

UNDERSTANDING PATTERNS OF RURAL DECLINE:  
A NUMERICAL ANALYSIS AMONG KANSAS COUNTIES

by

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A REPORT

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## **Abstract**

Rural communities are a vital part of America; they account for two-thirds of the land in the U.S. and are home to about one in every nine Americans. Throughout history, our country has been shaped by their presence and social, economic, and cultural influence (Flora et al., 2004). For over the past half century however, communities in rural America have been declining in size and population; in nearly 70% of the counties of the Great Plains, there are fewer people residing there today than there were in 1950. Furthermore, over the last half of the 20<sup>th</sup> century, residents living on farms in America have dropped by two-thirds (Mayer, 1993). These statistics indicate a drastic pattern of population loss among small town communities and farms throughout rural America, which is devastating because they [towns] ultimately depend on population to contribute to their industries, businesses, and local services in order to function and survive (Wood, 2008).

Understanding the causes of rural decline is important in the field of planning; nevertheless, identifying statistical relationships and spatial patterns associated with rural decline is just as important. This research report is both an overview on rural decline, and a comparative analysis of rural decline amongst Kansas counties. The objective of this research report is to identify characteristics, patterns, and trends associated with rural decline, and to rank Kansas counties according to a list of variables which represent those characteristics for analytical purposes. The ultimate goal is to explain any spatial phenomenon associated with the variables and Kansas counties, as well as identify specific counties in Kansas most devastated by factors associated with rural decline.

In order to determine which counties are most devastated by factors associated with rural decline, a numerical comprehensive comparative analysis will be conducted; the results of the analysis will serve as a side-by-side measure of rural decline among Kansas counties. It will also serve as the template for conducting the simulation and modeling research; ArcGIS 9.3.1 will be utilized in order display the characteristics, patterns, and trends of rural decline spatially among Kansas counties. The final maps will help serve to derive final conclusions on rural decline in Kansas.

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## **Dedication**

I would like to dedicate this report to my entire family for their loving support over the years; my Mom & Dad, brothers, cousins, aunts & uncles, grandparents, and my niece Reagan.

## Preface

Variables relevant to characteristics, patterns, and trends associated with decline in rural communities will be ranked for analysis in the simulation and modeling research of this report. It is important to recognize that this process is not an exact science, but serves as a broad, comprehensive look into rural decline. For purposes of consistency throughout the numerical analysis, each variable will be treated the same (no variable deemed more significant than another), measured the same (5-point Quantile classification), and ranked similarly (scale of 1 to 105 for each population and economic variable; scale of 1 to 100 for each geographic variable). Ideally, it is expected that each variable be just as important as the next, but in reality this is not the case. Certain variables do have a greater effect on rural communities; however, the interpretation of this is subjective in nature. Thus, for the purposes of this research report, each characteristic, pattern, or trend of rural decline will be viewed as equally relevant and influential on rural communities as the next.

It is also important to note that variables utilized in the ArcGIS 9.3.1 simulation and modeling research of this report, particularly the geographic variables, will take into account geographic proximities from the specified elements in adjacent states including Missouri, Oklahoma, Colorado, and Nebraska.

Additionally, due to the unavailability of 2010 Census data, the scope of analysis of this research report is restricted to the years including and prior to 2000. Although this doesn't impact the significance or severity of the study, it would have been interesting nonetheless to compute the most recent population data.

# **CHAPTER 1 - Introduction**

## **Importance of Rural America**

Rural communities are a vital part of America; they account for two-thirds of the land in the U.S. and are home to about one of every nine Americans. Throughout history, our country has been shaped by their presence and social, economic, and cultural influence. Rural communities and their small towns provide the essentials for community life in rural America, which includes: Educational institutions, infrastructure, health & wellness facilities, public services, and social institutions. The small towns within rural areas also help sustain the county they reside in by contributing to its tax base, which provides for and supports all those living within. These small towns are also comprised of agricultural-based businesses that contribute greatly to that sector of our nation's economy; without rural communities, the agriculture industry in America would be significantly different and a lot smaller in size (Flora et al., 2004).

Rural America is characterized by its homogenous cultures and close-knit communities that provide many benefits, amenities, and freedoms to its residents. For the most part, land is relatively cheap, taxes are low, crime is uncommon, and air pollution is non-existent. Rural America offers adults a safe, inexpensive, and friendly lifestyle to those wishing to raise a family there. Wood (2008) describes how parents are able to let their kids walk to school without fear, live in neighborhoods that aren't crowded, and live on streets that have little traffic. Bill Bryson (1989) adds, "...many of the comforts and pleasures of modern life have their roots in the small towns of the American Middle West" (p.183).

## **The Situation**

For over the past half century however, communities in rural America have been declining in size and population; in nearly 70% of the counties of the Great Plains, there are fewer people residing there today than there were in 1950. Furthermore, over the last half of the 20<sup>th</sup> century, residents living on farms in America have dropped by two-thirds (Mayer, 1993).

In 1930, of the non-metropolitan heartland population, 8,174,000 resided in small towns and 7,259,000 resided on farms. In 2000, only 4,118,000 resided in small towns and 1,917,000 resided on towns (Keller, 2008). Additionally, in recent decades it was common for farming-

dependent counties (counties with 15% or more of their average annual earnings or 15% of their employment coming from farming) to lose up to 20% of their residents over a ten-year period of time (Mayer, 1993). These statistics indicate a drastic pattern of population loss among small town communities and farms throughout rural America, which is devastating because they [towns] ultimately depend on population to contribute to their industries, businesses, and local services in order to function and survive (Wood, 2008).

### **Explanation**

Many experts have concluded that these patterns of population loss among small town communities and farms throughout rural America are due to residents migrating outwards toward larger urban communities in cities and metropolitan areas for certain circumstantial reasons. In some instances a particular community's workforce was single-industry oriented, meaning it relied heavily or entirely on a certain agricultural, mining, or industrial industry. After many years of operation that industry collapsed for whatever reason resulting in unemployment, poverty, and a loss of the "way of life" for that community (Sherman, 2009).

Other instances of population outmigration from rural America have resulted from the "invisible hands" of economics and capitalism. In 1900, most Americans lived and worked on farms in rural America and accounted for 60% of the total population 40% of the total workforce in the U.S. But since the end of World War II, innovations in technology and improvements in farming operations have allowed farms to run more efficiently using fewer physical laborers. With less demand for workers needed, farms continued to operate as usual, and excess laborers normally working on the farms began migrating out of rural America towards the cities and metropolitan areas. By the year 1993, only 1.9% of the workforce resided on farms (Mayer, 1993).

Other ideas of why these population trends have been occurring might be due to a variety of problems associated with small towns and rural communities in America, including: Lacking leadership on local levels, lacking strategic planning, a depletion of natural resources, having a collapse in the family farming unit, tax base erosion, regional economic restructuring, and long commute times to basic necessities (Daniels et al., 2007).

## **Impact**

Regardless of the origin of these problems in rural America, their lasting effects are very evident and seen commonly today; this includes images of boarded-up shops on main streets, abandoned and run-down housing, broken down cars laying in front yards, and street pavements that are worn down and crumbling (Wood, 2008). Bill Bryson (1989) documents his observations while traveling throughout rural America; mainly how the lovely landscapes and natural beauty that he once pictured were mostly blemished by “human intrusions – ugly trailer parks, untidy homesteads, even junkyards” (p. 227).

## **Importance of Research**

Understanding the causes associated with rural decline is important in the field of planning; nevertheless, identifying statistical relationships and spatial patterns associated with rural decline is just as important. The objective of this research report is to identify characteristics, patterns, and trends associated with rural decline, and to rank Kansas counties according to a list of variables which represent those characteristics. The ultimate goal is to explain any spatial phenomenon associated with the variables of Kansas counties, as well as identify specific counties in Kansas most devastated by factors associated with rural decline; the purpose is to help out individuals and organizations in the future, wishing to use this research to aid specific Kansas counties in need of preservation assistance. In order to determine which county is most affected by characteristics, patterns, and trends associated with rural decline, simulation and modeling research will be conducted to create a comprehensive numerical comparative analysis; the results of the analysis will serve as a side-by-side measure of rural decline among Kansas counties, as well as a model for observing variables related to rural decline spatially throughout Kansas.

## CHAPTER 2 - Operational Definitions

In order to rank, analyze, and interpret the collected data sets, it is important to define several key terms related to small communities and rural America. Existing definitions provided by Flora, Flora, and Fey (2004), Carr and Kefalas (2009), North American Industry Classification System (2000), U.S. Department of Agriculture (2009), and National Center for Frontier Communities (2009) will be used for the simulation and modeling research when creating the numerical analysis variables. These key terms include:

- **Rural area** – Open countryside or towns of less than 2,500 people outside urbanized areas (U.S. Census Bureau, 2000)
- **Urban Area** – Core census block groups have a population density of at least 1,000 people per square mile [386 per square kilometer] and surrounding census block groups that have an overall density of at least 500 people per square mile [193 per square kilometer] (U.S. Census Bureau, 2000)
- **Urbanized area** – An urban area of 50,000 or more people (U.S. Census Bureau, 2000)
- **Urban clusters** – Urban areas under 50,000 people (U.S. Census Bureau, 2000)
- **Community** – A place, a location in which members of a group interact with one another/a shared sense of identity held by a group of people who may or may not share the same geographic space (Flora et al., 2004)
- **Metropolitan counties** – One or more adjacent counties containing at least one city of 50,000 inhabitants or more (Flora et al., 2004)
- **Nonmetropolitan counties** – Counties that lie outside a standard metropolitan area and do not include a city of 50,000 or more inhabitants (Flora et al., 2004)
- **Micropolitan** – Counties with 10,000 to 49,999 people with an urban core (Flora et al., 2004)
- **Farming dependent counties** – Counties with 15% or more of their average annual earnings or 15% of their employment coming from farming (U.S. Department of Agriculture, 2009)

- **Frontier counties** – Counties defined through a complex methodology and classification matrix system taking into account 3 variables: Population density, distance [mi.] to a service/market center, and travel time [min.] (National Center for Frontier Communities, 2009)
- **Rural decline** – A phenomenon occurring throughout rural America characterized by population outmigration and persistent population loss resulting in stress on a community's existing tax base, infrastructure, and other essentials for community life.
- **Rural brain drain** – The out-migration of young, college-educated workers from the nation's rural areas (Carr & Kefalas, 2009)
- **Amenity-based communities** – Those located near natural resources that are viewed as a source of beauty and recreation by the larger population. They include counties by bodies of water and mountains (Flora et al., 2004)
- **Labor market areas** – Multicounty regions that encompass those places where relatively large numbers of people routinely move back and forth from home to work (Flora et al., 2004)
- **Primary labor markets** – Labor markets consisting of a labor force of skilled workers (Flora et al., 2004)
- **Secondary labor markets** – Contain jobs with low status, low pay, or poor benefits, and little or no chance for advancement (Flora et al., 2004)
- **Capital** – A resource or asset invested to create new resources (Flora et al., 2004)
- **Human capital** – The skills and abilities of each individual within a community (Flora et al., 2004)
- **Social capital** – The networks, norms of reciprocity, and mutual trust that exist among and within groups and communities (Flora et al., 2004)

## **CHAPTER 3 - Research Overview**

This chapter provides an overview of the research strategies that were utilized for this Master's Report.

### **Characteristics**

Based on research conducted over decline in rural America, the following list of characteristics, patterns, and trends associated with decline in rural communities has been compiled to identify the specific county in Kansas that is most devastated by factors associated with rural decline. The list of characteristics is divided into 3 categories: Population characteristics, economic characteristics, and geographic characteristics and are shown below.

#### ***Population Characteristics***

- Small population densities
- Dramatic population declines
- Early peaking populations
- Consistent population loss
- Projected population loss
- Large proportion of elderly population
- High median ages
- Low school enrollments
- High number of school consolidations
- Low population of college-aged individuals
- Low foreign born population

#### ***Economic Characteristics***

- Low per capita incomes
- High poverty rates
- High unemployment rates
- Dependency on agriculture and mining industries
- Farming-dependent counties

- High number of farm units
- Dependency on government payments to maintain farms

### ***Geographic Characteristics***

- Located far from metropolitan areas
- Located far from micropolitan areas
- Located far from interstate highways
- Located far from major railroad lines
- Located far from regional airports
- Located far from Wal-Mart stores
- Located far from major colleges
- Located far from Main Streets
- Frontier counties

### **Variables**

Based on these characteristics, patterns, and trends associated with decline in rural communities above, a list of variables has been compiled into a Microsoft Excel 2007 spreadsheet in order to conduct the simulation and modeling research. The list of variables shown below are divided into the same 3 categories as well, and will determine the specific county in Kansas that is most devastated by factors associated with rural decline.

### ***Population Variables***

- Smallest population density per square mile
- Greatest percentage of population loss over a decade from 1880-2000
- Earliest decade from 1880-2000 that peaked in population
- Greatest number of decades from 1880-2000 that lost population
- Greatest percentage of projected population loss over 2000-2030
- Greatest percentage of population ages 65+
- Highest median age
- Lowest percentage of population ages 5-18 enrolled in K-12 schools
- Greatest number of K-12 school district consolidations since 1965
- Smallest percentage of population ages 18-24

- Smallest number of foreign born population

### ***Economic Variables***

- Lowest per capita income
- Highest poverty rate
- Highest unemployment rate
- Greatest percentage of agriculture & mining employees compared to total county employees
- Greatest percentage of agriculture & mining establishments compared to total county establishments
- Classified as farming-dependent counties
- Greatest number of farm units
- Highest amount of government payments to farms received

### ***Geographic Variables***

- Greatest geographic proximity (25-mile increments) from metropolitan areas
- Greatest geographic proximity (25-mile increments) from micropolitan areas
- Greatest geographic proximity (25-mile increments) from interstate highways
- Greatest geographic proximity (25-mile increments) from major railroad lines
- Greatest geographic proximity (25-mile increments) from regional airports
- Greatest geographic proximity (25-mile increments) from Wal-Mart stores
- Greatest geographic proximity (25-mile increments) from major colleges
- Greatest geographic proximity (25-mile increments) from Main Streets
- Classified as frontier counties

## **Simulation and Modeling Research**

The following chapters of this research report will identify characteristics, patterns, and trends associated with rural decline by providing a background summary on the specific characteristics selected, and will explain in detail the rationale for selecting the specific variables listed in Chapter 3. Furthermore, the numerical data on rural decline from the numerical comprehensive comparative analysis will be ranked and the results among Kansas counties displayed visually using ArcGIS 9.3.1; the purpose is to better see and understand any spatial patterns.

To display the results visually, the data sets for each variable will be exported from Microsoft Excel 2007 and imported into ArcGIS 9.3.1. The data sets will then be spatially joined through Kansas county FIPS numbers to a Kansas counties shapefile. Once this action has been completed, the results will be displayed using a 5-point class Quantile scale of comparison, which will help serve to derive final conclusions on rural decline in Kansas. A county map is displayed in Appendix A to help identify the location of specific counties throughout Kansas for the ArcGIS 9.3.1 spatial analysis.

## **CHAPTER 4 - Population Characteristics, Patterns, and Trends**

Population data is one of the most useful pieces of statistical information to evaluate the success of a region. Wood (2008) explains how small town communities in America ultimately depend on population to survive and function; thus, the more people that reside in a town, the better off its industries, businesses, and local services will be. Furthermore, population can spatially represent the locations of urbanized areas, colleges & universities, as well as struggling counties. This chapter summarizes population characteristics, patterns, and trends associated with decline in rural communities, and explains the rationale for selecting the population variables used to conduct the simulation and modeling research of this report.

### **Small Population Densities**

Definitions for rural areas have always focused on counties and their smallest geographic unit/data that is available and can be measured. According to the U.S. Census, “Rural” is defined as open countryside or towns of less than 2,500 people outside of urbanized areas. As of 2000, nearly 5 million Americans live in rural areas, or communities of fewer than 2,500 residents (Flora et al., 2004).

As of 2008, 17% of Americans live in rural areas, compared to 83% that prefer metropolitan areas. Many of the small towns that reside within these rural areas are the most at risk because having less than 2,500 people makes it difficult to attract new residents to their communities due to the lack of services they have compared to more urbanized areas. Additionally, having a small population density puts stress on the local businesses as there are fewer individuals in an area that can contribute to the economic tax base (Wood, 2008). As a result of the relationship between population density and factors associated with rural decline, the population variable “Smallest Population Density Per Square Mile” was utilized to rank Kansas counties and is illustrated in Figure 4.1 on page 11.

Figure 4.1

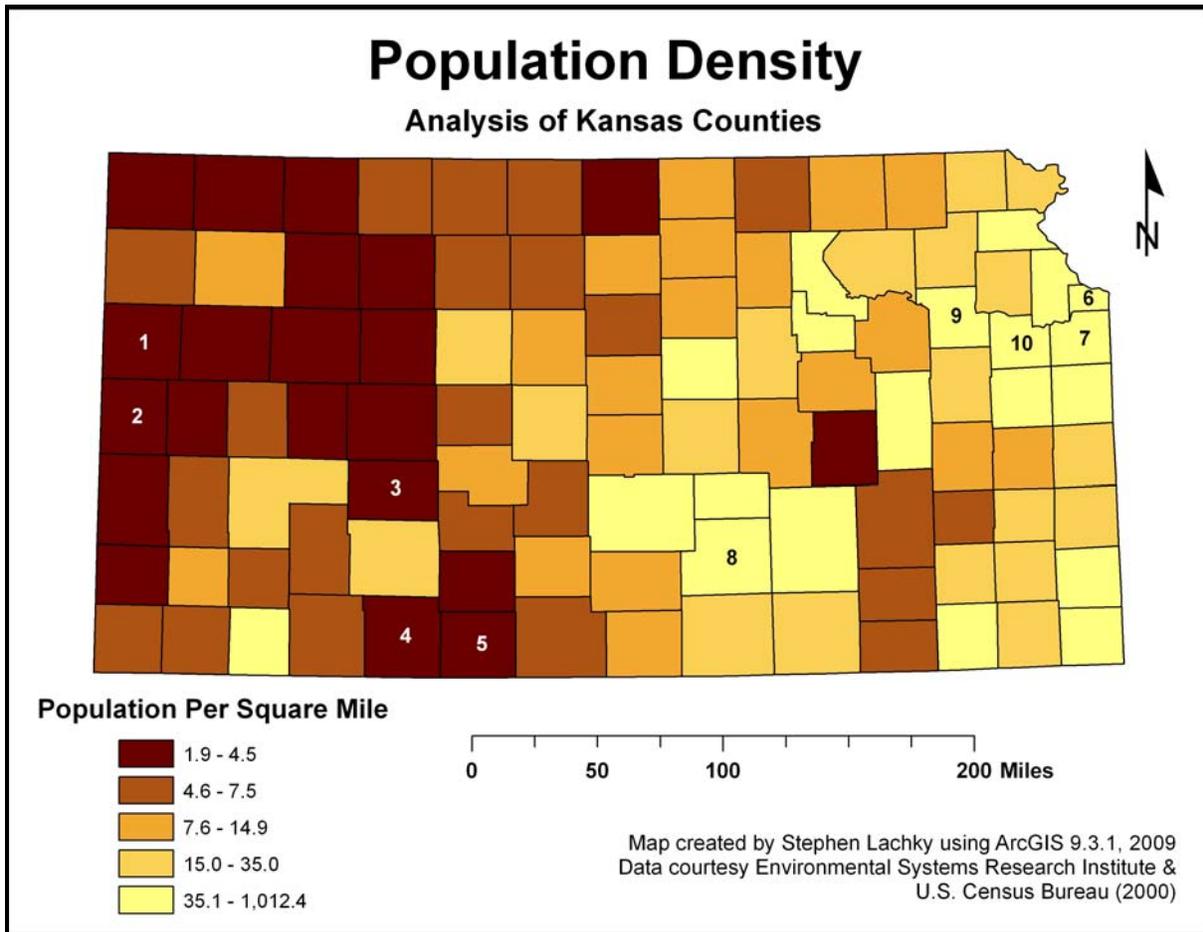


Table 4.1 identifies which Kansas counties have the smallest population density per square mile (most affected by rural decline) and which Kansas counties have the highest population density per square mile (least affected by rural decline). The superscripted numbers in the county listings in Table 4.1 correspond to the numbers and counties in Figure 4.1.

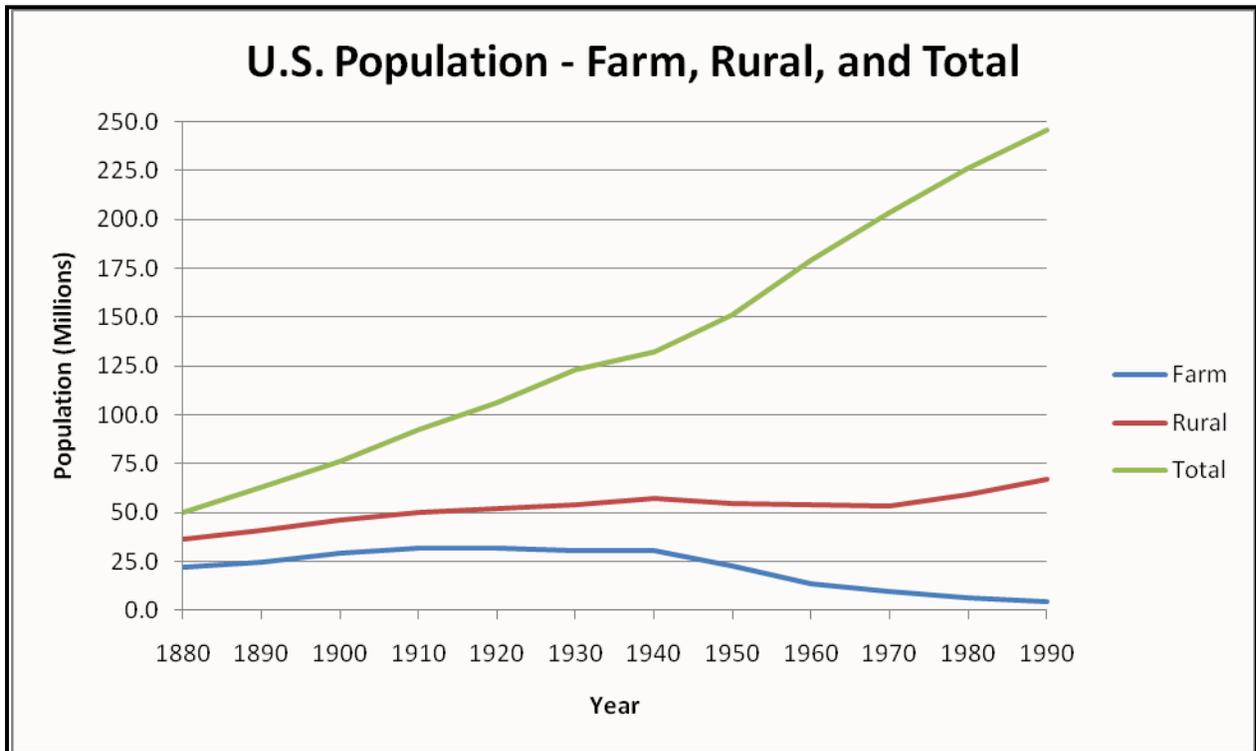
Table 4.1

Kansas Counties Rankings	Smallest Population Density Per Square Mile (most affected county)	Highest Population Density Per Square Mile (least affected county)
1)	<sup>1</sup> Wallace (1.9)	<sup>6</sup> Wyandotte (1,012.4)
2)	<sup>2</sup> Greeley (2)	<sup>7</sup> Johnson (939.8)
3)	<sup>3</sup> Hodgeman (2.4)	<sup>8</sup> Sedgwick (448.8)
4)	<sup>4</sup> Clark (2.4)	<sup>9</sup> Shawnee (305.4)
5)	<sup>5</sup> Comanche (2.5)	<sup>10</sup> Douglas (210.7)

## Dramatic Population Declines, Early Peaking Populations, Consistent Population Loss, and Projected Population Loss

Throughout its history, rural America has been characterized by steady population declines and in some circumstances has been devastated by dramatic population loss. Figure 4.2 depicts the trends witnessed in the U.S. Population's farm, rural, and total population community over the past 110 years from 1880.

Figure 4.2 (Mayer, 1993)



The overall pattern observed in Figure 4.2 is a steadily increasing total U.S. population, a stabilizing rural population, and a declining farm population. As a result, the percentage of the U.S. population living in rural America has been slowly decreasing over time. At one time, 36% of the U.S. population lived in rural areas, but by 2008, that number was only 17%, and the portion of the U.S. population that once made a living farming fell from 75% to 2%.

Furthermore, most rural communities reached their population peak sometime between 1900 and 1950 (Wood, 2008).

Wood (2008) explains how technological innovations, farming mechanization, and increased farm production ultimately influenced these population trends. In the mid-1940s, labor shortages resulting from World War II encouraged farm mechanization; thus, businesses began building new farming technologies, and quickly implemented them following the war. As a result, farm prices immediately declined and so did the demand for manual labor to work on those farms. With farming industries less dependent on the labor market, people began moving away from farming communities in rural America (Mayer, 1993). In 2008, we grew about 3 times as much food on 1/3 of the land, using 2/3 of the manpower as we did before World War II (Wood, 2008).

The diminishing importance of farming in rural America over the 20<sup>th</sup> Century changed our nation's economy from one that was once agriculturally dependent, into one that was more industrial and commercial (Wellner, 2000). Missouri author and farmer Leonard Hall documented in 1956 what he was witnessing on farms all over rural America. "If family farming is eventually supplanted by factory farming, countless thousands of small businesses-and, indeed, small communities-are equally doomed" (Wood, 2008, p. 29). The numbers support his statement, and Wood (2008) agrees. He believes that the future of rural America has and always will be a numbers game; meaning if population continues to decline, it will ultimately mean more communities will die since its industries, businesses, and local services depend on a steady stream of population to function and survive. As a result of the relationship between population decline and factors associated with rural decline, the population variables "Greatest Percentage of Population Loss over a Decade from 1880-2000", "Earliest Decade from 1880-2000 that Peaked in Population", "Greatest Number of Decades from 1880-2000 that Lost Population", and "Greatest Percentage of Projected Population Loss from 2000-2030" was utilized to rank Kansas counties and is illustrated in Figures 4.3, 4.4., 4.5, and 4.6 on pages 14, 15, 16, and 17.

Figure 4.3

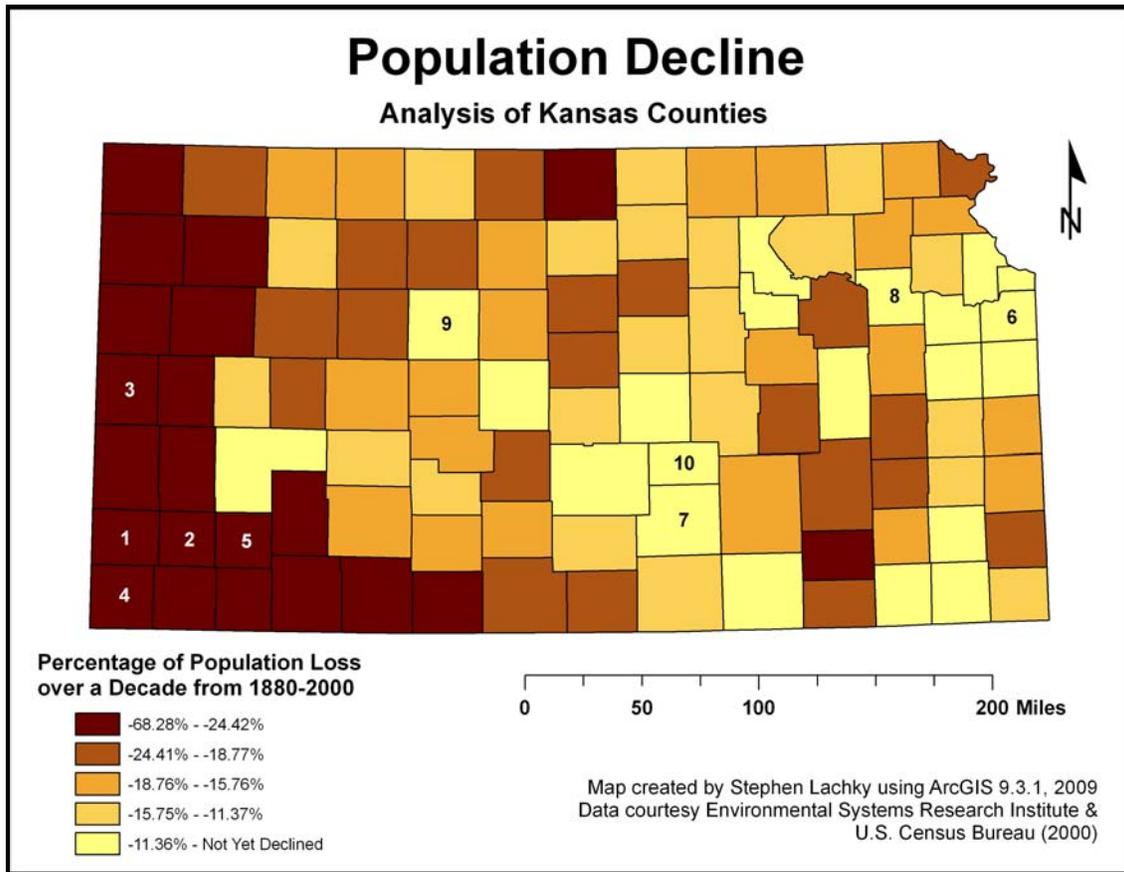


Table 4.2 identifies which Kansas counties have the greatest percentage of population loss over a decade from 1880-2000 (most affected by rural decline) and which Kansas counties have the smallest percentage of population loss over a decade from 1880-2000 (least affected by rural decline). The superscripted numbers in the county listings in Table 4.2 correspond to the numbers and counties in Figure 4.3.

Table 4.2

Kansas Counties Rankings	Greatest Percentage of Population Loss over a Decade from 1880-2000 (most affected county)	Smallest Percentage of Population Loss over a Decade from 1880-2000 (least affected county)
1)	<sup>1</sup> Stanton (68.28%)	<sup>6</sup> Johnson (Not Yet Declined)
2)	<sup>2</sup> Grant (67.73%)	<sup>7</sup> Sedgwick (Not Yet Declined)
3)	<sup>3</sup> Greeley (60.99%)	<sup>8</sup> Shawnee (0.26%)
4)	<sup>4</sup> Morton (58.01%)	<sup>9</sup> Ellis (0.36%)
5)	<sup>5</sup> Haskell (57.56%)	<sup>10</sup> Harvey (1.84%)

Figure 4.4

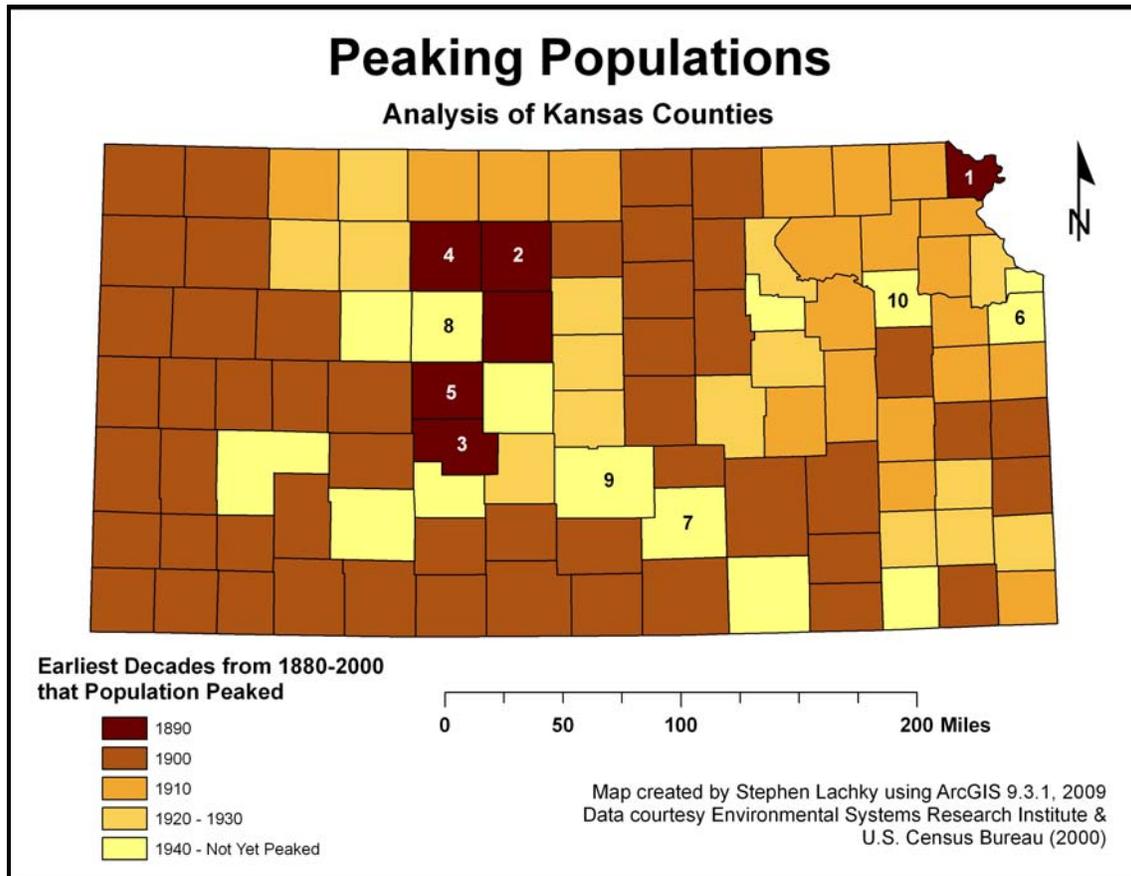


Table 4.3 identifies which Kansas counties had the earliest decade from 1880-2000 that peaked in population (most affected by rural decline) and which Kansas counties had the latest decade from 1880-2000 that peaked in population (least affected by rural decline). The superscripted numbers in the county listings in Table 4.3 correspond to the numbers and counties in Figure 4.4.

Table 4.3

Kansas Counties Rankings	Earliest Decade from 1880-2000 that Peaked in Population (most affected county)	Latest Decade from 1880-2000 that Peaked in Population (least affected county)
1)	<sup>1</sup> Doniphan (1890)	<sup>6</sup> Johnson (Not Yet Peaked)
2)	<sup>2</sup> Osborne (1890)	<sup>7</sup> Sedgwick (Not Yet Peaked)
3)	<sup>3</sup> Pawnee (1890)	<sup>8</sup> Ellis (1900)
4)	<sup>4</sup> Rooks (1890)	<sup>9</sup> Reno (1900)
5)	<sup>5</sup> Rush (1890)	<sup>10</sup> Shawnee (1980)

Figure 4.5

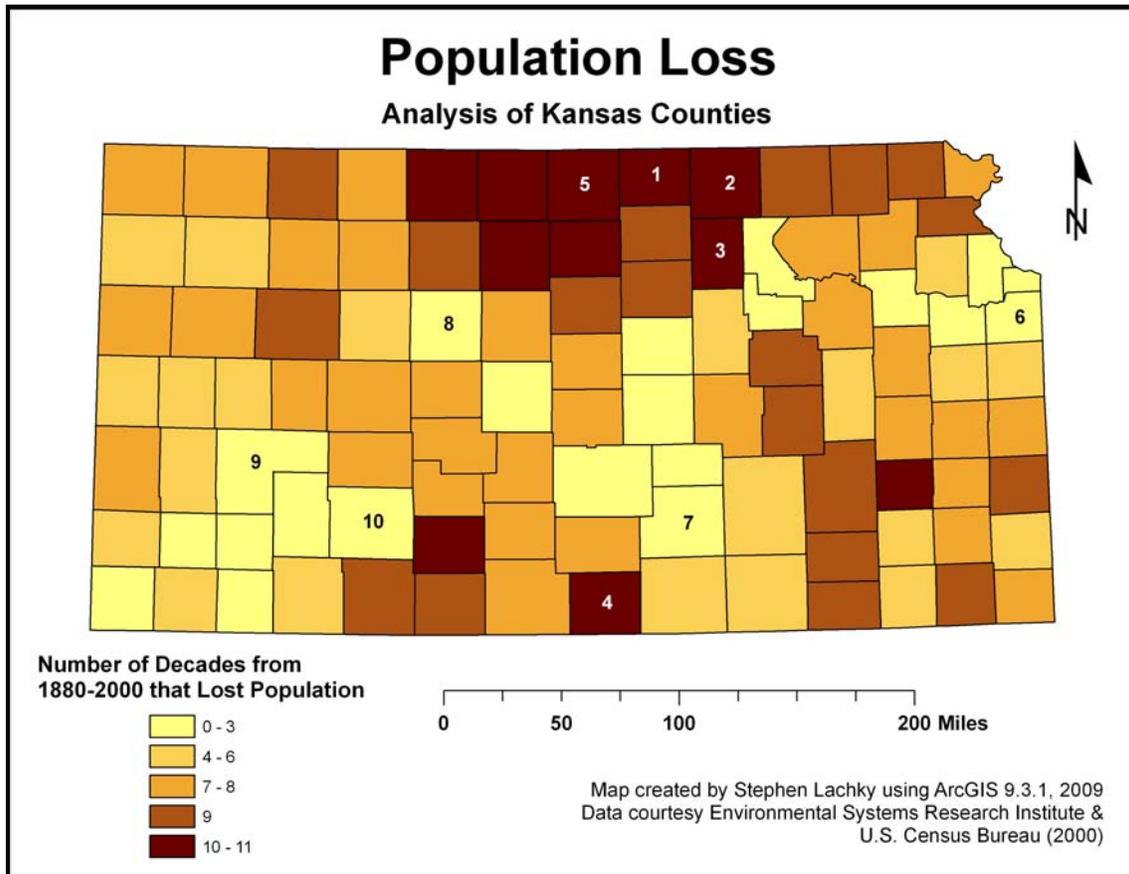


Table 4.4 identifies which Kansas counties had the greatest number of decades from 1880-2000 that lost population (most affected by rural decline) and which Kansas counties had the fewest number of decades from 1880-2000 that lost population (least affected by rural decline). The superscripted numbers in the county listings in Table 4.4 correspond to the numbers and counties in Figure 4.5.

Table 4.4

Kansas Counties Rankings	Greatest Number of Decades from 1880-2000 that Lost Population (most affected county)	Fewest Number of Decades from 1880-2000 that Lost Population (least affected county)
1)	<sup>1</sup> Republic (11)	<sup>6</sup> Johnson (0)
2)	<sup>2</sup> Washington (11)	<sup>7</sup> Sedgwick (0)
3)	<sup>3</sup> Clay (10)	<sup>8</sup> Ellis (1)
4)	<sup>4</sup> Harper (10)	<sup>9</sup> Finney (1)
5)	<sup>5</sup> Jewell (10)	<sup>10</sup> Ford (1)

Figure 4.6

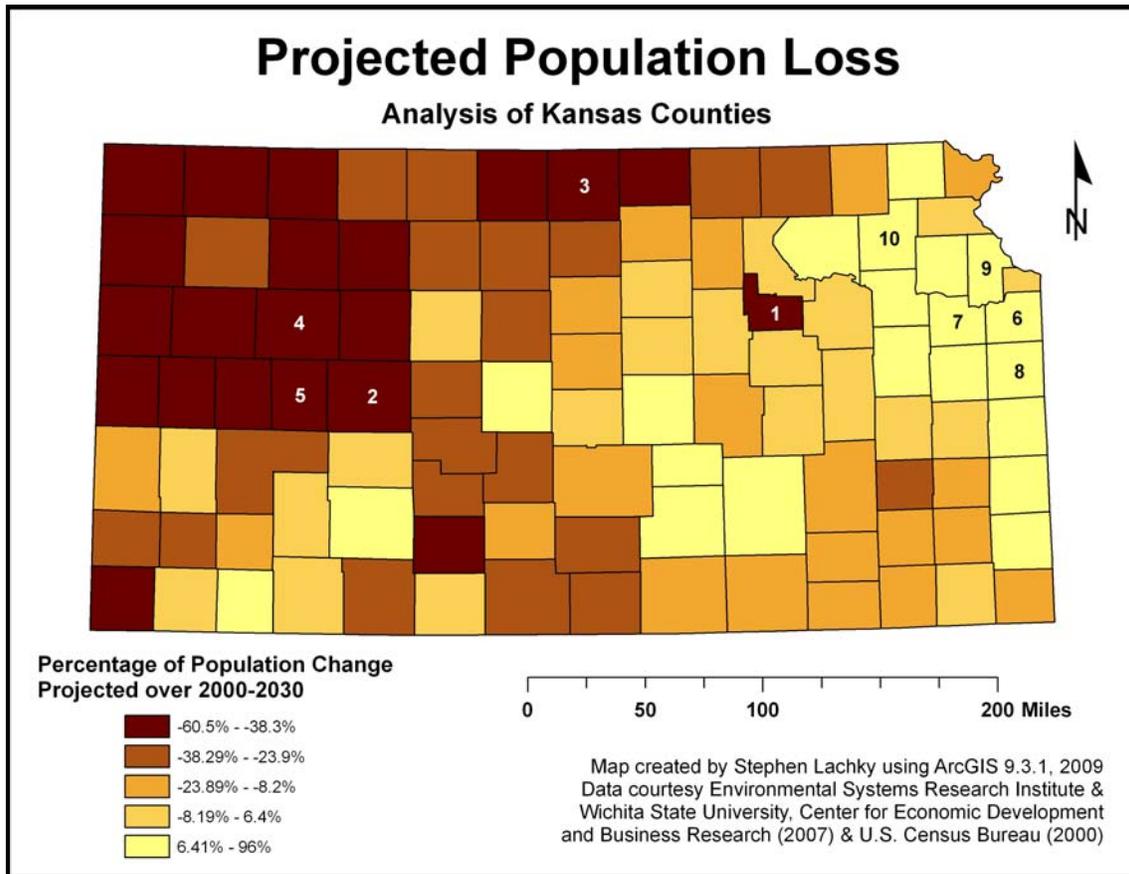


Table 4.5 identifies which Kansas counties had the greatest percentage of projected population loss over 2000-2030 (most affected by rural decline) and which Kansas counties had the smallest percentage of projected population loss over 2000-2030 (least affected by rural decline). The superscripted numbers in the county listings in Table 4.5 correspond to the numbers and counties in Figure 4.6.

Table 4.5

Kansas Counties Rankings	Greatest Percentage of Projected Population Loss over 2000-2030 (most affected county)	Smallest Percentage of Projected Population Loss over 2000-2030 (least affected county)
1)	<sup>1</sup> Gove (-60.5%)	<sup>6</sup> Johnson (+96.0%)
2)	<sup>2</sup> Ness (-56.6%)	<sup>7</sup> Douglas (+64.2%)
3)	<sup>3</sup> Jewell (-50.3%)	<sup>8</sup> Miami (+53.8%)
4)	<sup>4</sup> Gove (-49.9%)	<sup>9</sup> Leavenworth (+46.0%)
5)	<sup>5</sup> Lane (-49.2%)	<sup>10</sup> Jackson (+44.5%)

## **Large Proportion of Elderly Population and High Median Ages**

Small towns in rural America have constantly shown demographic patterns of aging populations, where a majority of the younger age cohorts tend to migrate away and never come back, while the older age populations either migrate into small towns or choose to stay in place for long periods of time. For the most part, small towns aren't gaining large proportions of 45+ and 65+ individuals through in-migration; it's that most small towns in rural America have problems retaining their youth. This is due to social and cultural factors of the young leaving for college, pursuing better paying jobs, and because urban regions provide more amenities and attractions tailored to their desires (Wood, 2008). This trend is referred to as the "Rural Brain Drain," which Carr & Kefalas (2009) characterizes as a mass exodus of young, educated individuals to colleges, jobs, and other opportunities found in metropolitan areas where the human and social capital is considered to be higher. The resulting demographic trends arising from the rural brain drain are a large portion of the population being comprised of elderly individuals and a high median age.

One explanation from experts on why we're seeing significant numbers of elderly-aged individuals recently in rural America is because of the "Baby Boomer population" aging. The "Baby Boomers" are individuals born between 1946 and 1964, a period characterized by high fertility rates; many people from these age cohorts are now approaching their 60s and have begun retiring. Beginning around 2011, 76 million baby boomers will be retiring (Daniels et al., 2007). Many of these individuals not only reside in small towns, but will choose to reside in small towns once they retire. This is because retirees find rural communities attractive as they provide cheap and abundant land, leisure opportunities, and health-care services tailored to their age group. As a result, rural America can continue to expect and have to plan for a significant proportion of 65+ individuals (Carr & Kefalas, 2009).

Carr & Kefalas (2009) explain how residents in small towns outstretch their arms to anyone wishing to reside in their community; however, aren't concerned about any of the long-run consequences or negative effects of exclusively bringing elderly populations. They are merely concerned with the "now" and just want to attract any population in any way possible. Wood (2008) elaborates further, saying that small towns begin to find themselves in trouble once

a majority of their population surpasses the age of sixty-five and the median age surpasses forty years of age. This action poses problems to maintaining the longevity of a rural community by balancing out services and demographics to a balanced population. One example Wood provides is how rural communities forced to consolidate schools due to lack of youth population typically have two-thirds of their population over sixty-five years of age. As a result of the relationship between aging elderly populations, high median ages, and factors associated with rural decline, the population variables “Greatest Percentage of Population Ages 65+” and “Highest Median Age” were utilized to rank Kansas counties and are illustrated in Figures 4.7 and 4.8 on pages 20 and 21.

Figure 4.7

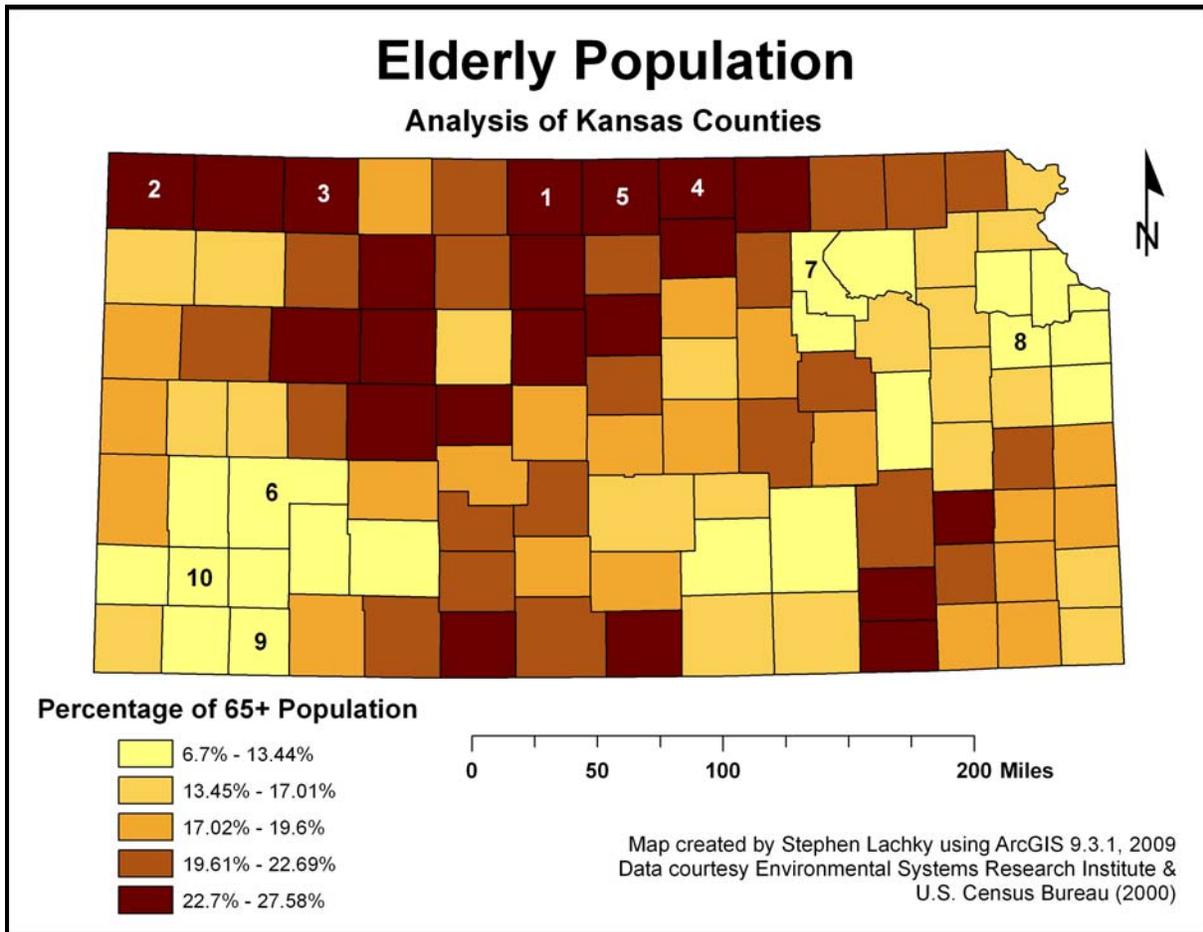


Table 4.6 identifies which Kansas counties have the greatest percentage of population ages 65+ (most affected by rural decline) and which Kansas counties have the smallest percentage of population ages 65+ (least affected by rural decline). The superscripted numbers in the county listings in Table 4.6 correspond to the numbers and counties in Figure 4.7.

Table 4.6

Kansas Counties Rankings	Greatest Percentage of Population Ages 65+ (most affected county)	Smallest Percentage of Population Ages 65+ (least affected county)
1)	<sup>1</sup> Smith (27.58%)	<sup>6</sup> Finney (6.70%)
2)	<sup>2</sup> Cheyenne (26.64%)	<sup>7</sup> Riley (7.49%)
3)	<sup>3</sup> Decatur (26.27%)	<sup>8</sup> Douglas (7.96%)
4)	<sup>4</sup> Republic (26.22%)	<sup>9</sup> Seward (8.38%)
5)	<sup>5</sup> Jewell (25.98%)	<sup>10</sup> Grant (9.44%)

Figure 4.8

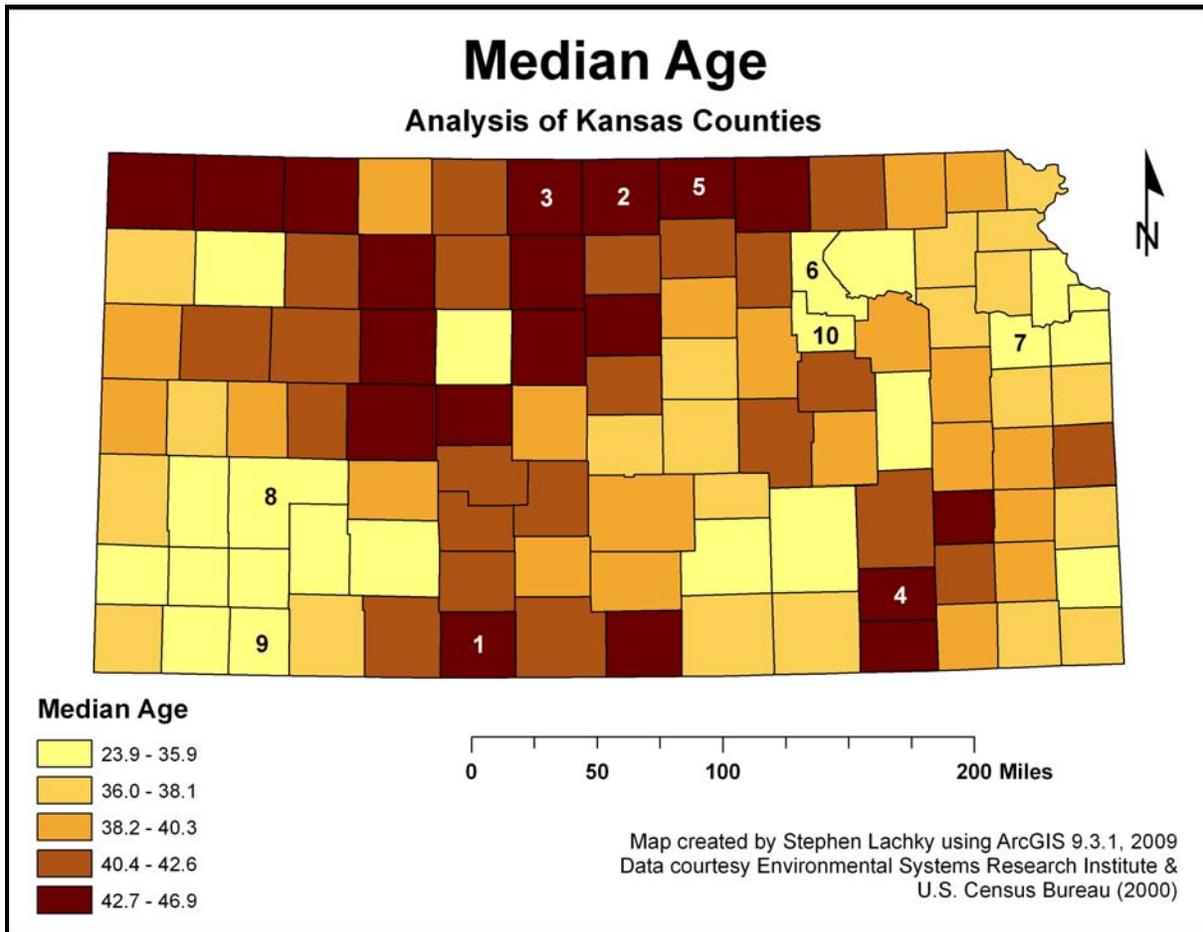


Table 4.7 identifies which Kansas counties have the highest median age (most affected by rural decline) and which Kansas counties have the lowest median age (least affected by rural decline). The superscripted numbers in the county listings in Table 4.7 correspond to the numbers and counties in Figure 4.8.

Table 4.7

Kansas Counties Rankings	Highest Median Age (most affected county)	Lowest Median Age (least affected county)
1)	<sup>1</sup> Comanche (46.9)	<sup>6</sup> Riley (23.9)
2)	<sup>2</sup> Jewell (46.2)	<sup>7</sup> Douglas (26.6)
3)	<sup>3</sup> Smith (46)	<sup>8</sup> Finney (28.1)
4)	<sup>4</sup> Elk (46)	<sup>9</sup> Seward (29)
5)	<sup>5</sup> Republic (45.7)	<sup>10</sup> Geary (29.1)

## **Low School Enrollments and High Number of School Consolidations**

School consolidation is the merging of two or more attendance areas to form a larger school; it occurs as a result of low school enrollments and has long-term and devastating economic and social effects on communities (State of Kansas Legislative Division of Post Audit, 2010). Thomas Lyson, Professor of Rural Sociology at Cornell University, found that schools are especially critical to the social and economic well-being of small communities; this is because they greatly contribute to the social capital of a community and add to its tax base. Furthermore, schools are vital to rural communities because they usually serve as the recreational and cultural center for sports, theater, music, and other civic activities. Lyson also noted that while towns claim money is saved within the school district through school consolidation, the same amount of money could actually be forfeited in lost taxes, declining property values, and lost businesses (Wood, 2008)

Wood (2008) explains how schools are considered one of the essential pieces and basic infrastructural elements needed in order for a community to function. He adds how problems of continual depopulation in school districts increase the risks for school consolidation and that it can cause a lot of pain and serious consequences to the affected local community. Not only do the towns suffer economically, but they risk becoming characterized as a “bedroom community” once their school is gone.

Jim Hays, a demographer with the Kansas Association of School Boards, said that 60% of the state’s school district lost enrollment during 2008. “If that keeps going,” he added, “it’ll have a huge effect on schools” (Wood, 2008, p. 32). As a result of the relationship between school enrollments, school consolidations, and factors associated with rural decline, the population variables “Lowest Percentage of Population Ages 5-18 Enrolled in K-12 Schools” and “Greatest Number of K-12 School District Consolidations since 1965” were utilized to rank Kansas counties and are illustrated in Figures 4.9 and 4.10 on pages 23 and 24.

Figure 4.9

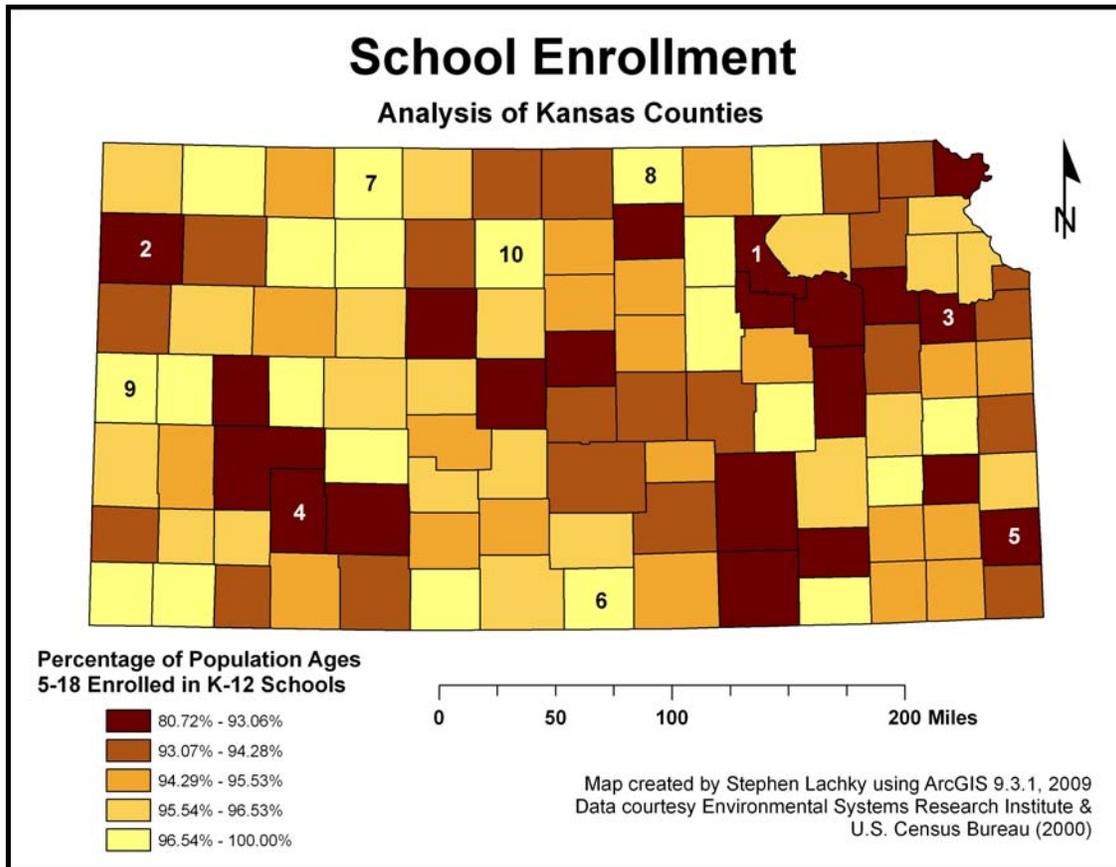


Table 4.8 identifies which Kansas counties have the lowest percentage of population ages 5-18 enrolled in K-12 schools (most affected by rural decline) and which Kansas counties have the highest percentage of population ages 5-18 enrolled in K-12 schools (least affected by rural decline). The superscripted numbers in the county listings in Table 4.8 correspond to the numbers and counties in Figure 4.9.

Table 4.8

Kansas Counties Rankings	Lowest Percentage of Population Ages 5-18 Enrolled in K-12 Schools (most affected county)	Highest Percentage of Population Ages 5-18 Enrolled in K-12 Schools (least affected county)
1)	<sup>1</sup> Riley (80.72%)	<sup>6</sup> Harper (100%)
2)	<sup>2</sup> Sherman (85.68%)	<sup>7</sup> Norton (100%)
3)	<sup>3</sup> Douglas (86.85%)	<sup>8</sup> Republic (99.46%)
4)	<sup>4</sup> Gray (89.47%)	<sup>9</sup> Greeley (99.45%)
5)	<sup>5</sup> Crawford (90.39%)	<sup>10</sup> Osborne (99.04%)

Figure 4.10

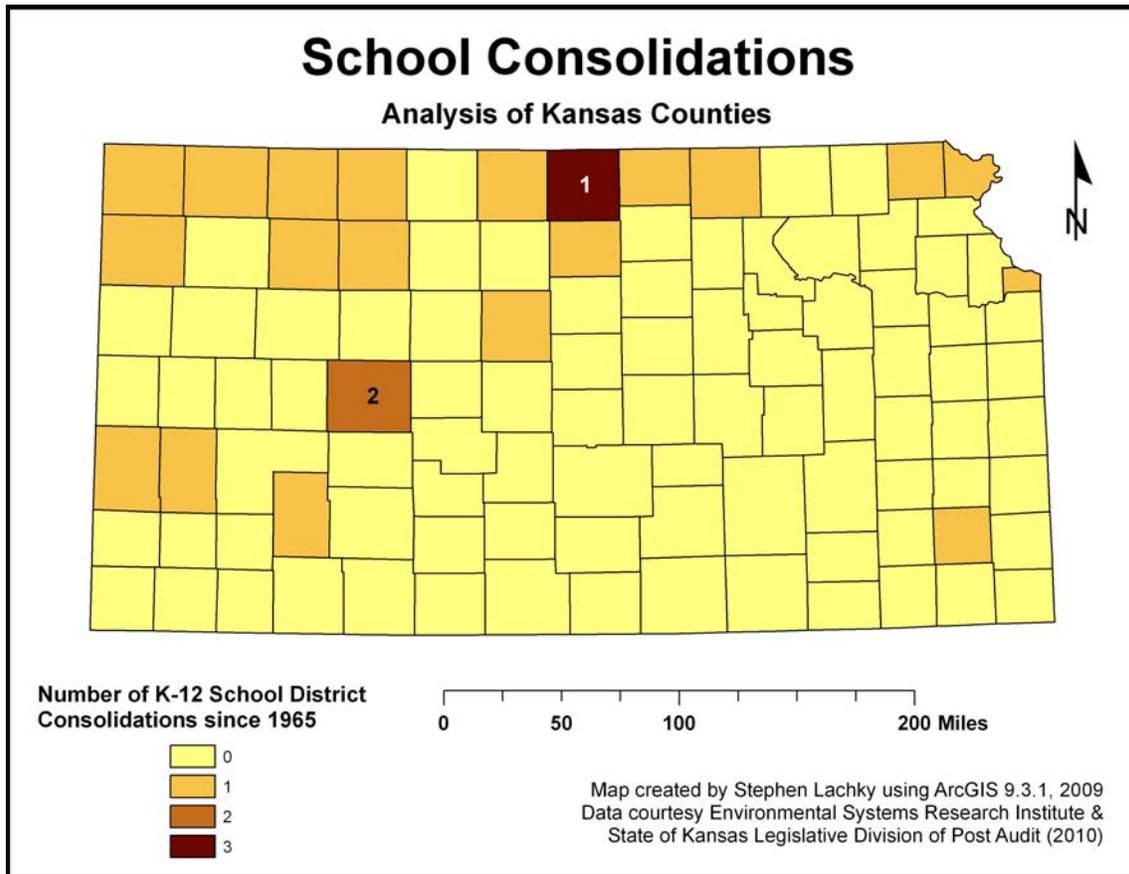


Table 4.9 identifies which Kansas counties have the greatest number of K-12 school district consolidations since 1965 (most affected by rural decline) and which Kansas counties have the smallest number of K-12 school district consolidations since 1965 (least affected by rural decline). The superscripted numbers in the county listings in Table 4.9 correspond to the numbers and counties in Figure 4.10.

Table 4.9

Kansas Counties Rankings	Greatest Number of K-12 School District Consolidations since 1965 (most affected county)	Smallest Number of K-12 School District Consolidations since 1965 (least affected county)
1)	<sup>1</sup> Jewell (3)	84 Counties (0)
2)	<sup>2</sup> Ness (2)	84 Counties (0)
3)	19 Counties (1)	84 Counties (0)
4)	19 Counties (1)	84 Counties (0)
5)	19 Counties (1)	84 Counties (0)

## **Low Population of College-Aged Individuals**

For decades, small towns in rural America have had problems retaining their youth. In what has become an all-too-familiar story, young people in their twenties are leaving rural communities due to a number of social and cultural factors. This includes the young leaving for college, moving away to avoid dead-end jobs and pursuing better paying ones, and because urban regions provide more amenities and attractions tailored to their desires (Wood, 2008). This trend, referred to as the “Rural Brain Drain,” which is characterized by a mass exodus of young, educated, and talented individuals to colleges, jobs, and other opportunities found in non-rural areas where the human and social capital is considered to be higher. The Rural Brain Drain is important to understand because its effects ultimately cripple the basic institutions and infrastructure of a small town necessary to sustain its community. The mass exodus of young and talented individuals not only threatens the economic stability of small towns, but also the entire region’s long-term goal for sustainability (Carr & Kefalas, 2009).

The psychological factor for teenagers in small towns to obtain human capital is present in rural America. Human capital includes personal attributes of an individual that contribute to their ability to earn a living, contribute to oneself, one’s family, and strengthen one’s community (Flora et al., 2004). The problem with the Rural Brain Drain and out-migration of America’s youth is that in a twenty-first-century world, is that acquiring human capital requires leaving for college and attaining an education in order to earn socioeconomic and geographic mobility. Many students believe that not having a college degree hurts their chances for upward mobility in the future (Carr & Kefalas, 2009). Wood (2008) believes that universities in a sense have inadvertently contributed to depopulation of student-aged populations and rural decline patterns by offering student age groups this opportunity of upward mobility.

Following graduation from high school, most students usually follow 3 paths. The 1<sup>st</sup> one is staying put and deciding to work at whatever job is available in the area. Most of the time, young adults who follow this path do so either because of early marriage, unplanned pregnancy and parenthood, drug problems, legal or financial troubles, or time in jail. The 2<sup>nd</sup> one is going away to attend college which is usually the state university. At least half of the students in this group never return home after college; sometimes this is due to students developing a lure and

growing fond of the urban American lifestyle. The 3<sup>rd</sup> path is moving away permanently and never returning (Carr & Kefalas, 2009). In summary, fewer than half return altogether, leaving the community devastated from the lack of 18-24 year-olds in the community. The jobs that are available for 18-24 year-olds in these communities are usually low-paying (around \$15 an hour), unchallenging, and unappealing (Wood, 2008).

Luring young, educated, and creative adults back to small towns is a challenging task. Demographers believe that in order to slow down rural outmigration of young adults, communities will have to provide incentives for those individuals to reside there. This includes providing tax incentives (through cuts, refunds, and credits), as well as providing attractive jobs and amenities within their communities (Carr & Kefalas, 2009). As a result of the relationship between college-aged individuals and factors associated with rural decline, the population variable “Smallest Percentage of Population Ages 18-24” was utilized to rank Kansas counties and is illustrated in Figure 4.11 on page 27.

Figure 4.11

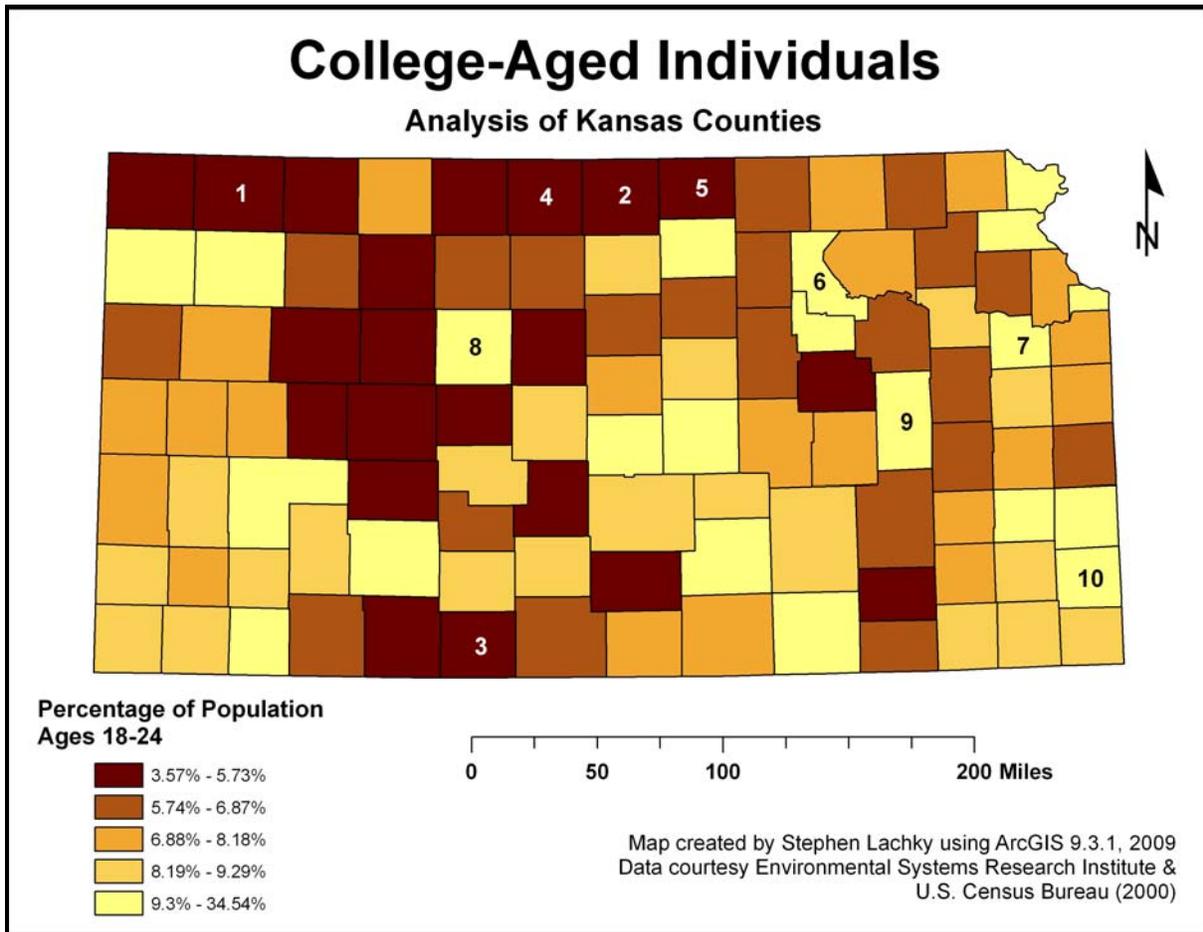


Table 4.10 identifies which Kansas counties have the smallest percentage of population ages 18-24 (most affected by rural decline) and which Kansas counties have the largest percentage of population ages 18-24 (least affected by rural decline). The superscripted numbers in the county listings in Table 4.10 correspond to the numbers and counties in Figure 4.11.

Table 4.10

Kansas Counties Rankings	Smallest Percentage of Population Ages 18-24 (most affected county)	Largest Percentage of Population Ages 18-24 (least affected county)
1)	<sup>1</sup> Rawlins (3.57%)	<sup>6</sup> Riley (34.54%)
2)	<sup>2</sup> Jewell (4.35%)	<sup>7</sup> Douglas (26.35%)
3)	<sup>3</sup> Comanche (4.47%)	<sup>8</sup> Ellis (18.60%)
4)	<sup>4</sup> Smith (4.61%)	<sup>9</sup> Lyon (16.97%)
5)	<sup>5</sup> Republic (4.76%)	<sup>10</sup> Crawford (16.02%)

## **Low Foreign Born Population**

Historically, the foreign born population in America has shown trends of migration into rural communities. The main reason is due to the job opportunities available to them (Wood, 2008). Rural areas have always lagged behind urban areas in terms of the educational level of their labor force; consequently, most of the prominent industries in rural America include manufacturing and food processing, which pays low wages and offers few benefits to their employees. Foreign born individuals, more often than not, are willing to relocate to rural communities, and take these jobs that require little educational attainment. Nevertheless, most industries in rural America employ large numbers of foreign born individuals (Flora et al., 2004).

Small towns recognize the importance of recruiting outsiders to their community who can contribute to the local labor force and encourage economic growth. Ideally, these towns would prefer receiving young, educated individuals, but historically, rural communities have always sought and welcomed foreign born immigrants (Carr & Kefalas, 2009).

Carr & Kefalas (2009) believe that future population growth in rural communities will either come through in-migration of individuals from outside of the state, or by in-migration of individuals from outside of the country. They stress immigration as a solution to both the short-term and long-term viability of communities in rural America. As a result of the relationship between foreign born individuals and factors associated with rural decline, the population variable “Smallest Number of Foreign Born Population” was utilized to rank Kansas counties and is illustrated in Figure 4.12 on page 29.

Figure 4.12

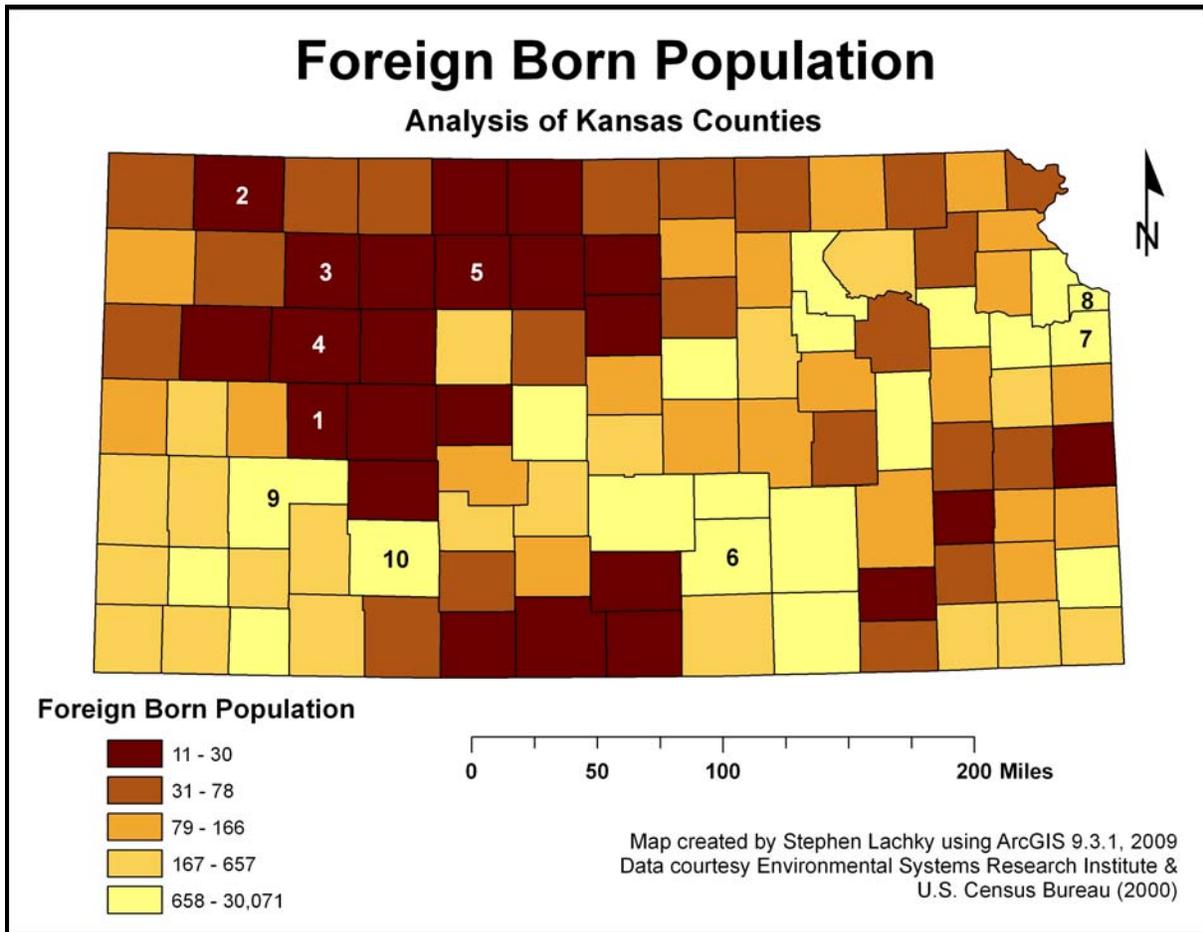


Table 4.11 identifies which Kansas counties have the smallest number of foreign born population (most affected by rural decline) and which Kansas counties have the largest number of foreign born population (least affected by rural decline). The superscripted numbers in the county listings in Table 4.11 correspond to the numbers and counties in Figure 4.12.

Table 4.11

Kansas Counties Rankings	Smallest Number of Foreign Born Population (most affected county)	Largest Number of Foreign Born Population (least affected county)
1)	<sup>1</sup> Lane (11)	<sup>6</sup> Sedgwick (30,071)
2)	<sup>2</sup> Rawlins (11)	<sup>7</sup> Johnson (25,531)
3)	<sup>3</sup> Sheridan (12)	<sup>8</sup> Wyandotte (14,954)
4)	<sup>4</sup> Gove (14)	<sup>9</sup> Finney (9,193)
5)	<sup>5</sup> Rooks (14)	<sup>10</sup> Ford (7,317)

## CHAPTER 5 - Population Analysis Conclusions

A total of 11 population variables were utilized for the ArcGIS 9.3.1 simulation and modeling research of this report; the purpose was to visually display population data related to rural decline throughout the state of Kansas in hope of identifying any spatial phenomenon. In order to conduct a summary analysis of the population variables, data for each variable was put into an Excel 2007 spreadsheet and sorted numerically. The counties were then ranked from 1 to 105 in relation to their specific variable, with 1 representing “most affected by rural decline” and 105 representing “least affected by rural decline”; thus, the higher the ranking a county received, the more affected by factors associated with rural decline it was deemed. Once the rankings were conducted for each population variable, the numerical results for each ranking were summed up (the most possible points a county could receive for the population analysis was 1,555). Figure 5.1 on page 32 illustrates the results of the population analysis.

Figure 5.1 displays several population trends evident throughout the State of Kansas. The lightest colored counties that are classified as “least affected by rural decline” are located in the northeastern and south-central portions of the state; this makes sense as these locations contain urban areas, metropolitan areas, and major population centers. Although not displayed in Figure 5.1, the Kansas City Metropolitan Area in the northeastern portion of the state has served as a population base for Wyandotte, Johnson, and their surrounding counties for years, contributing steady influxes of population into the counties over the 20<sup>th</sup> Century; it is no consequence that these counties totaled the fewest number of population points when ranked by population densities, losses, and projected decline variables. The same pattern is true for the Wichita Metropolitan area in Sedgwick and its surrounding counties.

The darkest colored counties in Figure 5.1 that are classified as “most affected by rural decline” are located in the north-central and northwestern portions of the state, primarily along the Kansas-Nebraska border. This makes sense as there are few urban areas and major population centers residing in these counties, and they are located 50+ miles from interstate highways (the importance of which will be discussed in Chapter 8).

An interesting population trend observed in Figure 5.1 is the phenomenon of counties in the southwestern portion of the state ranked low in the final population analysis. The reason this

seems out of norm is because there are no metropolitan areas present, and the only major cities in that quarter of the state are Garden City (population 28,451), Dodge City (population 25,176), Liberal (population 19,666), and Morton (population 20,120). Additionally, these counties are located up to 100+ miles from interstate highways, twice as far a distance as the counties along the Kansas-Nebraska border.

Overall, relationships exists between the presence of large urban areas, metropolitan areas, major cities, and the county population ranking results; counties that were located near these elements totaled fewer points in the population variable numerical ranking analysis compared to counties that didn't. This is important to understand because large, growing, and diverse populations contribute to a region's industries, businesses and local services, and can give hope of survival to struggling small town communities in rural America function (Wood, 2008).

Figure 5.1

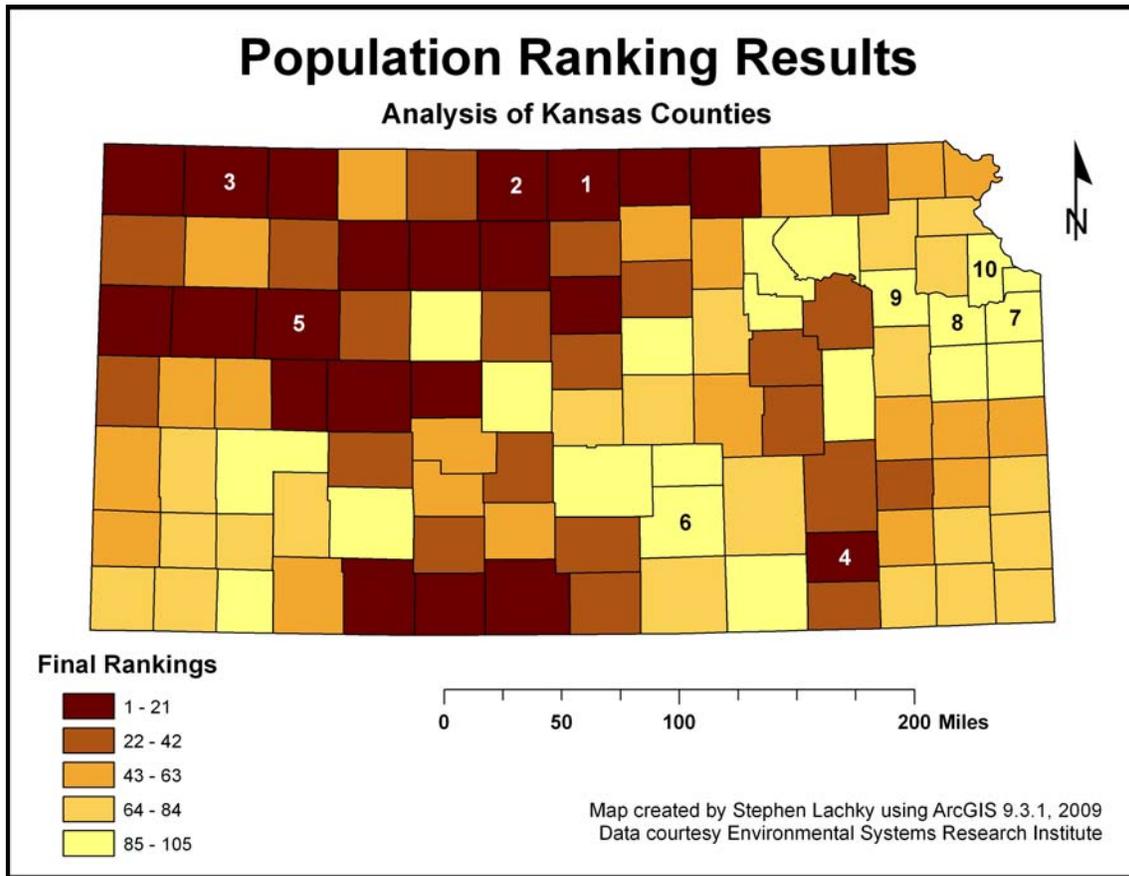


Table 5.1 identifies the final population rankings according to Kansas counties. The numbers were summed up and the totals displayed including the highest total population points (most affected by rural decline) and the least total population points (least affected by rural decline). The superscripted numbers in the county listings in Table 5.1 correspond to the numbers and counties in Figure 5.1.

Table 5.1

Kansas Counties Rankings	Highest Total Population Points (most affected county)	Least Total Population Points (least affected county)
1)	<sup>1</sup> Jewell (977 Total Points)	<sup>6</sup> Sedgwick (170 Total Points)
2)	<sup>2</sup> Smith (934 Total Points)	<sup>7</sup> Johnson (184 Total Points)
3)	<sup>3</sup> Rawlins (909 Total Points)	<sup>8</sup> Douglas (258 Total Points)
4)	<sup>4</sup> Elk (894 Total Points)	<sup>9</sup> Shawnee (263 Total Points)
5)	<sup>5</sup> Gove (884 Total Points)	<sup>10</sup> Leavenworth (264 Total Points)

## **CHAPTER 6 - Economic Characteristics, Patterns, and Trends**

Economic data is very important in understanding the success of a region. Daniels, Keller, Lapping, Daniels, & Segedy (2007) mention how economic capital greatly contributes to rural communities' and their success because it influences jobs, industries, and migration patterns of people. Rural communities are heavily dependent on jobs to support their tax base, and the more job opportunities available, the better off that community is in sustaining its population as well as attracting new residents to their towns (Sherman, 2009). This chapter summarizes economic characteristics, patterns, and trends associated with decline in rural communities, and explains the rationale for selecting the economic variables used to conduct the simulation and modeling research of this report.

### **Low Per Capita Incomes**

Statistics indicate that higher earnings per job in farming, mining, services, and government jobs are associated with significant population growth and less population loss (Goetz & Debertin, 1996). However, the problem with rural communities is that they are usually desperate to attract any type of jobs; this results in towns recruiting low-wage firms, which translates to low-wage jobs and lower per capita incomes. Lower per capita incomes affect communities negatively because it creates a smaller tax base with which to support and improve upon basic community infrastructure (Flora et al., 2004).

Daniels, Keller, Lapping, Daniels, and Segedy (2007) discuss the relationship between income and rural communities; mainly how the success of rural America can often be measured by analyzing income per capita. Furthermore, in 2000, the Department of Commerce ranked all 3,110 counties in the U.S. according to their per capita income. Rural counties statistically proved to be the worst as only one county among the poorest 50 was classified as metropolitan (Jackson, 2002). As a result of the relationship between income and factors associated with rural decline, the economic variable "Lowest Per Capita Income" was utilized to rank Kansas counties and is illustrated in Figure 6.1 on page 34.

Figure 6.1

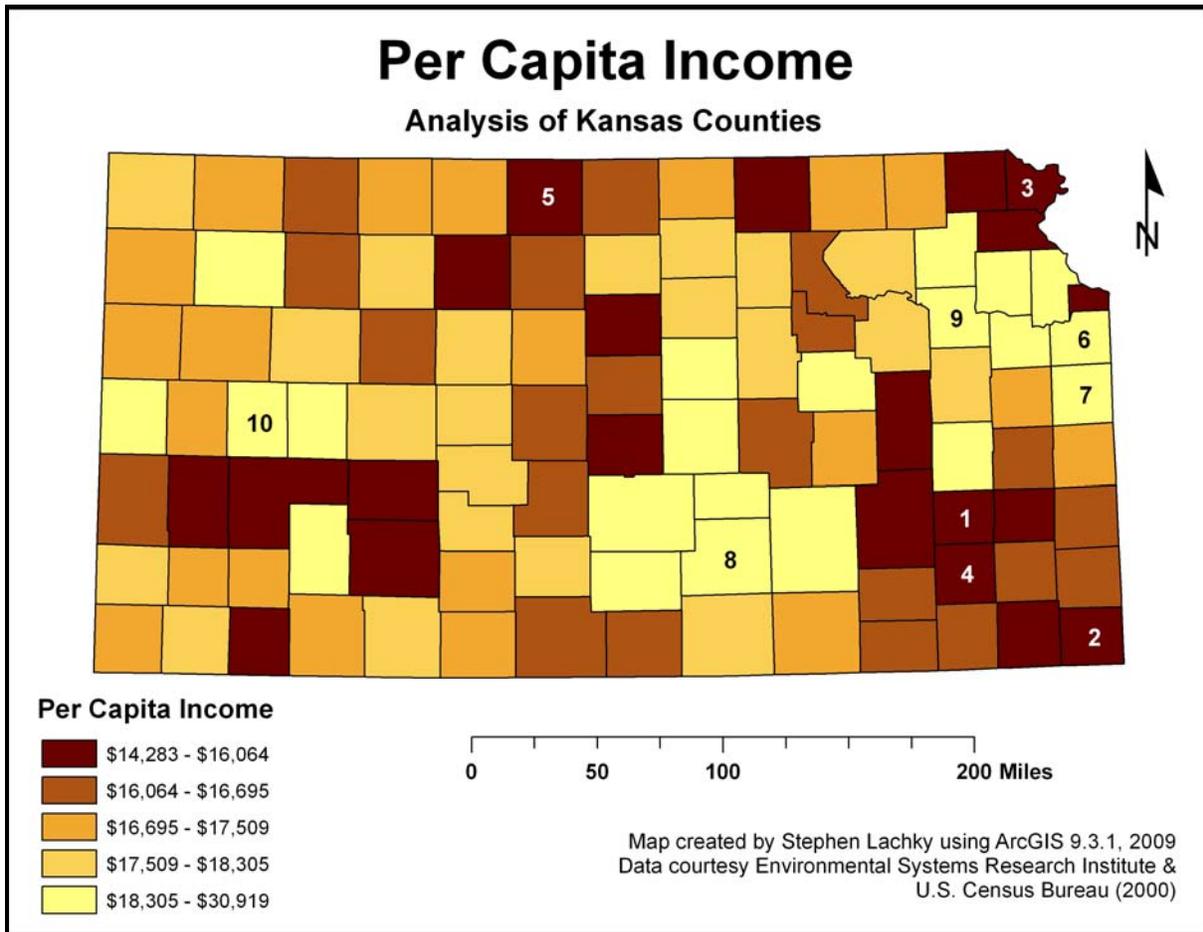


Table 6.1 identifies which Kansas counties have the lowest per capita income (most affected by rural decline) and which Kansas counties have the highest per capita income (least affected by rural decline). The superscripted numbers in the county listings in Table 6.1 correspond to the numbers and counties in Figure 6.1.

Table 6.1

Kansas Counties Rankings	Lowest Per Capita Income (most affected county)	Highest Per Capita Income (least affected county)
1)	<sup>1</sup> Woodson (\$14,283)	<sup>6</sup> Johnson (\$30,919)
2)	<sup>2</sup> Cherokee (\$14,710)	<sup>7</sup> Miami (\$21,408)
3)	<sup>3</sup> Doniphan (\$14,849)	<sup>8</sup> Sedgwick (\$20,907)
4)	<sup>4</sup> Wilson (\$14,910)	<sup>9</sup> Shawnee (\$20,904)
5)	<sup>5</sup> Smith (\$14,983)	<sup>10</sup> Scott (\$20,443)

## **High Poverty Rates**

Rural poverty is a problem in the Midwest and is one of the major problems of small towns (Jackson, 2002). The visual side-effects of rural poverty are widespread and aesthetically displeasing. It's not uncommon for drivers traveling throughout rural America to notice shacks on the sides of roads, rows of trailer parks, and homes with garbage and abandoned vehicles in their front yards (Bryson, 1989).

Poverty rates in the U.S. tend to be higher (almost 25% higher) in rural areas compared to urban areas, as people living in rural areas typically have fewer educational and job opportunities which contributes to rural poverty (Flora et al., 2004). Furthermore, 90% of all "persistent-poverty" counties defined by the United States Department of Agriculture (USDA) are rural counties. Counties defined as "persistent-poverty" are those with a poverty rate 20% or higher in each decennial census since 1960 (Wood, 2008); in 1990, a whopping three-hundred and sixty-three non-metropolitan counties were classified as "persistently poor" (Flora et al., 2004).

Flora, Flora, & Fey (2004) discuss the relationship between poverty and rural communities; particularly how poverty rates are a good variable to compare communities side-by-side. One of the reasons why is because poverty is a common reason why Americans migrate out of rural communities. Recent high school graduates and young adults who live in small towns in rural America often have jobs that have little opportunity for their wages to increase over time; often their earning potential is maxed out by the time they're in their mid-twenties. Small-town America has been characterized by this phenomenon and it continues to slowly devastate their communities. Pulitzer Prize-winning author Richard Russo describes this action by rural Americans as, "...hanging on to home and hanging onto pride, and hanging on by a thread" (Carr & Kefalas, 2009, p. 26). As a result of the relationship between poverty and factors associated with rural decline, the economic variable "Highest Percentage Poverty Rate" was utilized to rank Kansas counties and is illustrated in Figure 6.2 on page 36.

Figure 6.2

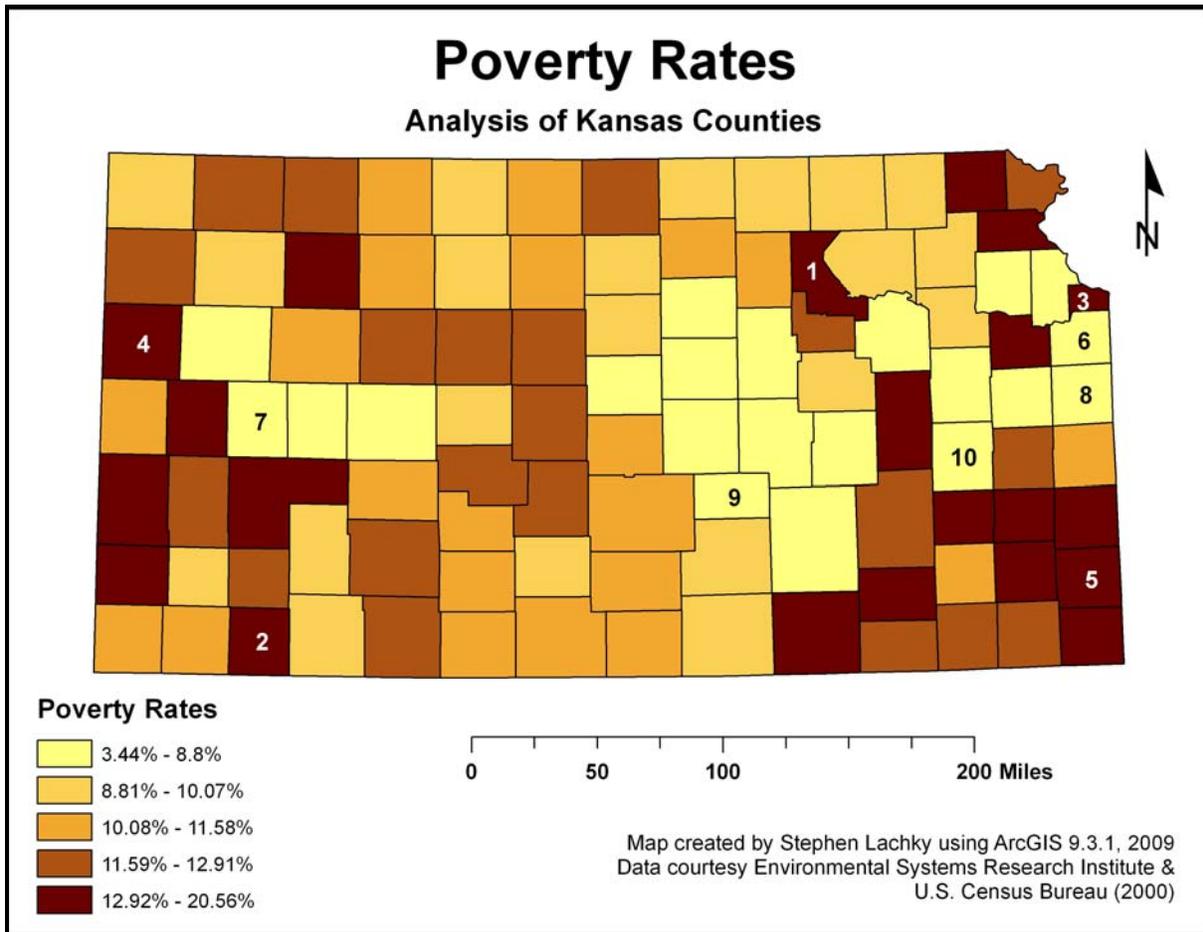


Table 6.2 identifies which Kansas counties have the highest poverty rates (most affected by rural decline) and which Kansas counties have the lowest poverty rates (least affected by rural decline). The superscripted numbers in the county listings in Table 6.2 correspond to the numbers and counties in Figure 6.2.

Table 6.2

Kansas Counties Rankings	Highest Poverty Rates (most affected county)	Lowest Poverty Rates (least affected county)
1)	<sup>1</sup> Riley (20.56%)	<sup>6</sup> Johnson (3.44%)
2)	<sup>2</sup> Seward (16.90%)	<sup>7</sup> Scott (5.09%)
3)	<sup>3</sup> Wyandotte (16.54%)	<sup>8</sup> Miami (5.54%)
4)	<sup>4</sup> Wallace (16.10%)	<sup>9</sup> Harvey (6.41%)
5)	<sup>5</sup> Crawford (15.95%)	<sup>10</sup> Coffey (6.61%)

## **High Unemployment Rates**

Unemployment has always been a frequent and common problem in rural America (Wood, 2008). The workforce in rural America is characterized as being hardworking, skilled, and loyal. But the problem isn't finding these workers; the problem is finding steady and well-paying jobs for rural Americans to make a decent living. Job decline and unemployment are devastating for rural communities and their survival because rural communities are heavily-dependent on jobs and industries to support their tax base, as well as attracting new residents to their towns. Many of the jobs available in rural communities are viewed as a "way of life" by the residents, and they tend to connect their sense of identity to them; nevertheless, once these jobs are gone, the community begins to die (Sherman, 2009).

Daniels, Keller, Lapping, Daniels, and Segedy (2009) discuss employment in rural communities; mainly how the success of rural America can often be measured by analyzing unemployment rates. Furthermore, statistics indicate that higher rates of unemployment are associated with significant negative effects on population growth, mainly because the lack of well-paying jobs negatively influences outsiders looking to migrate into rural America (Goetz & Debertin, 1996). As a result of the relationship between unemployment and factors associated with rural decline, the economic variable "Highest Unemployment Rate" was utilized to rank Kansas counties and is illustrated in Figure 6.3 on page 38.

Figure 6.3

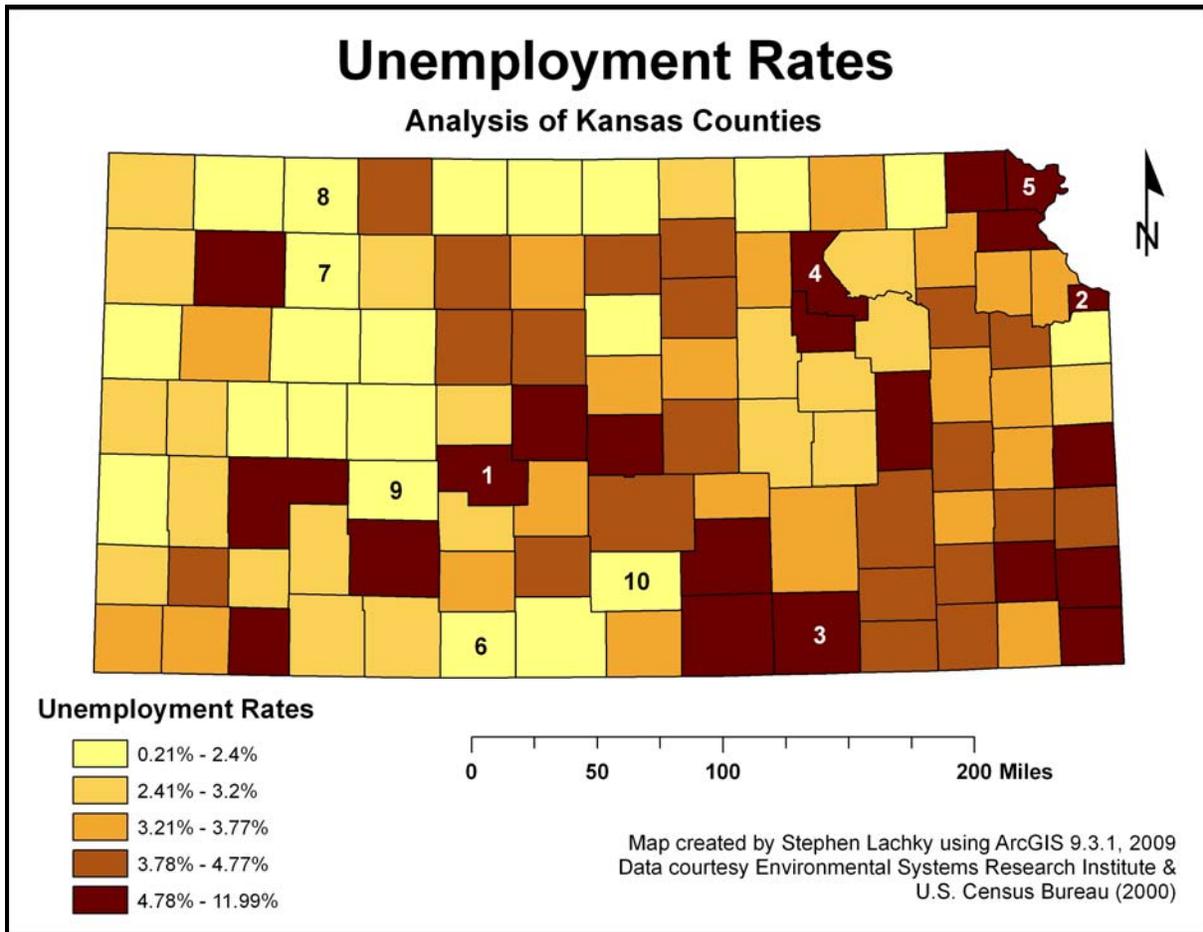


Table 6.3 identifies which Kansas counties have the highest unemployment rates (most affected by rural decline) and which Kansas counties have the lowest unemployment rates (least affected by rural decline). The superscripted numbers in the county listings in Table 6.3 correspond to the numbers and counties in Figure 6.3.

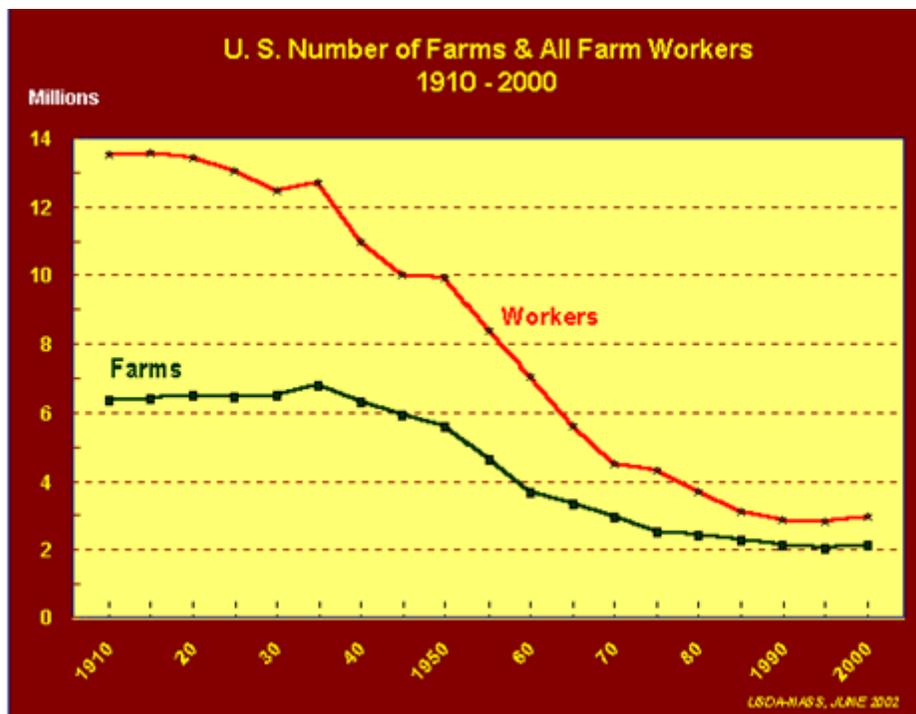
Table 6.3

Kansas Counties Rankings	Highest Unemployment Rates (most affected county)	Lowest Unemployment Rates (least affected county)
1)	<sup>1</sup> Pawnee (11.99%)	<sup>6</sup> Comanche (0.21%)
2)	<sup>2</sup> Wyandotte (8.25%)	<sup>7</sup> Sheridan (0.64%)
3)	<sup>3</sup> Cowley (7.82%)	<sup>8</sup> Decatur (1.05%)
4)	<sup>4</sup> Riley (7.02%)	<sup>9</sup> Hodgeman (1.39%)
5)	<sup>5</sup> Doniphan (6.99%)	<sup>10</sup> Kingman (1.42%)

## Dependency on Agriculture & Mining Industries

Beginning after World War II, land-grant schools across the Midwest began devoting more research and courses towards large-scale farming practices. Innovations in agricultural technology and farming practices including mechanized feeding, selective breeding, and factory-style processing farms also came about; this allowed for significant increases in productivity throughout the agriculture industry. Consequently, the creation of these types of jobs led to the expansion of large-scale farming which shifted the agricultural industry from pastures to feedlots and factories. As a result, farms today require fewer employees per acre (Wood, 2008). Figure 6.4 depicts this trend between U.S. farms and workers over the years 1910-2000.

**Figure 6.4 (U.S. Department of Agriculture, 2009)**



Agricultural and mining towns have existed throughout rural America for years. They usually contribute to their region's service industry with their particular resource; however, the loss of their resource over time can be devastating economically, not only on their town, but on the entire region as a whole. This loss is quite common and frequently translates into steady

population decline (Daniels et al., 2007). Sherman (2009) explains how rural communities dependent on natural resources and extractive industries were the hardest hit by de-industrialization in rural America over the decades. This was shown statistically by the decline of farm & extractive industry ownership and employment in the Midwest; furthermore, this restructuring has contributed to many of the problems in rural America including unemployment, underemployment, and poverty.

By 2008, 90% of rural income came from non-farming sources. Additionally, the agriculture industry only accounted for about 6% of rural employment; this depicts a significant shift in the dependency of the agricultural industry over the 20<sup>th</sup> Century (Wood, 2008). As a result of the relationship between agriculture & mining industries and factors associated with rural decline, the economic variables “Greatest Percentage of Agriculture & Mining Employees compared to Total County Employees” and “Greatest Percentage of Agriculture & Mining Establishments compared to Total County Employees” were utilized to rank Kansas counties and are illustrated in Figures 6.5 and 6.6 and pages 41 and 42.

Figure 6.5

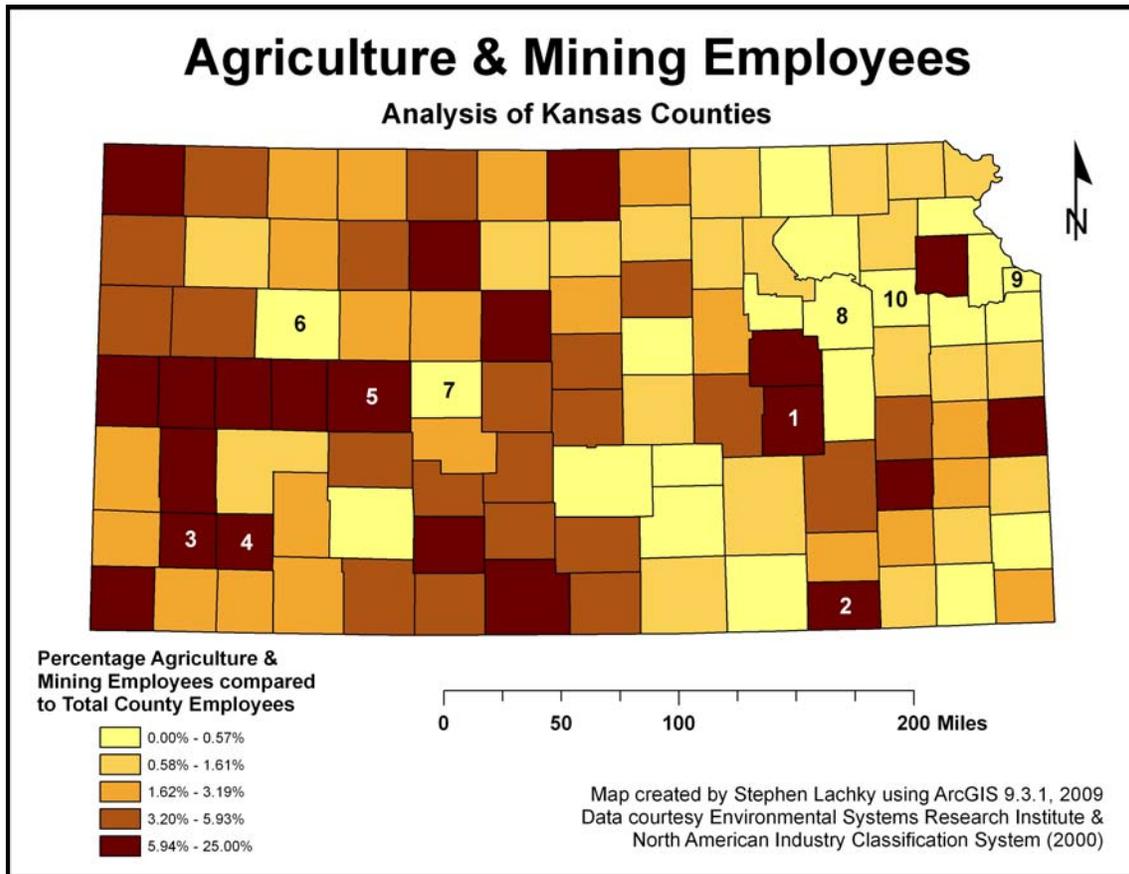


Table 6.4 identifies which Kansas counties have the greatest percentage of agriculture & mining employees compared to total county employees (most affected by rural decline) and which counties have the lowest percentage of agriculture & mining employees compared to total county employees (least affected by rural decline). The superscripted numbers in the county listings in Table 6.4 correspond to the numbers and counties in Figure 6.5.

Table 6.4

Kansas Counties Rankings	Greatest Percentage of Agriculture & Mining Employees (most affected county)	Lowest Percentage of Agriculture & Mining Employees (least affected county)
1)	<sup>1</sup> Chase (25.00%)	<sup>6</sup> Gove (0.00%)
2)	<sup>2</sup> Chautauqua (19.90%)	<sup>7</sup> Rush (0.00%)
3)	<sup>3</sup> Grant (16.42%)	<sup>8</sup> Wabaunsee (0.00%)
4)	<sup>4</sup> Haskell (15.08%)	<sup>9</sup> Wyandotte (0.00%)
5)	<sup>5</sup> Ness (12.83%)	<sup>10</sup> Shawnee (0.04%)

Figure 6.6

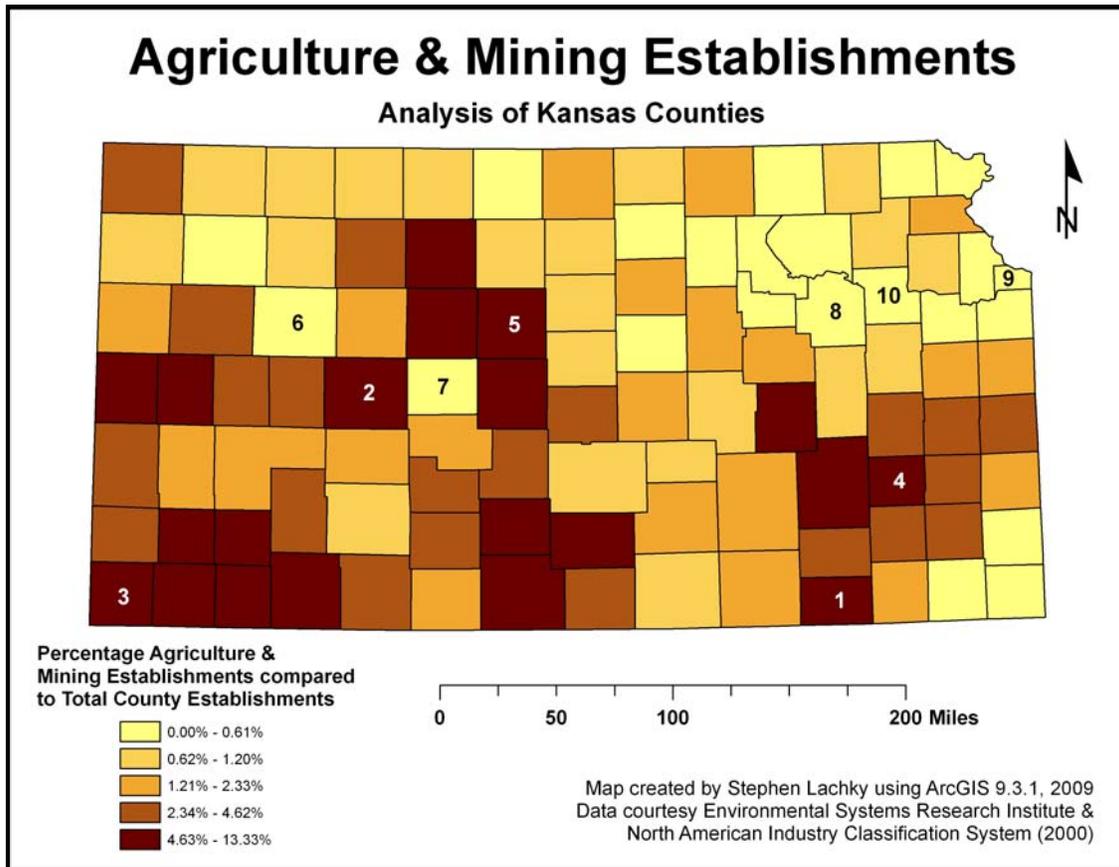


Table 6.5 identifies which Kansas counties have the greatest percentage of agriculture & mining establishments compared to total county establishments (most affected by rural decline) and which Kansas counties have the lowest percentage of agriculture & mining establishments compared to total county establishments (least affected by rural decline). The superscripted numbers in the county listings in Table 6.5 correspond to the numbers and counties in Figure 6.6.

Table 6.5

Kansas Counties Rankings	Greatest Percentage of Agriculture & Mining Establishments (most affected county)	Lowest Percentage of Agriculture & Mining Establishments (least affected county)
1)	<sup>1</sup> Chautauqua (13.33%)	<sup>6</sup> Gove (0.00%)
2)	<sup>2</sup> Ness (12.74%)	<sup>7</sup> Rush (0.00%)
3)	<sup>3</sup> Morton (12.40%)	<sup>8</sup> Wabaunsee (0.00%)
4)	<sup>4</sup> Woodson (10.09%)	<sup>9</sup> Wyandotte (0.00%)
5)	<sup>5</sup> Russell (9.28%)	<sup>10</sup> Shawnee (0.13%)

## **Farming-Dependent Counties**

After World War II, innovations in agricultural technology and farming practices led to significant increases in farming productivity throughout rural America; consequently, farms across the nation began consolidating or closing operations. This was due to the decrease in the need for farms and increases in land prices making it unaffordable for smaller farms to maintain their operations. As of 2008, 90% of rural income came from non-farming sources; furthermore, the agricultural industry only accounted for about 6% of rural employment (Wood, 2008).

The U.S. Department of Agriculture (2009) defines “Farming-Dependent Counties” as counties with 15% or more of their average annual earnings or 15% of their employment coming from farming. Goertz & Debertin (1996) explain how counties dependent on farms for industry are typically associated with significant levels of population loss. Additionally, between 1980 and 1990, it was common for farming-dependent counties to lose up to 20% of their population; this was because the high land values associated with farming were not enough to offset the consequences for rural population loss. As a result of the relationship between farming dependency and rural communities, the economic variable “Farming-Dependent Counties” was utilized to rank Kansas counties and is illustrated in Figure 6.7 on page 44. Figure 6.7 displays the location of Farming-Dependent Counties according to the U.S. Department of Agriculture’s Economic Research Service (2000).

Figure 6.7

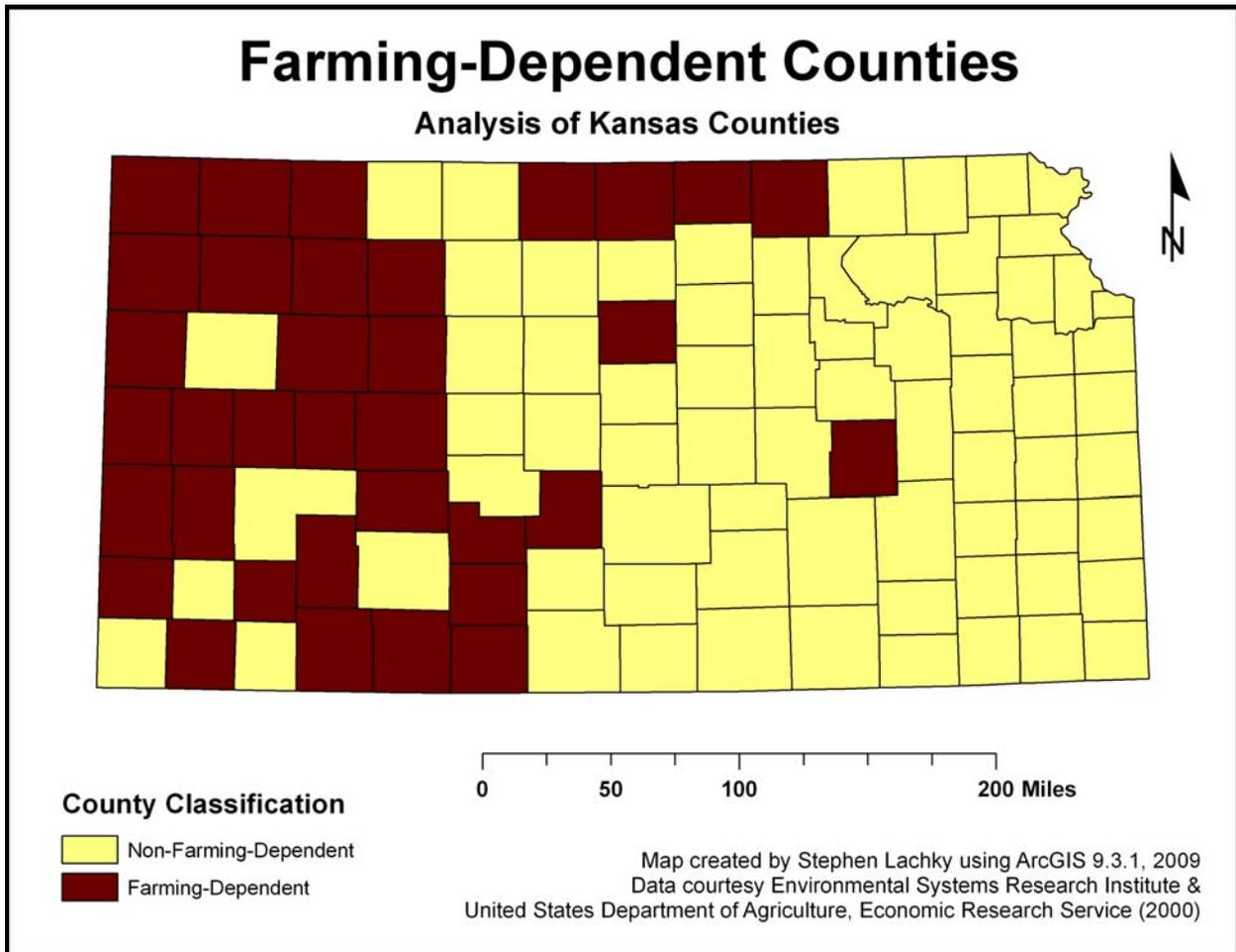


Table 6.6 identifies the total number of Kansas counties that are classified as farming-dependent (most affected by rural decline) and the total number of Kansas counties that are not classified as farming-dependent (least affected by rural decline).

Table 6.6

Kansas Counties Rankings	Farming-Dependent Counties (most affected county)	Non-Farming Dependent Counties (least affected county)
1)	34 Counties Total	71 Counties Total
2)	34 Counties Total	71 Counties Total
3)	34 Counties Total	71 Counties Total
4)	34 Counties Total	71 Counties Total
5)	34 Counties Total	71 Counties Total

## **High Number of Farm Units**

At the beginning of the 20<sup>th</sup> Century most people lived in rural communities, and most of those individuals resided on farms. Over the 20<sup>th</sup> Century, particularly after World War II, the farming industry as a whole began to decline due to innovations in farming technology which caused an increase in farm productivity (1 farmer today produces what 5 farmers did in 1940). As a result, farms required less land, less manual labor, and fewer workers per acre; ultimately, this gave rise to large-scale corporate farming and led to the demise in the traditional “family farming” industry. This trend is fairly evident as shown by Figure 6.4 on page 39; the number of farmers in the U.S. dropped dramatically over the past century (almost 80%) from about 14 million in 1910 to about 2 million in 2008 (Wood, 2008).

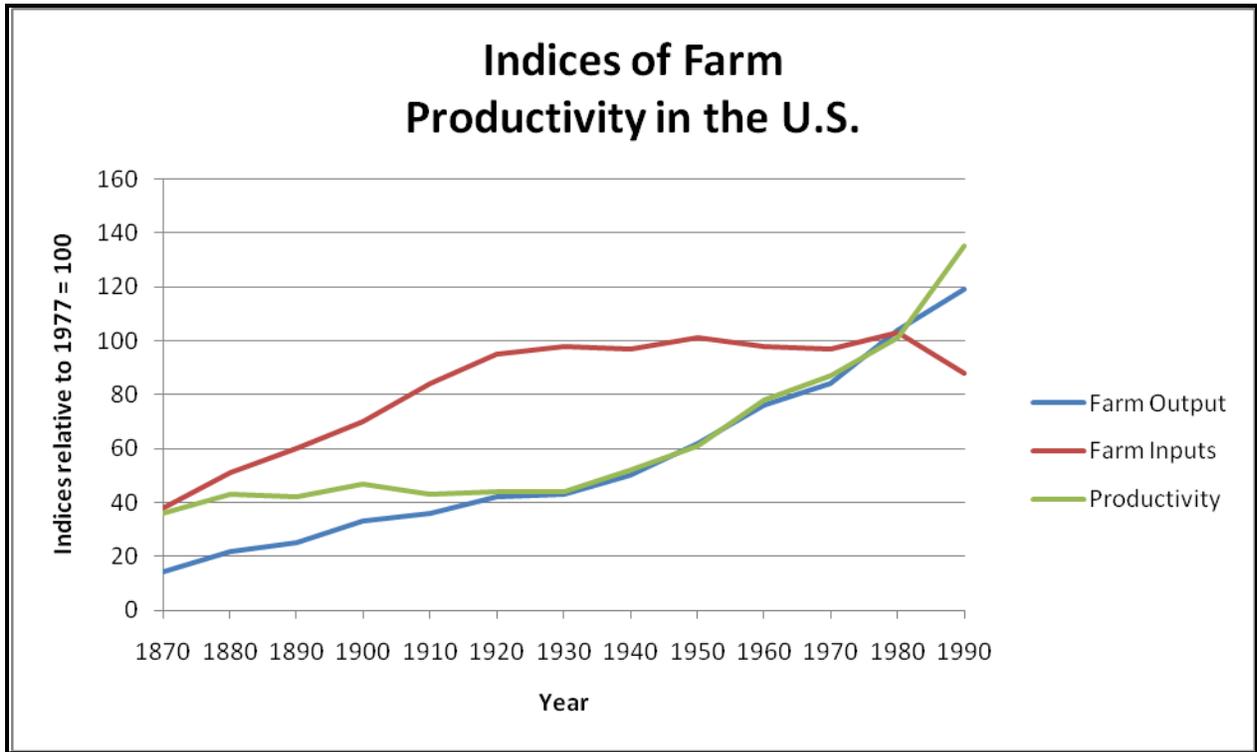
Jackson (2002) explains how low income discourages young adults from joining the farming profession. He says how farming occupations used to be particularly attractive to young adults in rural America; however, the migration of young adults to more urbanized areas with more amenities, better paying jobs, and attractive lifestyle has contributed to the demise in the number of farming units across the nation. This has affected the average age of farmers as well. In 2005, the Kansas Farm Bureau measured the average age of farmers by membership to be 58 years old (Wood, 2008).

The U.S. Census Bureau (2000) defines a “farm” as any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. In 1970, there were 87,000 farm units in Kansas, and by 2005, 1/3 of those had either combined with other farms or ceased to exist. Consequently, with the demise in farm units, the average size of a Kansas farm increased by about a third from 550 acres to 750 acres. Farmers today grow about 3 times as much food on 1/3 of the land, using just 2/3 of the manpower as they did before World War II; additionally, 90% of rural income comes from non-farming sources. The agricultural industry also only accounts for about 6% of rural employment (Wood, 2008).

Farm exports accounted for 80% of U.S. exports during the decade after the Civil War, but this proportion shrunk to 32% by 1932. By 1996, farm exports made up only 10% of the

nation's exports, even though 50% of farm production is exported (Flora et al., 2004). Figure 6.8 illustrates how farm productivity progressively increased over the course of the 20<sup>th</sup> Century.

**Figure 6.8 (Mayer, 1993)**



As a result of the relationship between farm units and factors associated with rural decline, the economic variable “Greatest Number of Farm Units” was utilized to rank Kansas counties and is illustrated in Figure 6.9 on page 47.

Figure 6.9

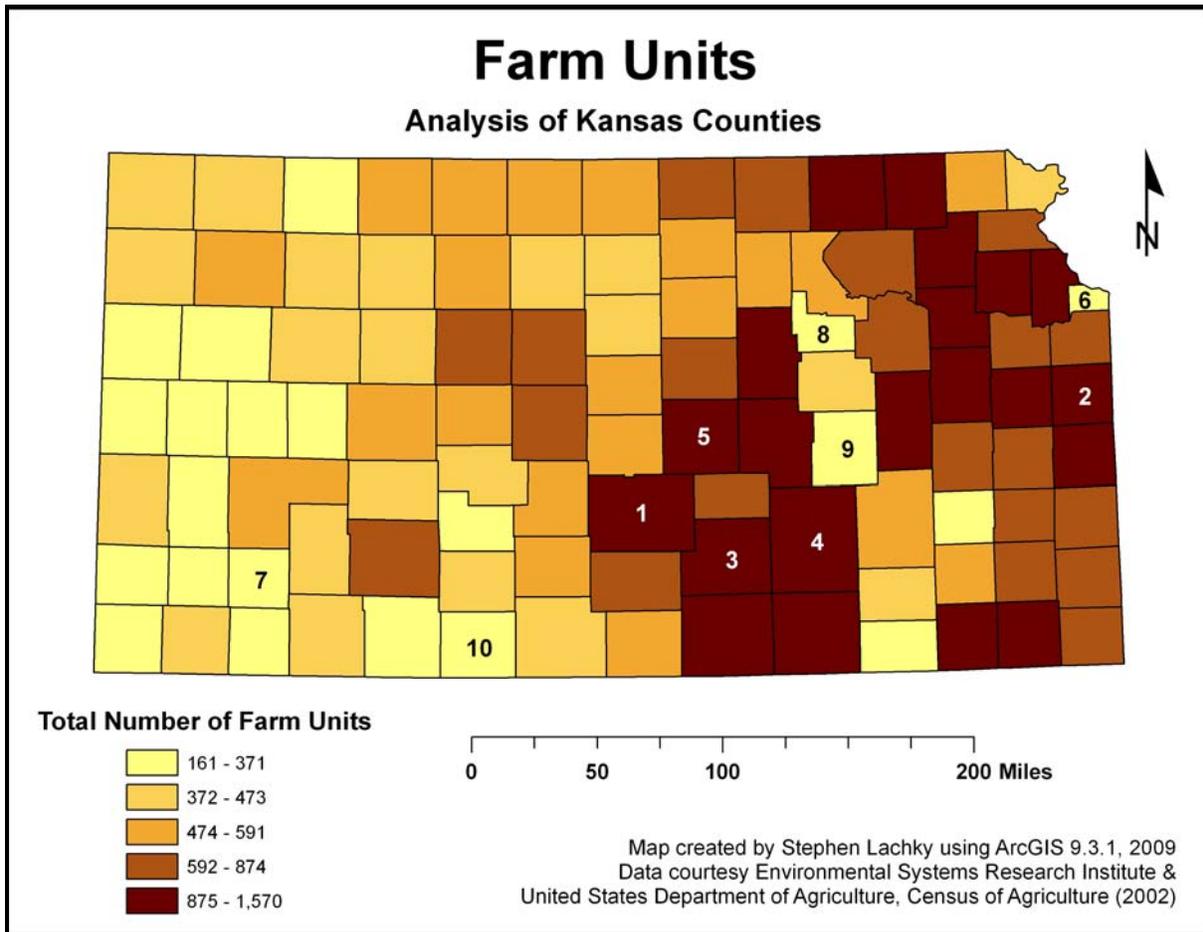


Table 6.7 identifies which Kansas counties have the greatest number of farm units (most affected by rural decline) and which Kansas counties have the least number of farm units (least affected by rural decline). The superscripted numbers in the county listings in Table 6.7 correspond to the numbers and counties in Figure 6.9.

Table 6.7

Kansas Counties Rankings	Greatest Number of Farm Units (most affected county)	Least Number of Farm Units (least affected county)
1)	<sup>1</sup> Reno (1,570)	<sup>6</sup> Wyandotte (161)
2)	<sup>2</sup> Miami (1,424)	<sup>7</sup> Haskell (227)
3)	<sup>3</sup> Sedgwick (1,355)	<sup>8</sup> Geary (245)
4)	<sup>4</sup> Butler (1,309)	<sup>9</sup> Chase (260)
5)	<sup>5</sup> McPherson (1,161)	<sup>10</sup> Comanche (274)

## **Dependency on Government Payments to Maintain Farms**

The federal government first began providing farmers aid through farm legislation in 1933 during the New Deal with the Agricultural Adjustment Act of 1933. Since then, policy options have been implemented on farms throughout rural America, affecting thousands of small towns and communities (Wood, 2008). In fact, 89% of Kansas net farm income in 1999 was from the \$20 billion federal bailout of U.S. agriculture (Jackson, 2002).

Many people believe that farm payment programs preserve family farms and maintain the viability of rural economies, others believe that depopulation in rural America was caused or accelerated by federal policy decisions, and others complain that federal programs favor large farmers at the expense of small ones. Wood (2008) explains how he believes many policy options and government incentives for rural America are often slow to be approved or implemented, and that often times farms are failing and all the farmers are doing is sitting back, waiting for the federal government to sweep in and save them.

Farm payment programs are intended to slow the loss of farm numbers and reduce farm labor out-migration; however, large program payments in the late 1980s were associated with significant population loss from rural areas, and the proportionally largest payments were associated with the greatest relative population losses. Additionally, higher farm program payments as a share of crop and livestock cash marketing receipts were associated with significantly higher rates of population out-migration from a county (Goetz & Debertin, 1996). As a result of the relationship between government payments and factors associated with rural decline, the economic variable “Highest Amount of Government Payments to Farms Received” was utilized to rank Kansas counties and is illustrated in Figure 6.10 on page 49.

Figure 6.10

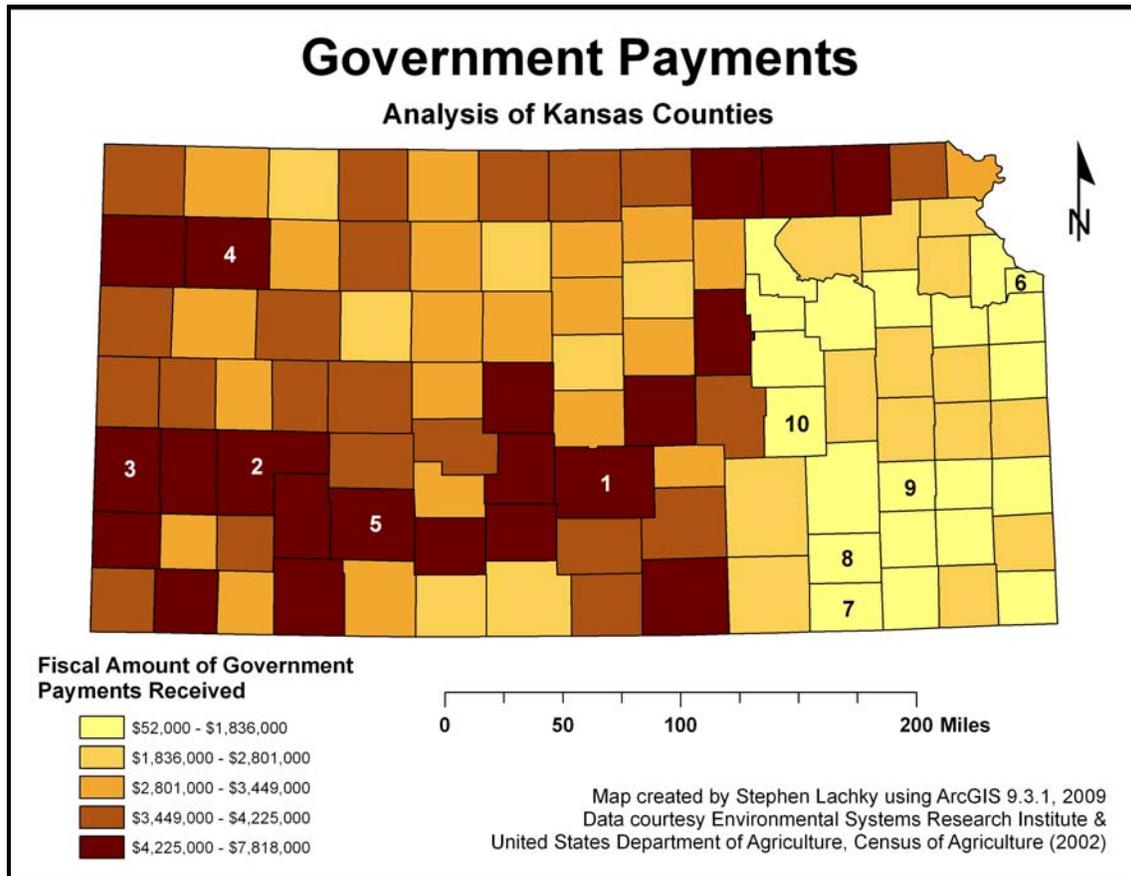


Table 6.8 identifies which Kansas counties have the highest amount of government payments to farms received (most affected by rural decline) and which Kansas counties have the lowest amount of government payments to farms received (least affected by rural decline). The superscripted numbers in the county listings in Table 6.8 correspond to the numbers and counties in Figure 6.10.

Table 6.8

Kansas Counties Rankings	Highest Amount of Government Payments to Farms Received (most affected county)	Lowest Amount of Government Payments to Farms Received (least affected county)
1)	<sup>1</sup> Reno (\$7,818,000)	<sup>6</sup> Wyandotte (\$52,000)
2)	<sup>2</sup> Finney (\$6,855,000)	<sup>7</sup> Chautauqua (\$630,000)
3)	<sup>3</sup> Hamilton (\$6,419,000)	<sup>8</sup> Elk (\$688,000)
4)	<sup>4</sup> Thomas (\$6,035,000)	<sup>9</sup> Woodson (\$702,000)
5)	<sup>5</sup> Ford (\$5,892,000)	<sup>10</sup> Chase (\$759,000)

## CHAPTER 7 - Economic Analysis Conclusions

A total of 8 economic variables were utilized for the ArcGIS 9.3.1 simulation and modeling research of this report; the purpose was to visually display economic data related to rural decline throughout the state of Kansas in hope of identifying any spatial phenomenon. In order to conduct a summary analysis of the economic variables, data for each variable was put into an Excel 2007 spreadsheet and sorted numerically. The counties were then ranked from 1 to 105 in relation to their specific variable (with the exception when calculating for the Farming-Dependent Counties variable), with 1 representing “most affected by rural decline” and 105 representing “least affected by rural decline”; thus, the higher the ranking a county received, the more affected by factors associated with rural decline it was deemed. Counties classified as Farming-Dependent each received 50 points for the numerical analysis. Once the rankings were conducted for each economic variable, the numerical results for each ranking were summed up (the most possible points a county could receive for the economic analysis was 785). Figure 7.1 on page 52 illustrates the results of the economic analysis.

Figure 7.1 displays several economic trends evident throughout the State of Kansas. The lightest colored counties that are classified as “least affected by rural decline” tend to be located in the northern half of the state and are particularly clustered in the northeastern portion of the state around the Kansas City Metropolitan Area. This makes sense for these counties located around urban areas, metropolitan areas, and major population centers to be ranked higher as most of their existing land has already been developed for residential, commercial, and industrial purposes, and they typically have less land available for agricultural uses (Wood, 2008). Also, these counties are usually intersected by interstate highways (the importance of which will be discussed in Chapter 8) which explains the settlement patterns of urban centers. Furthermore, there are more people, industries, businesses, and services available in urban areas, which explain why these counties accumulated fewer total points when ranked by the particular characteristics of per capita income, poverty rates, and unemployment rates.

The darkest colored counties in Figure 7.1 that are classified as “most affected by rural decline” tend to be located in the southern half of the state, particularly in the southwestern and southeastern portions of the state. This makes sense as there are few urban areas or major

population centers within these counties, as well as no metropolitan areas present. Additionally, many of these counties are located up to 100+ miles from interstate highways, and growing urban centers have historically relied upon interstate highways to facilitate the growth of their industries, businesses, and services. With fewer urban areas around and more opportunities for agricultural development, it is no mystery why these counties scored higher in the final rankings when measured by agriculture and mining industries, farm units, and government payments to maintain farms.

An interesting economic trend observed in Figure 7.1 is the phenomenon of counties in the north part of the state along the Kansas-Nebraska border ranked low in the final economic analysis. The reason this seems out of the norm is because there are metropolitan areas or major population centers present in these counties. It would make sense that these counties be reliant upon farming and the agriculture industry.

With that said, it's hard to come to the conclusion that a relationship exists between the presence of large urban areas, metropolitan areas, major cities, and the county economic ranking results. Although, it would make sense for this to be true as the land in these types of areas usually have already been developed for residential, commercial, and industrial purposes, and have less land available for agricultural uses. Also, large urban areas, metropolitan areas, and major cities tend to contain more people, industries, businesses, and services (Wood, 2008). In summary, the main pattern witnesses in Figure 7.1 is that the counties located in the southwestern and southeastern portions of the state ranked the highest in the economic ranking results, most likely due to their reliance upon the agricultural industry to support their economic base.

Figure 7.1

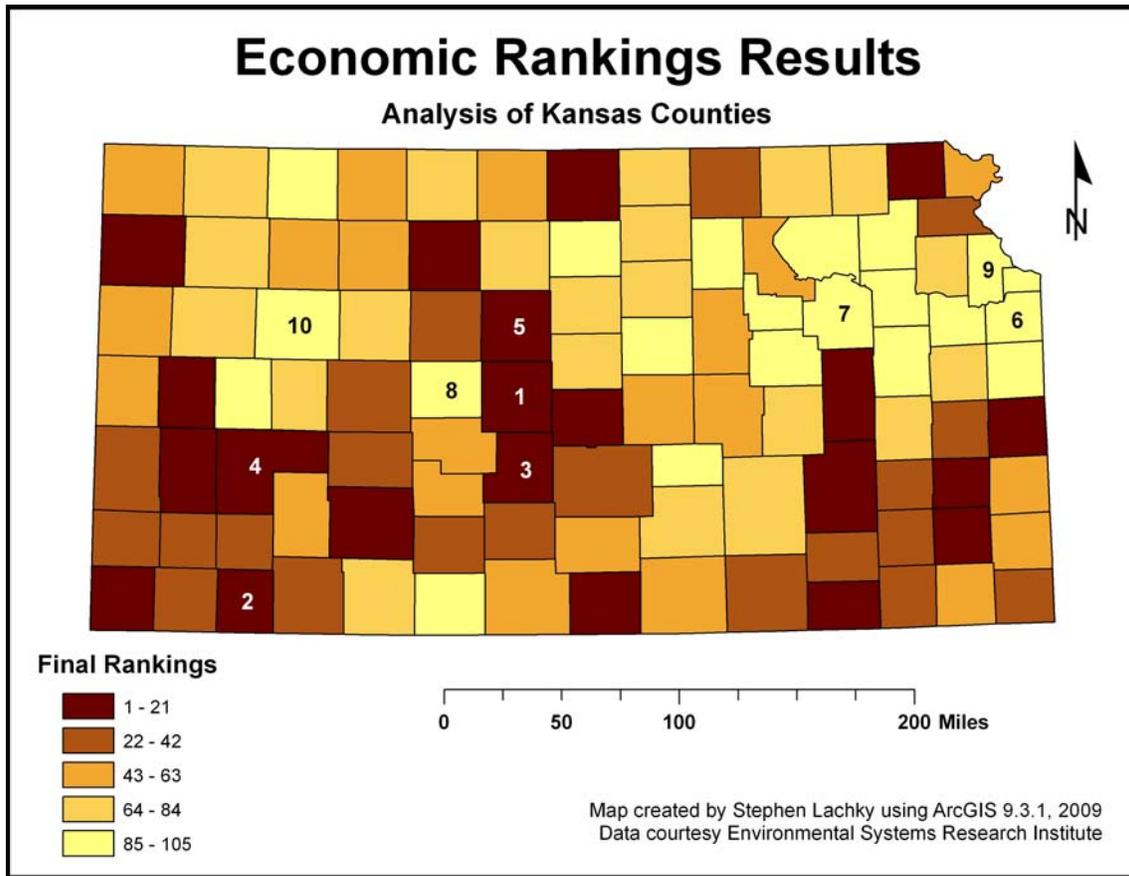


Table 7.1 identifies the final economic rankings according to Kansas counties. The numbers were summed up and the totals displayed including the highest total economic points (most affected by rural decline) and the least total economic points (least affected by rural decline). The superscripted numbers in the county listings in Table 7.1 correspond to the numbers and counties in Figure 7.1.

Table 7.1

Kansas Counties Rankings	Highest Total Economic Points (most affected county)	Least Total Economic Points (least affected county)
1)	<sup>1</sup> Barton (590 Total Points)	<sup>6</sup> Johnson (139 Total Points)
2)	<sup>2</sup> Seward (548 Total Points)	<sup>7</sup> Wabaunsee (190 Total Points)
3)	<sup>3</sup> Stafford (545 Total Points)	<sup>8</sup> Rush (213 Total Points)
4)	<sup>4</sup> Finney (542 Total Points)	<sup>9</sup> Leavenworth (219 Total Points)
5)	<sup>5</sup> Russell (534 Total Points)	<sup>10</sup> Gove (230 Total Points)

## **CHAPTER 8 - Geographic Characteristics, Patterns, and Trends**

Geographic data is useful in understanding phenomenon within a region spatially. Steiner (2009) explains how small towns in rural America can have a location advantage compared to other towns for a variety of reasons; this includes residing near a large population base, business markets, information hubs, etc. Rural communities near these areas often take advantage of their amenities and services which contributes to the success of rural communities. This chapter summarizes geographic characteristics, patterns, and trends associated with decline in rural communities, and explains the rationale for selecting the geographic variables used to conduct the simulation and modeling research of this report.

### **Located far from Metropolitan and Micropolitan Areas**

Remoteness is a common characteristic in rural America. In his book *The Lost Continent*, author Bill Bryson (1989) travels throughout rural America and documents his observations, including how vast, remote, desolate, and empty rural America can be. “The distances are almost inconceivable,” he says. “There is often thirty miles between houses and a hundred miles or more between towns” (p. 239). Throughout the book it’s common for Bryson to chronicle seeing endless fields of yellow grass and passing by towns that are sixty miles away from the next nearest town in all directions.

Small towns in rural America that are located near metropolitan areas have an advantage over other towns that aren’t. Steiner (2009) explains how communities farthest away from urban areas will lose relevance as commutes inward will become more expensive due to these increases in fuel prices. As a result, small towns that are less remote and far from metropolitan regions are going to have a strategic location advantage compared to small towns that aren’t.

Wood (2008) states, “Small towns near metropolitan areas have a bright future economically, and their population growth and property values show it” (p. 31). In his book *Survival of Rural America: Small Victories and Bitter Harvests*, Wood presents statistics to support his belief that communities most at risk in rural America are small towns non-adjacent to metropolitan areas. He indicates dominant population trends over the past century including how

the state of Kansas' 1.22 million population growth has occurred mainly in the metropolitan areas around Kansas City, Topeka, and Wichita. Wood also notes how most "rural revival" takes place in rural areas near urban centers. Living close to metropolitan areas also has advantages to the teenage working class. Because there are more job opportunities available to teenagers, it allows them to be better segregated into the labor force, which allows for upward mobility (Wood, 2008). Additionally, telecommuting is becoming a common trend in rural communities. Telecommuting is where workers travel into city for two or three days a week, work there, and then stay at home the rest of the remaining week. Residents in rural areas who live close to metropolitan and micropolitan areas are better able to make these telecommutes into the urban centers to work than those who live farther away (Daniels et al., 2007).

Micropolitan areas are classified as counties containing 10,000 to 49,999 people and an urban core. Metropolitan areas are classified as one or more adjacent counties containing at least one city of 50,000 inhabitants or more (Flora et al., 2004). Flora, Flora, & Fey (2004) recommend analyzing nearness to urban areas as a variable when comparing rural communities side-by-side. Furthermore, Wood (2008) discusses the relationship between metropolitan areas and rural communities; mainly how problems facing small towns in rural America increase in rough proportion to their remoteness from metropolitan and micropolitan areas. As a result of the relationship between metropolitan areas and factors associated with rural decline, the geographic variables "Greatest Geographic Proximity (25-mile increments) from Metropolitan Areas" and "Greatest Geographic Proximity (25-mile increments) from Micropolitan Areas" were utilized to rank Kansas counties and are illustrated in Figures 8.1 and 8.2 on pages 55 and 56. Figure 8.1 displays the location of metropolitan counties according to 2000 U.S. Census data and classification definitions and Figure 8.2 displays the location of micropolitan counties according to U.S. Census data and classification definitions. Both Figures use proximities of approximately 25 miles for each county class description.

Figure 8.1

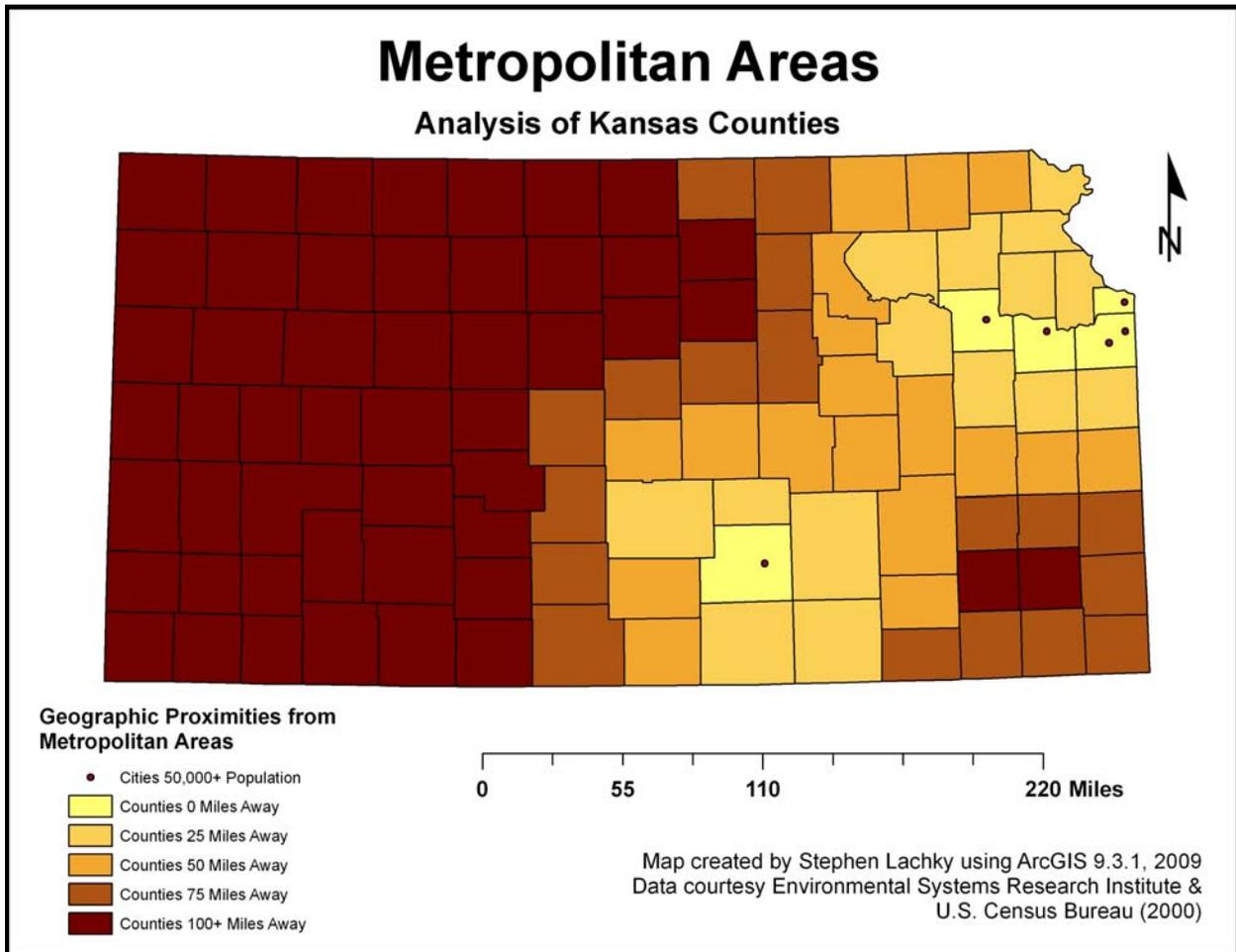


Table 8.1 identifies which Kansas counties have the greatest geographic proximity from metropolitan areas (most affected by rural decline) and which Kansas counties have the smallest geographic proximity from metropolitan areas (least affected by rural decline).

Table 8.1

Kansas Counties Rankings	Greatest Geographic Proximity from Metropolitan Areas (most affected county)	Smallest Geographic Proximity from Metropolitan Areas (least affected county)
1)	49 Counties (100+ Miles Away)	Sedgwick (0 Miles Away)
2)	49 Counties (100+ Miles Away)	Johnson (0 Miles Away)
3)	49 Counties (100+ Miles Away)	Wyandotte (0 Miles Away)
4)	49 Counties (100+ Miles Away)	Shawnee (0 Miles Away)
5)	49 Counties (100+ Miles Away)	Douglass (0 Miles Away)

Figure 8.2

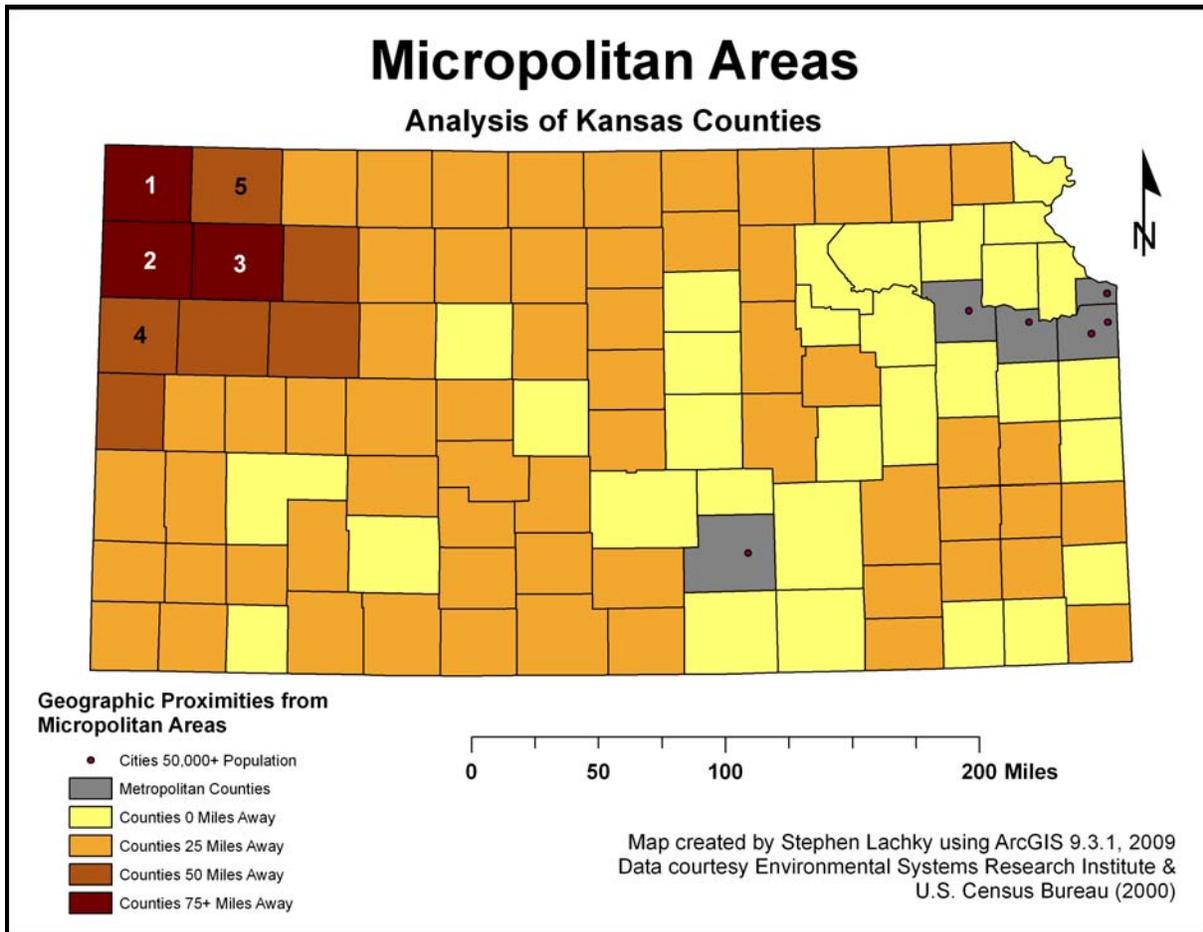


Table 8.2 identifies which Kansas counties have the greatest geographic proximity from micropolitan areas (most affected by rural decline) and which Kansas counties have the smallest geographic proximity from micropolitan areas (least affected by rural decline). The superscripted numbers in the county listings in Table 8.2 correspond to the numbers and counties in Figure 8.2.

Table 8.2

Kansas Counties Rankings	Greatest Geographic Proximity from Micropolitan Areas (most affected county)	Smallest Geographic Proximity from Micropolitan Areas (least affected county)
1)	<sup>1</sup> Cheyenne (75+ Miles Away)	36 Counties (0 Miles Away)
2)	<sup>2</sup> Sherman (75+ Miles Away)	36 Counties (0 Miles Away)
3)	<sup>3</sup> Thomas (75+ Miles Away)	36 Counties (0 Miles Away)
4)	<sup>4</sup> Wallace (50 Miles Away)	36 Counties (0 Miles Away)
5)	<sup>5</sup> Decatur (50 Miles Away)	36 Counties (0 Miles Away)

## **Located far from Interstate Highways**

Towns in 19<sup>th</sup> Century rural America were first settled based on the proximity of how far a person could walk or ride his/her horse; this meant that towns sprang up every few miles. Then towns began to form around rivers due to the accessibility of boat transportation, and soon around railroad lines to serve as station stops to replace the water on steam engine trains (Steiner, 2009). In the early 20<sup>th</sup> Century, the invention of the automobile and implementation of paved roads throughout the rural United States would change the location of towns in America forever; rural residents would finally be able to travel hundreds of miles at a time, and at their convenience (Wood, 2008).

President Dwight D. Eisenhower's authorization of the Interstate Highway System in 1956 would further shape the rural American landscape for the better and the worse (Flora et al., 2004). Wood (2008) provides an example of this by profiling the towns Colby and Atwood, KS. Both originally were small, rural towns relatively the same size and linked by paved roads prior to the creation of the interstate highways. But when the east-west interstate was platted in Kansas, Colby ended up lying adjacent to the construction, while Atwood was bypassed. Since that time, Colby's population has increased by over 55%, while Atwood's has declined by 20%. Additionally, Colby got a community college that might otherwise have gone to Atwood. Wood (2008) explains how towns that were lucky enough to reside next to the newly completed interstates gained the, "Wal-Marts, Marriotts, and car dealerships of the world – while the towns that were bypassed by the interstates are left with the Duckwalls, True Values, aging mom-and-pop motels, and small groceries" (p. 28).

Small towns adjacent to interstate highways have an advantage over other communities in rural America. Steiner (2009) explains how oil and gasoline are mercurial commodities that won't last forever, are going to be more difficult to extract in the future, and are bound to increase in demand as time goes on. Thus, the costs for fuel and shipping will inevitably be higher in the future. Nevertheless, Steiner points out how small towns located along interstate highways will be able to shoulder the costs of shipping and traveling compared to small towns located further away.

Wood (2008) discusses the relationship between interstate highways and rural communities; particularly how problems facing small towns in rural America increase in rough proportion to their remoteness from major highways. Additionally, he reiterates throughout his book how interstates have improved access from rural America to other amenities from urban America. Wood believes that most patterns of rural growth from 1950-1970 can be attributed to the completion of the Interstate Highway System. As a result, of the relationship between interstate highways and factors associated with rural decline, the geographic variable “Greatest Geographic Proximity (25-mile increments) from Interstate Highways” was utilized to rank Kansas counties and is illustrated in Figure 8.3 on page 59. Figure 8.3 displays the location of interstate highways according to the Environmental Systems Research Institute (2009) throughout Kansas and uses proximities of approximately 25 miles for each county class description.

Figure 8.3

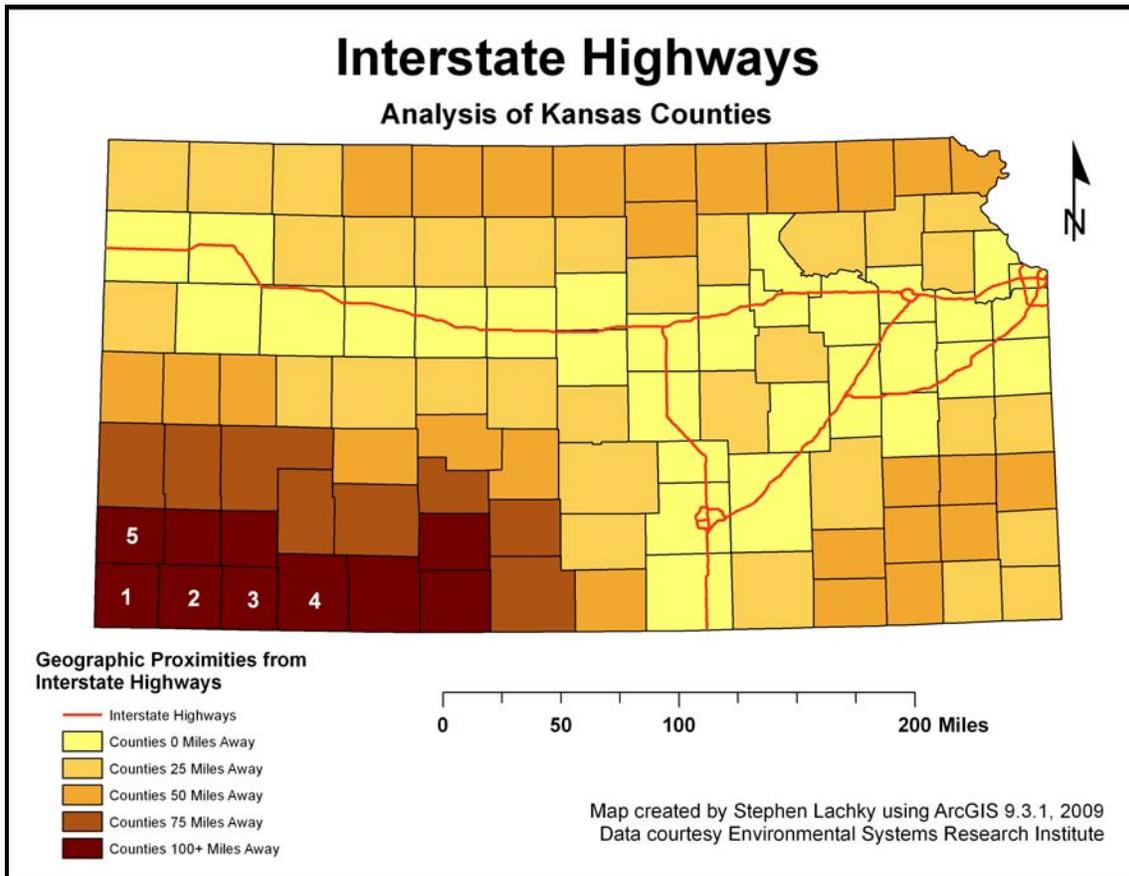


Table 8.3 identifies which Kansas counties have the greatest geographic proximity from interstate highways (most affected by rural decline) and which Kansas counties have the smallest geographic proximity from interstate highways (least affected by rural decline). The superscripted numbers in the county listings in Table 8.3 correspond to the numbers and counties in Figure 8.3.

Table 8.3

Kansas Counties Rankings	Greatest Geographic Proximity from Interstate Highways (most affected county)	Smallest Geographic Proximity from Interstate Highways (least affected county)
1)	Morton (100+ Miles Away)	30 Counties (0 Miles Away)
2)	Stevens (100+ Miles Away)	30 Counties (0 Miles Away)
3)	Seward (100+ Miles Away)	30 Counties (0 Miles Away)
4)	Meade (100+ Miles Away)	30 Counties (0 Miles Away)
5)	Stanton (100+ Miles Away)	30 Counties (0 Miles Away)

## **Located far from Major Railroad Lines**

The location of towns in 19<sup>th</sup> Century rural America were first planned based on the proximity of how far a person could walk or ride his/her horse; this meant that towns sprang up every few miles. Then towns began to form around railroad lines to serve as station stops to replace water for steam engine trains; this was evident throughout mid-19<sup>th</sup> Century Kansas when the Kansas Pacific (later Union Pacific) railroad lines were built stretching from Kansas City to Denver. Many of the communities settled along these railroad lines still exist today, and are heavily reliant upon the transportation industry in supporting them economically (Wood, 2008).

Steiner (2009) explains how small towns adjacent to railroad lines have an advantage over other communities in rural America. Over the past century, rural communities began to sprawl away from these train stations throughout Kansas due to cheap oil and low fuel prices for automobiles. Because oil and gasoline are not renewable sources of energy and will likely diminish in the future, the costs for shipping and traveling are bound to increase; the railroad industry will benefit as a result due as trains can travel further distances than automobiles using up to 5 times as less fuel. This means that towns located near railroad lines will be able to shoulder the costs of shipping and traveling easier in the future compared to towns located further away.

Steiner (2009) says it best: “A small town’s lifeblood will no longer chug along asphalt byways, but it will hum on steel tracks... Small towns with direct lines into rail hubs such as Chicago, Omaha, Kansas City, and Philadelphia will prosper...” (p. 153). As a result of the relationship between railroads and factors associated with rural decline, the geographic variable “Greatest Geographic Proximity (25-mile increments) from Major Railroad Lines” was utilized to rank Kansas counties and is illustrated in Figure 8.4 on page 61. Figure 8.4 displays the location of Class I railroad lines according to the Environmental Systems Research Institute (2009) throughout Kansas and uses proximities of approximately 25 miles for each county class description. The rationale for selecting Class I railroad lines is because of their commercial service capability; the Kansas Department of Transportation (2008) states, “Short-lines [railroad lines] are to Class I’s [railroad lines] as local roads are to interstate highways” (p. 50).

Figure 8.4

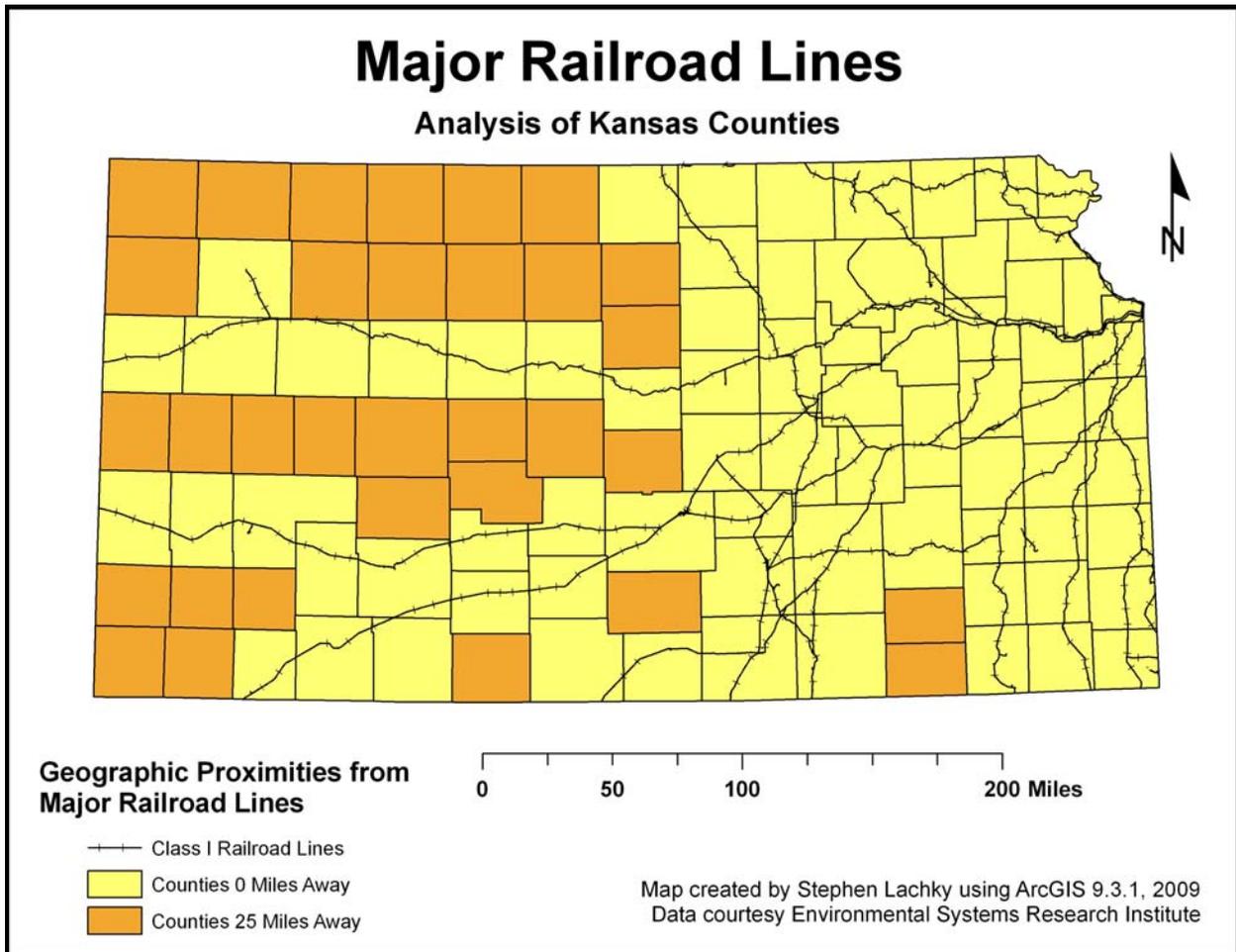


Table 8.4 identifies which Kansas counties have the greatest geographic proximity from major railroad lines (most affected by rural decline) and which Kansas counties have the smallest geographic proximity from major railroad lines (least affected by rural decline).

Table 8.4

Kansas Counties Rankings	Greatest Proximity from Major Railroad Lines (most affected county)	Smallest Proximity from Major Railroad Lines (least affected county)
1)	32 Counties (25 Miles Away)	73 Counties (0 Miles Away)
2)	32 Counties (25 Miles Away)	73 Counties (0 Miles Away)
3)	32 Counties (25 Miles Away)	73 Counties (0 Miles Away)
4)	32 Counties (25 Miles Away)	73 Counties (0 Miles Away)
5)	32 Counties (25 Miles Away)	73 Counties (0 Miles Away)

## **Located far from Regional Airports**

It is a fact that rural residents are more isolated from business markets and information hubs than urban residents. Transportation systems in rural communities are a form of built capital that helps reduce this isolation; one system in particular, air travel, achieves this by allowing rural residents to span enormous distances and link to other regions of the country (Flora et al., 2004).

Wood (2008) explains how regional airports in Kansas allow rural folks to travel hundreds of miles, and to major urban hubs, in under half the time compared to traditional modes of transportation (i.e. the automobile). One example is Hays Regional Airport, which offers commercial flights to major cities in the Midwest including Denver and Kansas City. This allows rural residents, who once had to drive 4 hours to Kansas City or 5 hours to Denver, the ability to reach those destinations in less than 1 hour.

Regional airports also complement the shipping industry. Companies such as FedEx and UPS are able to service small businesses out in western Kansas as efficiently as if they were in a large urban market (Wood, 2008). Additionally, regional airports are very beneficial for rural communities because they provide important connections to business, telecommunication networks, and other transportation services (Flora et al., 2004). As a result of the relationship between airports and factors associated with rural decline, the geographic variable “Greatest Geographic Proximity (25-mile increments) from Regional Airports” was utilized to rank Kansas counties and is illustrated in Figure 8.5 on page 63. Figure 8.5 displays the location of commercial service regional airports (excluding reliever and military airports) according to the Environmental Systems Research Institute (2009) and uses proximities of approximately 25 miles for each county class description.

Figure 8.5

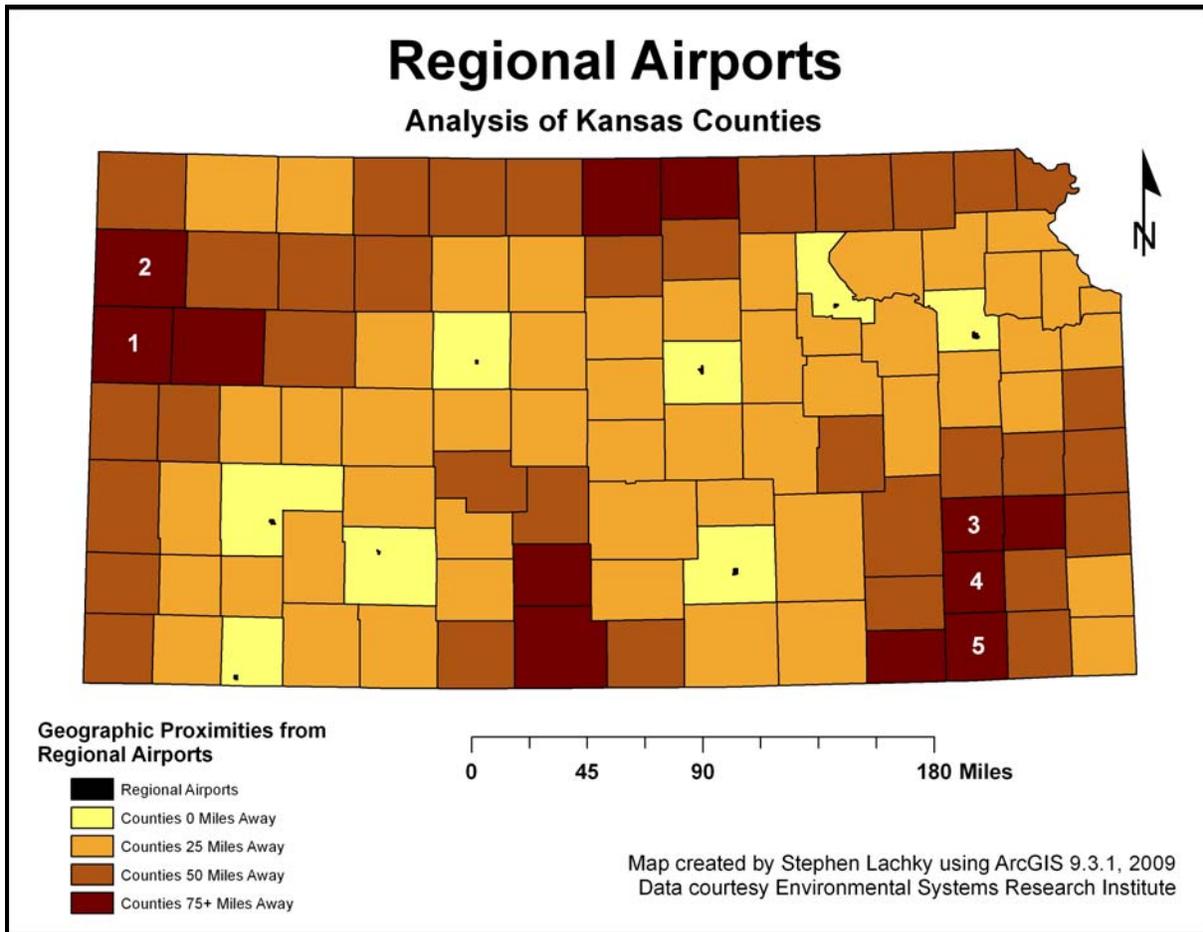


Table 8.5 identifies which Kansas counties have the greatest geographic proximity from regional airports (most affected by rural decline) and which Kansas counties have the smallest geographic proximity from regional airports (least affected by rural decline). The superscripted numbers in the county listings in Table 8.5 correspond to the numbers and counties in Figure 8.5.

Table 8.5

Kansas Counties Rankings	Greatest Geographic Proximity from Regional Airports (most affected county)	Smallest Geographic Proximity from Regional Airports (least affected county)
1)	Wallace (75+ Miles Away)	Sedgwick (0 Miles Away)
2)	Sherman (75+ Miles Away)	Riley (0 Miles Away)
3)	Woodson (75+ Miles Away)	Ellis (0 Miles Away)
4)	Wilson (75+ Miles Away)	Shawnee (0 Miles Away)
5)	Montgomery (75+ Miles Away)	Finney (0 Miles Away)

## Located far from Wal-Mart Stores

Bill Bryson (1989) discusses market centers in his book *The Lost Continent* and adds commentary regarding the remoteness and great distances from commercial stores in rural America. He asks, “What would it take to make you live in a place where you had to drive seventy-five miles just to buy a pair of shoes?” (p. 239). This pattern is far too present in rural America; where a specific market of goods and services is located hours away. Nevertheless, those communities located with a smaller proximity to those goods and services have a location advantage compared to communities located further away (Flora et al., 2004).

Flora, Flora, & Fey (2004) discuss how the global economy has changed over the 20<sup>th</sup> Century and into the 21<sup>st</sup> Century, particularly on consumption patterns in rural America. While a number of economic and social forces have contributed to this change, Flora, Flora, & Fey identify one in particular: The consolidation of retail and service enterprises. They describe the central-place theory to explain why businesses in America have consolidated in the first place. The theory suggests that population centers (whether large cities or small rural towns), are geographically organized into hierarchical retail and public-service markets. Within the particular hierarchy of places, any large place possesses a greater economic diversity of products and services for consumption compared to a smaller place. Over the last four decades, changing consumption patterns influenced by the central-place theory’s economic advantages have resulted in the consolidation of rural businesses in small towns.

In the past, rural businesses have often found it difficult to offer the variety of goods and services that are normally available in large central markets; this has led to consolidation through locally owned stores being bought out by larger nationally-based retail chains such as Wal-Mart and Target. Wal-Mart in particular was able to overcome the expenses of supplying merchandise to less densely populated distribution routes through their superior record keeping and stock management techniques; furthermore, they were able to offer lower prices compared to local stores. Additionally, Wal-Mart was able to incorporate hardware products, automotive services, and groceries into their stores which helped diversify themselves and provided more products to the public; thus Wal-Mart has a comparative advantage compared to other businesses in their

area (Flora et al., 2004). Steiner (2009) adds, “Whether a rural consumer is buying a chicken leg, a mop, or a hammer, they’re probably doing it at Wal-Mart” (p. 146).

At the end of the 20<sup>th</sup> Century, analysts found evidence that the retail industry in rural communities transformed with the introduction of national retail chains, such as Wal-Mart to their communities. A 1995 study by Kenneth Stone found that the introduction of a Wal-Mart store in ten small trade centers with a population of 3,000 and above resulted in a slightly greater increase in retail trade in those communities compared to the state as a whole. Additionally, Stone found that Wal-Marts drew business into their regional center, decreasing retail sales in the regional center’s surrounding small towns (Flora et al., 2004). As a result of the relationship between Wal-Mart and factors associated with rural decline, the geographic variable “Greatest Geographic Proximity (25-mile increments) from Wal-Mart Stores” was utilized to rank Kansas counties and is illustrated in Figure 8.6 on page 66. Figure 8.6 displays the location of Wal-Mart stores throughout Kansas and uses proximities of approximately 25 miles for each county class description.

Figure 8.6

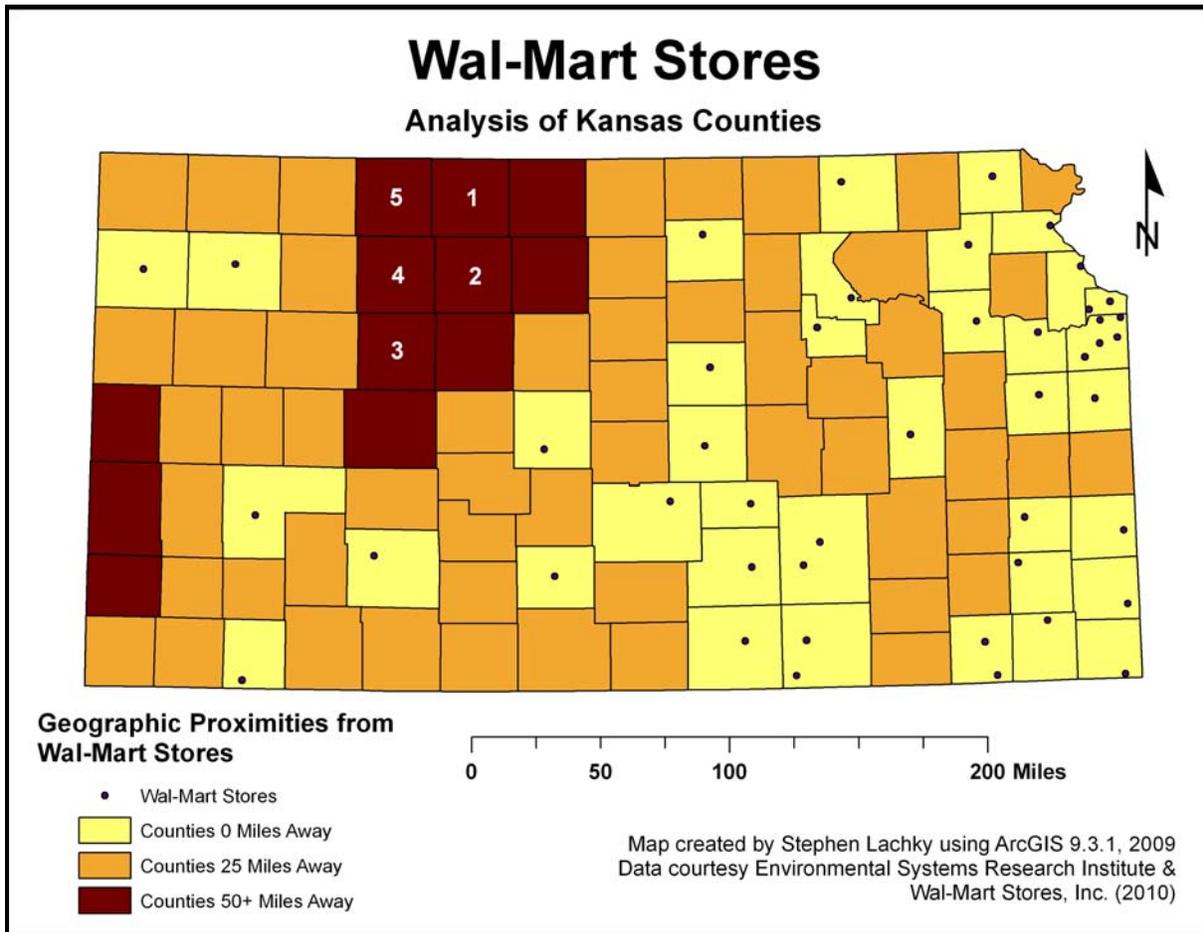


Table 8.6 identifies which Kansas counties have the greatest geographic proximity from Wal-Mart stores (most affected by rural decline) and which Kansas counties have the smallest geographic proximity from Wal-Mart stores (least affected by rural decline). The superscripted numbers in the county listings in Table 8.6 correspond to the numbers and counties in Figure 8.6.

Table 8.6

Kansas Counties Rankings	Greatest Geographic Proximity from Wal-Mart Stores (most affected county)	Smallest Geographic Proximity from Wal-Mart Stores (least affected county)
1)	<sup>1</sup> Phillips (50+ Miles Away)	37 Counties (0 Miles Away)
2)	<sup>2</sup> Rooks (50+ Miles Away)	37 Counties (0 Miles Away)
3)	<sup>3</sup> Trego (50+ Miles Away)	37 Counties (0 Miles Away)
4)	<sup>4</sup> Graham (50+ Miles Away)	37 Counties (0 Miles Away)
5)	<sup>5</sup> Norton (50+ Miles Away)	37 Counties (0 Miles Away)

## **Located far from Major Colleges**

Wood (2008) discusses the impact colleges and universities have on rural America. He explains, “There are important distinctions between towns that have a major asset, such as a college, and those that do not” (p. 31). For one, Wood mentions that they are able to serve as an education institution focal point for their area, which helps retain the population base and attract more residents. Another amenity colleges and universities in rural America have is that they stand out and serve as a “purple cow”, which is something different and out of the ordinary. This helps distinguish an otherwise ordinary rural community into one that’s unique.

As a result of the relationship between colleges and factors associated with rural decline, the geographic variable “Greatest Geographic Proximity (25-mile increments) to Major Colleges” was utilized to rank Kansas counties and is illustrated in Figure 8.7 on page 68. Figure 8.7 displays the location of public and private colleges & universities (excluding community colleges and technical schools) according to the Environmental Systems Research Institute (2009) and uses proximities of approximately 25 miles for each county class description.

Figure 8.7

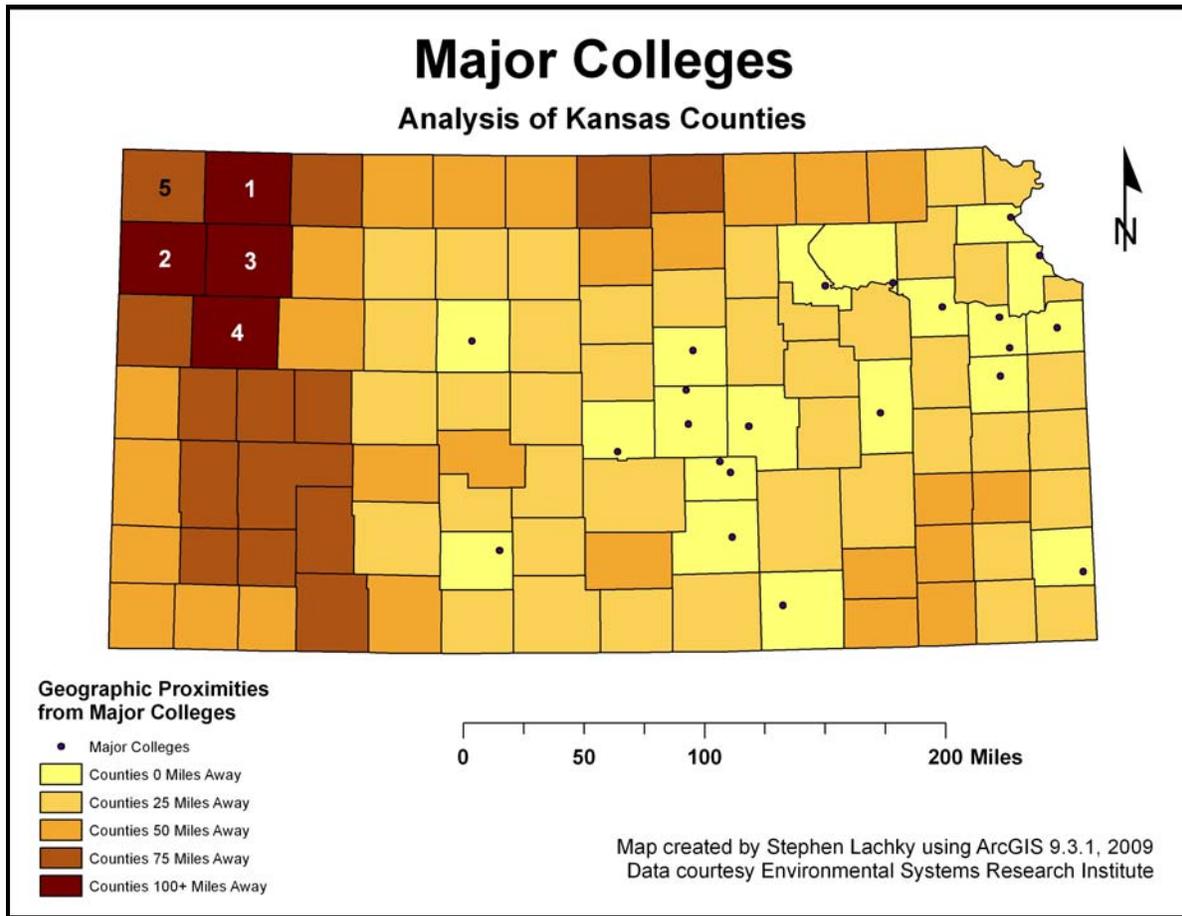


Table 8.7 identifies which Kansas counties have the greatest geographic proximity from major colleges (most affected by rural decline) and which Kansas counties have the smallest geographic proximity from major colleges (least affected by rural decline). The superscripted numbers in the county listings in Table 8.7 correspond to the numbers and counties in Figure 8.7.

Table 8.7

Kansas Counties Rankings	Greatest Geographic Proximity from Major Colleges (most affected county)	Smallest Geographic Proximity from Major Colleges (least affected county)
1)	<sup>1</sup> Rawlins (100+ Miles Away)	19 Counties (0 Miles Away)
2)	<sup>2</sup> Sherman (100+ Miles Away)	19 Counties (0 Miles Away)
3)	<sup>3</sup> Thomas (100+ Miles Away)	19 Counties (0 Miles Away)
4)	<sup>4</sup> Logan (100+ Miles Away)	19 Counties (0 Miles Away)
5)	<sup>5</sup> Cheyenne (75 Miles Away)	19 Counties (0 Miles Away)

## Located far from Main Streets

Prior to World War II, Main Streets were the commercial and social hubs of a community; they contained post offices, libraries, banks, offices, general stores, social clubs, and movie theaters. People were constantly walking amongst the sidewalks and interacting with one another, which contributed to a sense of civic pride (National Trust for Historic Preservation, 2009). In his book *The Lost Continent*, author Bill Bryson (1989) passes through hundreds of small towns as he drives across America. He observes, "...trim and sunny little cities with tree-lined Main Streets full of friendly merchants..." and prefers these types of atmospheres as he's in search of the perfect town (p. 38).

However, the creation of the Interstate Highway System in 1956 allowed Americans to travel long distances in short amounts of time using the automobile; this eventually led to the growth of regional shopping malls and suburban communities. Soon businesses that once resided along downtown main streets moved to the suburban communities and malls, lowering property values and sales tax revenues in their former small town main street communities. As a result, main streets in rural America became less relevant (National Trust for Historic Preservation, 2009).

Main streets in rural communities are relevant today because they allow opportunities for economic development, create new businesses, generate billions of dollars in private and public investment, rehabilitate and preserve thousands of historic buildings, and contribute to community pride. Rather than sprawl businesses outward, the idea behind a Main Street program is to bring as many businesses and services as close together to strengthen, not only the economic draw of the area, but the heart of the community as a whole. Additionally, people value historic preservation, community investment, economic revival, sustainability, and a sense of place; all of these elements are a part of Main Street programs (National Trust for Historic Preservation, 2009).

Towns with registered Main Street programs are also able to improve the overall visual appearance of their downtowns; this has been proven to contribute to economic activity (National Trust for Historic Preservation, 2009). Often times, the buildings along a Main Street reflect that community's unique heritage. By preserving and renovating the storefronts along

main streets, small towns are able to draw in more individuals due to the visual appeal of the area (Daniels et al., 2007).

As of 2009, Main Street programs have been adopted by more than 1,700 communities (typically towns with populations greater than 10,000) and for every dollar spent on operational purposes of a Main Street program, on average, has generated \$25 worth of investment for that community (National Trust for Historic Preservation, 2009). Additionally, a recent study found that non-metropolitan small towns that had vibrant local capitalism, social capital, and plentiful stores including cafes, barber shops, etc. fared better on several benchmarks of civic welfare. They were associated with healthier economies, higher incomes, less poverty, lower unemployment, were more likely to retain residents, and people in the community were more civically engaged compared to towns that fared less to these factors (Carr & Kefalas, 2009).

As a result of the relationship between registered main streets and factors associated with rural decline, the geographic variable “Greatest Geographic Proximity (25-mile increments) to Main Streets” was utilized to rank Kansas counties and is illustrated in Figure 8.8 on page 71. Figure 8.8 displays the location of Main Streets registered with the Kansas Main Street Program according to the Kansas Department of Commerce’s Assistant State Coordinator Mary Helmer and uses proximities of approximately 25 miles for each county class description.

Figure 8.8

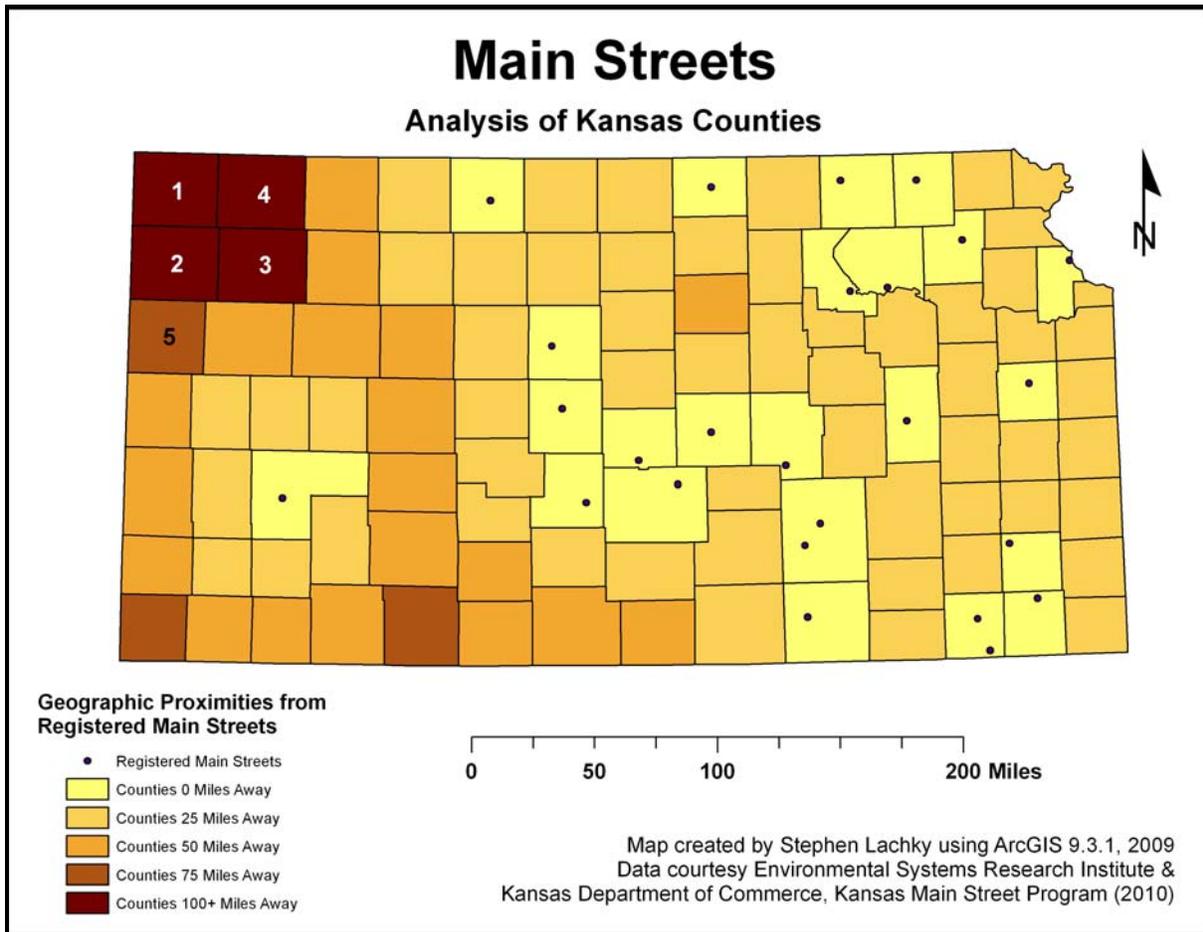


Table 8.8 identifies which Kansas counties have the greatest geographic proximity from main streets (most affected by rural decline) and which Kansas counties have the smallest geographic proximity from main streets (least affected by rural decline). The superscripted numbers in the county listings in Table 8.8 correspond to the numbers and counties in Figure 8.8.

Table 8.8

Kansas Counties Rankings	Greatest Geographic Proximity from Main Streets (most affected county)	Smallest Geographic Proximity from Main Streets (least affected county)
1)	<sup>1</sup> Cheyenne (100+ Miles Away)	25 Counties (0 Miles Away)
2)	<sup>2</sup> Sherman (100+ Miles Away)	25 Counties (0 Miles Away)
3)	<sup>3</sup> Thomas (100+ Miles Away)	25 Counties (0 Miles Away)
4)	<sup>4</sup> Rawlins (100+ Miles Away)	25 Counties (0 Miles Away)
5)	<sup>5</sup> Wallace (75 Miles Away)	25 Counties (0 Miles Away)

## Frontier Counties

“Frontier Counties” are classified according to the National Center for Frontier Communities. The counties are defined through a complex methodology and classification matrix system shown in Figure 8.9, taking into account 3 variables: Population density, distance [mi.] to a service/market center, and travel time [min.].

**Figure 8.9 (National Center for Frontier Communities, 2009)**

### CONSENSUS DEFINITION MATRIX: For the Designation of Frontier

<i>DENSITY - PERSONS PER SQUARE MILE</i>	<b>POINTS</b>
0-12	45
12.1-16	30
16.1-20	20
NOTE: PER COUNTY OR PER DEFINED SERVICE AREA WITH JUSTIFICATION	
TOTAL POINTS DENSITY	
<b>DISTANCE - IN MILES TO SERVICE/MARKET</b>	
>90 Miles	30
60-90	20
30-60	10
<30	0
NOTE: STARTING POINT MUST BE RATIONAL, EITHER A SERVICE SITE OR PROPOSED SITE	
TOTAL POINTS DISTANCE IN MILES	
<b>TRAVEL TIME - IN MINUTES TO SERVICE/MARKET</b>	
>90 Minutes	30
60-90	20
30-60	10
<30	0
NOTE: USUAL TRAVEL TIME; EXCEPTIONS MUST BE DOCUMENTED (i.e. WEATHER, GEOGRAPHY, SEASONAL)	
TOTAL POINTS TRAVEL TIME IN MINUTES	
<b>TOTAL POINTS ALL CATEGORIES</b>	

Total Possible Points 105  
 Minimum Points Necessary for Frontier Designation = 55  
 “Extremes” = 55-105

According to the National Center for Frontier Communities (2009), around 9 million people live in frontier counties, which is a small percentage considering it's only about 3% of the total U.S. Population. Frontier Counties comprise about 56% of the land area in the U.S., a total of 2,125,413 square miles, and there are a total of 812 frontier counties located in 38 states. The state of Kansas contains 56 Frontier Counties which comprise a total of 46,786 square miles and contains 2.45% of the total U.S. frontier population. As a result of the relationship between frontier land and factors associated with rural decline, the geographic variable "Frontier Counties" was utilized to rank Kansas counties and is illustrated in Figure 8.10 on page 74. Figure 8.10 displays the location of Frontier Counties according to the National Center for Frontier Communities (2009).

Figure 8.10

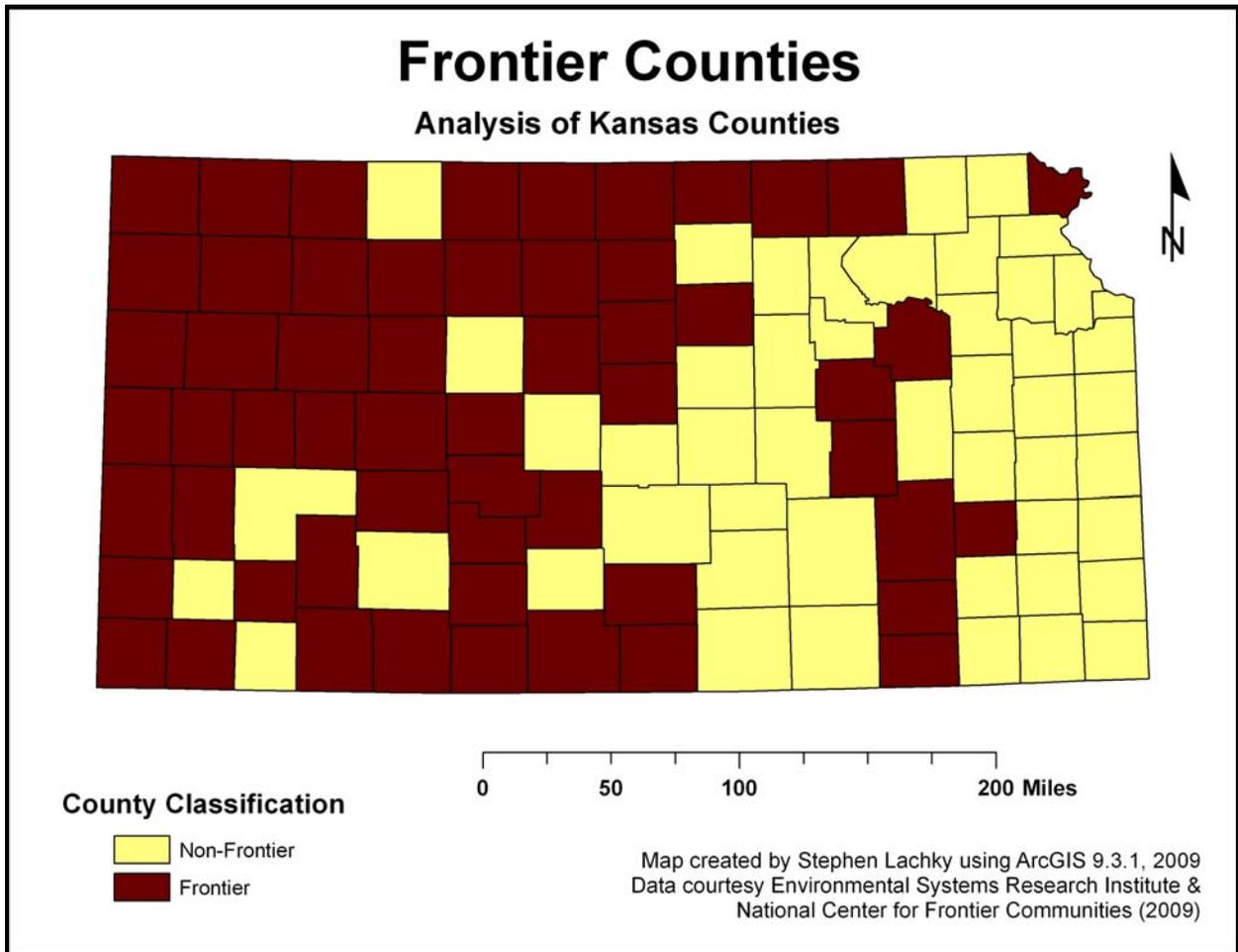


Table 8.9 identifies the total number of Kansas counties classified as frontier counties (most affected by rural decline) and the total number of Kansas counties that are not classified as frontier counties (least affected by rural decline).

Table 8.9

Kansas Counties Rankings	Frontier Counties (most affected county)	Non-Frontier Counties (least affected county)
1)	56 Counties Total	49 Counties Total
2)	56 Counties Total	49 Counties Total
3)	56 Counties Total	49 Counties Total
4)	56 Counties Total	49 Counties Total
5)	56 Counties Total	49 Counties Total

## CHAPTER 9 - Geographic Analysis Conclusions

A total of 9 geographic variables were utilized for the ArcGIS 9.3.1 simulation and modeling research of this report; the purpose was to visually display geographic data related to rural decline throughout the state of Kansas in hope of identifying any spatial phenomenon. In order to conduct a summary analysis of the geographic variables, data for each variable was put into an Excel 2007 spreadsheet and sorted numerically. The counties were then ranked by multiples of 25 (with the exception when calculating for the Frontier Counties variable) from 0 up to 100 to correspond with their geographic proximities in the county class descriptions with 0 representing “least affected by rural decline” and 100 representing “most affected by rural decline”; thus, the higher the ranking a county received, the more affected by factors associated with rural decline it was deemed. Counties classified as Frontier Counties each received 50 points for the numerical analysis. Once rankings were conducted for each geographic variable, the numerical results for each ranking were summed up (the most possible points a county could receive for the population analysis was 675). Figure 9.1 on page 77 illustrates the results of the geographic analysis.

Figure 9.1 displays several geographic trends present throughout the State of Kansas. The lightest colored counties that are classified as “least affected by rural decline” are located in the eastern half of the state and are particularly clustered in the south-central and northeastern portions of the state. This makes sense as many of the geographic variables used for the numerical analysis were dependent upon the geographic proximities to urban areas, metropolitan areas, and major population centers. Furthermore, since the 1950s, interstate highways have influenced patterns of land development in America, mainly the location of cities and the growth of metropolitan areas; two factors which played a role in the geographic analysis (Wood, 2008). It is no consequence that top 5 counties with the fewest number of total geographic points (Shawnee, Sedgwick, Riley, Leavenworth, and Johnson) were within a metropolitan or micropolitan area, intersected by interstate highways and major railroad lines, contained or were relatively close to a regional airport, major college, Wal-Mart store, and Main Street airport.

The darkest colored counties in Figure 9.1 that are classified as “most affected by rural decline” are located in the western half of the state and are particularly clustered in the

northwestern, west-central, and southwestern portions of the state; primarily along the Kansas-Colorado border. This makes sense as there are no metropolitan counties or major colleges, few micropolitan counties, regional airports, Wal-Mart stores, and Main Streets present; not just in the western half of the state, but nearby in the adjacent states of Nebraska, Colorado, and Oklahoma. It even seemed that the interstate highway variable, which was clearly significant in the geographic ranking results for the variables in the eastern half of the state, wasn't as much as an influential factor for the counties in the western half of the state. Additionally, the closest major urban area and metropolitan center to these counties was Denver, CO, which was approximately one hundred and fifty miles away from the nearest Kansas County.

There doesn't seem to be any out-of-the-norm phenomenon observed in Figure 9.1 as the final numerical rankings accurately reflected the location of geographic elements throughout the state. The factor that played the biggest role in the analysis was the location of metropolitan areas, as most of the other geographic variables utilized were dependent upon metropolitan areas in one way or another. Overall, a relationship exists between the presence of large urban areas, metropolitan areas, major cities, and the county geographic rankings results; counties that were located near these elements totaled fewer points in the geographic variable numerical ranking analysis compared to counties that didn't. This is important because counties that have a geographic disadvantage have a harder battle in the fight against rural decline and survival compared to counties that don't (Wood, 2008).

Figure 9.1

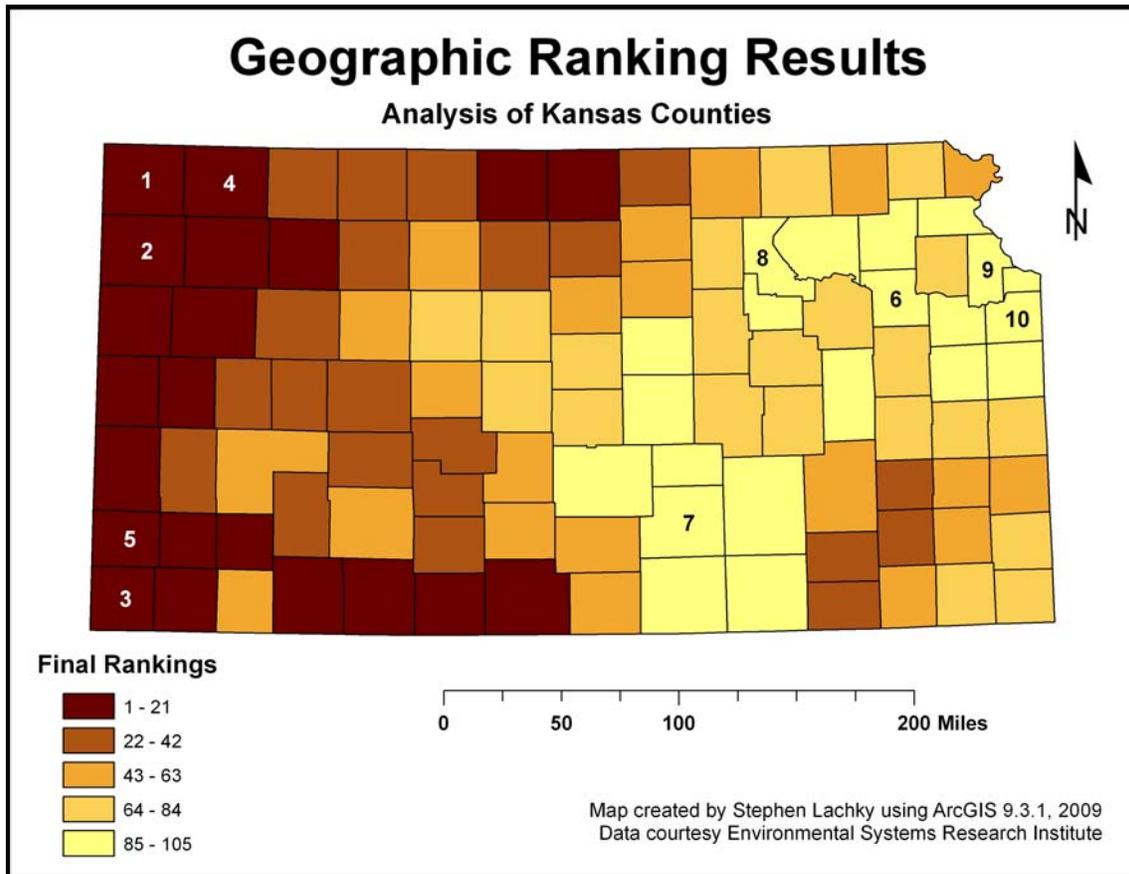


Table 9.1 identifies the final geographic rankings according to Kansas counties. The numbers were summed up and the totals displayed including the highest total geographic points (most affected by rural decline) and the least total geographic points (least affected by rural decline). The superscripted numbers in the county listings in Table 9.1 correspond to the numbers and counties in Figure 9.1.

Table 9.1

Kansas Counties Rankings	Highest Total Geographic Points (most affected county)	Least Total Geographic Points (least affected county)
1)	<sup>1</sup> Cheyenne (525 Total Points)	<sup>6</sup> Shawnee (25 Total Points)
2)	<sup>2</sup> Sherman (525 Total Points)	<sup>7</sup> Sedgwick (25 Total Points)
3)	<sup>3</sup> Morton (500 Total Points)	<sup>8</sup> Riley (50 Total Points)
4)	<sup>4</sup> Rawlins (500 Total Points)	<sup>9</sup> Leavenworth (50 Total Points)
5)	<sup>5</sup> Stanton (500 Total Points)	<sup>10</sup> Johnson (50 Total Points)

## **CHAPTER 10 - Final Analysis Conclusions**

### **Final Ranking Conclusions**

The ultimate goal of this research report is to explain any spatial phenomenon associated with variables of Kansas counties, as well as identify specific counties in Kansas most devastated by factors associated with rural decline. To do this, a comprehensive numerical comparative analysis was conducted, which helped identify any statistical relationships. Furthermore, these results were displayed visually using ArcGIS 9.3.1 for the purpose of identifying any spatial patterns.

A total of 28 variables were utilized for the ArcGIS 9.3.1 simulation and modeling research of this report. Research was conducted over decline in rural America and a list of characteristics, patterns, and trends associated with decline in rural communities was compiled. Variables were then created to rank these characteristics numerically for analysis and data was gathered. The characteristics and variables were divided into 3 categories, population, economic, and geographic, for organizational and analysis purposes in hopes of deriving more concrete conclusions.

For the final analysis, the total numerical values for the population, economic, and geographic analysis were compiled using Excel 2007 and sorted numerically. The counties were then ranked 1 to 105 in relation to their total numerical values compared to all the other counties, with 1 representing “most affected by rural decline” and 105 representing “least affected by rural decline”; thus, the higher the ranking a county received, the more affected by factors associated with rural decline it was deemed. Figure 10.1 on page 80 illustrates the results of the final analysis.

Figure 10.1 displays several geographic trends throughout the State of Kansas. The lightest colored counties that are classified as “least affected by rural decline” are located in northeastern and south-central portions of the state, particularly around the Kansas City and Wichita Metropolitan Areas and along the interstate highways. This reasoning for these counties being ranked so low is because many of the variables used in the analysis were influenced by the presence of large urban areas, metropolitan areas, major cities, and interstate highways. Johnson County is identified as the Kansas County least affected by factors associated with rural decline.

The darkest colored counties in Figure 10.1 that are classified as “most affected by rural decline” are located in the northwestern and north-central portions of the state, particularly along the Kansas-Colorado and Kansas-Nebraska borders. In addition, a couple counties were located along in south-central Kansas along the Kansas-Oklahoma border. This makes sense as there are no metropolitan areas within or in close proximity to these counties, as well as large urban centers. Jewell County is identified as the Kansas County most affected by factors associated with rural decline.

An interesting pattern observed in Figure 10.1 is how many of the counties in the southeastern and southwestern portions of the state ranked near the median of final county rankings, despite being ranked in the top percentiles in the economic analysis as shown by Figure 7.1 and clearly possessing a geographic disadvantage as shown by Figure 9.1. This means that their final rankings were influenced and improved by the population numerical results, because 11 variables were utilized for the population analysis, while only 8 were for the economic analysis, and 9 for the geographic analysis.

Overall, relationships exist between many elements, characteristics, and variables, but in particular, the presence of large urban areas, metropolitan areas, and major cities had the greatest impact on the analysis due to their influences on a majority of the 28 variables. Wood (2008) explains how the future of rural America in the 21<sup>st</sup> Century is largely dependent upon numbers, and that communities will die if their population and economic numbers remain low or continue to decline. Also, being geographically located near elements utilized for the geographic analysis of this report helps rural communities in their fight against rural decline and for survival.

**Figure 10.1**

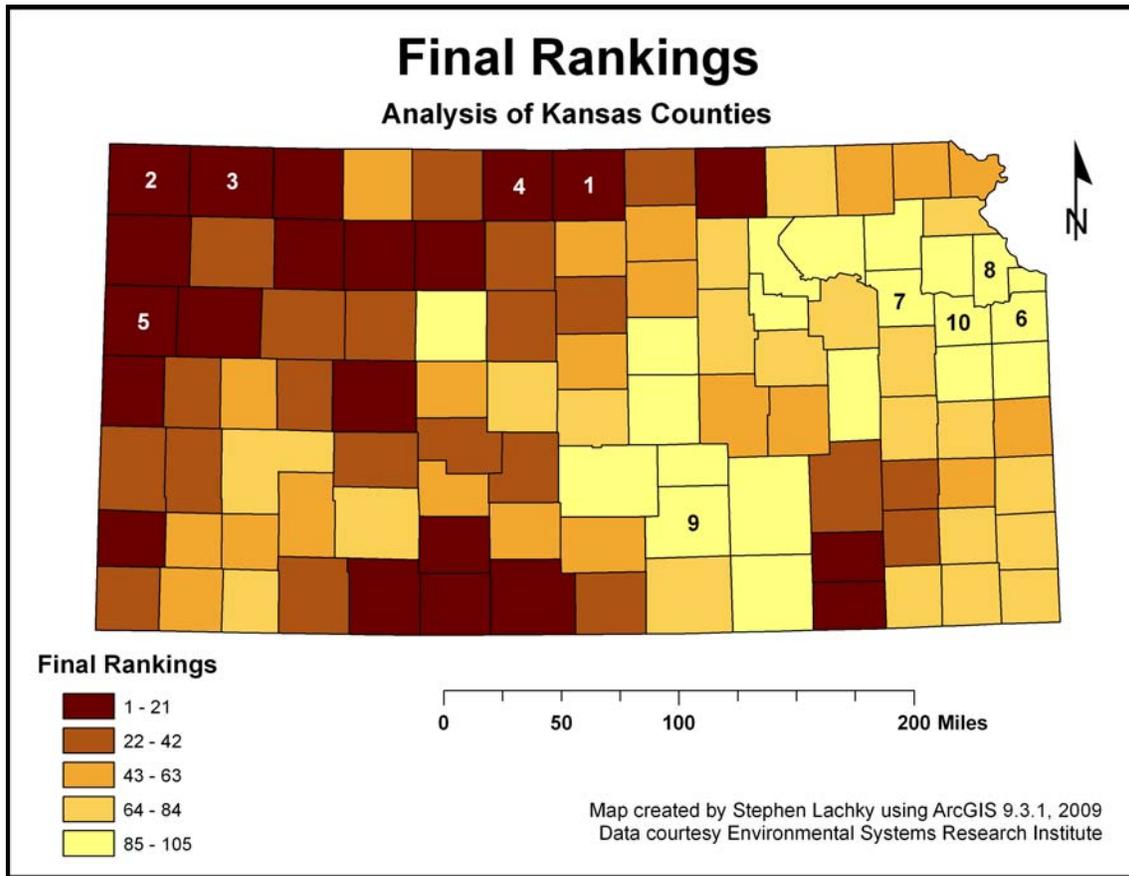


Table 10.1 identifies the final combined population, economic, and geographic numerical rankings according to Kansas counties. The numbers were summed up and the totals displayed including the highest total points (most affected by rural decline) and the least total points (least affected by rural decline). The superscripted numbers in the county listings in Table 10.1 correspond to the numbers and counties in Figure 10.1.

**Table 10.1**

Kansas Counties Rankings	Highest Total Points (most affected county)	Least Total Points (least affected county)
1)	<sup>1</sup> Jewell (1,891 Total Points)	<sup>6</sup> Johnson (347 Total Points)
2)	<sup>2</sup> Cheyenne (1,797 Total Points)	<sup>7</sup> Shawnee (503 Total Points)
3)	<sup>3</sup> Rawlins (1,791 Total Points)	<sup>8</sup> Leavenworth (507 Total Points)
4)	<sup>4</sup> Smith (1,771 Total Points)	<sup>9</sup> Sedgwick (556 Total Points)
5)	<sup>5</sup> Wallace (1,714 Total Points)	<sup>10</sup> Douglas (613 Total Points)

## **Final Spatial Conclusions**

Figure 10.2 displays several trends evident throughout the State of Kansas. Spatially there is a distinct occurrence of counties displaying few characteristics associated with rural decline located around the Kansas City and Wichita Metropolitan Areas in the northeastern and south-central portions of the state. Additionally many of these counties stretch along the interstate highways, creating a distinct triangular land pattern from Kansas City to Lawrence, Lawrence to Salina, Wichita to Salina, Lawrence to Emporia, and Wichita to Emporia. It is no consequence that these counties contained all the metropolitan areas in the state, along with the state's largest cities (Wichita, Overland Park, Kansas City, Topeka, Olathe, Lawrence, Shawnee, Salina, and Manhattan).

In my opinion this phenomenon is a direct result of the presence of large urban areas, metropolitan areas, and major cities, as they had the greatest influence on the characteristics associated with rural decline. Nearly every population and economic variable used in the simulation and modeling research was largely affected by the presence of large population centers. Metropolitan areas contain large population densities, typically display population growth, and contain large youth-aged and college-aged populations. As a result, Kansas counties containing them displayed few characteristics associated with rural decline.

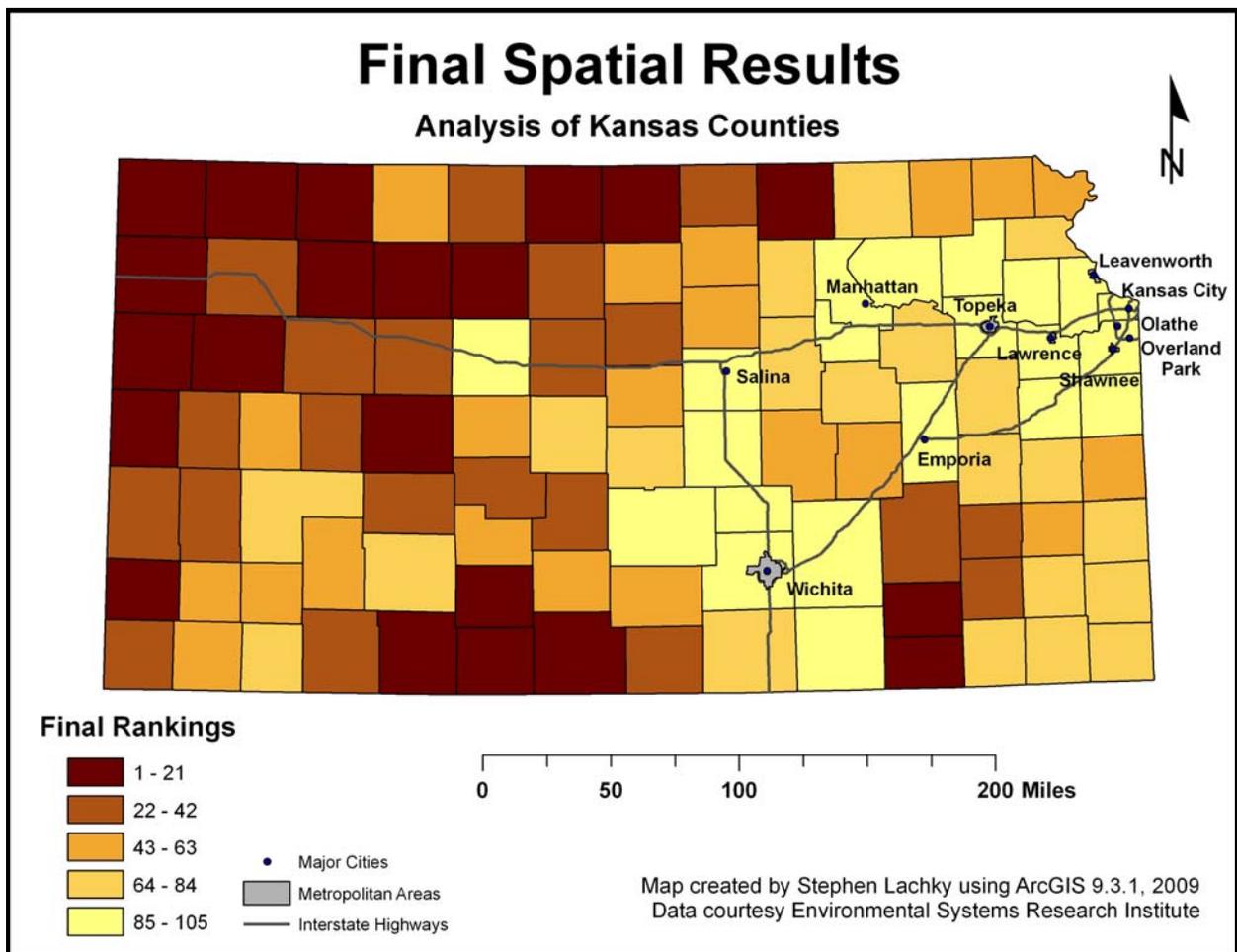
Economically, there are more businesses, industries, and services located within, adjacent to, and nearby metropolitan areas since there is a larger population base and workforce to support them. Additionally, most of the land around metropolitan areas has already been developed for residential, commercial, and industrial purposes, allowing little land for agricultural development (Wood, 2008). Almost all of the counties in southwestern Kansas resemble these characteristics and are heavily-reliant upon the agricultural industry; nevertheless, many of these counties displayed characteristics associated with rural decline.

Lastly, many of the elements in the geographic variables are located where they are because they are dependent upon large population bases to support them. The land development patterns of urban areas, metropolitan areas, and suburbs since the mid-1950s have largely been influenced by the location of interstate highways (Wood, 2008). Furthermore, these areas typically contain major colleges, regional airports, and Wal-Mart stores since the locations of

these elements are dependent upon large population bases to support them. Most of the elements within the geographic variables are located within the counties located around the Kansas City and Wichita Metropolitan areas, and explain the results displayed in Figure 10.2 of these counties containing few characteristics associated with rural decline.

Ultimately, counties in Kansas located far from large population bases, interstate highways, and have been displaying trends of persistent population loss over time are in trouble. Those counties that reside near large population bases, business markets, information hubs, and amenities attractive to residents and businesses have a better chance of achieving sustainability and combating rural decline compared to counties that do not. I believe that the results in Figure 10.2 do not lie and serve as a basic understanding into the spatial occurrences associated with rural decline in Kansas.

**Figure 10.2**



## **Combating Rural Decline**

In order to stop rural decline and achieve sustainability, small towns in rural America can provide a variety of incentives and implement new programs within their communities. This includes providing and supporting the essentials for community life, being able to successfully retain wealth, providing incentives to lure residents and businesses to their communities, and preserving their [small towns] existing, historic, and distinct character (Daniels et al., 2007).

Regarding essentials for community life, a small town needs to have a school, place to eat, buy food, provide health care, provide gasoline, and provide social support. To retain wealth, small towns need to have a system of commerce with enough tax revenues to support its local public services. This means that the community must be able to increase its jobs and capacity by recruiting, retaining, and expanding existing firms, creating public and private partnerships, and train its workforce successfully. Small towns can lure in residents and businesses by providing incentives including free land, tax abatements, subsidized loans, and enterprise zones (zones where firms locate to get exemption from local area taxes, job training subsidies, and exemption from local economic policy). Lastly, small towns can preserve their existing, historic, and distinct character by preserving the facades of buildings, restoring older brick buildings, or by following guidelines established by the National Trust for Historic Preservation's Main Street Program (Daniels et al., 2007).

## **Usefulness of Research**

This research report identifies characteristics, patterns, and trends associated with rural decline, specific counties in Kansas most devastated by factors associated with rural decline, and explains any spatial phenomenon associated with variables related to rural decline. One particular organization that can make use of this research is the Kansas Preservation Alliance, Inc. Their mission is to preserve the vitality and development of Kansas communities. One of the ways they do so is by funding historic preservation projects, most of which are in distressed small towns. The numerical results from this research could help the organization identify counties that contain rural communities in need of preservation assistance. The comparative analysis allows for specific variables to be measured side-by-side for comparison against other

Kansas counties. This could help the Kansas Preservation Alliance, Inc. examine particular variables they feel affect distressed small towns within these counties the most.

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