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Changing Times: Population Movements and Education Quality

Nicholas J. Cordonier
University of Nebraska-Lincoln

UNIVERSITY OF NEBRASKA – LINCOLN
DEPARTMENT OF POLITICAL SCIENCE

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Abstract

This research aims to examine the relationship between population change and college readiness in Nebraska. Nebraska as well as three counties: Box Butte County, Lancaster County, and Scotts Bluff County were used as locations for this study. The process for analyzing the relationship is done in three parts. First, data was collected from the Nebraska Department of Education about high school variables such as teacher characteristics and attendance rates. Next, U.S. Census Bureau data was used to create socio-economic standards for the various locations. Finally, the high school variables and socio-economic standards were compared to several college readiness indicators to find correlations. Largely, it was discovered that population change held no discernable effect on college readiness, though; other trends such as the teacher count series were discovered. Moving forward, further research will need to be conducted at a more individual school level to realize the effects of population change as it relates to college readiness.

CHAPTER ONE: INTRODUCTION

I. Introduction

The 21st Century high school student is facing an unprecedented push towards attaining post-secondary education. That post-secondary education could be a traditional four-year university, a two-year community college, or even career training at a technical school. The benefits of post-secondary education are growing as well. This push comes from increased incentives from the government, and the community, as well as the promise of a better standard of living. According to *Education Pays 2013*, an annual report released by The College Board, the most measureable benefit of post-secondary education is that of financial earnings. The report states that students who attended at least a post-secondary institution had earnings that were 14 percent to 37 percent higher than those who only attended high school. The report shows that students who attended a post-secondary institution are more likely to be employed, as well. College graduates are also more likely to be involved in society and have healthier lifestyles when compared to those of high school graduates (Baum, Ma, & Payea, 2013, pp. 5-6).

But what factors contribute to a student's ability to attend and be successful in a post-secondary institution in order to reap those benefits? Studies have shown that a variety of factors can affect a student's post-secondary educations prospects (Wolniak & Engberg, 2010, p. 454). This research aims to groups those factors into two categories, high school and socio-economic factors. High school factors include the effects of teacher characteristics on students as well as administrative policies. Socio-economic factors look at the economic wellbeing of students and their ability to seek post-secondary education. Together, these factors provide a picture of each county's college readiness. Additionally, I add the variable of population change to see if recent fluctuations in the each county's population have any effect on college readiness. Specific

hypotheses about population change's effects on education quality will be discussed towards the end of the chapter.

II. College Readiness

To begin an assessment of public education it is important to reiterate what are the expectations or goals of society in regards to education. This is important in any public policy study because it allows a point of focus. Public institutions, like the public education system, can have many different purposes viewed by many different people. Many authors believe that the overall goal for public education within the United States is to have graduates possess the skills, knowledge, and experiences necessary to begin the next level of adulthood (Maruyama, 2012). Just like Hasbro's game "The Game of Life," the next level of adulthood is divided into two paths, the path to college or the path to a career. It is ordinarily accepted that the skills, knowledge, and experiences needed for college readiness are similar to those necessary for career readiness (Maruyama, 2012). Since public education plays such a key role in the development of an individual, it is necessary to ensure that current institutions have a greater understanding of their ability to educate children to the necessary level of preparation so that they can succeed at the next level of adulthood.

For this research project, I take college readiness to mean all the skills, knowledge, and experiences necessary to begin the next level of adulthood with the addition of one phrase, without remediation (Conley, 2007). The remediation consideration to college readiness is important for several reasons. The first lies in the definition of remediation or the action of correcting a fault or deficiency. In theory, students should not need remediation if they have received everything that is necessary in order to graduate from high school, though studies show that at least fifty percent of students require some level of remediation (Hull, Seeley, & Hirsch,

2010). The second consideration is in regards to remediation and graduation rates in post-secondary institutions which show that around seventeen percent of students who need and take one remediation course graduate with a bachelor's degree or higher (Conley, 2007). Following these considerations, I concluded that our current system of public education is failing to educate students to a level of college readiness. In order to understand what is delivering this problem, we must look at the factors and indicators as ways of measurement that lead to college readiness and success. Two forms of traditional measurement exist in this regard: 1) standardized assessments such as state standards and the ACT and 2) student grade point averages (GPAs).

Assessments

The discussion of assessments refers to two different areas within college readiness, state standards and college predictor examinations like the ACT and SAT. State standards typically take the approach of cut scores as indicators of a student's academic ability in any one area. Cut scores are placed in levels such as beginning, progress, proficient, and advanced and are based on certain criterion-references decided by the state (Lee, 2012). From this, the state can evaluate each school's effectiveness in educating students in various areas such as reading or math. If students are rated proficient or advanced in a subject area then they should know everything necessary to continue education at the post-secondary level. Yet, that is not the case. The concern is that state standards do not match the expectations of post-secondary institutions. The problem here is a lack of communication and cooperation between secondary and post-secondary institutions as to what a student needs to know before they graduate high school in order to be college ready (Venezia & Jaeger, 2013). If there is no link between the two sets of institutions, then we cannot expect the decisions of what is acceptable at one to be a good indicator of success for the other. Even still, The National Assessment of Educational Progress (NAEP) showed that

in 2009, 38% of 12th graders performed at or above proficient levels in reading and 26% performed at or above proficient levels in mathematics (Venezia & Jaeger, 2013). So even at their current level, nationally averaged state student scores do not measure up to the standards themselves.

Moving on to college readiness predictor assessments, the ACT and SAT are two common assessments. These examinations were created to measure college preparatory subjects and gauge college readiness (Atkinson, 2009). Based on the assessment score, a student can expect a certain level of success in college their first year. But like state standards, there are a few faults. Again it is reiterated that the United States lacks a national set of education standards, so these nation-wide assessments may be incorrect predictors of college readiness. Another issue with these types of predictor assessments is the practice of post-secondary institutions to use the score to compare students rather than judging the content knowledge of a single student (Atkinson, 2009). When colleges compare students' ACT scores rather than setting a minimum ACT requirement, they leave open the possibility of accepting students who may not be college ready thus contributing to the growing remediation problem. An illustration would be a college examining their applications and selecting the top 25% of students based on their ACT score. That could result in overall lower ACT scores for their incoming class compared to setting a bench score. These assessments may also focus too much on the probability of a student's success in college rather than if they know the skills, knowledge, and experience to have college readiness (Conley, 2007).

Grade Point Average

Research suggests that high school GPAs may be a good indicator of college readiness. In one study, researchers found that high school GPAs had the strongest effect on college

readiness and success within the first year of post-secondary education (Wolniak & Engberg, 2010). Though GPAs may help point out which students are ready for college, it hides a lot of variables. Some critics argue that courses, assessments, and grading vary greatly throughout the nation making it hard to relate GPAs of different states, districts, and even schools to one another (Maruyama, 2012). Still others cite inflationary practices over the years as another reason why GPAs cannot predict single-handedly college readiness (Conley, 2007). In all a GPA may not help when assessing the national college readiness but it may help relate college readiness among like-minded schools with similar grading and assessment measures.

III. Getting Students Prepared for College Readiness

Traditional forms of measurement offer some light on the problem of college readiness; however, they are not the only tools available for measuring student success. Another way to measure college readiness is by examining secondary school's attributes. These attributes include the inclusion of extra-curricular activities, college preparatory courses, and teacher characteristics. And yet a third indicator of college readiness would be non-academic factors such as socio-economic factors. The following section evaluates these factors as they relate to college readiness.

Extra-Curricular Activities

Extra-curricular activities can be best defined as the non-academic activities that children participate in and are not a part of the overall public education curriculum. These include sports teams, honor societies, student government, various clubs (academic, hobby, vocational/professional, service), and even liberal-arts based activities such as marching band and theater (Statistics, 1995). Extra-curricular activity participation in high school leads to some very surprising statistics in post-secondary institutions and what it means to be college ready.

Columbia University's Center for Children and Families reported that students who participated in at least two years of school-sponsored activities were ninety-seven percent more likely to attend college than those students who did not (Kronholz, 2012). Studies also show that students who participated in extra-curricular activities were one hundred and seventy-nine percent more likely to complete their college degree, were three times as likely to have a GPA of 3.0 or higher, and were two times as likely to be in the top quarter of their grade in math and reading (Kronholz, 2012). Another study found that participation in extra-curricular activities had a correlation to higher SAT scores (Everson & Millsap, 2005). The relation between extra-curricular activities and post-secondary success is still debated because of their causal relationship. It has yet to be concluded if extra-curricular activity involvement leads to improved post-secondary success or whether extra-curricular involvement is a byproduct of those students already poised for success (Everson & Millsap, 2005).

College Preparatory and Dual Credit Courses

Another indicator of college readiness is participation in college preparatory and dual credit courses like Advanced Placement courses. In high school, college preparatory courses can take the shape of various classes such as Advanced Placement (AP) and International Baccalaureate (IB) courses which award college credit hours as well as regular high school courses aimed at getting students ready for post-secondary education. With regards to AP and IB courses, students can earn college credit while in high school after the successful completion of a course exam (Venezia & Jaeger, 2013). These courses are considered more difficult than regular high school courses and are meant to develop a sense the skills, knowledge, and experiences of a regular college course. However, students may not be taking advantage of these classes even though most public high schools offer at least one college credit course (Venezia & Jaeger,

2013). The Lincoln Journal Star reports that only about seventeen percent of Nebraska high school graduates actually took at least one AP course in 2013. And of those that did take a course, only 9.9 percent got an exam grade of three or higher, which would qualify them for college credit. This is well below the national average of 20.1% (Schulte, 2014). Another trend in college preparatory courses in public schools is the tendency to offer the course without the final exam for college credit (Conley, 2007). This could lead some students to think they are ready for college but with no assessment it is hard to tell if that is true.

Teacher Characteristics

All of the high school factors that I have presented so far deal with activities and examinations but lack a large central component, the teachers that administer the activities and examinations. The effect of teacher characteristics on student performance is an area of study that is always evolving. Studies into teacher effects are very important because they are the ones tasked with the education of society's children. One study found that when considering rural and urban schools as well as both low and high socioeconomic status schools, that teacher effects played a greater role than school effects such as school wide policies and class ratios (Nye, Konstantopoulos, & Hedges, 2004). Typically, the effects of a teacher are placed in one of three categories: teacher qualifications, teacher characteristics, and teacher practices. Teacher qualifications consist of "on paper" credentials such as coursework, degree, endorsements, teaching experience and so on. Teacher characteristics deal more with the teacher's personality in general. These types of traits, such as speaking skills, relate more towards an individual teacher's attitudes that are applied within the education setting. The final effect of a teacher is that of teacher practices. Teacher practices include the actual teaching habits and classroom management (Goe, 2007).

Studies into the effects of teachers both confirm and negate our assumptions. In regards to teacher qualifications, there are several findings. First, one study found that the strongest relationships between teacher qualifications and student achievement resided with the "on paper" certifications the teacher possessed. The study stated that between forty to sixty percent of the variance in student achievement was attributed to three factors: master's degree attainment, qualified teachers with full certification from the state as well as a major in their field of study, and uncertified teachers who held less than a minor in their field of study (Darling-Hammond, 1999). Continuing with teacher qualifications, several studies have concluded that teachers who had particular educational training in mathematics, either a mathematics degree or a strong concentration in mathematics courses and certifications, proved to have a positive correlation with increased student outcomes (Wayne & Youngs, 2003 and Goe, 2007). Turning to years of teaching experience, studies have found that teaching experience has little to no effect on student outcomes. Studies showed that teaching experience matters during the first couple years of teaching but that the relationship between experience and student success drops off after that (Hanushek & Rivkin, 2007 and Goe, 2007).

The remaining two fields of teacher effects on student outcomes, teacher characteristics and teacher practices, possess few studies that provide conclusive data that can be used in this study. When considering teacher characteristics, like personality traits, researchers have found that determining which traits effect student outcomes is difficult to control for and often times any traits that could be determined in the future would be hard to change in terms of policy implications (Goe, 2007). Teacher practices share some of the same problems that studying teacher characteristics possess but with some added stipulations such as high costs, long time

commitments, and contextual issues like differences between rural and urban schools (Goe, 2007).

A final area of research on teacher effects on student outcomes includes the relation of teacher salary on overall teacher quality. Overall, studies show that the highest salaries were found to be located in urban areas and the lowest were in rural areas. The same study also showed, however, that higher salaries were linked to more difficult working conditions such as a more difficult student base or more stringent teacher requirements (Hanushek & Rivkin, 2007). But when comparing teacher salaries across the globe we find that higher pay does in fact have a positive effect on pupil performance (Dolton & Marcenaro-Gutierrez, 2011).

In the United States it is common practice to link teacher pay schedules to educational attainment and experiences, following the logic that better qualified and more experience teachers have a greater effect on student outcomes. However this may not be the best indicator for student performance. Some suggest that the pay structure in the United States should be geared towards evaluating teacher's potential effectiveness, as prescribed through educational attainment and years of experience, as well as actual effectiveness as seen through student performance measures (Hanushek & Rivkin, 2007). They also suggest that higher teacher salaries led to overall higher student educational attainment rates (Hanushek & Rivkin, 2007). Overall, teacher salary can be a contributing factor in student performance when you take into account other factors such as working conditions and the overall labor market.

Non-Academic Factors

The final area of college readiness lies with non-academic factors. Most notably is the influence of family effects such as socio-economic class, parents' educational attainment, and the resources available to students and families (Wolniak & Engberg, 2010). Some studies even

show that the effects of the family outweigh any differences between high schools when it comes to college readiness (Wolniak & Engberg, 2010). Other factors can include peer influences, ineffective counseling, limited cultural support, as well as limited networking opportunities with people who have been successful in post-secondary education (Venezia & Jaeger, 2013). While these factors are important to consider when discussing college readiness, it is hard to develop policies that will promote their effects at the high school level. There is often times little a high school, district, or state can do to change family and peer influences. Social policies can, however, address issues relating to community problems, such as poverty.

IV. Population Change

After presenting the current environment of college readiness, I can now introduce the main thrust of my research, an examination of the effects of population change, and specifically its effects on education. Population change is the simple formula of a baseline population with the addition of any births and immigration to that area and then the subtraction of any deaths and emigration for that area (Wolf & Amirkhanyan, 2010). The formula for population change is as follows:

(baseline population for year 1)+ [(year 2 births and immigration) – (year 2 deaths and emigration)]

Population is an important key to education quality for several reasons. First and foremost is the funding for education through property taxes. The decline and growth of the population has a direct effect on property taxes and a community's ability to allocate resources efficiently. Faced with these growing changes, communities are forced to create social policy such as "do we need fewer teachers?" or "do we need more funding poured into the curriculum?" Population change can also change the entire social structure of a community. Current research into education

quality and college readiness does not address how population change can be a predictor of certain problems that a school will face. Now that population change has been defined, we will begin with a brief historical look at Nebraska's history of population changes.

Nebraska's History

Historically, Nebraska has been a state with deep agricultural roots dating back to its inclusion into the union in 1867 (Naugle). This agricultural base created a large rural domination in terms of demographic areas. This trend continued until the mid 1930s when population migration started to occur between declining rural areas and growing urban areas (Naugle). This trend arose for two reasons. First, new technology decreased the need for certain jobs that were traditionally needed for the agricultural economy in Western Nebraska (Monchuk, Miranowski, Hayes, & Babcock, 2007). Secondly, agricultural policies such as farm subsidies encouraged large farming operations rather than small family farms (Theobald, 2005). These effects have caused a higher population density in Eastern Nebraska than anywhere else in the State (Monchuk, Miranowski, Hayes, & Babcock, 2007). These two reasons caused a decline in the availability in jobs in Western and Central Nebraska and consequently led to a population migration to Eastern Nebraska. It is worth noting that between 1990 and 2000 rural areas in Nebraska experienced a boom in the Latino population of almost three times the national average due to industrial growth such as meat packing plant opportunities (Dalla, MoulikGupta, Lopez, & Jones, 2006). However, this increase did not displace the current trend of rural population decline and urban growth.

Population Change and Education

With changes in population come challenges to public education. This area of research has focused on the effects of population change in two areas, rural and urban. I will discuss the

effects of population change on rural areas first. As noted above, rural areas have been experiencing a population decline. This has led to an overall decrease in school district enrollment. Nebraska averages less than 1,000 students per district which is among the lowest rates in the United States (Ornstein, 1992). This led to the widely debated rural solution of consolidation. Consolidation is the process of combining smaller schools districts into a few larger ones. In 1930 the United States had over 130,000 school districts. After 1990, the United States had around 15,500 (Ornstein, 1992). The expected benefits of consolidation were tied to the phrase "bigger is better," as bigger schools would provide a larger tax base, higher quality personnel, more educational programs, specialized services, and, above all else, an overall reduction in educational costs per student (Ornstein, 1992).

The research has not shown that consolidation has provided these promised benefits. In fact, some studies like the Nebraska Rural County Schools Association 1988 report concluded that there was no correlation between a school's "ruralness" and its ability to offer comprehensive course offerings. It also contended that a limited curriculum like that provided by rural schools offers a greater mastery of content as opposed to urban schools (Thompson, 1990). Besides the lack of research supporting consolidation, communities faced with consolidation enter into a win/lose relationship where one community gets to keep its identity and the other loses theirs. Some authors believe that the trend of consolidation is coming to an end because fewer and fewer rural schools are considering consolidation and that its main purpose was to get rid of one room school houses (Haas, 1990).

The effects of population growth in urban areas have had quite the opposite effect. With the increase in population many districts are calling for decentralization. Decentralization is the opposite of consolidation in that school districts are divided into smaller units. The intended

benefits include enhanced community relations, greater curriculum continuity, more efficient maintenance and support, and the reduction of central administrative control (Ornstein, 1992). Just like consolidation claims, little evidence is available to support the proposed benefits (Ornstein, 1992). Another concern is the growing minority population within urban areas. The concern is that higher income earners are leaving the urban setting for the suburban setting, which coupled with growing poverty, results in decreased property values. This in turn shrinks a districts tax base in urban areas (Theobald, 2005).

V. Data and Methods

Data was collected for four locales: Nebraska, Box Butte County, Lancaster County, and Scotts Bluff County. The three counties were selected for their overall population change between 2000 and 2010. Box Butte County represents a community facing a population decline. Lancaster County showed signs of population growth. And Scotts Bluff County was selected as a control for this research given their population had very little change. Nebraska data is also collected as a point of reference to the state as a whole when compared to the individual counties. All of the data collected in this study is derived from one of two sources; the Nebraska Department of Education or the United States Census Bureau. All of the data dealing with the high school factors as well as the college readiness indicators are from the Nebraska Department of Education's annual State of the Schools Report. Data was collected from ten reports starting with the 2000 – 2001 State of the Schools Report and ending with the 2009 – 2010 State of the Schools Report. I collected all available data pertaining to education quality measures. When using the State of the Schools Reports, I only considered measures collected for the 11^{th} grade. I did this for two reasons. First, a majority of the reports from 2000 to 2010 only reported on federally mandated grades (i.e. fourth, eighth, and eleventh). Given that this study is looking at

college readiness the only grade that would provide the most accurate data was the 11th grade. The data was aggregated to the county level by averaging each school district's education measures that had at least one high school within the district. The breakdown of counties and districts are included in Table 1.1.

Nebraska	Box Butte County	Lancaster County	Scotts Bluff County
All Nebraska School Districts Included	1) Alliance Public Schools 2) Hemingford Public Schools	1) Lincoln Public Schools 2) Malcolm Public Schools 3) District 160 – Norris Schools 4) Raymond Central Schools 5) District 145 – Waverly Schools	1) Gering Public Schools 2) Minatare Public Schools 3) Mitchell Public Schools 4) Morrill Public Schools 5) Scottsbluff Public Schools

Table 1.1: County School District Breakdown

A final note on the State of the Schools Reports is a stipulation the Nebraska Department of Education holds with regards to masked data. The Department will mask any data results when either a) fewer than 10 students are reported in a grade or standard or b) when all students were reported in a single performance category (Nebraska Department of Education, 2010). The second condition arises when all students for a district are reported in a below proficient category such as "progressing" or "beginning". This is done to protect the identities of these students. This condition only arose in a few of the factors and indicators included in this study. These school districts that had masked data were removed from the averaging at the county level. For a complete look at the data for every district please consult the appendices. All of the socio-economic factors, except the percentage of students eligible for free and reduced meals which was gathered from the previous mentioned State of the Schools Reports, was collected through the U.S. Census Bureau's census information from the years 2000 and 2010. This would also

include both of the 2000 and 2010 Census Surveys as well as the American Community Surveys, which provide estimated incremental measures for 5 year increments.

Furthermore, unless stated otherwise all percentages are the percentage change rate. The percentage change rate was used in order to provide a more accurate account of the changes experienced in every county and the state. Given that some places might have started out at a higher or lower base number for certain factors, this study only wanted to look at the changes that occurred between 2000 and 2010. This allowed me to hone in the focus of the study to only compare educational, societal, and population changes between 2000 and 2010. Tables presented in this research include all four locations. Charts also show all four locations except when otherwise stated. This is due to distortion brought on by overly high data results for the State of Nebraska. In these cases, Nebraska is included in the specified table but is removed from the specific chart. This is done to aid in the visual representation of the data among the counties.

It is also important to note that research presented here has potential sample size effects. For example, Lancaster County has a much larger student base when compared to Box Butte County. In turn, a small drop in a few students ACT scores can have a tremendous effect on Box Butte County's average ACT scores compared to the same drop in a few students in Lancaster County. However, this study's main purpose is to analyze population change's effects on college readiness, which would include school, district, and county school administrations' and governments' response to such changes. While the dip in students may hurt Box Butte County's ACT scores, Lancaster County has to work to get a larger number of students to get higher rates on their ACT scores in order to see a higher county average compared to Box Butte County. It is for this reason that size effects are noted but not necessarily considered in this study and their ultimate effect is negated. To end, I would like to point out that any social research, like

education quality, runs the risk of failing to realize all factors that could have an effect on the study. Inferences derived from this research acknowledge this fact and tries to explain the results given available data.

VI. Conclusion

In sum, education policy is a greatly debated subject. It intertwines theories from economics, psychology, and politics. So far I have presented educational research that supports both ends of arguments for and against various college readiness factors. For this study, the purpose is to examine Nebraska's population changes from 2000 to 2010 and determine if those changes have an effect of education quality as it relates to college readiness. In order to achieve this goal, this research follows a certain "natural flow" of factors. To begin, I present and compare high school and socio-economic factors. Next, I use the high school and socio-economic results will be used to explain changes in college readiness indicators. The concluding chapter provides summary evaluations of population change's effects on college readiness and offers policy recommendations to boost education quality.

It is difficult to create a definitive hypothesis for this study. However, considering both actual assumed education quality changes due to population change as well as the comparison of the counties among themselves, the following hypotheses are offered:

1) Box Butte County: Box Butte County should see negative side effects from a decline in their population. This is based on the idea that the county will face challenges to allocate resources effectively with at the same time providing a full high school experience. As such, I expect that Box Butte County's high school, socio-economic, and in turn college readiness indicators will measure somewhere near the bottom among the counties included in this study.

2) Lancaster County: Lancaster County should see positive side effects from population growth. This is based on the idea that an increased population will provide more resources and the ability to provide a greater high school experience for students compared to other counties. I expect that Lancaster County's high school and socio-economic indicators, and in turn college readiness indicators, will measure somewhere near the top among the counties included in this study.
3) Scotts Bluff County: Being the county of little to no population change, I expect Scotts Bluff County to show a natural or baseline improvement in its education quality. Schools within the county should show signs of stability given their very stable population over ten years. I expect that Scotts Bluff County's high school, socio-economic, college readiness indicators will fall somewhere between Box Butte and Lancaster County.

I also include Nebraska as a whole in this study as an additional baseline comparison for the counties. Though Nebraska is a state of population growth between 2000 and 2010, the growth is highly concentrated in the southeast and the aggregate of all the counties will offer a good comparison. In the end this research will provide an insight into Nebraska's changing population and its effects on education. The last chapter will offer an overall summary of the research with several policy suggestions for continuing to improve Nebraska's education system.

CHAPTER TWO: POPULATION CHANGE'S EFFECTS ON HIGH SCHOOL VARIABLES

I. Population Change in Nebraska

After establishing the framework of this study in Chapter One, we can begin looking at the first factor: population change. I started my research by collecting data on population change within Nebraska as well as three specific counties in Nebraska. According to the United States Bureau of the Census, the total reported populations in the year 2000 are as follows: Nebraska, 1,711,263; Box Butte County, 12,158; Lancaster County, 250,291; and Scotts Bluff County, 36,951 (United States Census Bureau, 2000). In 2010, The Bureau of the Census reported the following population totals: Nebraska, 1,826,341; Box Butte County, 11,308; Lancaster County, 285,407; and Scotts Bluff County, 36,970 (United States Census Bureau, 2010). As stated previously, population change is derived for each county by taking the baseline population total, the Census data from 2000, with the addition of any births and immigration to the area and then the subtraction of any deaths and emigration from the area to arrive at the population change for 2010. In sum we get the following net population changes: Nebraska, +115,078; Box Butte County, -850 persons; Lancaster County, +35,116 persons; and Scotts Bluff County, +19 persons.

After gathering the population change and the baseline population figures, I was able to calculate the percentage changes. Those changes are: Nebraska, +6.30%; Box Butte County, -6.99%; Lancaster County, +14.03%; and Scotts Bluff County, +0.05%.This data shows us that Nebraska saw solid population growth and Box Butte has experienced a population decline over the ten years being examined. Lancaster experiences a substantial population increase and Scotts Bluff shows relatively no population change between 2000 and 2010. This data is best represented by Table 2.1 and Graph 2.1.

TABLE 2.1: Population Change				
	2000	2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	1,711,263	1,826,341	115,078	6.30%
Box Butte County	12,158	11,308	-850	-6.99%
Lancaster County	250,291	285,407	35,116	14.03%
Scotts Bluff County	36,951	36,970	19	0.05%

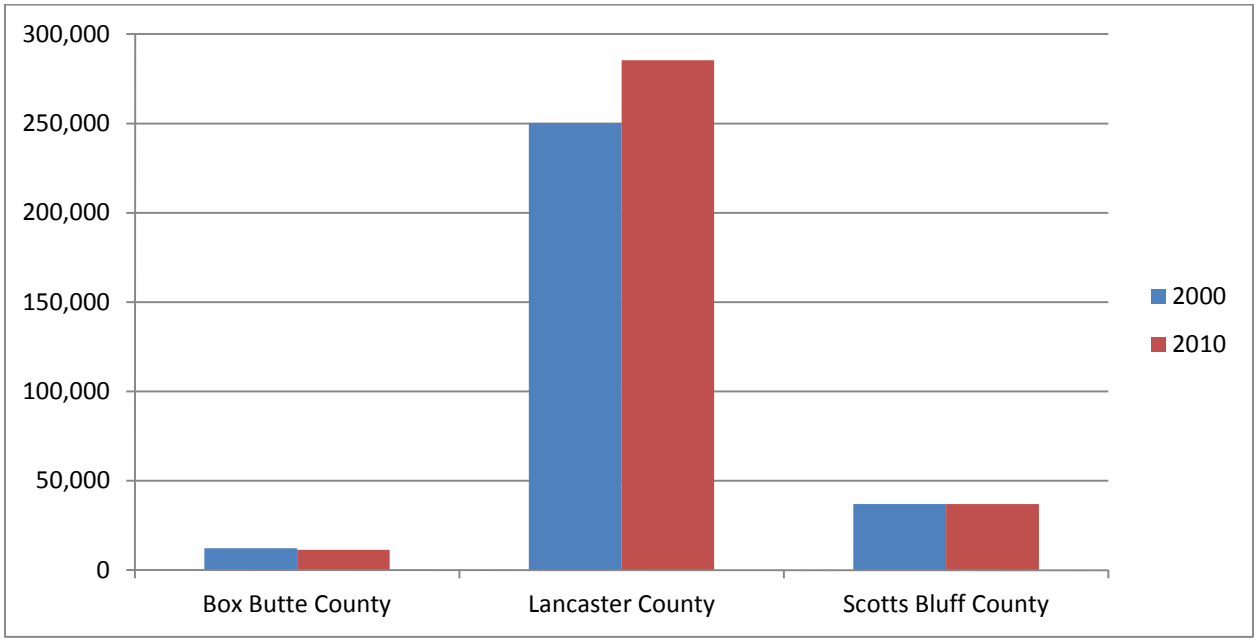


Chart 2.1: Population Change

With the general population trends established, the next step is to incorporate those trends with the factors that go into college readiness. The first set of factors analyzed is the high school factors. I examined a variety of teacher standards as well as high school policies in this research. Recalling back to Chapter One, teacher salary, teacher experience, and teacher endorsements showed signs of having effects on student success. In addition to those factors, I specifically collected data relating the percentage of teachers with a Master's degree and the teacher count for each location. To get another view of the district high school I included data on attendance rates to go with the teacher standards. Together this chapter aims to look at actionable policy factors that can be examined at the district level with regards to population change and high school factors.

II. Average Teacher Salary

The Nebraska Department of Education defines "average teacher salary" as the annual average salary of all teachers in a school building or district. This includes the average salaries of teachers who are under a minimum of a 170 day contract with the district, teaching in only one school district, and serving exclusively as teachers (Nebraska Department of Education, 2001). Looking at the data from the Nebraska Department of Education, the overall trend is an increase in the average teacher salary for all of the counties concerned as well as Nebraska as a whole. Nebraska sees an overall jump from $34,258.00 in 2000 to $46,227.00 in 2010, which comprises a change of 34.94%. Box Butte County's average teacher salary was $32,693.00 in 2000 and $44,731.50 in 2010 or a change of 36.82%. In 2000 Lancaster County has an average teacher salary of $35,198.20 and $48,620.80 in 2010. Scotts Bluff County starts 2000 with an average teacher salary of $32,657.40 and ends in 2010 with an average teacher salary of $47,555.40. These changes are represented in Table 2.2 and Graph 2.2:

TABLE 2.2: Average Teacher Salary												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	$34,258.00	$36,236.00	$38,038.00	$38,343.00	$39,441.00	$40,382.00	$42,080.00	$43,629.00	$44,968.00	$46,227.00	11,696	34.94%
Box Butte County	$32,693.00	$34,231.00	$35,649.50	$36,462.00	$37,029.50	$37,857.00	$38,661.00	$41,060.50	$43,290.00	$44,731.50	12,039	36.82%
Lancaster County	$35,198.20	$37,218.20	$39,187.00	$39,646.20	$41,048.20	$42,415.60	$43,960.20	$45,447.80	$47,202.60	$48,620.80	13,423	38.13%
Scotts Bluff County	$32,657.40	$34,705.80	$38,934.80	$39,264.40	$41,168.80	$42,251.00	$42,536.40	$43,927.60	$46,210.20	$47,555.40	14,898	45.62%

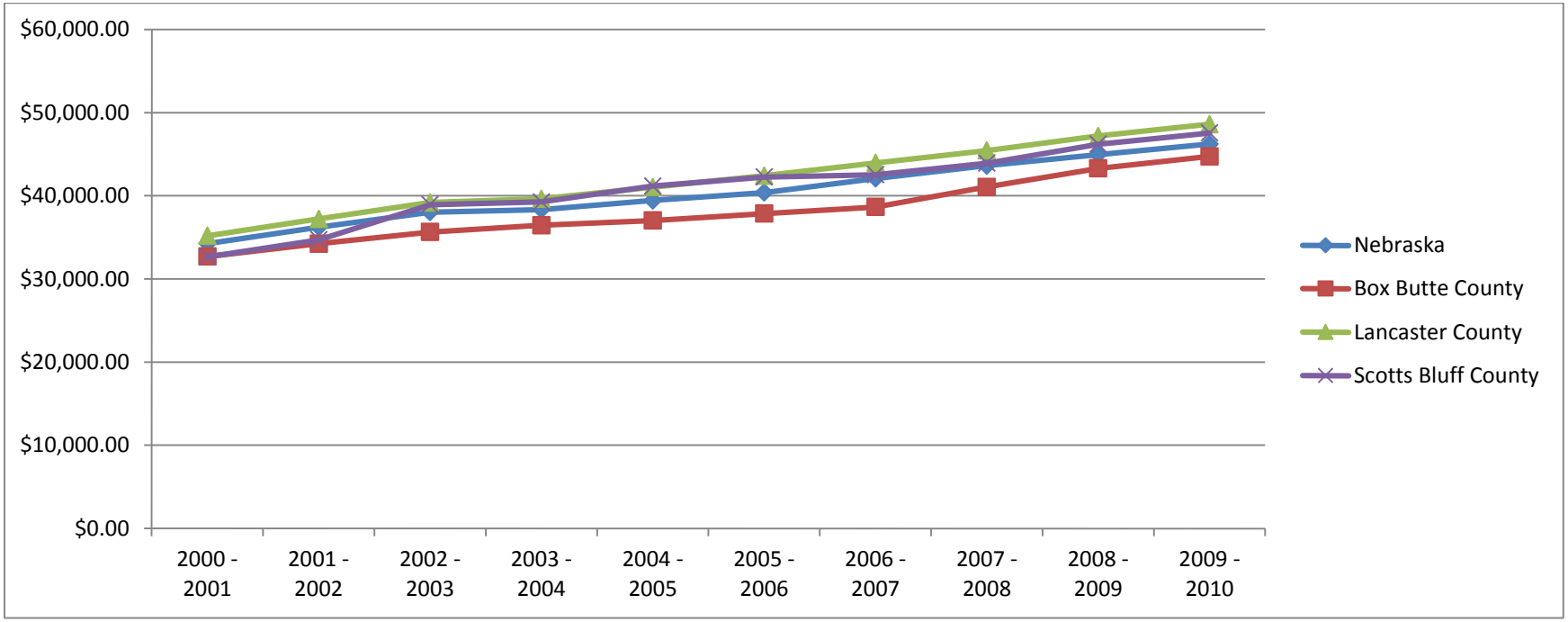


Chart 2.2: Average Teacher Salary

Even though every Nebraska county observed in this research as well as Nebraska as a whole experience an increase in the average teacher salary from 2000 to 2010, their percentage changes shows that the increase was not uniform across all items considered. Scotts Bluff has the greatest overall increase across the ten years which is surprising as I expected their average salary to be somewhere in between Box Butte County and Lancaster County. This may be because in 2000 Scotts Bluff County had the overall lowest annual teacher salary when compared to Nebraska, Box Butte County, and Lancaster County. Lancaster County has the second highest change in average teacher salary which is to be expected given the increase in its population. Box Butte has the third highest change, or rather the lowest change among the counties which also holds to the original hypotheses. Due to a drop in its population, Box Butte County has been unable to keep up with the other two counties with the rate of pay for its teachers. Nebraska shows the lowest percentage change for average teacher salary when compared to the other counties. This could be related to the fact that although the state as a whole experienced a population increase from 2000 to 2010, those increases were generally condensed to a few areas. That would mean that most counties in Nebraska were untouched by a population increase and in turn were unable to keep up with the average teacher salary of other areas in the state, which in turn could bring down Nebraska's average as a whole.

III. Percentage of Teachers with a Master's Degree

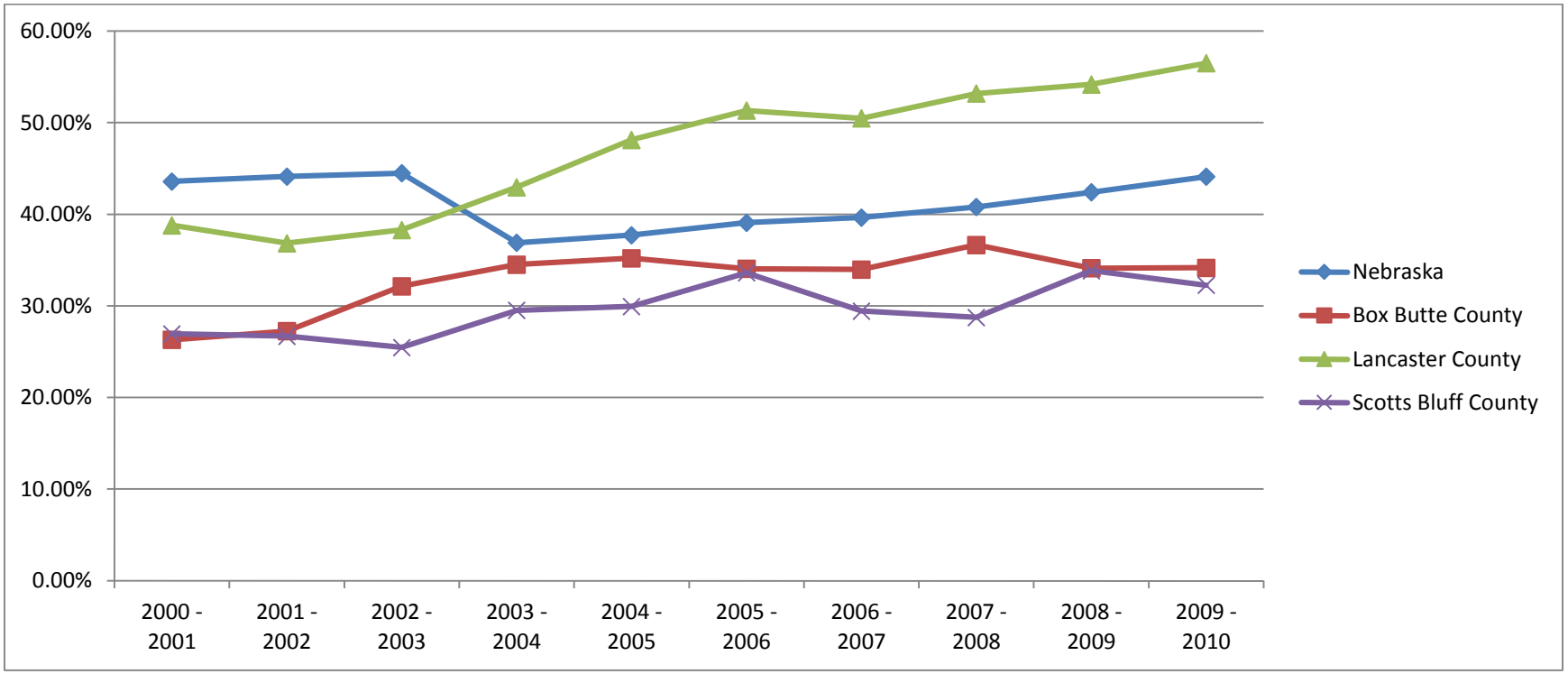
The next factor is that of the percentage of teacher's within each district who have a Master's degree. The Nebraska Department of Education collects this data and includes anyone who has a master's degree, master's degree plus hours, a specialist degree, or a doctorate into this data source (Nebraska Department of Education, 2001). These results are presented in Table 2.3 and Chart 2.3. Nebraska saw a very small change to its percentage of teachers with a master's

degree with a change of just 0.51% or a percentage change of 1.17%. Box Butte County had the second largest change with 7.86% or a percentage change of 29.89%. Lancaster County had an overall change of 17.70%, the largest of the counties, and a percentage change of 45.62%. Finally Scotts Bluff saw the smallest change among the counties with an increase of 5.31% or a percentage change of 19.71%. Overall we see that every county experiences some sort of increase in the percentage of teachers with master's degrees. The differences occur in the magnitude of these changes. First, the hypothesis holds that Lancaster County, the county with a population increase, sees the highest increase and has the overall highest percentage of teachers with a Master's degree. The other counties show interesting results that do not hold for the hypotheses. These differences will be explained later with the examination of the teacher count changes from 2000 to 2010. I will posit that the changes in Master's degree attainment among the locations are attributed to a natural increase as well as inflationary effects of changing teacher counts.

IV. Teacher Experience

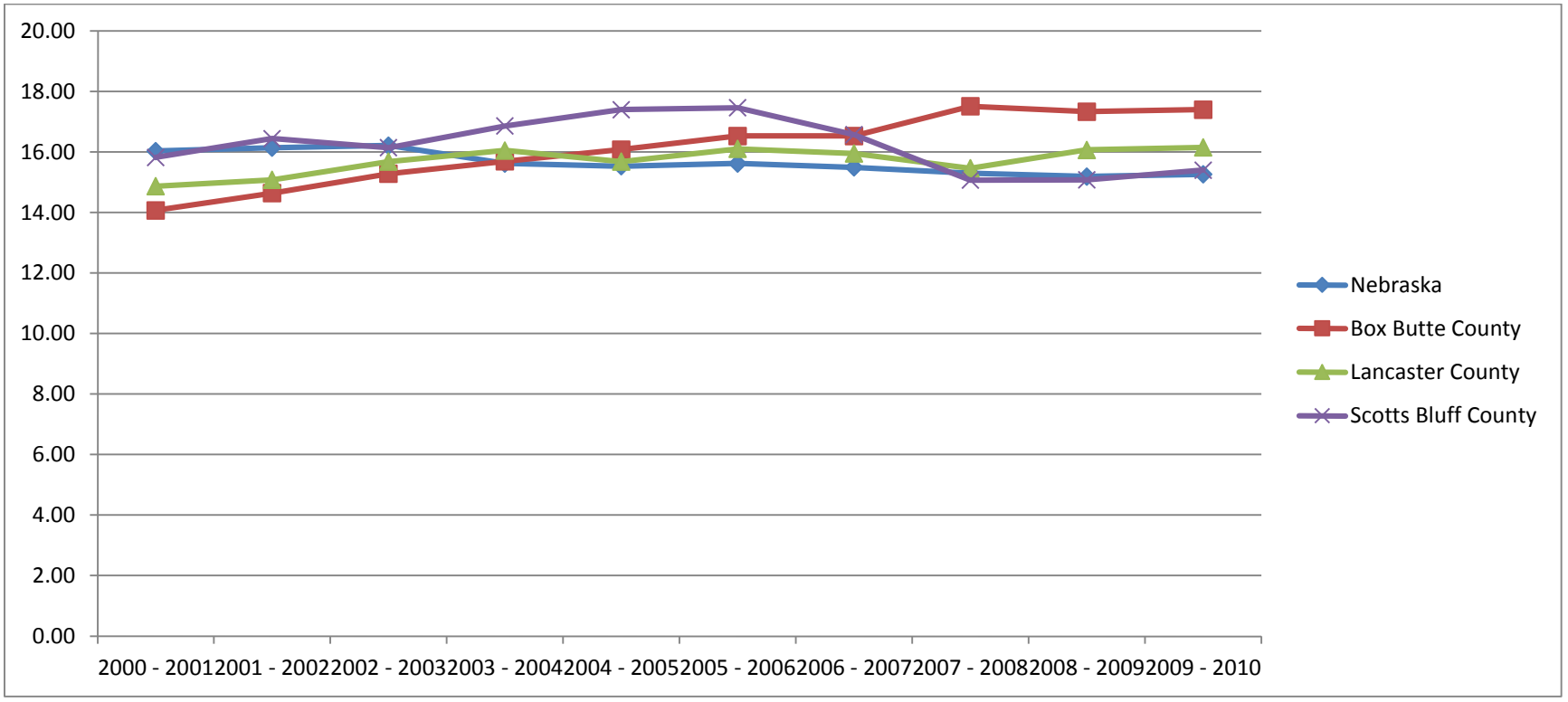
Another factor related heavily to teacher salaries is that of teacher experience. As discussed earlier, many teacher pay schedules are tied to teacher experience in that the longer a teacher works the more pay they receive when compared to other teachers. The Nebraska Department of Education defines the average teacher experience as the total number of full school years, including the current school year, that an individual has been teaching (Nebraska Department of Education, 2001). Unlike teacher salaries expressed earlier, there is no general trend for Nebraska and the counties considered with regards to average teacher experience. The results are presented in Table 2.4 and Chart 2.4. Nebraska sees a decline of -4.80% in its average teacher experience. In 2000 Nebraska's teachers had an average experience of 16.03 years and in

TABLE 2.3: Percentage with a Master's Degree												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	43.59%	44.12%	44.49%	36.89%	37.73%	39.08%	39.65%	40.80%	42.41%	44.10%	0.51%	1.17%
Box Butte County	26.30%	27.25%	32.15%	34.51%	35.20%	34.05%	33.98%	36.65%	34.12%	34.16%	7.86%	29.89%
Lancaster County	38.80%	36.84%	38.29%	42.95%	48.12%	51.32%	50.48%	53.18%	54.17%	56.50%	17.70%	45.62%
Scotts Bluff County	26.94%	26.69%	25.47%	29.51%	29.94%	33.61%	29.43%	28.75%	33.85%	32.25%	5.31%	19.71%



Chapter 2.3: Percentage with a Master's Degree

TABLE 2.4: Average Teacher Experience												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	16.03	16.14	16.21	15.62	15.53	15.62	15.49	15.30	15.19	15.26	-0.77	-4.80%
Box Butte County	14.07	14.64	15.28	15.69	16.08	16.53	16.53	17.51	17.33	17.40	3.33	23.67%
Lancaster County	14.87	15.08	15.68	16.05	15.68	16.10	15.95	15.46	16.07	16.15	1.28	8.61%
Scotts Bluff County	15.82	16.44	16.14	16.86	17.40	17.46	16.57	15.07	15.08	15.40	-0.42	-2.65%



Chapter 2.4: Average Teacher Experience

2010 they had only 15.26 years. Box Butte County saw the largest increase in teacher experience with a change of 23.67% from their 2000 average teacher experience of 14.07 years to 17.40 years in 2010. Lancaster County's 2000 average teacher experience was 14.87 years and 16.15 years in 2010 which comprises of an overall increase in average teacher experience by 8.61%. Finally Scotts Bluff saw a decline in its average teacher experience by -2.65%. Their 2000 average teacher experience was 15.82 years and in 2010 that number had dropped to 15.40 years.

Dr. Laura Goe, of the National Comprehensive Center for Teacher Quality, has produced research has shown that teacher experience really only plays a role on students' outcomes within the first couple years of teaching and that by the fourth or fifth year of teaching, any effects on student outcomes from teacher experience are negligible (Goe, 2007). The results in this study show that the average teacher experience for all locations are well beyond the three year cut off for teacher effects on student success, that is the average teacher experience was anywhere between fourteen and eighteen years. However, any changes between 2000 and 2010 for each location will show one of two trends. A decrease in the average teacher experience would be attributed to either the hiring of younger teachers or the retirement of more experienced teachers which each bring down the average. The opposite would hold for an increase in the average teacher experience. These results are largely related to the teacher count, which will be explained next, along with the master's degree attainment results previously discussed.

V. Teacher Count

The Nebraska Department of Education defines the teacher count as persons who are: a) assigned to instruct students and b) hold a valid teaching or administrative certificate (Nebraska Department of Education, 2001). The results are presented in Table 2.5 and Chart 2.5. Nebraska had an increase of 19.47% in its teacher count. Box Butte County saw a decrease in their rate

with -15.78%. Lancaster County also has a decrease in its rate with -8.34%. Scotts Bluff County experiences an increase in its teacher count rate with 11.38%. Just looking at the numbers, Nebraska and Scotts Bluff see a large increase in proportion to the decreases in the teacher count for Box Butte County and Lancaster County. But what does this have to do with the average teacher experience and the percentage change with a Master's degree results and more importantly education quality in general across the state?

In sum we find that the relation between the a) the teacher count and b) the average teacher experience and percentage of teachers with a Masters' degree are relatively conversely proportional to each other. The data shows that a county that has an increase in its teacher count also shows a decrease in its average teacher experience. That means that the new teachers being hired have relatively less experience. The opposite is true for counties that saw a decrease in their teacher count, undoubtedly because teachers with the most experience were retained by the counties. We see a similar relationship with the teacher count and the percentage of teachers with a Master's degree. Counties with an increase in their teacher count saw a lesser percentage increase in their teachers with a master's degree over ten years. Those counties with teacher count decreases saw a relatively higher percentage increase in their teachers with a Master's degree. Again, relating back to teacher experience, teachers who have more experience are more likely to have a Master's degree and be retained for employment in counties who saw a teacher count decrease. Counties with increases in the teacher count hired less experienced teachers who were less likely to hold a Master's degree.

TABLE 2.5: Teacher Count												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	20,479.84	20,603.40	20,583.31	23,302.60	23,536.03	23,586.92	23,839.21	24,193.13	24,331.56	24,467.68	3,987.84	19.47%
Box Butte County	91.00	90.05	86.85	81.91	81.31	77.43	80.93	78.28	72.88	76.64	-14.36	-15.78%
Lancaster County	624.88	518.23	527.27	523.97	522.35	524.21	540.67	554.21	565.00	572.77	-52.11	-8.34%
Scotts Bluff County	81.84	81.23	82.28	81.15	82.32	82.85	89.37	89.82	90.88	91.15	9.31	11.38%

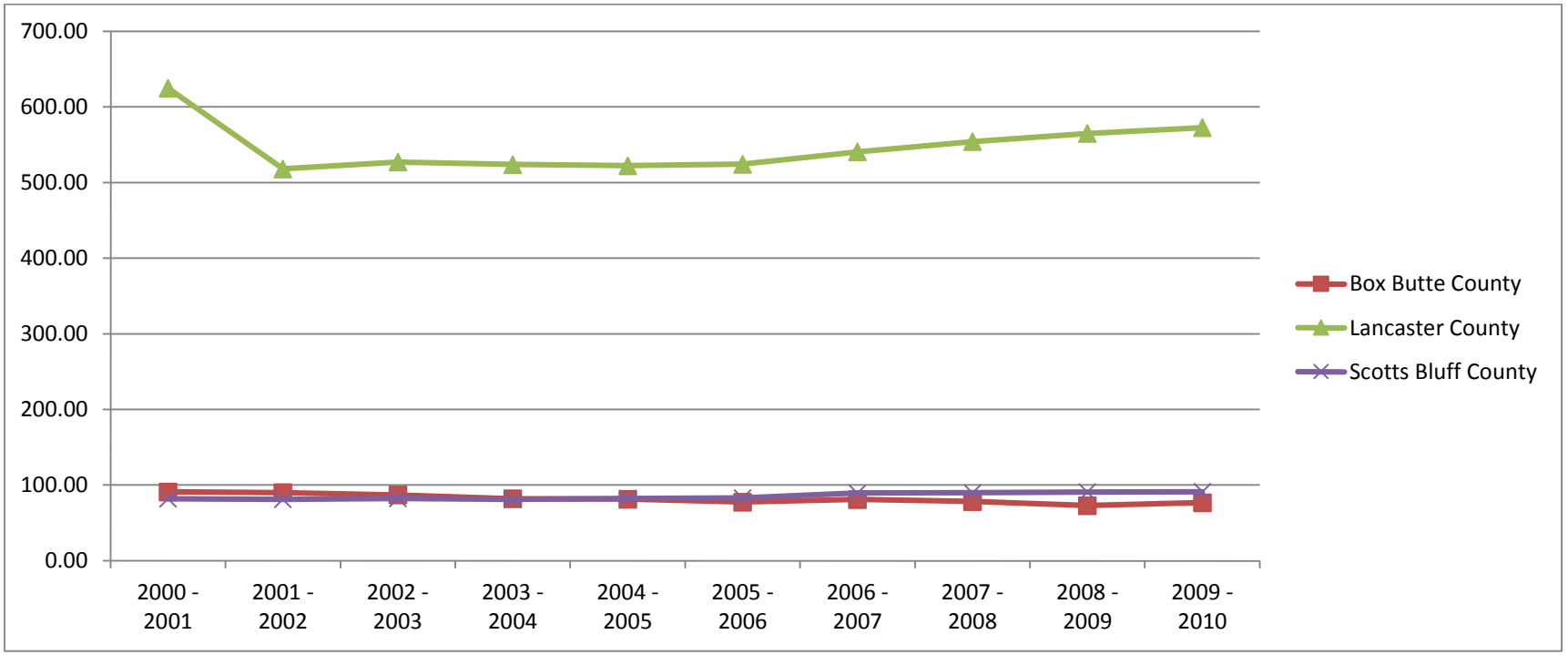


Chart 2.5: Teacher Count

This demonstrates that the teacher count policies by a county or state correlate with the average teacher experience and the percentage with a Master's degree. Given that Master's degree attainment has been shown to have effects on student outcomes, the teacher count becomes an important factor when considering student college readiness in Nebraska. It can also be said that simple changes in the teacher count could lead to the inflation of certain education factors. For example, when a county is faced with reducing its teacher count, they may opt for retaining teachers with greater experience and master's degrees and chose to release younger teachers without master's degrees. This results in a manufactured or inflated percentage of teacher experience and percentage with a master's degree. This could serve as an explanation for Box Butte County and Lancaster County. These ideas must be kept in mind when examining the effects of teacher characteristics on student outcomes. The next factor that was considered is teacher endorsements.

VI. Teacher Endorsements

Teacher endorsements are closely related to master's degree attainment in that they offer a certain specialization within the field of teaching. Endorsements are what differentiate teachers by separating their fields of study in a way. The Nebraska Department of Education recognizes eight different areas of endorsements, which include: language arts; mathematics; social studies; science; foreign language; career and technical information; health and physical education; and visual and performing arts (Nebraska Department of Education, 2010). Moreover, state accreditation stipulates that eighty percent of a school's teachers must be qualified or endorsed in the subject that they teach, where endorsement means the teacher majored in the field they are teaching (Nebraska Department of Education, 2010). The results are presented in Table 2.6 and Chart 2.6. The data shows that Nebraska saw an increase of 4.01% in teacher endorsements

TABLE 2.6: Overall Teacher Endorsements												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	89.52%	90.39%	91.94%	92.97%	93.35%	94.27%	93.93%	94.42%	94.41%	93.11%	3.59%	4.01%
Box Butte County	84.40%	92.56%	88.73%	87.53%	87.06%	86.24%	88.22%	91.69%	91.50%	90.07%	5.67%	6.72%
Lancaster County	90.54%	91.54%	93.23%	94.19%	94.82%	95.34%	95.42%	94.94%	95.22%	92.92%	2.38%	2.63%
Scotts Bluff County	81.58%	87.12%	90.01%	92.18%	93.39%	93.40%	93.48%	94.83%	93.77%	94.03%	12.45%	15.26%

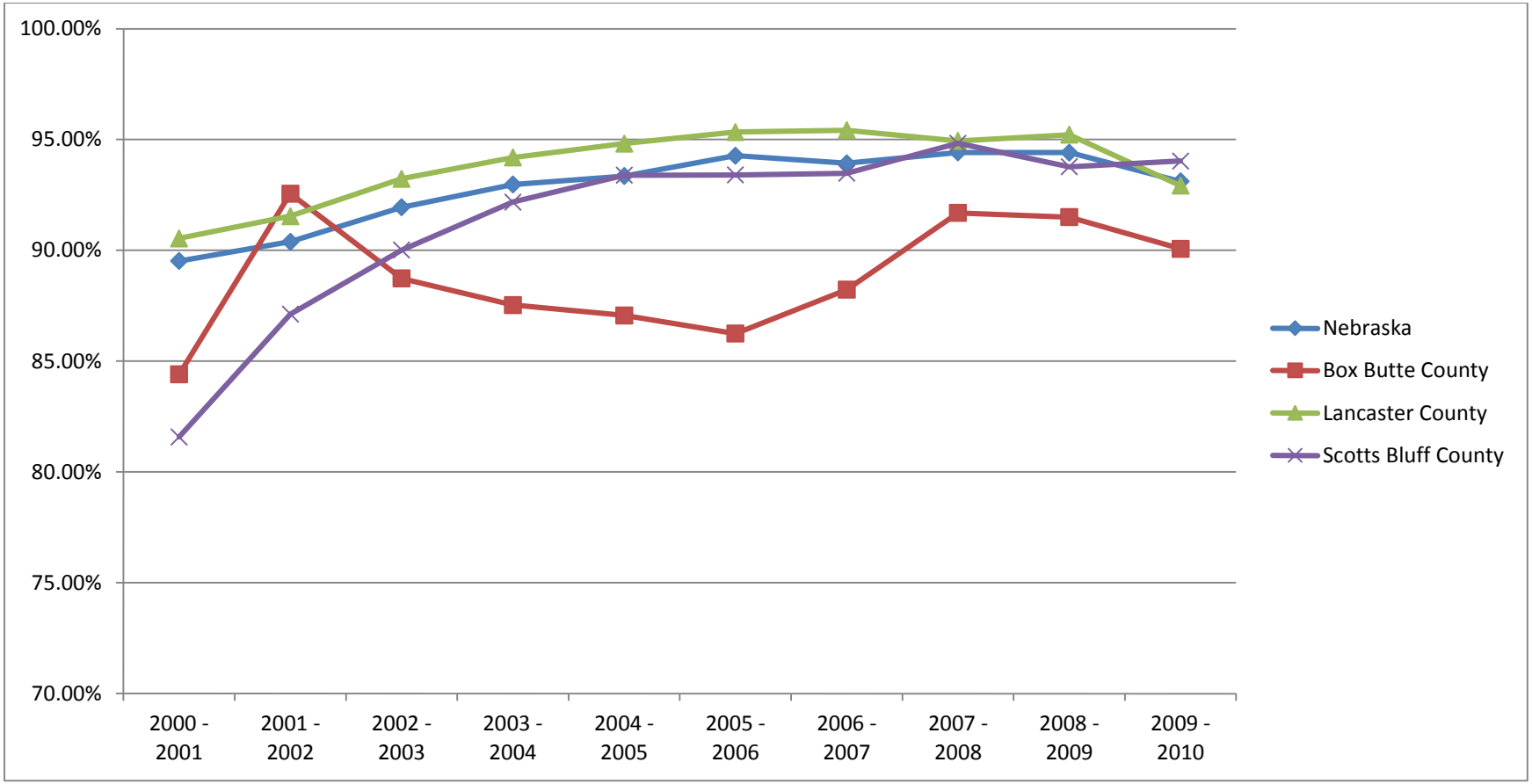


Chart 2.6: Overall Teacher Endorsements

between 2000 and 2010. Box Butte County saw an increase of 6.72%. Lancaster County had a percentage increase of 2.63%, the smallest among the counties and Nebraska. Finally, Scotts Bluff saw the greatest percentage increase in their teacher endorsements with an increase of 15.26%.

These results are not surprising given the base numbers of the counties in the year 2000. The two counties that saw the greatest change, Box Butte and Scotts Bluff, had the lowest relative teacher endorsement rates in 2000 with 84.40% and 81.58%, respectively. However, it is noticeable that over the ten years these two counties worked to increase their teacher endorsement rates to similar levels of Lancaster County and the Nebraska average. Given this fact, the counties were further analyzed comparing their 2010 teacher endorsements amongst each other. The results are as follows: Scotts Bluff County, 94.03%; Nebraska, 93.11%; Lancaster County, 92.92%; and Box Butte County, 90.07%. These results hold that Box Butte County, though it has a large increase in its percentage of teacher endorsements, falls in last place when compared to the other counties. Surprisingly we find that Scotts Bluff has the highest teacher endorsement rate in 2010. Equally surprisingly may be Lancaster County's fall from first to third in the rankings. This could be a result from the growing need for teachers given the influx of the student population and an inability to find teachers with the all the right endorsements. However, these results are very close and may not be meaningful enough to support a solid conclusion.

Nevertheless, all the counties and Nebraska were well above the mandatory state minimum of an eighty percent endorsement rate. Teacher endorsements are particularly important to consider because studies have shown that teachers who were endorsed in mathematics saw a positive relationship with student outcomes of the same field (Darling-

Hammond, 1999). From these results we should expect greater education quality in the form of student outcomes among all the counties but especially the two highest endorsement changes counties, Box Butte and Scotts Bluff County.

In closing on teacher characteristics I was able to identify at least one trend, the effect of the teacher count. Changes in the teacher count led to a causality relationship among the changes in the percentage of teachers with a Master's degree, average teacher experience, and to a lesser extent the average teacher salary. Teacher endorsements showed increases across the board but the degree of the change was attributed to the baseline numbers, for example Scotts Bluff had some of the lowest baseline numbers for teacher endorsements in 2000 and in turn showed the largest increase in 2010. Ultimately I found that my expectations for teacher characteristics associated with population change did not hold. It seems that administrative policies, like the teacher count for a district, had a greater effect on change. As a final check on high school factors, I also considered attendance rates of the counties to contrast from teacher characteristics and find out whether administrative control still outplayed population change.

VII. Attendance Rates

Attendance rates are defined by the Nebraska Department of Education as the total number of days students attended school compared to the total number of days they should have been in school. Simplified, the attendance rate is just the average daily attendance divided by the average daily enrollment or membership of any given school (Nebraska Department of Education, 2010). Attendance rates offer a contrast to teacher characteristics in that they can show a more school wide policy approach that relies more on school administrators rather than teacher characteristic effects. The results are presented in Table 2.7 and Chart 2.7. Almost all the counties including Nebraska saw a decrease in attendance rates; although

TABLE 2.7: Attendance Rates												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	95.06%	95.06%	95.05%	94.70%	94.63%	94.94%	94.77%	94.71%	94.83%	94.76%	-0.30%	-0.32%
Box Butte County	95.33%	95.33%	95.33%	94.15%	94.10%	94.04%	91.61%	89.54%	92.41%	92.44%	-2.89%	-3.03%
Lancaster County	95.45%	95.45%	95.45%	95.87%	95.81%	95.85%	95.67%	94.97%	95.05%	95.16%	-0.29%	-0.30%
Scotts Bluff County	94.77%	94.77%	94.77%	94.90%	94.53%	94.78%	94.95%	94.56%	95.05%	95.10%	0.33%	0.35%

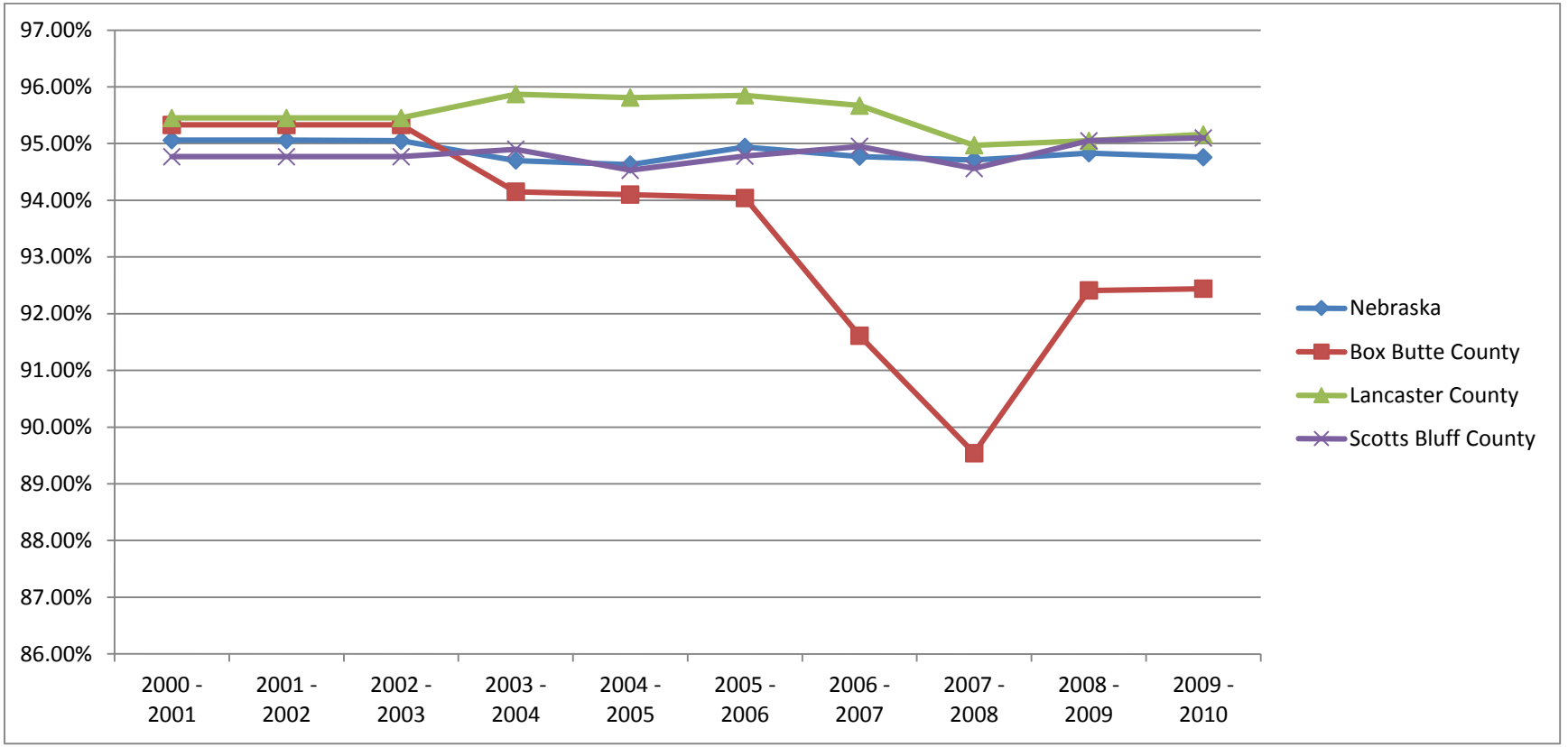


Chart 2.7: Attendance Rates

the changes were extremely small in most cases. Nebraska saw a decrease of -0.32%. Box Butte County had a slightly larger decrease in attendance with a change of -3.03%. Lancaster County saw a decrease in its attendance rate by a change of -0.30%. Finally, Scotts Bluff County saw the only increase among the counties with a change of 0.35%.

It is commonly accepted that attendance rates of students' plays a role in student success. This has been confirmed by various studies including the National Assessment of Educational Progress and the National Association of Secondary School Principals (Balfanz & Nai-Lin Chang, 2013). From this, schools with a greater attendance rate can be inferred to hold a higher educational quality. This idea is brought by the inference that schools with waning resources due to population decline would not be able to carry out policies to ensure students are not missing too much school. The opposite is held for schools with a population increase. The data supports the hypotheses that the county with a population decline, Box Butte, would experience a decrease in its attendance rate. The other counties as well as Nebraska show differing results. First, their percentage changes are extremely small to account for much change in general over the ten years. This could be a result of hitting a ceiling in public school attendance rates given the fact that schools are always going to have a certain percentage of students who miss school. If this is the case, it would be increasingly important to note any decreases from this ceiling, as Box Butte County experiences. Ultimately, it looks like population change has no effect on attendance rates as a definite cause for fluctuations could not be found in this study.

VIII. Summary of High School Factors

When trying to address the big picture of population change and its effects on high school factors of college readiness, several trends are present and represented in Table 2.8 and Chart 2.8. The largest trend is the effects of the teacher count on the other high school factors. Box Butte

County and Lancaster County had good sized decreases in their teacher count between 2000 and 2010. Subsequently, these two counties also saw the highest increases in the percentage of teachers with a Master's degree, average teacher experience, and to a lesser extent average teacher salary. It would appear that the teachers retained by Box Butte County and Lancaster County had more experience, higher degrees, and in turn would warrant a higher salary. The opposite effects could be seen with Nebraska.

Nebraska had a teacher count increase, which then led to a very small increase in the percentage of teachers with a Master's degree. It also led to the largest decrease in average teacher experience and the smallest increase in the average teacher salary among the items considered. This would mean that on average, teachers across Nebraska have less experience, are less likely to have a Master's degree, and are paid less. Scotts Bluff County showed a similar pattern with an increase in their teacher count, which attributed to the smaller percentage of teachers with a Master's degree when compared to the other counties as well as a decrease the average teacher experience. The only difference is that Scotts Bluff had a substantial increase in the average teacher salary, which would not fit the trend. This could be linked to the next factor, teacher endorsements, in which Scotts Bluff saw the highest increase among the counties. I would conclude that the increased average salary could be tied to a county-wide push for higher teacher endorsements, which was achieved in the ten years observed. Both the average teacher salary and the teacher endorsement percentage rates were about ten percent higher than all other places considered.

TABLE 2.8: High School Factors							
	Population Change	Average Teacher Salary	Percentage of Teachers with a Masters Degree	Average Teacher Experience	Teacher Count	Teacher Endorsements	Attendance Rates
Nebraska	6.30%	34.94%	1.17%	-4.80%	19.47%	4.01%	-0.32%
Box Butte County	-6.99%	36.82%	29.89%	23.67%	-15.78%	6.72%	-3.03%
Lancaster County	14.03%	38.13%	45.62%	8.61%	-8.34%	2.63%	-0.30%
Scotts Bluff County	0.05%	45.62%	19.71%	-2.65%	11.38%	15.26%	0.35%

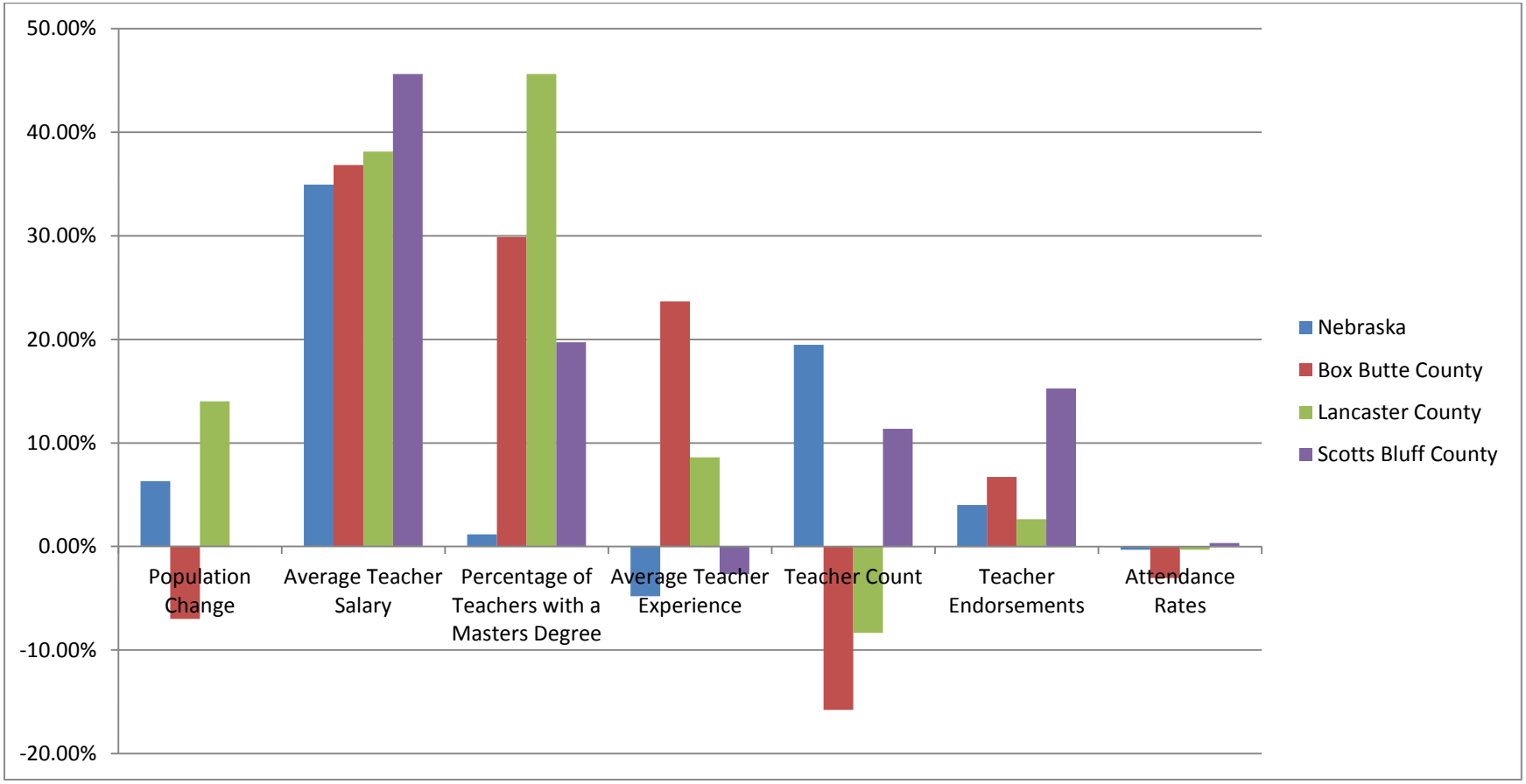


Chart 2.8: High School Factors

Teacher endorsements were all on the rise among the counties. However, the smallest changes occurred to the two places with the highest population growth, Nebraska and Lancaster County. Box Butte County and Scotts Bluff County showed greater increases. As stated previously, these large increases can be attributed to the low base numbers of 2000 in both these counties. Between 2000 and 2010, these counties must have worked to increase their teacher endorsement rates to similar levels held by Nebraska and Lancaster County. One reason why Box Butte County may have not been able to reach the same increase as Scotts Bluff could be lack of resources or inability to attract teachers to fill the endorsement needs. Population change sheds little light on attendance rates and education quality. Nebraska, Lancaster County, and Scotts Bluff County were within an increase or decrease of 0.30%. Box Butte County did have a decrease of -3.03% which would mean poorer education quality.

But how does this all relate back to the bigger question of population change and education quality? The hypotheses really do not fit any of the findings. When comparing Nebraska to the counties, it generally shows the smallest gains if not a decrease in the high school factors. This would lead to a poorer education quality and college readiness when compared to the counties. Box Butte County did align with the hypotheses in that they had a teacher count decrease and the second smallest increase in teacher salary as well as an attendance decrease which would be expected given the population decline. But, the decrease in teacher count appeared to have inflated average teacher experience as well as the percentage with a master's degree. These facts coupled with a high increase in teacher endorsements would lead to expectations of an improved education quality. Lancaster County saw similar results from their loss in overall teacher count leading to increases in teacher experience and percentage with a master's degree. It also had the second highest increase in teacher salary and though it had the

smallest teacher endorsements it still retained some of the highest base rates among the counties in the same factor. All things considered, Lancaster County would be expected to have an increase in education quality. Scotts Bluff County saw significant gains in all high school factors except teacher experience, which can be attributed to the increase in their teacher count. Given this, we would expect them to have the greatest education quality and college readiness increases among all the places considered in this research. The next chapter will continue to work towards explaining education quality and population change by examining socio-economic factors.

CHAPTER THREE: POPULATION CHANGE'S EFFECTS ON SOCIO-ECONOMIC STANDARDS

Socio-economic factors have a profound effect on student outcomes. As discussed in Chapter 1, their effects can even outweigh those attributed to the high school factors affecting a student's college readiness. It is for this reason that any robust examination into a county's ability to produce college ready students must take into consideration changing socio-economic factors as they relate to population change. For this study, six areas were considered. These areas include: students eligible for free and reduced meals; the percentage of the population with high school diploma only; the percentage of the population with a bachelor's degree of higher; mean household income; the percentage of families below the poverty line; and the percentage of language other than English spoken in the household. All of these factors are inter-connected. As the poverty rate increases so too does the percentage of students eligible for free and reduced meals. As the percentage of the population with a bachelor's degree or higher goes up, the percentage of the population with only a high school education goes down. When the population has higher degrees they can earn more money and the mean household income rises. And increases and decreases in the population can have an effect on all of these factors. The following chapter will examine each factor more closely and relate them to the fluctuations in population change. Overall, the factors will paint the socio-economic picture of the three counties and Nebraska between 2000 and 2010.

I. Students Eligible for Free and Reduced Meals

The first factor involved in this research is the percentage of students eligible for free and reduced meals. The rate of students eligible for free and reduced meals is calculated under federal guidelines based on family size, income, and benefits such as Food Stamps (Nebraska

Department of Education, 2010). This rate is important to consider because it shows the percentage of students who live in families that need extra assistance to survive. The factors might be indicative of potential future challenges funding post-secondary education. The results are presented in Table 3.1 and Chart 3.1. Turning to the data, Nebraska had an increase of 35.33% in its rate for students eligible for free and reduced meals. Box Butte County also saw an increase with a rise of 26.90%. Lancaster County experienced an increase of 43.48%, the highest among the counties, in its rate. Scotts Bluff County finished up the trend with an increase in its rate change as well with an increase of 21.47%.

Overall, every county and Nebraska had an increase in their percentage of students eligible for free and reduced meals over the ten years. The differences lie in the degree of change. Nebraska and Lancaster County, the two entities that saw population growth, saw significant increases in their rates. This leads to the assumption that lower income or families in need represented part of the population infusion. Box Butte County and Scotts Bluff County saw smaller increases in their rates of students on reduced lunches. These results go against the proposed hypotheses, in fact, the opposite occurs.

I argue that this is part of a greater issue that is present in each location. Nebraska, Box Butte County, and Scotts Bluff County all saw a baseline increase of Students Eligible for Free and Reduced Meals of around 10% over the last ten years, while Lancaster saw only a 6% increase. Even more so is Scotts Bluff County's 2010 baseline percentage which is nearing an astonishing 60% of student eligibility in the free and reduced lunch program. I would go so far as to suggest that this is a growing problem that is not limited to the effects of population change. Lancaster County is also concerning given the high percentage change. Lancaster has a greater population than the other counties so having the highest change in students eligible for free and

TABLE 3.1: Students Eligible for Free and Reduced Priced Meals												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	30.46%	31.23%	32.41%	33.93%	34.79%	34.66%	36.42%	37.33%	38.35%	41.22%	10.76%	35.33%
Box Butte County	31.63%	27.11%	28.49%	31.34%	33.36%	36.41%	41.17%	33.32%	37.18%	40.14%	8.51%	26.90%
Lancaster County	14.10%	15.33%	15.51%	15.99%	15.84%	16.71%	17.07%	18.22%	17.75%	20.23%	6.13%	43.48%
Scotts Bluff County	47.23%	47.35%	51.36%	52.26%	52.60%	48.97%	52.79%	50.64%	54.94%	57.37%	10.14%	21.47%

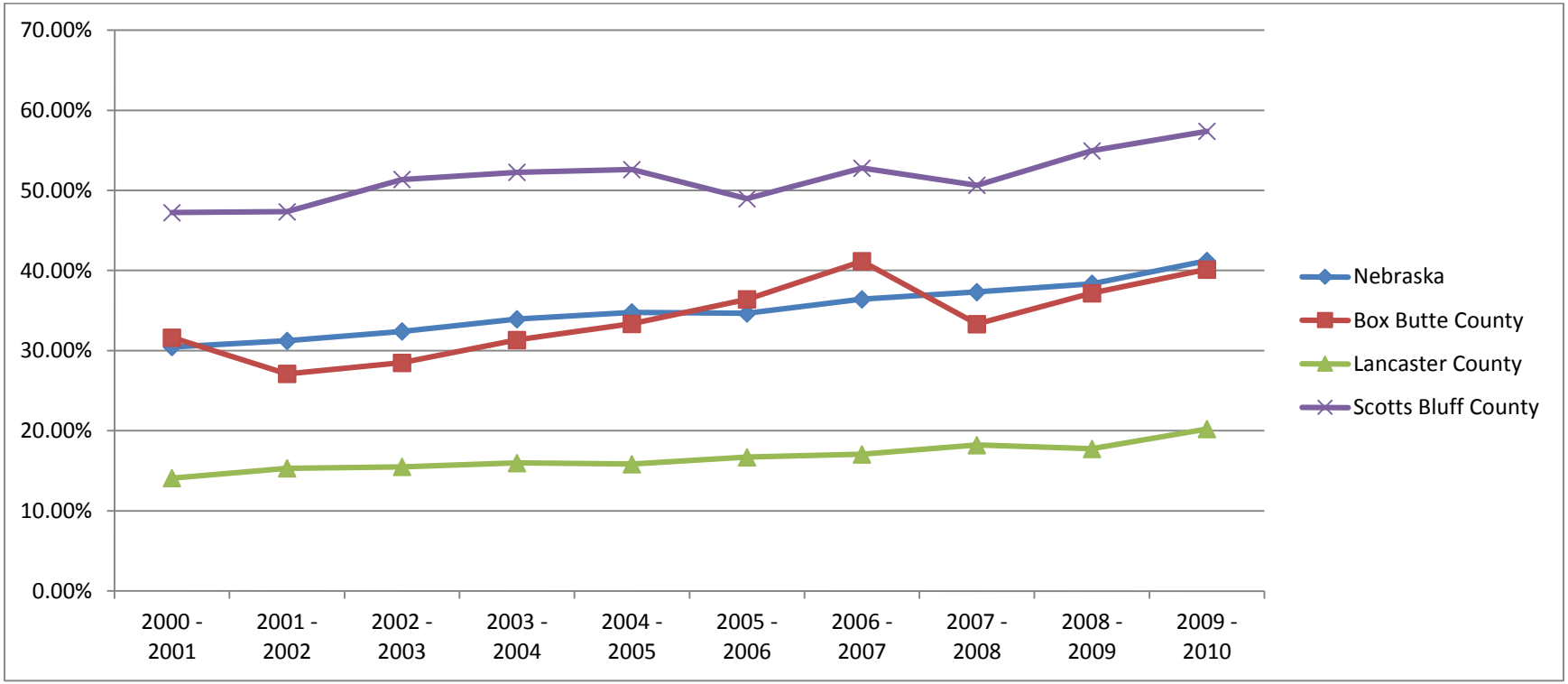


Chart 3.1: Students Eligible for Free and Reduced Price Meals

reduced meals means the effects of this factor are compounded. Overall, the steady increases present in all four locations are something that needs to be better understood and addressed.

II. Population with a High School Diploma Only and Population with a Bachelor's or Higher

The next two factors that were considered were the percentage of the population with a high school diploma only and the percentage of the population with a bachelor's degree or higher. These sets of data show the difference in the population between those who went on to college and earned at least a bachelor's degree and those who did not. This is important to distinguish, as studies have shown that students are more likely to have ideas of going to college and actually attending college when they are surrounded by adults who went to college. When examining the high school only data, a decrease would denote that more of the population sought and earned higher degrees; whereas, an increase would confer the opposite between 2000 and 2010. Most counties and Nebraska saw a decrease in the population to only seek a high school diploma which is shown in Table 3.2 and Chart 3.2. Nebraska saw a decrease of -12.62%. Box Butte County saw a decrease of -4.40%. Lancaster County experienced a negligible percentage change decrease of -0.17%. Scotts Bluff County saw the opposite happen with an increase of 6.90%.

I noticed several things after presenting the results. First, the hypotheses held if we compare the overall numbers. Box Butte County had the highest percentage of people who only had a high school diploma and Lancaster County had the lowest percentage of people with only a high school diploma. However, when we examine the percentage changes to account for the general trend within the ten years examined, the hypotheses did not hold. Nebraska, Box Butte

TABLE 3.2: High School Only				
	2000	2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	71.30%	62.30%	-9.00%	-12.62%
Box Butte County	72.80%	69.60%	-3.20%	-4.40%
Lancaster County	57.90%	57.80%	-0.10%	-0.17%
Scotts Bluff County	62.30%	66.60%	4.30%	6.90%

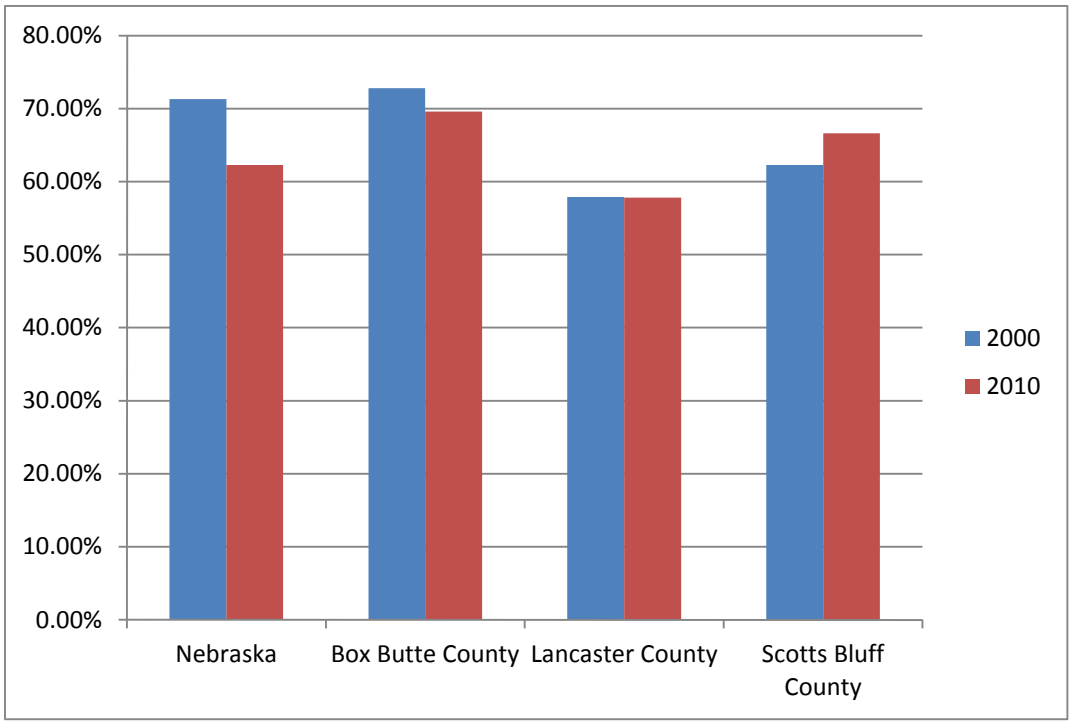


Chart 3.2: Percentage of the Population with Only a High School Diploma

County, and Lancaster County all experienced a decrease in the percentage of the population who only had a high school diploma; whereas, Scotts Bluff County had an increase. It was expected that Scotts Bluff would see little to no change. This difference is not attributed to graduating more high school students because Scotts Bluff saw an overall decline in its graduation rates between 2000 and 2010. Conversely, Lancaster County saw little change, which may again be attributed to its size as well as a possible ceiling of the population to only have a high school diploma. Another factor that could account for Lancaster County have the lowest high school diploma only rate is the large number of post-secondary institutions located within Lancaster County compared to the other counties. The increased presence of post-secondary institutions in general means that a college education is physically more readily available than other counties. Next, I will offer the results of the data on the percentage of the population with a Bachelor's degree or higher which may explain some of the trends seen with the high school diploma only rates.

The percentage of the population with a Bachelor's degree or higher covers all degrees obtained from post-secondary institutions that grant bachelor's degrees. This data set offered in Table 3.3 and Chart 3.3 allow a glimpse at Nebraska's success in college readiness and its ability to educate and retain people with higher degrees of education. However, I must note that this data is only representative of the population's degree attainment and not representative of the percentage of the population that may have received in-state degrees. It is for this reason that we can only consider this data set as a factor to college readiness. I infer that students who are surrounded by people who have been to college are more likely to go and succeed in a post-secondary institution. Considering the percentage change rates, the data shows some peculiar findings.

TABLE 3.3: Bachelor's Degree or Higher				
	2000	2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	15.30%	27.70%	12.40%	81.05%
Box Butte County	15.30%	19.50%	4.20%	27.45%
Lancaster County	32.60%	35.30%	2.70%	8.28%
Scotts Bluff County	17.30%	19.50%	2.20%	12.72%

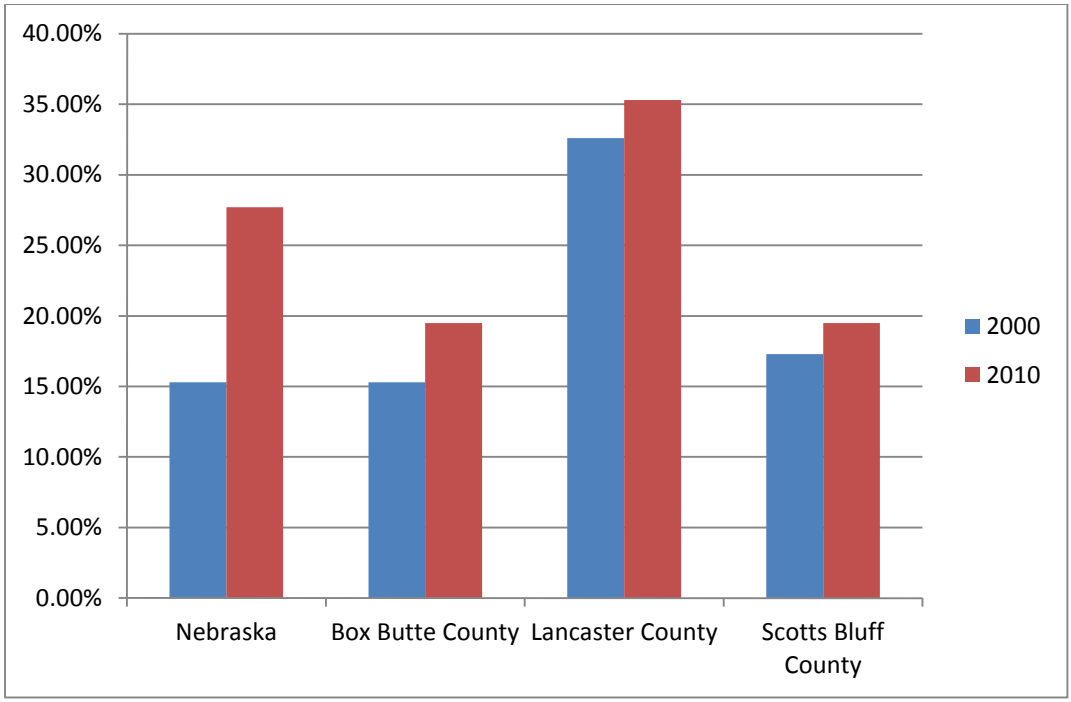


Chart 3.3: Percentage of the Population with a Bachelor's Degree or Higher

First, Nebraska saw a substantial increase in its rate with an increase of 81.05%. Box Butte County had an increase of 27.45%. Lancaster County and Scotts Bluff County also showed increases of 8.28% and 12.72% respectively.

I observed that Nebraska and the counties all experienced some degree of an increase in their percentage of the population with a bachelor's degree. However, the degree of these changes suggests some links to the hypotheses. I expected Box Butte County to have the smallest change, Lancaster County would have the highest, and Scotts Bluff County would be somewhere in between. The opposite was true according to the data. Box Butte County had the largest increase and Lancaster County had the smallest increase. This could be related to the base percentages for 2000 and 2010 which shows that Lancaster County had roughly double the percentage rates when compared to the other two counties. This would mean that Lancaster County may be inching closer to a ceiling in percentage of the population with a bachelor's degree or higher. The reason why Lancaster County had the smallest change is because Box Butte County and Scotts Bluff County have finally reached the overall percentages to similar levels of Lancaster County. However, Box Butte County's larger jump compared to Scotts Bluff could be attributed to the outflow of its population with lower levels of education from the county, thus raising the overall percentage. Nevertheless, Nebraska's increase of 81.05% is extremely surprising given the ten years of time considered. This large change is tied again to Nebraska's low baseline numbers in 2000 compared to 2010. Education attainment levels of a county's population offers one side of the socio-economic factors that affect college readiness. Simply having the encouragement of college graduates is not enough to get into college; one must also consider the means to pay for post-secondary education. This is where the next data set

comes in which examines changes in mean household income as well as families below the poverty line.

III. Mean Household Income

The data on mean household income is collected and put together by the United States Census Bureau. They define mean household income as the total aggregate income of a group divided by the number of units in that same group. The total aggregate includes anyone who is fifteen years or older with an income (United States Department of Commerce, 2011). When analyzing this data presented in Table 3.4 and Chart 3.4, it is held that a higher mean household income would yield to a greater likelihood that a family could afford to send their child to a post-secondary institution. When considering the percentage changes, the data supports the hypotheses. Nebraska saw an increase of 30.21%. Box Butte County saw an increase of 18.44%. Lancaster County had an increase of 27.78%. And lastly, Scotts Bluff County had an increase of 23.29%. As expected, the county with the population decline, Box Butte County, experienced the smallest growth in the mean household income. Lancaster County, the county with population growth, had the largest increase in mean household income among the counties. Scotts Bluff and Nebraska are somewhere in between Box Butte County and Lancaster County.

Even though the percentage change data supports the hypotheses, it is equally important to analyze the actual dollar amount of the mean household income. This is because post-secondary education offers an equal price to all students, which is to say that a degree in political science at the University of Nebraska – Lincoln costs the same amount to a student from any of the three counties or Nebraska at-large. This offers a second robustness check as the percentage change may show an overall high increase but the actual mean household income may be well behind the other counties, thus having an effect on the family's ability to afford post-secondary

TABLE 3.4: Mean Household Income				
	2000	2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	$48,160.00	$62,707.00	$14,547.00	30.21%
Box Butte County	$45,552.00	$53,953.00	$8,401.00	18.44%
Lancaster County	$50,073.00	$63,984.00	$13,911.00	27.78%
Scotts Bluff County	$41,700.00	$51,411.00	$9,711.00	23.29%

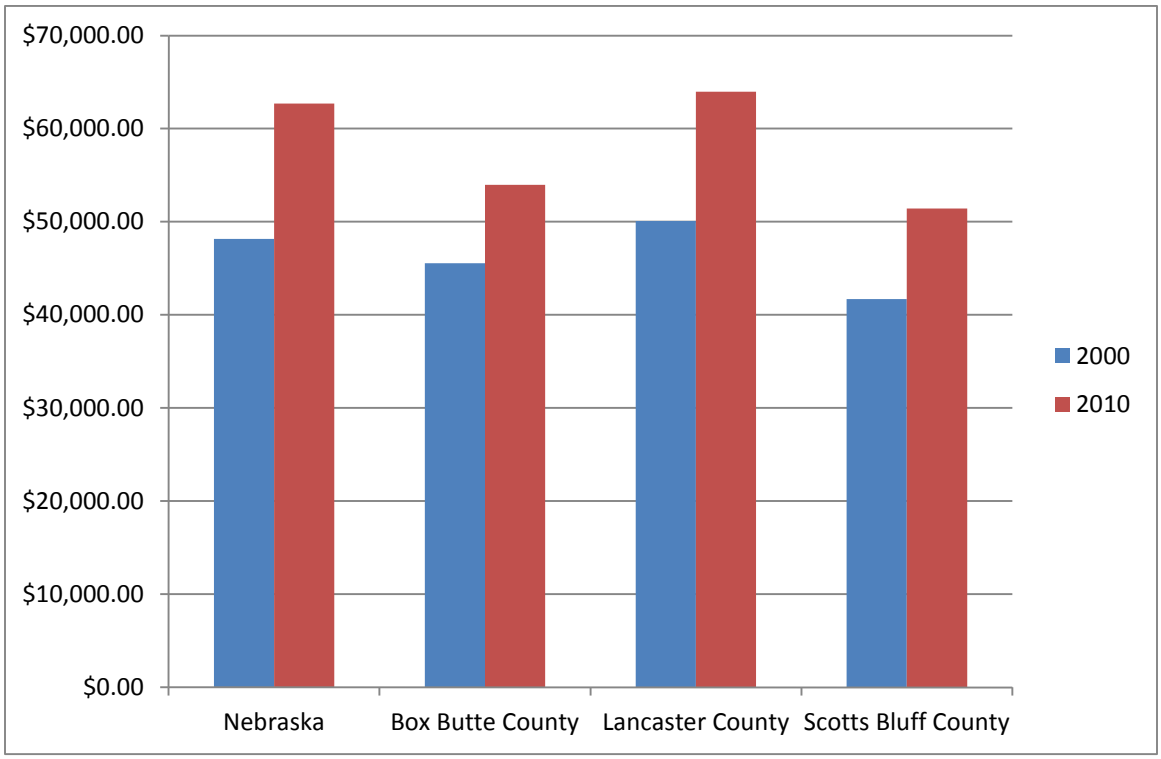


Chart 3.4: Mean Household Income

education. It is important to note that when considering mean household income in relation to a family's ability to afford post-secondary education, I do not take into account certain social policies meant to combat poverty such as low income scholarships and financial aid. This research looks strictly at the family's ability to pay. Considering those factors, the results show that the mean household income data for 2010 are as follows: Nebraska, $62,707; Box Butte County, $53,953; Lancaster County, $63,984; and Scotts Bluff County, $51,411. These results show a different picture of the ability for a family to afford to send their child to a post-secondary institution. Rather than being in last place, as stated in the hypotheses, Box Butte County is actually in second place among the counties. This could be from the population shift of lower income families leaving the county, as seen through the other socio-economic factors. Lancaster County still holds as the county with the highest mean household income. Scotts Bluff shows the lowest mean household income among the counties, which again could be a result of Box Butte's changing population base. To contrast from changes in the mean household income, I also considered the effects of changes in the rate of families below the poverty line, which will be discussed next.

IV. Families Below the Poverty Line

The United States Census Bureau calculates the poverty rate by calculating the poverty threshold, which looks at the family's total income as well as the size of the family. If the total income is less than the calculated threshold then that family is considered in poverty. The Census Bureau updates these thresholds not by geography but through the Consumer Price Index over time (United States Department of Commerce, 2013). This means that changes in the cost of living across the United States is not a factor in the poverty threshold, but rather a general change in the cost of living is considered.

TABLE 3.5: Families Below the Poverty Line				
	2000	2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	6.70%	7.90%	1.20%	17.91%
Box Butte County	9.70%	9.50%	-0.20%	-2.06%
Lancaster County	5.50%	7.70%	2.20%	40.00%
Scotts Bluff County	11.00%	11.90%	0.90%	8.18%

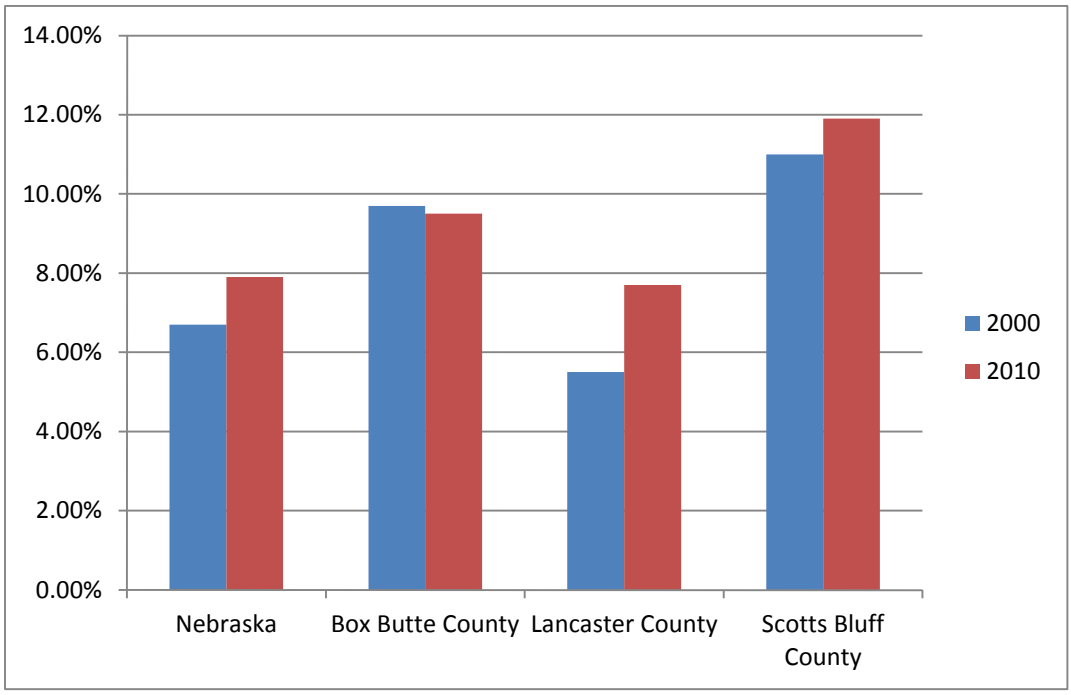


Chart 3.5: Families Below the Poverty Line

The data collected and shown in Table 3.5 and Chart 3.5 in this research is "families below the poverty line" which means only families are considered in the poverty rate and not individuals. Moving to the data, Nebraska experienced a percentage change increase of 17.91%. Box Butte County saw a decrease in its percentage change with -2.06%. Lancaster County went through a significant increase in its percentage change with 40.00%. Scotts Bluff County also saw an increase of 8.18%.These results are not surprising given what has been learned about the effects of population change in the counties. First, every county and Nebraska saw an increase in the percentage of families below the poverty line except Box Butte County. Box Butte's decrease further suggests the possibility that lower income families have moved out of Box Butte County leaving higher wage earners behind and decreasing the poverty rate. Once more we see that Scotts Bluff also has a changing demographic in that they saw little difference in population change but still experienced an increase in its families below the poverty line. Lancaster County undoubtedly showed a large increase in its poverty base, which gives credit to the idea that the population moving in may be lower income earners.

As discussed with the mean household income, it is also important to consider the actual percentage rates for each county. In 2010, Nebraska had 7.90% of its families below the poverty line. Box Butte County, Lancaster County, and Scotts Bluff County had the following rates: 9.50%, 7.70%, and 11.90%. This shows that though Lancaster County saw a significant increase in its percentage change, it still had the lowest rate for families below the poverty line. Box Butte County and Scotts Bluff County have around ten percent of their population of families below the poverty line by the same token. The poverty rates show a different story of the population when compared to mean household income and the education attainment rates for the counties.

Even further still, the next factor looks at the languages spoken in the home to consider a final socio-economic factor.

V. Languages Other than English Spoken in the Household

The final data set considered in this research was from the United States Census Bureau and their information on languages other than English spoken in the household. This data includes persons in the population who always or sometimes spoke a different language other than English in the home but excludes persons who use the language outside of the home or only uses slang terms. This data also only includes persons over five years of age (United States Department of Commerce). For the purposes of this research, an increase in the rate of language other than English spoken in the household would have a negative effect on a student's ability to succeed in college readiness. This is because of possible language barriers between education professionals and the student as well as a lack of English language reinforcement in the home. Considering those stipulations Table 3.6 and Chart 3.6 show that Nebraska saw a percentage change increase of 22.78%. Box Butte saw a decrease in its rate by -6.94%. Lancaster County had an increase in its percentage change with 18.18%. Scotts Bluff County, like Box Butte County, experienced a decrease in its percentage change of the population speaking a language other than English in the household with -8.76%.

From the onset of the study, I did not know what to expect from this factor. In terms of education, I held that being immersed in one or more languages other than English can have adverse effects on college readiness. A report from the National Education Association outlines challenges that English Language Learners (ELL) have in education. Those challenges include a lack of teacher ability to address needs as well as trends that show ELL students have lower academic achievement and high dropout rates (Roekel, 2008).

TABLE 3.6: Language Other than English Spoken in the Household - Age 5+				
	2000	2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	7.90%	9.70%	1.80%	22.78%
Box Butte County	7.20%	6.70%	-0.50%	-6.94%
Lancaster County	8.80%	10.40%	1.60%	18.18%
Scotts Bluff County	13.70%	12.50%	-1.20%	-8.76%

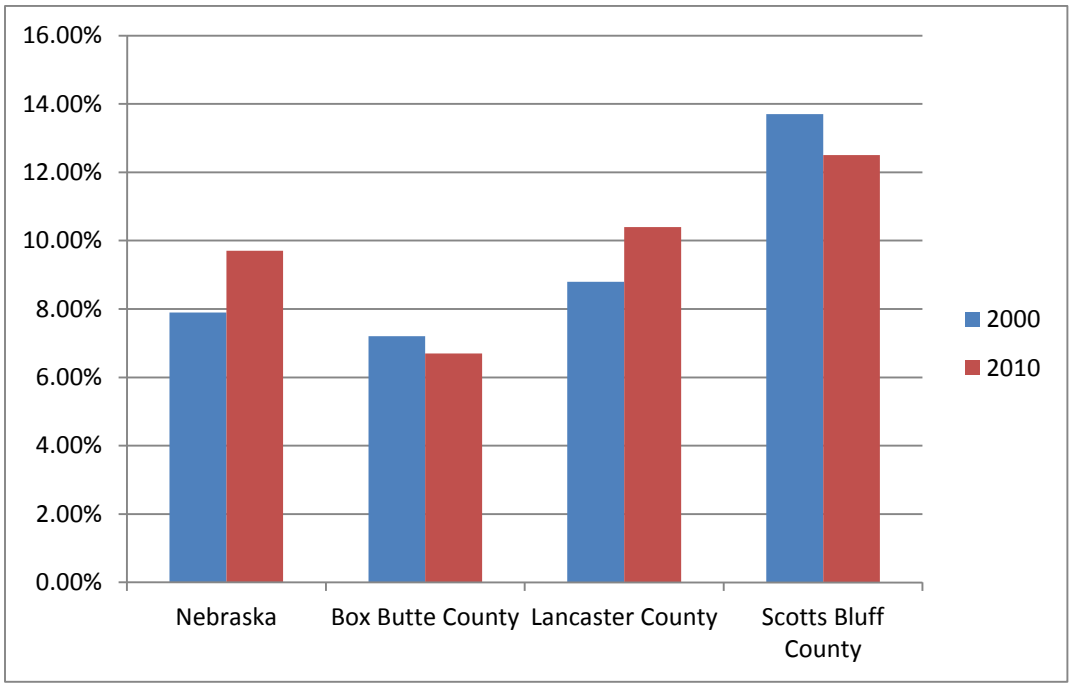


Chart 3.6: Language Other than English in the Household – Age 5+

This factor does not differentiate between ELL and ESL (English as a Second Language). From this, I included this factor as another check or explanation to changes in college readiness to contrast from the underlying population change hypothesis. The data shows otherwise. In fact Box Butte County and Scotts Bluff County are found to have had decreases in this factor. Conversely, Nebraska and Lancaster County see substantial increases. This means that the population growth that Nebraska and Lancaster County experienced over the last ten years also contributed to an increase in the population speaking a different language at home, which could lead to increased challenges to educators, whereas Box Butte County and Scotts Bluff County could see less of a negative side effect from this factor.

VI. Summary of Socio-Economic Factors

The socio-economic data collected and analyzed also shows several trends that are presented in Table 3.8 and Chart 3.8. The two places with population growth, Nebraska and Lancaster County, had the highest increases in the following: students eligible for free and reduced meals; mean household income; families below the poverty line; and language other than English spoken in the household. There is a connection within the data as the families below the poverty line increase so does the students eligible for free and reduced meals also increases. This trend goes against the hypotheses in that ultimately these factor increases should have a negative effect on college readiness. These locations have the highest mean income increases which are coupled with large increases in students eligible for free and reduced meals, families below the poverty line, and language other than English spoken in the household. The opposite is true for Box Butte County and Scotts Bluff County who saw favorable education quality in college readiness.

TABLE 3.7: Socio-Economic Factors							
	Population Change	Students Eligible for Free and Reduced Meals	High School Graduation or Higher	Bachelors Degree or Higher	Mean Household Income	Families Below the Poverty Line	Language other than English Spoken in Household
Nebraska	6.30%	35.33%	3.93%	81.05%	30.21%	17.91%	22.78%
Box Butte County	-6.99%	26.90%	1.14%	27.45%	18.44%	-2.06%	-6.94%
Lancaster County	14.03%	43.48%	2.87%	8.28%	27.78%	40.00%	18.18%
Scotts Bluff County	0.05%	21.47%	8.17%	12.72%	23.29%	8.18%	-8.76%

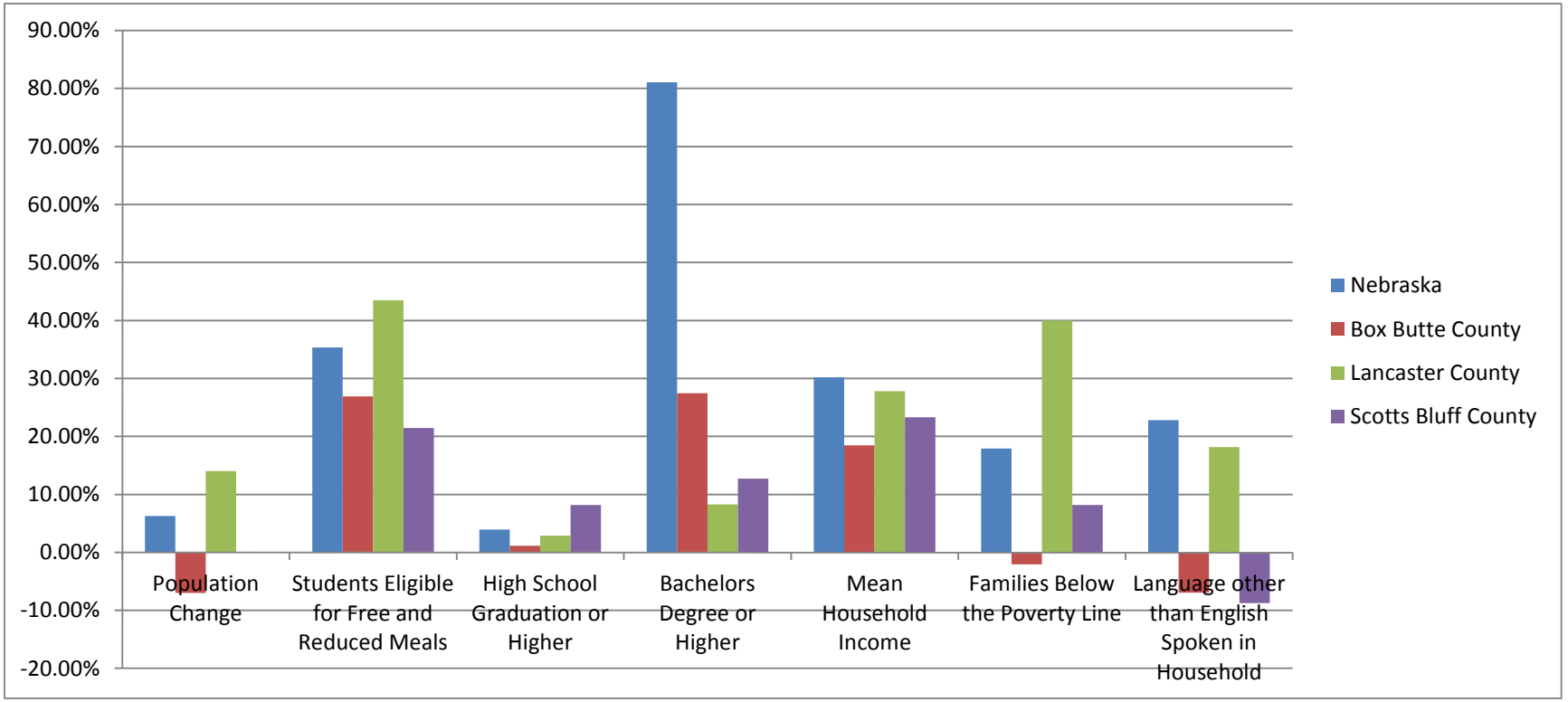


Chart 3.8: Socio-Economic Factors

Though they saw smaller increases in mean household income, they also had smaller increases in students eligible for free and reduced meals and families below the poverty line. They even had decreases in the rate of language other than English spoken in the household. All of this would lend to a more favorable college readiness environment when compared to Nebraska and Lancaster County.

The last two data sets contributing to the socio-economic factor category are the percentage of the population with only a high school diploma and the percentage of the population with a bachelor's degree or higher. These factors would have the greatest positive effects in Nebraska and Box Butte County, whom experienced the highest decreases and increases among the counties, with decreases in only high school diplomas and increases in bachelor's degree or higher. Lancaster County's percentage of the population with only a high school diploma shows very little change, which would lead to a similarly small effect on education quality. Its percentage of the population with a bachelor's degree or higher showed the lowest increase among the counties which means it would have the smallest effect on education quality among the counties.

Finally, Scotts Bluff County's rates are somewhat unexpected. Their percentage of the population with only a high school diploma had an increase rather than the decrease experienced by all of the other places. This could be attributed to a greater proportion of their population receiving a high school education, however, later it is found that their graduation rate shows little change and that their dropout rate increased by a percentage change of nearly 85%. Equally strange is that Scotts Bluff County's percentage of the population with a bachelor's degree or higher increases between 2000 and 2010. I expected, as in the case of all the other places when accounting for population change, that in a county with little to no population change and an

increase in the population with only a high school diploma would also have no change or a decline in the percentage of the population with a bachelor's degree or higher and visa-versa. The only explanation that I can think of would be attributed to out-of-state population migration, with people without a high school diploma moving out and people with a high school diploma or higher moving in. In either case, Scotts Bluff County should see favorable conditions for education quality and college readiness given these factors. The next chapter will look into the actual results of education quality among the places considered by examining several college readiness indicators.

CHAPTER FOUR: POPULATION CHANGE AND COLLEGE READINESS

The final data sets included in this research were chosen for their accountability measures. They provide evaluation of Nebraska's education system and its effectiveness with regards to college readiness. The factors are divided into three areas: academic standards, ACT Scores, and graduation and drop our rates. Combined these factors will show how population change and its effects on the high school factors and socio-economic lead to change in education quality, the main purpose of this research. To begin, I present an explain Nebraska academic standards.

I. Academic Standards

Nebraska's academic standards have gone through a massive transformation over the last decade. The State has gone from testing specific grades on a few academic disciplines every few years to testing most grades on a variety of academic disciplines. Though education reform is good, it creates several complications for researchers when examining test results. First, with regards to the academic disciplines tested, it was not until the mid-2000s that Nebraska started to test high school students every year consistently. Second, not all academic disciplines retained the same academic standards and in turn the same examinations through time. Between 2000 and 2010, Nebraska went through a couple academic standards accountability systems. The first accountability system was referenced only by general federal and state regulations. The second accountability program, through the enactment of No Child Left Behind Act in 2002, Nebraska implemented the School-based Teacher-led Assessment and Reporting System (STARS) as their accountability measure to the federal government as well as the State of Nebraska. Nebraska was the only state to not implement state-wide testing standards but rather local assessments that were then reported the Nebraska Department of Education (Steptoe, 2007). The most current

accountability program is the Nebraska Performance Accountability System (NePAS) which offers academic standards testing called Nebraska State Assessments (NeSA) (Nebraska Department of Education, 2014). This accountability program is still being implemented today as the STARS program is phased out. The third issue surrounding Nebraska academic standards is that some data has been masked by the Nebraska Department of Education to protect the identities of students.

However, the cross-examination of the counties as well as the state of Nebraska, offer two checks on this problem. By comparing each county to itself as well as the other counties over time, we can see how changes in the academic standards affected each county and control for any changes. Because every county went through the same state-wide changes, any problems or issues that resulted from the changes in each county can be compared to that of the other counties. That being said, the three academic standards I considered were reading, mathematics, and writing. The results of the academic standards are presented into four categories: beginning, progressing, proficient, and advanced (Nebraska Department of Education, 2001). These categories do change over time so for the purposes of this research all data is tabulated as either proficient or not proficient, where beginning and progressing categories are considered "not proficient" and proficient and advanced categories are considered "proficient." The data collected covers all examinations taken between 2000 and 2010. An examination of the reading standard results will be the first one discussed.

Reading Standards

The reading standard of Nebraska assesses a variety of reading, speaking, and listening standards (Nebraska Department of Education, 2001). These results are shown in Table 4.1 and Chart 4.1. Nebraska experienced a decline in its percentage change of its proficiency level by -

10.83%. Box Butte County also had a decline of -2.11%. Lancaster County saw an increase in its proficiency levels in reading by a percentage change of 14.13%. And Scotts Bluff County had an increase of 10.53% in its percentage change. The results of the change in reading standards fit with the underlying hypotheses. Lancaster County saw the highest change, as the hypotheses suggest should be consistent with the population increase. Scotts Bluff County saw a slightly smaller increase. Box Butte County had a decline in its reading proficiency levels. Nebraska also saw a sharp decline, which could be attributed to uneven population growth across the state. Nebraska's southeastern counties have experienced disproportional growth compared to other counties. So even though Nebraska as a whole had an increase in its population, the majority of counties that did not may be bringing down the state average of reading proficiency levels.

Mathematics Standard

The next academic standard is mathematics. Eleventh grade students are tested on twenty-four different criteria that range from justifying mathematical solutions to calculating the probability of events (Nebraska Department of Education, 2010). The data is presented in Table 4.2 and Chart 4.2. After analyzing the data from the Nebraska Department of Education, Nebraska went through an increase in its percentage change in mathematics by 27.14%. Box Butte County saw an increase of 15.05% and Lancaster County saw an increase as well with a percentage change of 37.43%. Scotts Bluff County experienced the largest percentage change with an increase of 59.80%. Turning again to the hypotheses, Box Butte County's mathematics results fit in that they are the lowest among the counties. Nebraska's rate change also holds up to the hypotheses in that they saw an increase in population and an increase in mathematics proficiency levels. Lancaster also saw an increase, which fits with the hypotheses as well.

TABLE 4.1: Reading Standards										
	2000 - 2001	2002 - 2003	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	76.71%	77.25%	83.19%	85.74%	87.24%	89.34%	91.54%	68.40%	-8.31%	-10.83%
Box Butte County	64.92%	77.03%	77.69%	82.88%	82.57%	91.48%	85.65%	63.55%	-1.37%	-2.11%
Lancaster County	65.69%	68.72%	79.80%	85.26%	87.96%	97.48%	96.75%	74.97%	9.28%	14.13%
Scotts Bluff County	64.40%	70.40%	72.43%	68.44%	78.58%	84.38%	84.74%	71.18%	6.78%	10.53%

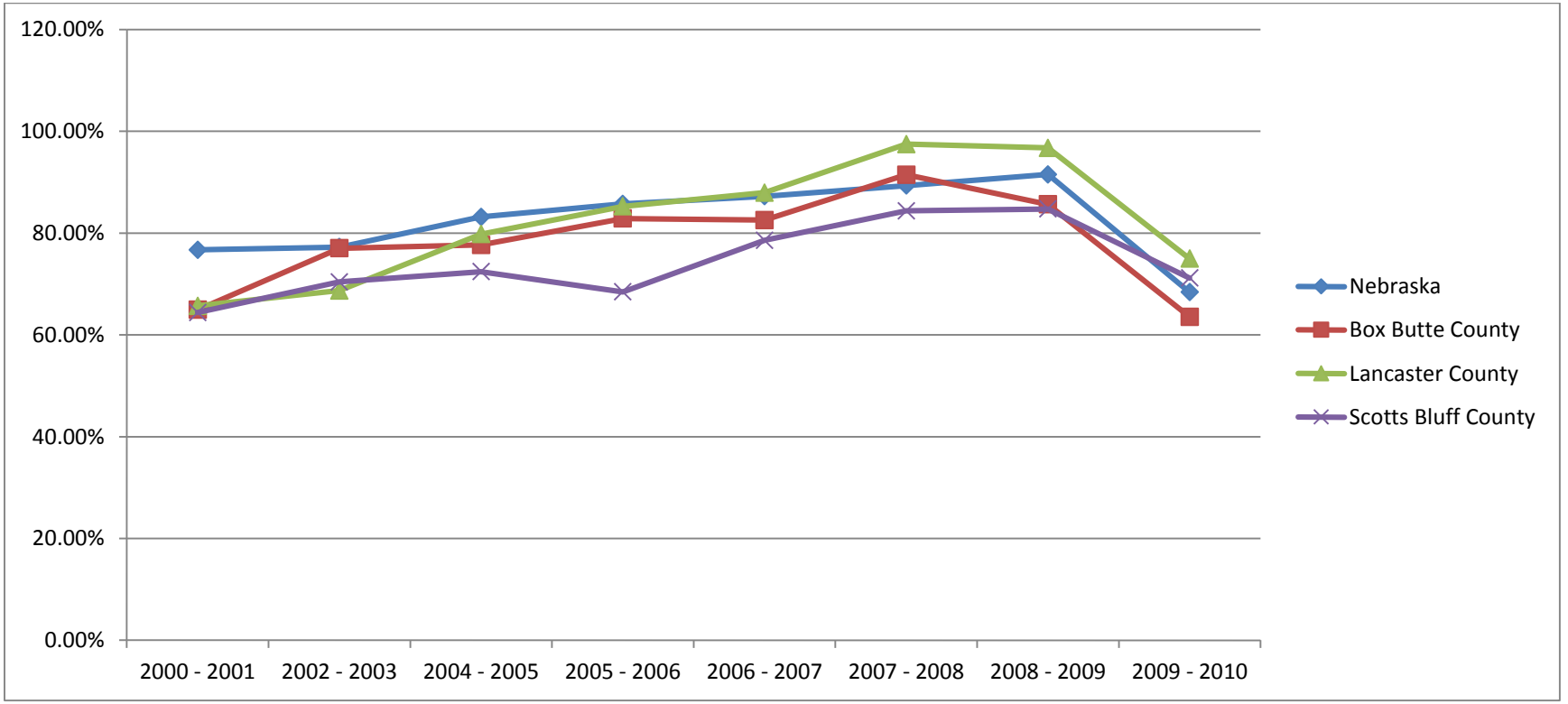


Chart 4.1: Reading Standards

TABLE 4.2: Mathematics Standards										
	2001 - 2002	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	71.01%	75.11%	77.70%	81.54%	84.64%	85.87%	89.97%	90.28%	19.27%	27.14%
Box Butte County	73.54%	73.98%	79.79%	82.73%	78.40%	80.49%	82.57%	84.61%	11.07%	15.05%
Lancaster County	64.52%	72.76%	77.77%	80.71%	83.49%	88.14%	89.20%	88.67%	24.15%	37.43%
Scotts Bluff County	57.09%	46.71%	67.26%	60.74%	73.57%	81.18%	83.09%	91.23%	34.14%	59.80%

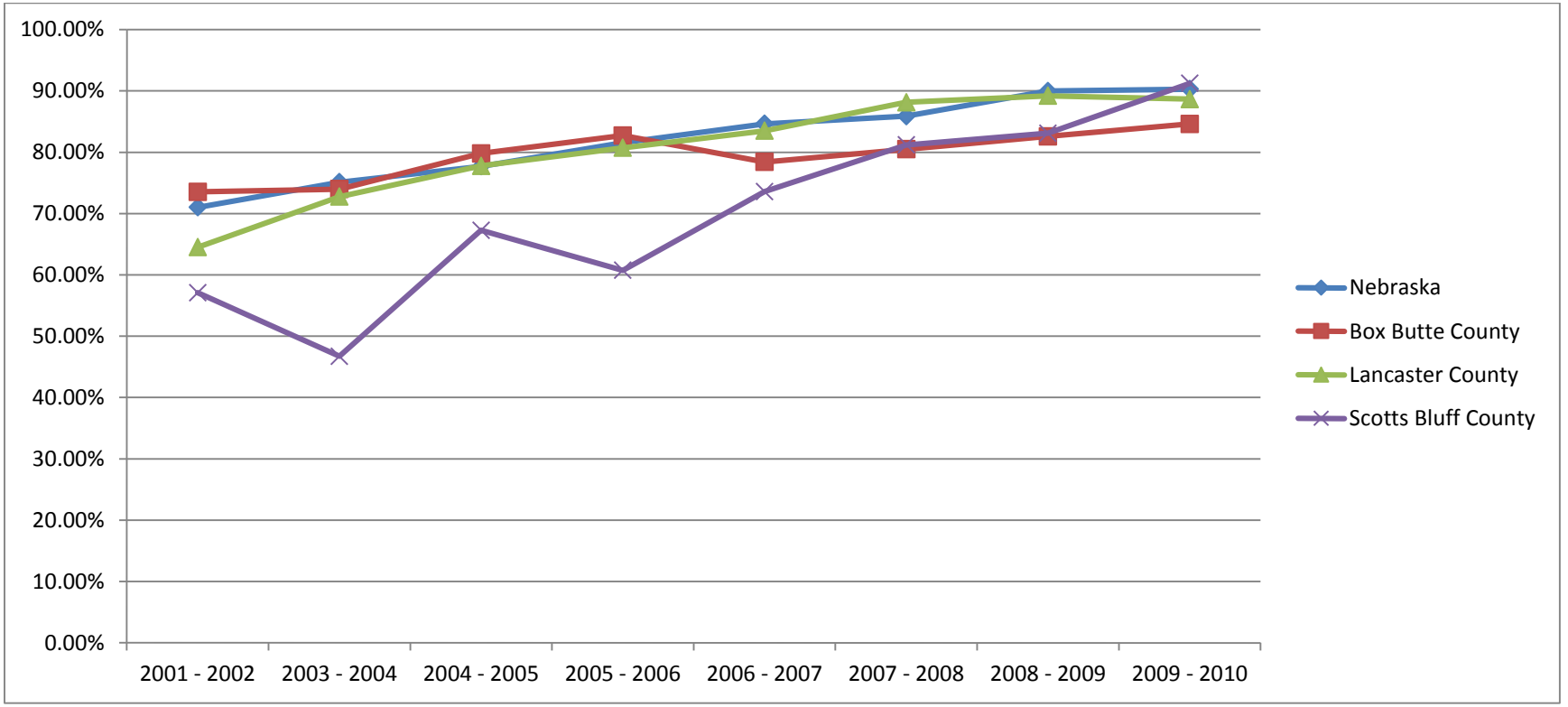


Chart 4.2: Mathematics Standards

Scotts Bluff County is again the odd man out in that it is expected to have little change or at least have a change between Box Butte County and Lancaster County, the low and high of the research. This large increase can be attributed in part to Scotts Bluff County's base number in 2000, which was a proficiency level of 57.09% which was the lowest among the counties. There 2010 proficiency level was 91.23%, a considerable change over ten years. However, Scotts Bluff County's 2010 mathematics proficiency level goes even further in that it is the highest among all the counties and Nebraska. The mathematics standard highlights several linkages to population change. Nebraska, Box Butte County, and Lancaster County were all in line to the underlining hypotheses. Scotts Bluff County, often times the black sheep in this study, saw the largest percentage change which again was attributed to their baseline numbers. Moving on from the mathematics standard, the last standard considered was writing.

Writing Standard

The writing standard of Nebraska is assessed through a statewide writing assessment. Papers are scored through an in-state process and verified by an out-of-state scoring agency (Nebraska Department of Education, 2001). The results for the writing standards are very similar to the mathematics results in terms of which counties had increases and their rank among each other. The results are shown in Table 4.3 and Chart 4.3. Nebraska had a percentage change increase of 8.06%. Box Butte County saw a relatively small increase of 1.93%. Lancaster County had a percentage change increase of 6.60%. Lastly, Scotts Bluff experienced the second largest percentage change with an increase of 7.60%. Like the mathematics standard, the writing standard supports the hypotheses that Box Butte County has the lowest growth rate. It also supports the idea that counties with population growth, Lancaster County and Nebraska to an extent, showed signs of increased writing proficiency.

TABLE 4.3: Writing Standards									
	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	87.39%	89.52%	90.00%	91.04%	94.30%	93.98%	94.43%	7.04%	8.06%
Box Butte County	91.69%	85.20%	86.41%	96.18%	94.70%	97.04%	93.46%	1.77%	1.93%
Lancaster County	89.66%	89.76%	85.53%	92.80%	93.33%	95.08%	95.58%	5.92%	6.60%
Scotts Bluff County	89.92%	89.86%	80.36%	91.84%	93.47%	94.57%	96.75%	6.83%	7.60%

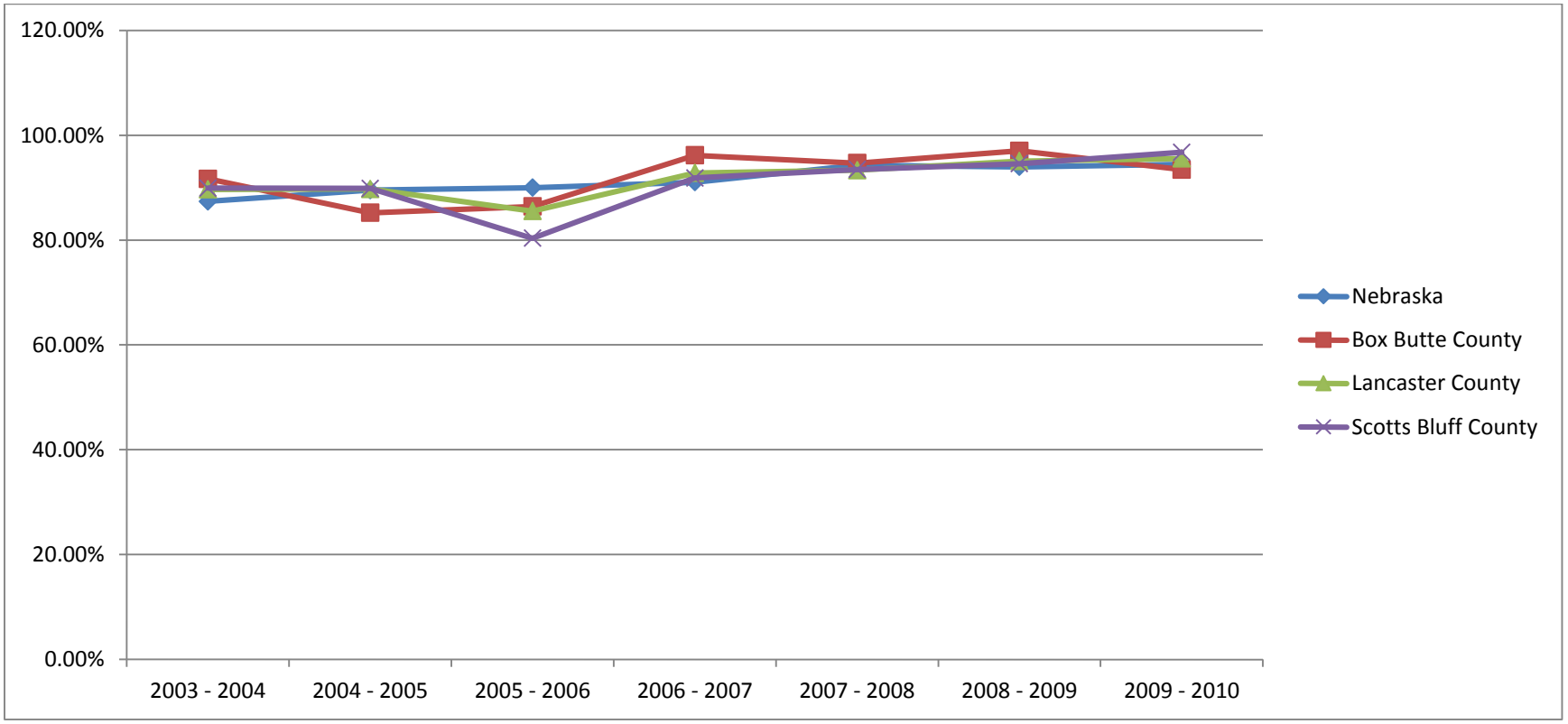


Chart 4.3: Writing Standards

Scotts Bluff presented another discrepancy in what is typically expected. When looking at the base rates, Scotts Bluff shows that it had the highest writing proficiency among the counties and Nebraska with a rate of 96.75%. Though academic standards shows how well students in Nebraska do in various fields, the examinations are created within Nebraska.

In summarizing state standards, I was able to find a few trends. First, mathematics and writing standards showed positive increases for all locations. There were some differences in the degree of those positive increases experienced which was linked to possible population change effects. The reading standards results actually brought to light several linkages to high school factors and their effects on college readiness. Nebraska and Box Butte County both saw declines in reading standards which were tied to changes in state reading assessments. Nebraska's large reading standards decline is further tied to its drops in language arts endorsements for its teachers as well as younger overall teachers for the state. Overall, state standards offer a localized assessment of student's educational knowledge. In order to get a wider examination of college readiness across Nebraska, it is necessary to include national assessments like ACT scores, which I discuss next.

II. ACT Scores

The second college readiness factor is the aggregated ACT scores for each county. For these results, data was collected from each school district and averaged for an overall district ACT score for each county for every academic year starting with the 2000 – 2001 academic year and ending with 2009 – 2010 academic year. It is important to note one variation in the data collection method when referencing ACT scores. For two sets of academic years, 2002 – 2003 and 2003 – 2004, the Nebraska Department of Education split the ACT scores into two categories. The categories were labeled "Average Score of Students Who Took Core Courses or

More" and "Average Score of Students Who Took Less Than Core Courses". The category "students who took core courses" was further defined as students who took at least four years of English, and three years of mathematics, social studies, and natural sciences (Nebraska Department of Education, 2003 and Nebraska Department of Education, 2004). For the purposes of this study, the two scores were averaged to create a single ACT score for each district and then were further aggregated to the county level like all other education measures. The results are represented through Table 4.4 and Graph 4.4.

It's observed that the overall percentage change in each county's ACT scores. Nebraska saw an increase in its percentage change with 2.31% and an overall net change of 0.50 ACT points. Box Butte County shows a net increase of 0.70 ACT points which represents an overall positive percentage change of 3.51%. Lancaster County shows similar results with an overall net increase of 0.56 ACT points for an overall positive percentage change of 2.58%. Scotts Bluff County is different from the other two counties in that they experienced an overall decline of 0.04 ACT points with a negative percentage change of 0.20%. Comparing these results to the population change we see that the hypothesis that a county with a population increase will have positive education quality results holds. The hypothesis that a county with relatively no population change will have relatively no effect on education quality holds some weight with regard to Scotts Bluff's ACT scores in that they only experienced a small change. This offers a striking difference when compared to the state academic factors considered in the last section. However, the idea that a county that experienced a population decline would show a decline in education quality did not hold for Box Butte as its relation of ACT scores shows an overall increase, the highest among the observed counties, rather than a decrease.

TABLE 4.4: ACT Scores												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	21.60	21.70	21.70	21.20	21.80	21.90	22.10	22.10	22.10	22.10	0.50	2.31%
Box Butte County	19.95	19.90	20.63	21.20	21.25	20.90	20.30	21.45	20.40	20.65	0.70	3.51%
Lancaster County	21.72	22.30	21.93	21.12	22.46	22.28	21.78	22.54	22.48	22.28	0.56	2.58%
Scotts Bluff County	20.20	20.95	21.08	20.47	20.75	20.82	21.14	21.35	20.88	20.16	-0.04	-0.20%

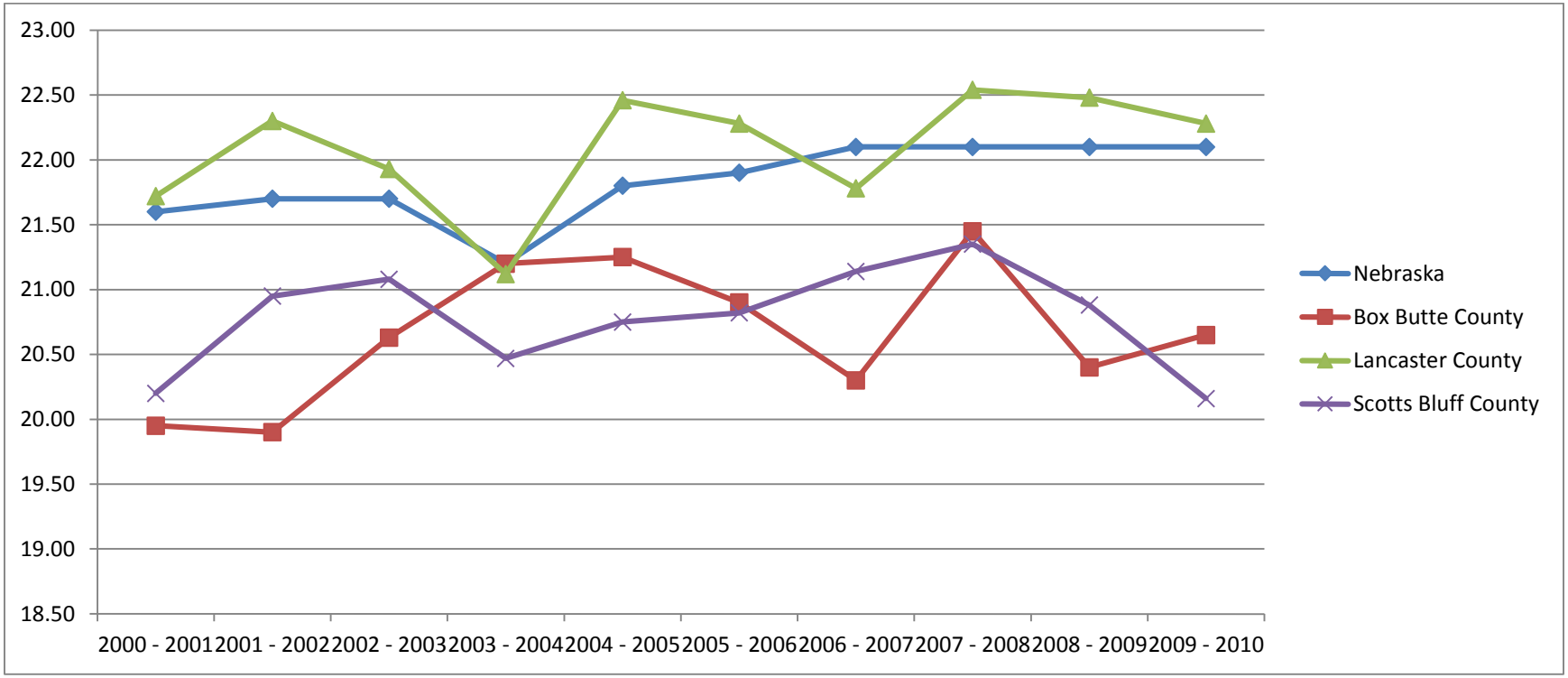


Chart 4.4: ACT Scores

ACT scores offers a check on college readiness in that it is a national examination that is administered across the United States.

Given that Nebraska's state academic accountability examinations are created and administered at the local level, some counties may be teaching different standards than those expressed in the ACT examinations. This may be the case in Scotts Bluff County given the higher state academic standards proficiency levels and the low ACT score average. To combat differing results between academic standards and ACT scores, the inclusion of graduation rates and dropout rates are offered to provide a greater understanding of the college readiness atmosphere.

III. Graduation Rates and Dropout Rates

The next factor I discuss is graduation rates. This data was collected by gathering district totals and then averaging the rates to the county level. The results represented in Table 4.5 and Graph 4.5 show several things. First, Nebraska saw a percentage change increase of 6.09%. Box Butte County and Lancaster also saw increases in their graduation rate percentage changes with 2.78% and 4.98% respectively. Scotts Bluff County saw only a slight increase in its percentage change rate with 0.23%. It should be noted that the graduation rate formula used by the Nebraska Department of Education was revised during the ten year span we have observed. It was revised after the 2001 – 2002 academic year from the traditional twelfth grade graduation rate to a four-year high school cohort (Nebraska Department of Education, 2003). The twelfth grade graduation rate was calculated by dividing the total number of students who received a diploma at the end of the school year by the previous fall twelfth grade enrollment number (Nebraksa Department of Education, 2002).

Mathematically, the twelfth grade graduation rate is represented by the following equation:

(High School Diploma Recipients) / (Previous Fall 12th Grade Enrollment)

The four year high school cohort graduation rate is calculated by dividing the high school diploma recipient number in year four by the total number of dropouts from grades nine through twelve (years one through four) and the high school diploma recipient number in year four (Nebraska Department of Educaiton, 2003). The formula representation of the four-year high school cohort graduation rate is as follows:

[High School Diploma Recipients (Year 4)] / {Dropouts [Grade 9 (Year 1)] + Dropouts [Grade 10 (Year 2)] + Dropouts [Grade 11 (Year 3)] + Dropouts [Grade 12 (Year 4)] + [High School Diploma Recipients (Year 4)]}

The main purposes of the changes were to more accurately represent the true graduation rate of a single graduating class. Even since 2010, the Nebraska Department of Education has further amended the graduation rate to include other factors like transfer students (Nebraska Department of Education, 2011). Like the changes in academic standards, the fact that the counties were compared against themselves as well as the other counties over time mitigates possible complications with the changes in graduation rate calculations. Given that disclosure, the analysis of the graduation rates shows a couple things. First, all of the counties and Nebraska saw an increase in their graduation rates. The population growth places, Lancaster County and Nebraska, saw the highest increases in graduation rates among the counties which supports the hypotheses. Scotts Bluff County had a nearly no change in their graduation rate which also confirms the hypotheses as well.

TABLE 4.5: Graduation Rates												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	84.85%	85.30%	85.80%	87.48%	88.04%	88.76%	89.33%	89.76%	89.82%	90.02%	5.17%	6.09%
Box Butte County	93.11%	96.95%	92.04%	96.43%	95.01%	97.57%	97.39%	97.22%	96.28%	95.70%	2.59%	2.78%
Lancaster County	91.01%	91.42%	92.28%	92.57%	94.24%	93.70%	94.28%	95.06%	95.50%	95.54%	4.53%	4.98%
Scotts Bluff County	84.18%	87.33%	87.73%	85.86%	80.11%	86.27%	86.64%	89.50%	84.17%	84.37%	0.19%	0.23%

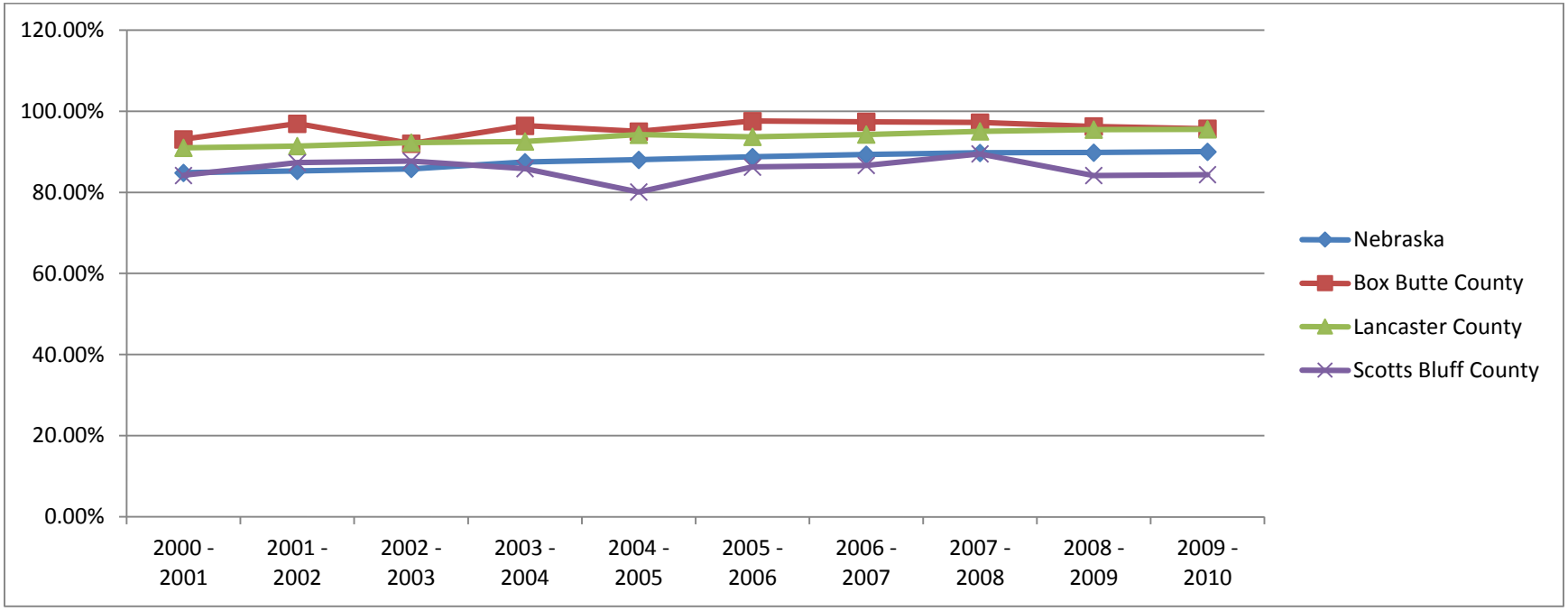


Chart 4.5: Graduation Rates

Box Butte County showed an increase in their graduation rate, which goes against the underlying hypotheses, though the increase was smaller than the two growth places. Dropout rates, which I discuss next, showed very similar results among the counties.

High school drop-out rates shown in Table 4.6 and Chart 4.6 are the final college readiness indicator. Dropout rates differ from graduation rates in that they consider multiple school grade levels. The dropout rate is calculated by dividing the total number of 7^{th} through 12^{th} graders who dropped out of school by the Fall enrollment for grades 7 through 12 (Nebraska Department of Education, 2010). This percentage examines the number of students who should have enrolled in school in the Fall but did not. Similar to the data collection of graduation rates, district rates were averaged to the county level and are expressed in Table 2.5 and Graph 2.6

Overall the data shows the following results. Nebraska saw a decline in its dropout rate by -1.34% and a percentage change of -49.45%. Box Butte County shows a net decrease in its dropout rate of -0.74% or a percentage change of -49.66%. Lancaster County shows a greater decrease in its dropout rate with a change of -0.86% or a percentage change of -58.90%. Scotts Bluff is the exception to the rule in that it showed an increase in its dropout rate with -1.46% or a percentage change of -84.88%. Nebraska is in line with the hypotheses that population growth leads to better education quality when considering dropout rates. Box Butte County saw the second highest decrease in its dropout rates, which may be linked to the smaller school systems and their ability to retain students, which could be good news but does disaffirm the hypotheses. Just like the graduation rates observed previously, Lancaster confirms the assumptions of population change in that Lancaster shows the highest or overall most improved dropout rate, lends to an overall improved education quality. Scotts Bluff again does not support the notion of

TABLE 4.6: Dropout Rates												
	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	NET CHANGE	PERCENTAGE CHANGE
Nebraska	2.71%	2.74%	2.10%	1.92%	1.86%	1.81%	1.95%	1.55%	1.52%	1.37%	-1.34%	-49.45%
Box Butte County	1.49%	0.73%	0.73%	0.50%	0.69%	0.18%	0.42%	1.01%	0.76%	0.75%	-0.74%	-49.66%
Lancaster County	1.46%	1.13%	1.13%	0.96%	0.97%	0.83%	1.01%	0.94%	0.55%	0.60%	-0.86%	-58.90%
Scotts Bluff County	1.72%	3.48%	3.48%	2.43%	1.98%	2.08%	2.06%	1.56%	2.38%	3.18%	1.46%	84.88%

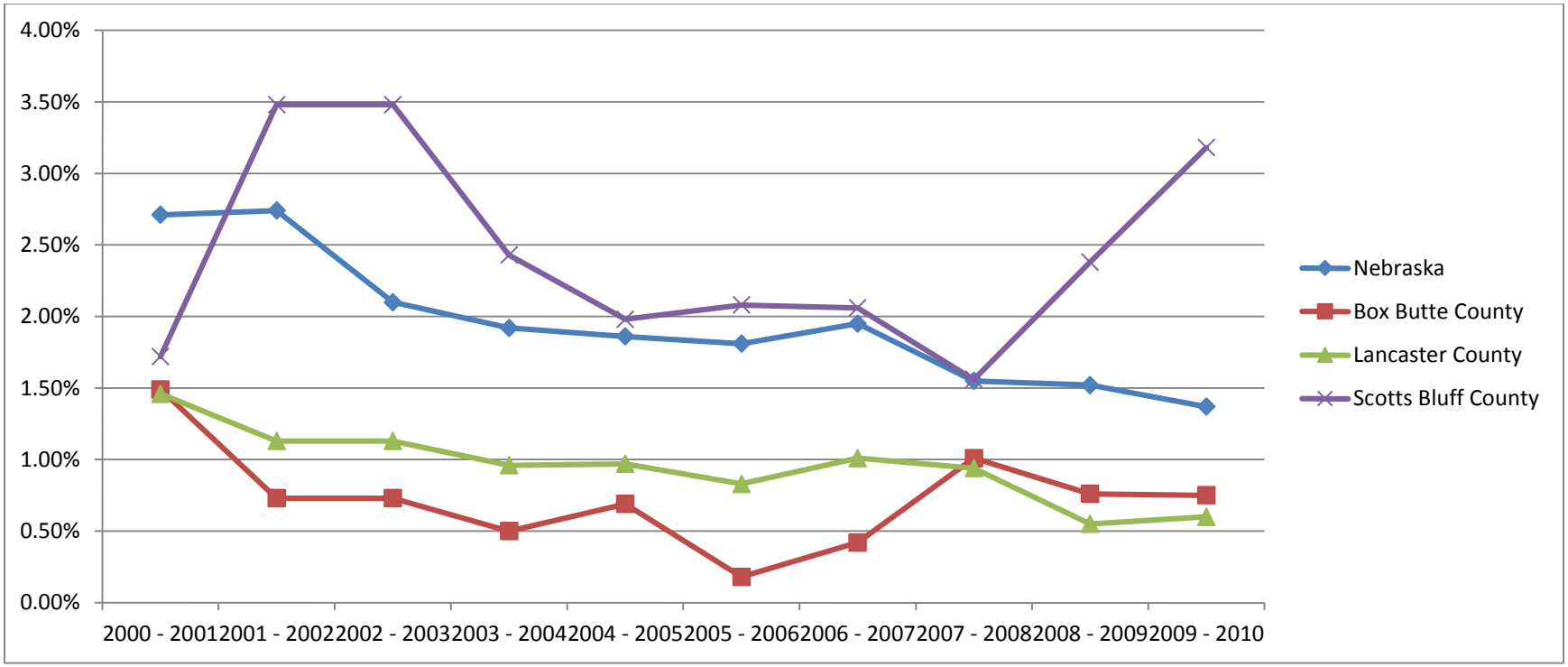


Chart 4.6: Dropout Rates

no change with its almost doubled dropout rate over the ten-year study. Scotts Bluff County's dropout rate is distinctly tied to its low graduation rate change compared to the other counties.

It is important to consider dropout rates because of its direct tie to graduation rates. Graduation rates only offer data on the "successful" transition of students from high school to adult life for one grade level. Dropout rates provide a greater picture of possible systemic problems that a school district is facing with retaining and ultimately graduating students. Nebraska, Box Butte County, and Lancaster County all had major decreases in their dropout rates and in turn had increases in their graduation rates. Scotts Bluff County was the opposite. Its increase in dropout rates may have had an effect on its almost zero percentage increase in its graduation rates. If the rising dropout issue is left unresolved, Scotts Bluff County could find its self with continuing dismal if not decaying graduation rates.

IV. Summary of Chapter Four

In closing, I compared the various changes in population as well as college readiness indicators. The college readiness indicators included: academic standards; ACT scores; graduation rates; and dropout rates, which are summarized in Table 4.7 and Chart 4.7. The overall percentage changes of the population and college readiness factors are represented in Table 2.7. Overall, every place considered saw improved college readiness, except in four instances. The first two were presented in the reading standards section, where Nebraska and Box Butte County saw declines in their reading standard results. The next two instances dealt with Scotts Bluff County's decline in its ACT scores and increase in its dropout rate. The declines in reading standards can be explained in two parts. First, in the 2009 – 2010 academic school year, the Nebraska Department of Education phased in the new Nebraska State Accountability (NeSA) reading tests to replace the old performance measures (Nebraska

Department of Education, 2010). From this, all counties saw a sharp decline in proficiency levels in reading. Second part of the explanation is linked to the individual places.

Nebraska's drop in reading standards could also be related to the negative effects of its high school factors, most importantly the drop in teacher endorsements in language arts in 2009-2010 and the decrease in overall teacher experience. Nebraska's teacher endorsements in language arts had dropped by -3.16% in 2009-2010 and the average teacher experience had been in decline from the 2006 – 2007 through the 2008 – 2009 academic school years. Less experienced teachers, coupled with the decline in teachers endorsed in language arts, would have led to a greater decline in reading standards when compared to the other places. Nebraska also saw a significant increase in its percentage of households that speak a language other than English. This could have affected students ability to practice reading and speaking of English outside of school and cause a decline in reading standards scores.

Box Butte County would be expected to have improved college readiness indicators in all areas given their positive results in the high school and socio-economic factors, which is present except in the reading standard. More research may need to be conducted to examine possible county wide policies or resource allocations that could have had an impact on reading standards within Box Butte County. Scotts Bluff County also showed positive results in both high school and socio-economic factors. Given their status as the county with little to no change in population, we would expect little to no change in college readiness indicators. However, as seen with the previous chapters, Scotts Bluff County showed inconsistent results when compared to other counties. The ACT score change is small enough, -0.20%, to be attributed to a natural increase and decrease within the county over the years.

TABLE 4.7: College Readiness Indicators							
	Population Change	Reading Standards	Mathematics Standards	Writing Standards	ACT Scores	Graduation Rates	Drop Out Rates
Nebraska	6.30%	-10.83%	27.14%	8.06%	2.31%	6.09%	-49.45%
Box Butte County	-6.99%	-2.11%	15.05%	1.93%	3.51%	2.78%	-49.66%
Lancaster County	14.03%	14.13%	37.43%	6.60%	2.58%	4.98%	-58.90%
Scotts Bluff County	0.05%	10.53%	59.80%	7.60%	-0.20%	0.23%	84.88%

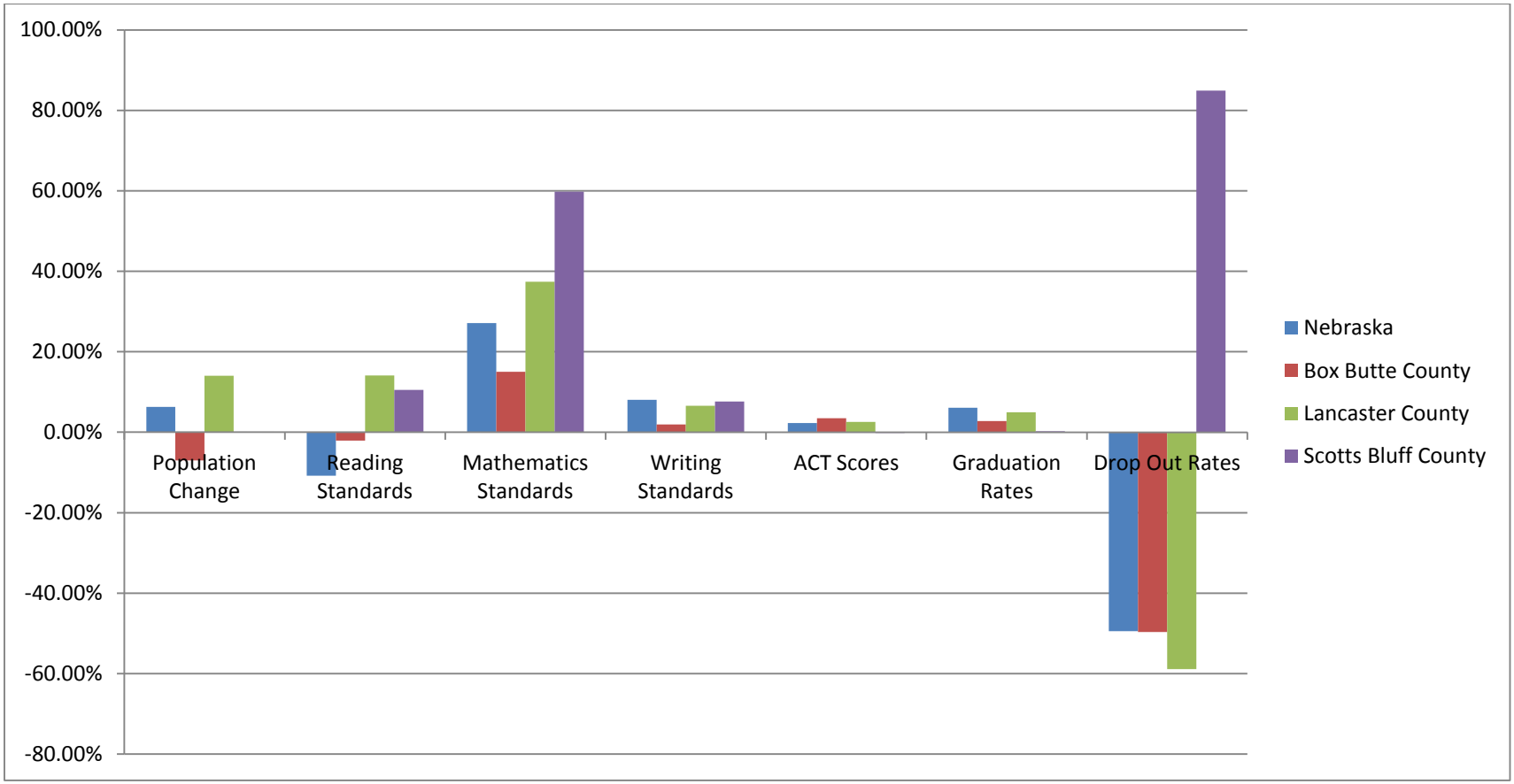


Chart 4.7: College Readiness Indicators

The dropout rate is a significant change over the ten years, an increase of 84.88%, which could be attributed to work opportunities without the need for a high school education within the county.

Relating college readiness indicators back to the central thesis of population change, Lancaster County was the only county to uphold the hypotheses that a county with growth will experience positive college readiness indicator results across the board. The increases seen in Box Butte County and Scotts Bluff County can largely be related to positive improvements in high school and socio-economic factors, which were unexpected prior to conducting this research. Nebraska also saw improved college readiness indicators which are also tied to positive growth in socio-economic factors. The concluding chapter will offer an overall summary of each place and population change's impact on high school factors, socio-economic factors, and college readiness indicators. The last chapter will also look to the future of education research on college readiness as well as policy recommendations.

CHAPTER FIVE: CONCLUSION

I. Summary of Results

Nebraska

Nebraska's education environment has seen some significant changes over the past 15 years. Nebraska's high school factors of college readiness showed the smallest change compared to the individual counties in this study. It is my conclusion that since Nebraska lagged in this area; the effects would lead to a negative rating for the high school factor category. Conversely, Nebraska had great positive growth in the socio-economic category. It showed some of the highest overall improvements in several areas of socio-economic concern. Though there were increases in the need for assistance of low-income families as part of the population, the large increases in other socio-economic factors and relatively low overall baseline numbers outweigh those effects. The last category, college readiness indicators, showed signs of improvement in most areas similar to the other counties. However, change in certain high school and socio-economic factors provided Nebraska a drop in its overall reading standard test scores. Overall, Nebraska had a decline in high school factors, growth in socio-economic factors, and relative growth in college readiness indicators.

Box Butte County

Box Butte County was an interesting case study in this research. I expected to see declines in overall education quality and college readiness due to their population decline. That did not turn out to be the case. Box Butte County had good-sized increases in its high school factors, especially in teacher experience and percentage of teachers with a master's degree, although these increases are largely attributed as side-effects of a decline in the overall teacher count for the county. Moving to socio-economic indicators, Box Butte County again saw modest

growth. It appears that at least part of the population decline within the county could be attributed to the migration of lower income families. This conclusion is brought on by the decline in families below the poverty line, the only decline among the places considered. This decline would also have an effect on the increase in the percentage of the population with a bachelor's degree or higher and the decrease in the population with only a high school diploma. There is also the decline of households speaking a language other than English. All of the socio-economic factors seem to point to a lack of opportunity for less skilled workers, which would lead to a migration out of the county. College readiness indicators also looked good in terms of growth. It is important to note that Box Butte County did have a decline in reading standards that could be tied to the change in overall state reading standards. Overall, Box Butte County had growth in high school factors, growth in socio-economic factors, and improved growth in college readiness indicators.

Lancaster County

Lancaster County was the county of population growth and in turn was expected to have higher education quality improvements than the other counties. For the most part, examining the college readiness indicators supported this hypothesis. However, Lancaster County did see some negative changes in the factors that lead to college readiness. First, Lancaster County had very healthy growth in the high school factors category. Besides having one of the highest percentage changes of teacher salary and percentage of teachers with a Master's degree, they were also able to reduce the teacher count. Second, Lancaster County saw some negative effects of socio-economic change over the ten years. The population growth seems to have contributed to Lancaster County experiencing the highest percentage change increase in students eligible for free and reduced meals and families below the poverty line. They also had a high increase in

households speaking a language other than English. The county even had the lowest change in its population's education attainment levels by having the smallest changes in percentage of the population with a high school diploma and percentage of the population with a bachelor's degree or higher. Despite these changes, the college readiness indicator category for Lancaster County shows great improvements where they are either the county of greatest improvement or close behind. Overall, Lancaster County had growth in the high school factors, a decline in socio-economic factors, and growth in college readiness indicators.

Scotts Bluff County

Scotts Bluff County was the county of little to no change in population. They had seen around 0.05% change in their population over the ten years considered in this research and was expected to show education quality signs in between Box Butte County and Lancaster County. And yet it is Scotts Bluff County where we see a lot of change, both positive and negative, in education quality. In the high school factors category, Scotts Bluff County saw the highest change in teacher salaries as well as teacher endorsements. The teacher experience did see a small decline that may have been brought on by the significant increase in the county's teacher count. They were also the only county to see an increase in attendance rates, although only a 0.35% increase.

Moving to socio-economic factors, again Scotts Bluff has real growth in most categories. It has the smallest changes in students eligible for free and reduced meals and families below the poverty compared to the other places. It also has increases in the percentage of the population with only a high school diploma as well as a bachelor's degree or higher. They even had the largest decrease in households that speak a language other than English. In college readiness indicators Scotts Bluff County has some of the highest overall increases in academic standards.

However, there is little change in ACT scores and graduation rates. In fact Scotts Bluff County has the largest increase in dropout rates among the places in this study. Overall, Scotts Bluff County saw growth in high school factors, growth in socio-economic factors, and growth in college readiness indicators.

Does Population Change have an Effect on College Readiness?

After discussing all of the results, it appears that population change has had certain effects on the socio-economic factors that predict college readiness. That said, population change was not a definitive indicator of college readiness for any of the locations in the study. Several socio-economic factors matched the underlying hypotheses facing population growth. Those factors included mean household income, families below the poverty line, and to lesser extent, students eligible for free and reduced meals and households that spoke a language other than English. These results are not unexpected because these results are greatly based on the population of the county itself. This appears to be the extent of the effect of population change on college readiness.

When looking at high school factors, school-wide policies like the teacher count have a profound effect on other factors like the teacher experience and the percentage of teachers with a Master's degree. That makes the administrative decision of deciding the teacher count for a school, a district, or a county a very powerful public policy tool. Each high school within a county could face enumerable challenges to education quality and in turn could have enumerable solutions to those challenges. The locality of a high school's policies that are then aggregated at the county level for high school factors to college readiness could cause population change effects to be lost in the aggregated results.

Even further, the changes in high school factors show their relation to college readiness indicator results. For example, Scotts Bluff County had significant improvements in their high school factors which then led to significant improvements in their academic standards results. On the opposite side, Nebraska had a decline in language arts teacher endorsements as well as a loss in average teacher experience which then could be attributed to the sharp decline in reading standards results. The effects of the socio-economic factors on the college readiness indicators were less visible in this study. However, there may be lasting effects from population change on all the factors which will be discussed further in the next section. Nonetheless, in this study, population change did not have any discernable effect on the high school factors or on overall college readiness indicators as was originally expected.

II. Policy Recommendations

Though the results of this study show improvements in most all college readiness indicators observed in this study, that does not mean that population change has no effect on education quality. As stated earlier, the socio-economic indicators were greatly affected by population change. Their effects can lead to overall trends in those counties. As an example, Lancaster County had extreme growth in the percentage of students eligible for free and reduced meals as well as families below the poverty line. Though Lancaster's baseline numbers were much lower than the other counties, continued growth will lead to real policy discussions on how best to address growing poverty and its effects on the education system. The one true policy recommendation gained from this research is that continued research must be done regularly to address changing socio-economic conditions and the needs to the communities. In Lancaster County's case, they should be discussing possible anti-poverty solutions to the growing bottom

line. The same logic can be applied to Nebraska as a whole, as the state saw very high increases in its poverty base.

A few other policy recommendations lie in the high school factors section. This study found that high school factors can play a more immediate and noticeable role in the college readiness of a community. I would stress that the effects of certain administrative policies, such as teacher counts, must be fully understood before implementation. Failure to recognize the interconnectedness of several factors like the teacher count, teacher experience, and percentage with a master's degree can result in inflated rates that could be hiding a real weakness within the school or county.

It also appears that continued efforts to reach high levels of teacher endorsements are a positive in relation to education quality and college readiness. The final policy recommendation would be further research into possible education measure limits. It seemed that in many instances, counties were only able to come within five percent of a hundred percent achievement status and this applies to both the high school factors and college indicators. Though a ninety-five percentage measure is very high and some individual districts did reach above that number, county averages rarely did. The betterment of Nebraska's education system should strive to reach 100% achievement status in all measures and work to find out how communities can act to recapture that missing five percent.

III. Future Research

Education policy is always changing, which leaves room for continual research into those policies. Looking ahead there are several things that could be further researched and considered with regards to population change and education quality in Nebraska. The first is a greater scope of understanding as it relates to high school factors. As I discussed previously, high school

administrative policies, alongside high school factors, seem to have a great effect on college readiness indicator. Further research into the variety of administrative policies available to high school, district, and even county education leaders could explain unexpected differences between the counties. There were also several high school factors that I did not consider due to a lack of data. They include graduation requirements, extra-curricular activities, course offerings, and teacher responsibilities. Graduation requirements would be important topic to add, as they would provide a timeline of the goals of education as prescribed by local boards of education. Due to population change and its challenges, some boards of education may delay certain increases in requirements when compared to other counties. Currently, local district offices do not keep the historical data on changes in graduation requirements. However, the Nebraska Department of Education is starting to collect data on the graduation requirements for language arts and mathematics of counties for future use.

The effect of extra-curricular activities on college readiness has been very understudied. Its importance is lost in the current debate of whether or not involvement in these activities has a causal effect on student success and college readiness or if it is merely a by-product of students who are already college ready. Nevertheless, historical data on the extra-curricular activities offered is not currently available and varies widely by school building, district, and county. Changes in extra-curricular activities, such as increases or decrease in overall activities offered or specific activities offered, could vary depending on population change. If they do vary then they could have an effect on student success and college readiness in a social and developmental aspect. Related to extra-curricular activity research is course offering research. Like historical data on extra-curricular activities, historical data on course offerings is not readily available. This data would add another robustness check in that data could be obtained on college preparatory

courses or high-level high school subjects. Research has shown that these college preparatory classes do have an effect on college readiness. Being able to chart the availability of these courses across Nebraska and relating them to population change would have a huge effect on the understanding of college readiness in Nebraska. The final area of high school factors relates to extra-curricular activities and course offerings through teacher responsibilities. Examination of teacher counts, the number of courses they taught, and the number of activities they sponsored would paint a picture of the responsibilities they were charged. It could be assumed that in districts with fewer resources could place greater responsibilities on fewer teachers. Again, population change could play a factor in these school district policies and their relation to education quality and ultimately college readiness.

The last area of future research that would be necessary to fully understand college readiness in Nebraska would be historical data on the actual college going rates for every county. Prior to 2008, college going rates were collected by Nebraska' Coordinating Commission for Postsecondary Education (NCCPE) from only Nebraska institutions, which leaves out any college students that seek out-of-state post-secondary education. After 2008, the NCCPE partnered with the National Student Clearinghouse, which tracks the college going rate of about 93% of public high school students across the nation. However, this data leaves out any private high school college-going rate considerations. This data is ultimately the end result of Nebraska's public education system. The data would show, by county, how many students seek post-secondary education and how many actually graduate. When considering population change in Nebraska, this data has the highest value, as it would offer a more definitive answer to education quality in Nebraska.

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