus locations, the former junior college location had less than 200 students enrolled.

The rural location of the institution has unique challenges for administrators at the main campus. Since the early years after the merger there have been some telecourse offerings for students. Many of the classrooms were retrofitted throughout the decades to offer students the ability to come to the rural campus and have a professor from the main campus teach students through a camera and television setup. While the technology stayed the same for many years, current administrators say the COVID-19 pandemic was a final blow to the antiquated technology being used, as Zoom, a video communications program, became a more widely used option. Students from even more rural areas used to drive an hour to the rural campus, but since the invention of Zoom and increased internet options in rural regions (Vogels, 2021), have led to traditional brick-and-mortar locations being in less demand. On top of the immediate technology shift due to COVID-19, there has been a slow decline in population in the surrounding counties since the mid-80s.

With declining enrollment at its rural satellite location, administrators at the main campus have been left wondering what to do with the campus. Much of the former administrations have been reactionary to the declines in population and how the rural satellite should continue. However, the campus provided higher-paying jobs for the rural economy, and vacating the town was an option that local leaders there had not wanted. However, the aging buildings were starting to become an issue with asbestos and other issues. Current campus leaders knew that keeping a presence in the rural town was important, however, the location was losing hundreds of thousands of dollars each year. The current administration decided that a more proactive approach was needed to deal with the challenges in a strategic approach. While a plan has not been made public, administrators are making strategic decisions on how to navigate the closing politically and financially.

In 2000, the satellite campus had a budget of more than $1 million annually, with 90 percent of that being for dedicated faculty on the campus. Many of the salaries are paid for lower-level faculty, averaging around the $30,000 level. The satellite campus had all the staff of a normal campus with a dean, financial clerks, registrar, and business officers, along with other support staff. However, the levels of staffing were too much according to some current administrators, stating that it was like having two of the same services for one university. Strategic decisions by administrators over two decades began to cut back on services provided to their current levels. In 2022, the main campus only expended around $150,000 annually for the satellite location. Current campus leaders stated that strategic decisions over the last two decades to scale back had to occur and believe that the location is in a stable position. While Miles

and Snow have several categories for management styles, this response by university administrators fits into both the defender and prospector categories in an effort to find "risk adjusted efficiency" (Walker, 2013).

This scenario brings a new angle to being an analyzer, as Miles and Snow state that this category is after stability while looking for new products. While the authors never explore stable decline within their management strategies, they do believe that reactors deal with declines with no strategy and have negative outcomes. What is missing is declines with favorable outcomes, often called downsizing in other works of pieces of literature (Jones, 1998). However, many kinds of literature believe downsizing and decline to be the same, with some believing decline equals organizational death (Cameron & Smart, 1998; McKinley, Sanchez, & Schick, 1995).

For the purpose of this study, decline, and downsizing are different. While leaders at the main campus were strategically looking for a new market, they were methodically stabilizing their decline which was out of their control, which is downsizing and not declining. While populations may be declining in certain areas the campus is in itself not declining. By applying the work of Vernon Dale Jones, one can see that the institution has an intentional set of actions that are helping streamline the institution in its changing environment (1989). If the institution were declining, then one would experience a dysfunctional environment while on campus. Institutional leaders stated that weekly cabinet meetings and other strategic plans are helping keep the university on a path of developing a new market while also downsizing one market that includes changes outside its scope. This ability to bring a stable decline, also known as downsizing, while also looking for a new market

brought success to the university's goal of rightsizing for their changing market.

Administrators at the main campus began to make even more strategic public-facing decisions in the late 2010s, often acting as defenders with rational and very centralized decision-making to downsize the satellite campus. The main university began to demolish buildings on the rural campus that began to fall into disrepair. Now only one building from the original campus remains, which is rented by the main university. This shift was what much of the rural town could see, as the land that housed the former buildings was donated to the town. The current president stated they did not want the buildings to be abandoned and become an eyesore in the town, leading to negative views of the campus. Understanding that they had to streamline their processes at the satellite campus while also paving a path forward amid a declining population was a strategic undertaking. However, there was pushback for the university to begin a process of shrinking its footprint. Internally within the university, changes were occurring that would continue a shift away from the rural community. Enrollment data for the two campuses were combined nearly five years ago and the administration began to no longer rehire at the rural campus. Currently, the rural campus is mostly online and more of a meeting space for the occasional class offered there by faculty from the main campus. Of the five administrators interviewed, all saw the rural satellite location as continuing as an outreach into the more rural service regions of the campus, but are relieved that many of the issues that surrounded the location are gone.

"Supporting the Mothership"

Campus leaders saw the writing on the wall for their rural satellite campus and decided that gaining a footing in a more urbanized area needed to be a priority. While resources were being redirected from their rural satellite campus, a new partnership was being formed with a local school district. The service region for the main campus includes both rural and one county which has seen explosive growth. By having a clearly defined service region, which allows separation between them and other regional universities in the state, they are able to make significant inroads into high schools. Under the former president at the main institution, major inroads began to make a presence in one local high school. Through a public-public partnership, the main institution has gained space within the high school campus.

Table 8 Population Changes by Age Category in the Specific County of the Second Institution

Age	**1-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**
Change 2000-2020	8.89%	6.95%	-8.38%	-22.25%	0.84%	15.9%	6.77%	10.89%

To complete capital projects universities are often required to complete all of the financing themselves requiring resources from across campus and finding outside companies to design and complete the projects. Understanding their limited resources and that they should reach students where they are, campus leaders decided to pursue a 25-year partnership with an urban high

school which allowed them to secure a new avenue of funding along with a 12,000-square-foot space on the grounds of the high school. This type of partnership was the first in the specific state, and campus leaders believe it will secure a new pipeline of students to help benefit the main campus. The urban satellite campus will offer classes to high school students but also have graduate-level courses. However, the decision to make a $5 million capital contribution to the project had been in the works for years beforehand. University administrators saw a funding stream that public schools can acquire while college campuses are unable to traditional use, ad valorem property taxes. Through the strategic partnership, a bond measure was approved in which more than $59 million was allocated for a college and career center. Campus leaders said that without this creative thinking, growing its footprint in the urban area could not have even happened.

Islands in the Demographic Cliff

Despite being in a rural area, campus leaders overall believed that a national demographic cliff was not a major concern, but there was some variation among the thought. Every administrator cited that the state's overall population would increase in the coming years, and they believed that they could capture more students. The increase in younger individuals would allow them to escape a national demographic cliff. While one administrator said they are at the liberty of nearly every type of factor, citing that open enrollment at other research-level institutions caused their most recent decline. Another believed that their state and a neighboring state will not see declines but

possibly increase, but those in the northeastern portions of the United States will see the largest declines, while there would still be an overall decline in the national pool of students. There was no discussion from administrators on whether they believed institutions in other states would try to begin capturing the increase in college-aged students in their home state. While the data shows that the overall population of the state will increase, campus leaders could fall victim to outside forces making this environment less stable.

While a national demographic cliff is not front of mind for many campus leaders, they are aware of a decline in rural areas. The university president believed that urbanization and the expanding Hispanic population will offset any type of cliff. However, there are unique challenges to capturing Hispanic students according to the president. The first is making sure all of there services can be offered in Spanish. The second is attracting students who come from a traditional family background where leaving that atmosphere may be frowned upon. While they now offer their entire website in Spanish with the click of a button, the second challenge is still being worked on. In an effort to overcome the challenge, the university cabinet is looking to create a board of native speakers, community members, and professors, as a way to find ways to lower barriers for Hispanic students. While the Hispanic youth is increasing looking at rural areas overall there is a decline nationally in the number of total youth (Dobis et al., 2021), but within the service region of the specific institution, there are some rural areas that are seeing growth due to the metropolitan area spilling over into the next county. Many campus leaders believe the issues facing them around enrollment are mainly affected by local factors.

Enrollment At the Institution

Over the last two decades, the main institution has seen stability in terms of enrollment despite many challenges which have affected other institutions nationally. In 2000, the institution had just over 5,100 students, with the majority being full-time students, since that time enrollment has fluctuated very little. In 2020, the institution had 4,900 students, but the number of full-time students has been dropping while part-time has been increasing. This shift has led to a decline in the number of credit hours being produced, but tuition increases have made up for the flip in the type of student. During the middle 2010s, the institution saw its highest-ever enrollment with around 5,400 students, but those numbers have declined. One administrator stated that all administration has to be focusing on enrollment and retention, indicating it is their number one priority.

Attracting new students is often a challenge that administrators continue to battle. For the main institution, they battle pressures from out-of-state schools and research-level institutions within the same state. One administrator who oversees enrollment management and recruiting said that they are working to tailor their recruitment material to student interests. The individual stated that they are finally able to make progress after investing in a new enrollment management software which will allow them to capture more points of data on each student. Currently, the administrator stated that there are ways in which they could be more effective and streamline the process. However, each administrator stated that a new open enrollment policy at the research level institutions is a major threat to students coming to their campus.

This policy shift by the research institutions is causing them to lose students up front, and the administration is in a reactionary state when it comes to this issue. This policy shift comes atop a cultural shift of more students taking a gap year, but never making it to college. Those within enrollment management stated they are having to shift strategies for attracting students.

The reactionary state of those in recruitment and admissions is causing them to purchase databases with prospective student information, along with looking at how to better place their recruiters within the school system. Additionally, they are looking at how to capture what they are seeing as students who enroll in research-level institutions but drop out due to more rigorous standards. On top of these shifts, the institution has hired a vice president for strategic partnerships, whose main focus is to increase partnerships for the institution in the county seeing large growth. Additionally, a new program administrator has been hired to be located within the high school. The goal is to increase the pipeline from high school to obtaining a degree. However, they are also employing their ability to offer associate degrees.

While the main university has had the ability to grant associate degrees, they believe that they have not been leveraged. Now, campus leaders are looking to offer students associate degrees as a way to "give students a little wind in their sails." This is what they describe as an effort to boost the retention of students. After looking at retention data, campus leaders believe that they can increase retention after two years by offering them an associate degree and telling them they are one step closer to obtaining a bachelor's degree, a form of benchmarking for students. They currently have around a 75 percent retention

rate university-wide, but that number is lower for freshmen and sophomores. One administrator stated that some degree is better than students dropping out with no degree on top of a having debt load. One study shows that having milestones is one of the most effective in retaining students, with a host of different options for universities (Hale, 2022). At the main institution, they hope to better market their ability to offer associate degrees.

Managing the University

Over the last two decades, the institution of study has remained stable as they had only two presidents, with one dying from Covid in 2021. The first president brought about an expansion to the sports programs on campus and renovations of the campus. The individual had been with the university 30 years prior to becoming president in the financial side of the university, with a preference for keeping costs and debt low. Fiscal conservatism is a theme on campus that has lasted, and many administrators still believe it as a guiding principle. The second president during the two decades had a similar view on financial matters but had a background in serving in the state House of Representatives and other political offices. The current president has been serving for two years and has a family history of graduates from the main university. Historically, there is a connection between the presidents who are selected to lead the institution and being either graduates or having a family connection.

Other administrators on campus also have a similar connection to the university, which many believe is a reason for the longer tenures of campus leaders. This stability has led to a defender environment on campus with a

select level of prospecting occurring to maintain an edge on the higher education environment, but some variations exist. Among interviewing various administrators there was a common narrative about where the institution is heading and its challenges, striking a stark contrast to Adams State University. The issue many administrators find at the main institution is how to continue to provide a pricing edge over other universities.

With college costs rising at nearly every institution throughout the county, the institution being studied has consistently looked to be cheaper than others. Campus administrators believe this to be a way to attract rural students who are more risk-averse to higher prices and are often first-generation students (Hardy, 2021). Often these rural areas also have higher levels of poverty and lower graduation rates (Koricich et al., 2016). While administrators are keenly aware of the type of students they are attracting, they are also not insulated from price increases and the desire to keep the campus maintained. Campus leaders believe that their success in keeping costs lower than many peers is rooted in their conservative management practices and construction practices. After taking a self-guided tour of the main campus, one can see many construction projects on hold due to a lack of capital funds. For instance, the ceilings in the art building were removed after a water leak but never replaced, and many buildings have not been upgraded in decades. But administrators believe this conservative practice to be necessary as a way to avoid a heavy debt load, citing having lower levels of debt than most universities within the same state.

The university has made efforts to pay down its debt as well, with only around $18.4 million in capital lease obligations in 2020 from highs in the mid

$30 million range. The current president and CFO agree that using private funds to complete renovations or help offset the costs of buildings is a requirement and not just an option. In the early 2010s, the university created a partnership with the local community to tap into the sales tax base. Through the creation of a special sales tax, $7 million was raised to offset the $21 million in construction costs. The cost to the university came in the form of $13 million in bonds for the event center. Current administrators said it was a strategic decision that led to both the event center being built and a partnership with the town in which they reside. The response was so successful, that the tax has continued and is helping pay for a new facility dedicated to rural healthcare education and pharmacy. Additionally, the university was able to secure $5 million in private funding.

State leaders and governing bodies to the university are pressuring the university to fulfill particular needs within the state. Two of those needs are rural healthcare and aerospace programs. For the main institution, there has been a long history of being a leader in pharmacology and other areas within healthcare. The institution was able to secure a $1 million grant to provide telehealth consultation boxes in rural elementary schools where there is a shortage of nurses. These telehealth boxes allow healthcare students to visit with individuals from across rural areas, allowing them practical experience. The current president believes that the distance in rural areas is getting smaller with technology. While administrators believe that pharmacology and healthcare need their graduates, they are leery of overproducing pharmacists. Campus administrators spoke of a time in the 1990s and early 2000s when there was a glut of pharmacists and graduates were acquiring jobs slower than

expected. This memory leads many current administrators to be more cautious in expanding the program, instead, they are looking to grow the program incrementally while upgrading the facilities. This tactic may produce more graduates like state leaders are looking for but not at their pace. These defender type of institutional leaders look to keep a stable portfolio and manageable growth.

Being rural presents continues to present many challenges that urban universities do not see, with service delivery a unique opportunity for the campus. Both Adams State University and this university must do all of their food services in-house. Administrators at both campuses stated that keeping them staffed is always a challenge, but they have lower costs than if they contracted it out. While contracting is common in many universities, rural ones often are disadvantaged in this area (Marcus, 2021). However, at this one institution leaders believe that their strategic decisions to avoid contracting out dining services, physical plant operations, and its online education has led to savings. Out of all the interviews, the CFO was most leery of these public-private partnerships as their defender management typology believed that these were not tried and tested partnerships. The individual had observed how urban institutions within the same state had signed long-term contracts and experienced higher than anticipated costs for services.

With a new generation of leaders coming to the main campus, there has been some variation in the types of management strategies being exhibited. Traditionally the university has maintained an overall defender strategy and conservative financial stance. However, there are several new hybrid positions that exhibit traits of a prospector theory. The current president believes that

when they have a problem they cannot go out and hire somebody, instead they must get creative. For this many individuals have earned dual titles, with a new chief of staff position being the same individual who runs the foundation, while some have gotten retention tasks added to their position. Currently, their retention office is grant funded, which for the head of enrollment is a big worry. The individual stated that they felt like their work is twice as hard if students are not being retained. However, administrators at the cabinet level stated that they are having to work the program back into the campus budget, which has been a multi-year project. This division along with the campus writing center is also grant-funded, which could bring stability challenges if new funding streams are not created once the grants expire. The university has also added a new vice president for strategic partnerships. These new titles and positions often have the goal of improving performance, but with more quick response to environmental conditions (Walker, 2013).

Online Education

One area of change for the university in recent years is the growth of online education, especially after the Covid-19 pandemic. While online education has only increased about seven percent in recent years, campus leaders are experiencing what they call an oddity. Many of the students who enroll in online education live in campus dorms. At first campus, leaders believed that they should be directing efforts on promoting online education in more rural areas and not focusing on students on campus. When promoting online education in rural areas, those enrolling students fou nd that they often

faced unreliable internet (Dobes, 2021). But, they had to have a small shift in their online enrollment strategy.

Having complete programs online is not a demand the university is facing but students having flexibility is in high demand. Campus leaders found that by offering some classes online they allow students to continue working. The current president has had a career in distance education and has worked to better understand their campus's online education landscape. All those interviewed stated that students often work more than one job to pay for college and bills. This explains why students who were living on campus were also taking online courses. One goal for them is to keep many programs in a hybrid state. The director of enrollment indicated that many traditional students are not interested in fully online programs, but indicated that there is a small market for older students obtaining online master's degrees in specific areas, however, the individual indicated that building those programs out would most likely be done internally like the rest of the curriculum. Other campus administrators also signaled to these results, indicating that investing heavily in online education or contracting out is not on their radar.

One issue that the enrollment director highlighted, with others mentioning, is that often rural students have trouble accessing high-speed internet. While students may be able to access basic material online, issues begin to arise when video conferencing and uploading large documents come into the equation. While the university has no specific solution, the administrator pointed to investments by the federal government in rural high-speed internet. However, by having their rural satellite location they are attracting students to come to that campus to do online education work. Nearly

all of the classes offered at the rural campus are now offered through Zoom. Having this option has also allowed them to expand class offerings in the urban high school for concurrent students along with educators looking to obtain master's degrees. But, the administrator stated that the satellite institution is still a considerable distance for some students, but is often their only option in the rural setting.

Conclusion: Future of the Institutions

Both Adams State University and the second rural institution are facing the decline of rural populations in similar manners. However, the two case studies provide unique angles into how administrators are reacting to the changes within their environment. For Adams State University, administrators there are reactionary to their environment which has changed considerably over the last two decades. Stability is a challenge for the resource-strapped university, as financial decisions in previous administrations continue to bring challenges. For this university, the future is uncertain as the San Luis Valley is seeing continual declines in birth rates and the number of individuals who will be coming into the traditional college age. Additionally, regulatory agencies which clamped down on issues surrounding their online education and financials, continue to bring a certain level of caution when creating or implementing new programs. For Adams State University to survive, administrators are hoping for stability in both enrollments and within their administration.

At the second institution, there is an opposite style of management being employed, despite the two campuses only having a slight difference in

enrollment of about 1,500. For this institution, the majority of administration follows a defender typology when it comes to managing and service delivery. Weekly cabinet meetings, plans for areas of expansion, and new partnerships with entities that have reliable incomes are the environments in which the administration work. This is all despite a rural population decline they are facing on the eastern side. For those administrators, data is key when making decisions, and any new investments are conservative, with as little new hiring as possible.

There are questions that both universities are not examining around their future, specifically with certain programs. Both universities have specific programs which have a large portion of their enrollments. At Adams State University its online master's programs have a competitive edge now, but often competitive advantages only last so long (Deming et al., 2016). While one administrator believes that advantage will disappear in the next seven years but plans on how to replace that stream of revenue are not being discussed with strategic planning. This is most likely due to administrators having to worry about stabilization before strategic planning can occur. But reactors often "do not possess a set of mechanisms that allows them to respond consistently to their environments over time" (Miles and Snow 1978, 93). Getting ahead will be a challenge for Adams State University. As in recent years, the number of online education providers has continued to increase while many university administrators see the allure that these companies have when it comes to promoting their ability to increase in revenue as state support declines (Bowen et al., 2014).

At the other institution, they are currently placing emphasis on rural health and their pharmacy program, despite other higher education institutions within the same state also increasing resources to those programs. Within the state, there have been declines in the number of nurses needed in rural areas as populations decline and telehealth increases. It will be important for this institution to continue its investment into telehealth education while being weary of traditional programs which may not be in demand in the coming future. However, the university's conservative approach to finances and growth is allowing them the ability to not be constrained to a high debt load, but there are projects still to be completed. Maintaining stability in their changing environment is key to being able to provide the services to new clientele while also

Overall, the case studies provided in this chapter show that the while the traditional Miles and Snow management framework can explain certain factors, there is variation among individuals and campus leaders at the institution. Specifically, some administrators find that a prospector reaction to a new market is needed to capture a new revenue stream even with a level of incrementalism in its formulation to remain nimble. But, having a rational defender approach when it comes to financial matters and the centralized structure of final decision-making. While administrators at Adams State University vary on the type of strategy with many being reactionary, despite some new leaders falling within the prospector camp despite still having a level of reaction to the current environment on campus. This institution is in a state of decline while the second institution is in a state of downsizing.

These observations along with the theory and models provided in previous chapters give a detailed look at public four-year higher education institutions and the challenges that rural institutions may face. The case studies allow for insights into how management frameworks and understanding the differences between declines versus downsizing can help better inform those within higher education administrations. The final chapter will give concluding thoughts on how the themes can help guide policymakers but also explain factors that are affecting institutions to dispel the idea that a national demographic cliff will be detrimental to all institutions.

Chapter Five

Conclusion

Higher education is the institution that creates opportunities for students from across the nation. Public four-year institutions are often the economic engines of both urban and rural communities, providing a workforce with critical thinking skills (Fryar, 2014). While shifts in populations have been occurring for decades across the United States, the ways it brings about a change in higher education vary across the regions and types of institutions. While this study only focuses on public four-year institutions, they make up the majority of institutions in the United States. Now, specific rural areas are seeing declines in the population pipeline and the northeastern United States is seeing some of the largest population declines (SEER, 2000-2020). Some types of institutions are able to adapt to the changes within their environment, while others are reactionary to exogenous changes. The goal of this dissertation is to better understand part of the ways in which higher education is being affected and the reactions that campus administrators are having. The findings can guide conversations in the academic but practitioner side of higher education.

Previous chapters have examined the theoretical sides of the Miles and Snow Management Framework, cutback management, and other theories which can explain certain aspects of higher education management. The theoretical frameworks guided questions asked to campus administrators and how data was analyzed across various regions and Carnegie Classifications. The specific findings from the study and their implications are reviewed below

for different stakeholders within the higher education landscape. The final section of this chapter includes discussions on future research avenues and questions created by this project, along with limitations on the overall study.

Summary of Findings by Chapter

The first empirical chapter of this project takes an over approach to understanding multiple theoretical frameworks which are not common within the higher education landscape. For the Miles and Snow framework, there is a discussion surrounding the various managerial responses to their environment. Three main categories, including prospector, defender, and reactor are discussed in detail, as they are used for analysis within the third empirical chapter. While the Miles and Snow managerial framework provides a good baseline, additional studies have looked at how some managers have a mixture of reactions. However, the framework does not explore how managers respond to cutbacks within their environments. For this, Charles Levine's Cutback Management literature helped supplement gaps within the theory. Possible theoretical implications are discussed more in the next section.

Additionally, the first empirical chapter takes a look at narratives surrounding higher education. In many policy spheres, discussions around the idea of a demographic cliff and paranoia exist with changes in populations. This idea is not new to higher education as the same discussion was happening in the early 90s and now today. While other chapters look at the populations in counties across the nation, this chapter looks at the discussions happening by other scholars. Additionally, much of the discussions around demographic cliffs ignore the shift in online education, especially since the rapid growth due

to Covid-19. The chapter also looks at the datasets which are used in the proceeding chapters to discuss population and enrollment shifts. In this study data from the Integrated Postsecondary Education Data System (IPEDS), under the Department of Education, details shifts within higher education while population data comes from the Surveillance, Epidemiology, and End Results (SEER) Program under the National Cancer Institute. The SEER dataset was used over traditional Census data as it contained one dataset for county-level populations from 1969 to 2020, of which 2000-2020 data was used.

The second and third empirical chapter is guided by two main research questions which are explored in different ways. Specifically, the second empirical chapter looks at the empirical side of the data being guided by two main questions, while the third empirical chapter looks at two universities in-depth and their responses to the shifts. The first questions are whether population shifts have a relationship to enrollment at public four-year institutions either as a whole or within different types of categories. A look at total research, master, and baccalaureate institutional enrollment shifts in relation to population shifts was also explored in an effort to add an understanding at the national level. While looking at universities nationally, one can see that population affects enrollment, a more nuanced approach shows that certain type of institutions is and are not affected by population. From the data analysis, it is shown that R1s are often shielded from shifts in population. While other Carnegie Classifications are affected by populations by varying amounts and variations exits depending on which Census region they are within. Most studies in higher education miss this nuanced detail which shows that not all institution types are experiencing population shifts the same,

unlike most studies they only look at public four-year institutions within broader Census regions. Along with exploring traditional Carnegie Classifications, HBCUs and HSIs are explored as one of the institutions in chapter four is an HSI. Additionally, national projections show an increase in the Hispanic population over the next decade, and having analysis will help guide future conversations.

The third empirical chapter takes a look at two public four-year institutions that are experiencing shifts within their populations. Both are rural universities but are taking different approaches to respond to the changes. This chapter allowed for theoretical discussions within the first empirical chapter and for data on higher education institutions to be understood in greater depth. One institution, Adams State University, they are facing a declining population within their region, internal challenges, and other external figures who are looking to bring change to the university. This institution has had multiple audit findings and was placed on probation by the Higher Learning Commission, which made it particularly interesting to study from both a management and higher education perspective. From this study, it is shown that managers vary greatly in their reactions and can change based on many factors, with some exhibiting hybrid responses. While many are reactionary, they also show some prospector reactions when they need to change, but a very siloed managerial structure has caused dysfunction. This contrasts with Miles and Snow whose frameworks sets out that often organizational leaders work off one type of managerial response and there is little variation. While many had the vision of being stable, the lack of cohesion was causing campus leaders to lack strategy.

From the second institution, there is a different story to be told on how campus leaders are experiencing shifts in their environments. Located in a rural area, they are an institution with more stability and a vision for the future, but some leaders do not fall strictly within one type of managerial response category. For many at this institution, they fall within both the prospector and defender categories. Having three locations, this campus is balancing both growth and decline at the same time. In turn, this causes managers to exhibit different types of responses. Their new urban campus on a local high school is where many of the leaders fall into a prospector category despite falling into the defender category when speaking of their main institution. While the rural campus has led to some reactionary responses with an overall defender mindset. Campus administrators are not siloed from each other leading to greater strategic planning which has kept them stable.

Data from the previous chapter shows that while many institutions may be seeing declines in their regions, managerial responses to those shifts plays a role in the severity of those consequences. Rural institutions face challenges that many urban institutions do not face when it comes to contracting, retaining talent and community investment. While the theories presented at the start of this project are correct, there are areas in which added complex challenges can challenge a specific framework. By having a mixture of response types, campus leaders may be able to respond to shifts in their environment with both flexibility and strategy. Analyzing two types of institutions in similar location types allowed for a difference in managerial styles to be. Having siloed approaches is showing that ineptness in strategy can bring even more challenges on top of just population declines in a particular region.

Theoretical Implications

The findings from previous empirical chapters can bring about a contribution to both the Miles and Snow management framework along with some additions to cutback management. While higher education literature is often void of managerial frameworks, applying these frameworks allows for administration responses to a multitude of factors to be seen in a new way. This project details how managers within the public four-year institution category must be adaptive in their surroundings as changes like population can sometimes have impacts greater than just a dip in enrollment. Attaining higher levels of performance is key to institutions surviving amid the changes in their environment, (Poister, Pitts, and Edwards 2010) without applying key management frameworks areas of improvement may not be seen. From this study, specifically the case studies, it is shown that a mixture of response tactics can be used with success when responding to external changes. Often management literature lacks an understanding of the effects of strategic planning formulation and the lack of differentiating between declines versus downsizing.

Specific to higher education versus other sectors is its higher educated workforce, a battle for public funding, and many regulatory groups overseeing the work being done within the institution. By assessing the factors which affect higher education institutions, it is shown that these institutions must have rational planning strategies like long-term strategic plans, while also sometimes having incremental policy formulations to respond to quick changes within the landscape. From one case study, it is shown that while the institution was

trying to have a centralized structure within its administration, it was using a siloed approach which caused issues within the formulation and strategy content portions of its management alignment. By only having one prospector within the administration, the rest of the team would often not be included in understanding their strategy and formulation strategies, leading to limited resources not being allocated for recruitment.

Within the cutback discussions, this study revives discussions surrounding the differences between decline versus downsizing. While the work was pioneered by Charles Levine in the 1970s, this work has laid mostly dormant for two decades, despite public organizations facing downturns (Pandey, 2010). While Levine defines cutback management as "organizational change toward lower levels of resource consumption and organizational activity" (Levine, 1979, p. 180). While Levine states that there are four causes of organizational decline, with this study focusing on three of those. By looking at political challenges, organizational atrophy, and environmental declines, it is shown that by applying the Miles and Snow management framework there are varying responses to the different causes of declines. Often administrators who were interviewed believed they were insulated from national demographic shifts and that issues were regional, if not internal, in scale.

Understating the differences between decline versus downsizing is one area in which both the Miles and Snow management framework, along with cutback management can be better suited to understanding shifts within their environments. While losses can be considered decline, this study shows that decline is a "maladaptation to a dysfunctional environmental condition," (Jones, 1998, p, 26) which is where Adams State University finds itself. By

having this specific case study, scholars can better understand that while the institution is seeing a decline in its surrounding population it is also seeing a decline in its organization. While the second institution is also facing declines within certain regions, is not declining as an organization, instead, it is downsizing. In contrast to decline, downsizing is an "intentional set of activities" (Jones, 1998, p. 25). That institution has introduced a strategy into its decline which can possibly allow for growth in the future. It is important to differentiate between the two terms when applying theories to changes that universities may be facing. Universities can decline without downsizing, but they can also downsize without declining. Understanding the differences brings in a new depth that is often missed in management literature when it looks at the public sector. Defenders, analyzers, and prospectors could be placed under the downsizing campus, but when they start to become reactors, they fall under the declining category of the Miles and Snow management framework.

Implications for Practitioners

Higher education is facing challenges from all different angles post-covid. The largest understanding practitioners can take away from this study is that a national demographic cliff is most likely not to occur across the board. While news reports state that there is an impending decline in higher education, understanding that certain institutions will fair better than others allow for different types of strategies to be explored. While R1s are often not affected by shifts in demographics, lower-level types of institutions can face certain types of pressures from these changes, and based on the region in which they reside. Often the larger the institution's reach, the more likely they are to

avoid being negatively affected by regional population shifts. Smaller baccalaureate institutions are faced with great challenges ahead due to their localized reach and small student population. However, demographics are not always the destiny of an institution.

Demographics are only a portion of the story for understanding what higher education has faced and will face in the future. Management perspectives allow for the characteristics of a university to be better understood. Having a grasp of strategy and stability is key for an institution navigating the shifts in its environment. This idea of stability put forth by Miles and Snow is an internal one, as external stability can be near impossible to achieve. The theoretical frameworks laid out in this study can allow practitioners a way to understand how they are responding to shifts. An institution facing negative changes in its demographics can either decline or downsize, as growing local populations is often not a task universities undertake. Having a strategy in their administration that is not siloed can lead to better outcomes, which one institution is seeing.

While stakeholders are often disconnected from the day-to-day operations of a university, they too can learn from this study. Administrators are often faced with great pressure from those on the board of trustees, state legislators, and those within their own community. Understanding whether an organization is in a decline versus downsizing can allow these external stakeholders the ability to help strategically plan for changes the institution may face in the future. Having a strategy allows for streamlined processes and benchmarks to be set for navigating both demographic but also financial shifts. Rural higher education is faced with many challenges that urban institutions

may not be facing, including how to increase online education and other service deliverability components. By incorporating and comparing details from the case studies, practitioners can better understand when to contract services out versus when to keep them internal.

Avenues for Future Research

While this study takes a look at nearly twenty years of higher education and demographic data, the Covid-19 pandemic did bring a significant change to higher education. Within the next several years new data on enrollment and population shifts will be accessible, allowing for the effects of the pandemic to be better understood. While this was a once-in-a-lifetime event, it is shown to have a big effect on online learning (Bird et al., 2022). How rural versus urban institutions are dealing with the effects of expanding their online services will be ripe for future studies. Especially as broadband internet increases in rural areas through federal investment, including over $65 billion invested in recent years (USDA, 2023). Within this study, the best way to understand if the population is affecting online education would be to obtain IP addresses. While this is a major undertaking, it could bring insights into whether rural institutions can reach beyond their region to obtain students.

While the aim of this study is to better understand both a national perspective and a localized one, only rural institutions were interviewed for this study. Future studies could look at urban institutions which are facing decline due to other factors to bring a new understanding of how demographics and management perspectives play a role within the institution. Often urban institutions have different challenges than rural ones, including the ability to

contract out services for cheaper rates due to their proximity, but they can lock in institutions to a contract. Having a study on how institutions are able to downsize while also having service deliverability contracts with outside vendors and their management responses, could allow for a better understanding of how they affect institutional strategy.

Race, gender, and other demographics were not included in this study, but could be one component to add to the population demographics. While age breakdowns with total county populations were used in this study having other variables could bring insight into whether certain groups of individuals go to college less when overall populations decline, or whether certain types of institutions are seeing certain shifts in particular groups of people in relation to their enrollment. This particular focus could have been combined with the responses by higher education administrators on their desire to obtain a higher number of Hispanic students in future years. Additionally, adding these variables to IPEDS data would allow insights into the relationships between variables. Additionally, more historic data could have been incorporated but would have required additional recoding pre-2000 through IPEDS.

Final Limitations

While an effort was made to take as large of a look at the higher education landscape, there are limitations within the scope of this dissertation. The first is that only public four-year higher education institutions were studied, leading to for-profit, non-profit, community colleges, and private universities not being included. While these institutions are important in the broader higher education landscape, there are structurally different than public

four-year institutions. The main differences come in the realm of funding structures with public institutions being able to acquire both tuition and funds from both the federal and state government, but with that comes legislative oversight. Managerial responses could be different for these other types of institutions. When it comes to the interactions between population and enrollment, caution should be when stating they are one-to-one relationships. While regressions showed these occurrences in the past, and several controls were placed on the models, there is no guarantee that future trends will be the same. Only one year of the data was collected which included the Covid-19 pandemic. Seeing the impacts of the global pandemic could bring change to how people view higher education causing the population to have a greater or lesser effect on enrollment.

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Appendix

Data Collection Instruments
Eriech Tapia IRB Documents

Structured Interview Questions

1. There is a national narrative surrounding demographic cliffs. How do you see this idea of demographics cliffs playing out? Do you believe there will be variation among these shifts?

2. How are you thinking about your institution within the entire higher education landscape? (i.e. state legislature, regents, community, and stakeholders) Do you have any pressures to be one type of institution over another?

3. How are policymakers and other state leaders viewing your institution? Does this affect your approach to leading the institution?

4. How do you see your management perspective in the context of the institution and within yourself?

5. How has online enrollment affected your institution's relationship between population shifts and enrollment?

6. Does being urban/rural influence your view/decisions when it comes to shifts and effects that is has on enrollment?

The interview will be a semi-structured interview and further questions will be asked relating to the individual's institution of which the topics are publicly available.