Research Report

Issues and Trends Identification in Kansas

Prepared by:

Mary Jane Townsend
Research Associate

Debra Franklin
Regional Labor Force Analyst

Janet Harrah
Director

Anne Gallagher
Senior Research Associate

Center for Economic Development and Business Research
W. Frank Barton School of Business
Wichita State University

Prepared for:

Kansas, Inc.

December 2006

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The role of Kansas, Inc. is to build a strong, diversified economy that promotes new and existing industries in the state. In an effort to achieve this goal and to successfully implement strategies to attract industries, Kansas Inc. contracted with the Center for Economic Development and Business Research at Wichita State University to identify the major issues and trends that could affect the Kansas economy over the next decade. Using a literature search, an examination of statistical trends and personal interviews, CEDBR identified 30 trends and issues.

Many of the issues or trends identified are ongoing and were first mentioned in the paper that CEDBR wrote for Kansas Inc. in 2000 titled, *Issues Identification in the Kansas City Federal Reserve District Ten*. Some of those ongoing issues are an aging population, a shortage of workers and continuing environmental issues. Yet, much has happened over the past six years. The terrorist attacks of September 2001 have created the need to examine homeland security as it relates to the Kansas agricultural industry, and continuing depletion of natural resources has led us to examine the production of alternative sources of energy in Kansas. We hope the following trends and issues we have identified will be helpful to Kansas Inc. in their strategic planning process.

Trends and Issues – A Summary

Four trends emerge from our examination of Kansas demographic data:

- **A declining labor force:** The labor force age group, ages 16-64, is expected to grow by 6.3 percent through 2010, then decline by 5 percent through 2030.
- **Fewer school-aged children:** Although there will be fewer children aged 5-17 in 2030 than there were in 2000, educational costs for those children will more than double. Fewer children and growing educational costs could result in further school consolidation in rural areas.
- **More people aged 65 and older:** From 2005 through 2030, the number of people aged 65 and older is expected to increase by 235,022, bringing the total number of seniors to 593,091, representing 20.2 percent of the total expected population in Kansas in 2030. The additional elderly population, over and above the 2003 population level, could conservatively cost the state an additional $258.1 million in Medicaid payments over the 25-year period from 2006 through 2030.
- **A larger Hispanic population:** The Hispanic population comprises a larger percentage of the total population (8.4 percent), than any other minority group. In addition, those of Hispanic or Latino origin comprise a larger percentage of foreign born in Kansas and have a higher proportion of people living below the poverty level. Because it costs more to educate students living in poverty, in the year 2030 it could cost $134.1 million more to bring the Hispanic children in poverty up to performance standards, than it would if those same children did not live in poverty.

From the work force and industry data and information gathered, these trends emerge:

- **A slower job growth rate than the nation:** The Kansas Department of Labor and the Bureau of Labor Statistics projected an annual growth rate of 1.5 percent for Kansas from 2002-2012, while the growth rate for the United States is expected to be 1.6 percent for that same time period.
- **An expected shortfall of workers through 2012:** The Center for Economic Development and Business Research forecasts a shortage of 124,301 to 194,935 workers by 2012.
  - ***A reduced labor force participation rate:*** As the baby boomers age and drop out of the labor force, the labor force participation rate will drop due to the size of this cohort group.
  - ***A need for skilled workers for high-paying jobs:*** "In Kansas, projected job growth lags the nation in all but the lowest paying quintile of jobs (less than $20,730 annually). The largest shortfall in growth is for the highest paying jobs (more than $47,610 annually)."[1]
  - ***A need to reverse net outflow of workers to other states and increase inflow of foreign-born workers:*** The state continues to have a net out-migration of workers even though net losses of workers to other states are declining. This is due to the decline of international migration into the state.
- **A current industry structure unlikely to maximize employment growth through 2012:** Compared to the nation as a whole**,** Kansas has a large presence of aerospace product and parts manufacturing, agricultural products and telecommunications, except cable, all of which are expected to reduce jobs or add jobs slowly; and a small presence of employment and private educational services, which are expected to add jobs rapidly.[2]
- **Continuing unequal pay and employment opportunities for women:** Women who were full-time wage and salary workers in 2005 had median weekly earnings of $585, or 81 percent of the $722 median for men.[3]

Below are the trends and issues surrounding Kansas trade and globalization.

- **Kansas exports are growing:** Kansas exports totaled $6.72 billion in 2005, an increase of 36 percent over 2004, and Kansas is on track to break export records again in 2006. The value of aircraft industry exports reached an all-time high in 2005, increasing 87 percent from the most recent low in 2003.[4]

---

[1] Wilkerson, Chad, "What Do Expected Changes in U.S. Job Structure Mean for States and Workers in the Tenth District?" Economic Review, Second Quarter 2005, p. 86.
[2] Ibid, p. 70-76.
[3] U.S. Department of Labor, U.S. Bureau of Labor Statistics, "Highlights of Women's Earnings in 2005," Report 995, September 2006.
[4] Trade Development Division, Kansas Department of Commerce, Kansas 2005 Export Statistics, from www.wisertrade.org, U.S. Department of Commerce Census.

- **The U.S. trade deficit is growing:** The U.S. trade deficit nearly doubled from 2001 to 2005, reaching $717 billion and indicating that America continues to be attractive to international investors.
- **Outsourcing is expected to grow:** As Kansas companies are forced to become globally integrated, they may use outsourcing as a means to remain more competitive and profitable.[5] Yet, research has shown that through 2015, outsourcing will probably affect only 0.2 percent of employed Americans annually.
- **More international education is needed:** Besides the specific skills and knowledge that are necessary to manage the mechanics of trade, there also needs to be a global mindset and understanding. More education of the general public could help create a more positive, less fearful attitude toward world trade and globalization.

The following trends emerge regarding technology infrastructure in Kansas:

- **The Farm Security and Rural Investment Act of 2002:** This act focuses on rural development and authorizes $100 million for grants, loans, and loan guarantees for the purpose of improving access to broadband telecommunications services in rural areas.
- **Technology infrastructure and economic growth:** The correlation coefficient between income growth, 1993-2003, and infrastructure is 0.22. Similarly, the correlation between employment growth, 1993-2003, and infrastructure is 0.19 per BEA-REIS.[6] These correlations are low, but significant.
- **Increasing Internet use:** Purchasing, selling and information gathering over the Internet are increasing for all business sectors, placing greater demands on existing services and offering opportunities for expansion. Farmers and ranchers are increasingly adopting the Internet as a business tool.
- **Legislative issues:** Kansas needs to assure that its regulation, taxing and fee policies regarding Internet and other technology development and usage support economic development throughout the state. If not currently available, a comparative study of Kansas and other state regulations and fees would clarify opportunities for improvement or for promotion of the state as a favorable location for technology-based businesses.
- **Technology security:** Security practices are still immature and potentially risky. Security tools are available, but not widely used.

[5] Page, Karyn, President/CEO, Kansas World Trade Center, Inc., interview on Oct. 11, 2006.
[6] Regional Asset Indicators: Infrastructure, Center for the Study of Rural America. Federal Reserve Bank of Kansas City, May 16, 2006, www.kansascityfed.org/RuralCenter/Indicators/Infrastructure_506.pdf.

Five trends emerged in our discussion of the environment.

- **Declining water supply:** The amount of water being used from the Ogallala Aquifer is not being replenished and will some day be unable to support the demands put upon it.
- **Polluted streams and lakes:** Thirty-nine percent of the state's assessed stream mileage is impaired for one or more uses, and 76 percent of assessed lake acreage is impaired for one or more designated uses.[7]
- **Loss of wetlands:** From the 1780s to 1980, Kansas lost more than 40 percent of its wetlands.[8] Of the publicly owned acres of wetlands, 84 percent are impaired for one or more uses.[9]
- **Continuing issues regarding solid waste:** In 2005, the average Kansan landfilled 6.1 pounds of municipal solid waste per day,[10] yet we recycle only about 20 percent of this waste,[11] compared to the national average of 30 percent.[12] There are currently gas energy projects at four Kansas landfills, but much more could be done to turn landfill gases into renewable energy.[13]
- **Increasing development of alternative sources of energy:** Kansas continued to be a net energy importer in 2005, consuming 432 trillion BTUs (British Thermal Units) more than it produced.[14] However, wind energy has the potential to meet roughly 10 percent of Kansas electric power needs in the next decade, and ethanol production is increasing in the state.

Five trends emerge from our rural development data:

- **Depopulation in rural areas:** The Kansas rural population as a percentage of total population decreased from 77.6 percent in 1900 to 28.6 percent in 2000.
- **Continuing environmental issues:** Urban expansion into the watersheds is a major concern due to problems that come from human activities that increase the amount of nutrients (phosphorus and nitrogen) in reservoirs. Environmental restoration of real property to remove hazardous substance increases the efficient use of urban and rural land.
- **Rural health care needs:** Access to local pharmacies may be at risk in rural communities if prescription drug plans rely too heavily on mail-order companies to distribute drugs. Immediate planning and adoption of health

[7] Kansas Department of Health and Environment, "2006 Kansas Water Quality Assessment (305(b) Report), Part 1: Executive Summary," Topeka, KS, April 1, 2006.
[8] United States Department of Agriculture, Natural Resources Conservation Service, www.ks.nrcs.usda.gov/news/2005wetlands.html, from The U.S. Geological Survey Northern Prairie Wildlife Research Center.
[9] Op. cit., Kansas Department of Health and Environment.
[10] Kansas Department of Health & Environment, "Solid Waste Update," Vol. 11, No. 1, August 2006, p. 1.
[11] Kansas Department of Health & Environment, www.getcaughtrecycling.org/truth.htm.
[12] U.S. Environmental Protection Agency, Region 7: Solid Waste Program, www.epa.gov/Region7/waste/solidwaste/index.htm.
[13] U.S. Environmental Protection Agency, Landfill Methane Outreach Program, www.epa.gov/lmop/index.htm.
[14] Kansas Energy Council, "Kansas Energy Report 2006," p. 32, www.kansasenergy.org.

information technology is required due to limited infrastructure and availability of capital in rural areas. Support for family caregivers and long-term care services are deficient in rural areas.[15]

- **Changing rural economics:** "Homeshoring" or "rural-sourcing," a new trend, is dependent on the rural employee possessing the correct combination of occupational skills that are demanded by the global economy.[16] Economic development strategies must be driven by a region's distinct economic assets and its unique market opportunities or indigenous strengths.[17]
- **Agricultural prosperity that could be dampened by lowered productivity:** The rural economy appears positioned to reap another year of prosperity. Soil conservation needs to be a priority to maintain the productivity level of existing farmland.

The issues below emerged in our discussion of agriculture and homeland security.

- **Threat of foot-and-mouth disease:** FMD is the single greatest threat to our agricultural economy, in part because Kansas was ranked second in the nation for its total cattle inventory in 2004.[18]
- **Crop vulnerabilities related to terrorism:** Obtaining plant pathogens and exposing them to crops would be relatively easy and would require little expertise. Because crops are openly exposed, they are quite vulnerable to attack.[19]
- **A water supply dependent on the vigilance of day-to-day management:** The Kansas Department of Health and Environment believes that terrorist attacks on our water systems could occur, but because of past experience, there is not a high probability of that happening. The safety of local water systems is dependent upon accurate vulnerability assessments, appropriate deterrents and vigilant system operators.

---

[15] The 2006 Report to the Secretary: Rural Health and Human Service Issues, The National Advisory Committee on Rural Health and Human Services, ruralcommittee.hrsa.gov/NAC06AReport.htm.
[16] Henderson, Jason, "A Robust Rural Economy in 2006?" *Economic Review*, Federal Reserve Bank of Kansas City, First Quarter 2006, p. 144, cjonline.com/stories/102306/opi_consolidationed.shtml.
[17] Drabenstott, Mark, "Rethinking Federal Policy for Regional Economic Development," *Economic Review*, Federal Reserve Bank of Kansas City, First Quarter 2006, p. 119, www.kc.frb.org/Publicat /econrev/PDF/1q06drab.pdf.
[18] Knowles, Terry; Lane, James; Bayens, Gary; Speer, Nevil; Jaax, Jerry; Carter, David; Bannister, Andra; "Defining Law Enforcement's Role in Protecting American Agriculture from *Agroterrorism*," prepared for the National Institute of Justice, Sandra L. Woerle, NIJ Research Project Manager, Grant No. 2003-IJ-CX-1024, Washington, D.C., June 30, 2005.
[19] Center for Infectious Disease Research & Policy, Academic Health Center, University of Minnesota, "Overview of Agricultural Biosecurity," www.cidrap.umn.edu/cidrap/content/biosecurity/ag-biosec/biofacts/agbiooview.html, from Casagrande, R., "Biological terrorism targeted at agriculture: the threat to U.S. national security, Nonproliferation Review, 2000 Fall/Winter; Parker, H.S., "Agricultural bioterrorism: a federal strategy to meet the threat, Institute for National Strategic Studies, National Defense University, McNair paper, March 2002; and Wheelis, M., "Agricultural biowarfare and bioterrorism, Federation of American Scientists, Chemical & Biological Arms Control Program, 2002.

ISSUES IDENTIFICATION: DEMOGRAPHICS

Determining demographic trends in a geographic area can provide a framework for identifying economic growth issues. The characteristics of a population can affect the labor force, educational needs, health care needs and many other aspects of the economy. Below are tables and summary information about Kansas population projections through 2030.

Total Population

Table 1. Comparison of Kansas to U.S. Population: April 1, 2000 to July 1, 2030

Area	Census April 1, 2000	Projections July 1, 2005	Projections July 1, 2010	Projections July 1, 2015	Projections July 1, 2020	Projections July 1, 2025	Projections July 1, 2030
Kansas	2,688,418	2,751,509	2,805,470	2,852,690	2,890,566	2,919,002	2,940,084
U.S.	281,421,906	295,507,134	308,935,581	322,365,787	335,804,546	349,439,199	363,584,435

Five-Year Growth Rates of the Population for Kansas and the U.S.: April 1, 2000 to July 1, 2030

Area	Percent Change 2005-2010	Percent Change 2010-2015	Percent Change 2015-2020	Percent Change 2020-2025	Percent Change 2025-2030	Percent Change 2000-2030	Percent Change 2005-2030
Kansas	2.0	1.7	1.3	1.0	0.7	9.4	6.9
U.S.	4.5	4.3	4.2	4.1	4.0	29.2	23.0

Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005, SummaryTabB1.
Internet Release Date: April 21, 2005

Based on 2005 interim population projections, as shown in the table above, the Kansas average annual population growth rate for 2000 to 2030 is expected to be 0.3 percent (9.4 percent/30 years). The expected annual population growth rate for the same time period for the United States is 1 percent (29.2 percent/30 years).

Population by Age

- Tables 2-4 below show that Kansas is projected to have more than 2.9 million people by 2030, an increase of nearly 252,000 over the year 2000. Population growth will slow over time, with an expected growth rate of 2 percent from 2005 to 2010, but only a 0.7 percent increase expected from 2025 to 2030.
- The population age 16 and older is expected to show positive growth during each five-year period from 2000 to 2030; however, the population under age 15 will show positive growth from 2005 to 2020 and then decline through 2030.
- For each five-year period from 2005 through 2030, the number of school age children, ages 5-17, is expected to be less than the 2000 census number for that age group (see Table 6).
- The labor force age group, ages 16-64, is expected to grow by 6.3 percent through 2010, then decline by 5 percent through 2030.

- In 2005 those who were 62 years of age or older comprised 15.4 percent of the total Kansas population; however, by 2030, that age group will comprise 23 percent of the total Kansas population. The growth rate of this age group will peak between 2015 and 2020, increasing 13.6 percent. Growth will continue from 2020 to 2030, but at a slower rate. The growth rate from 2025 to 2030 will be only 4.4 percent. Yet in that same five-year period, those aged 85 and older will grow by a higher growth rate than any of the previous five-year periods being examined in this study – 14 percent – to bring the total number aged 85 and older to nearly 88,000 by 2030.

Table 2. Interim Projections of the Population by Selected Age Groups for Kansas: April 1, 2000 to July 1, 2030

Age in Years	Census April 1, 2000	Projections July 1, 2005	Projections July 1, 2010	Projections July 1, 2015	Projections July 1, 2020	Projections July 1, 2025	Projections July 1, 2030
Total	2,688,418	2,751,509	2,805,470	2,852,690	2,890,566	2,919,002	2,940,084
Under 5	188,708	194,443	199,534	201,489	199,315	197,384	197,085
5 to 13	358,195	344,606	344,793	352,833	358,172	356,566	352,393
14 to 17	166,090	163,337	154,669	153,646	156,412	159,597	159,468
18 to 24	275,592	283,235	275,807	263,146	258,659	263,025	267,337
25 to 44	769,204	740,575	728,444	738,302	741,344	727,166	710,942
45 to 64	574,400	667,244	726,908	723,526	696,745	670,508	659,768
65 and over	356,229	358,069	375,315	419,748	479,919	544,756	593,091
Under 15	588,300	579,467	582,461	593,049	596,778	593,922	589,125
16 and over	2,058,489	2,130,601	2,184,537	2,221,058	2,254,632	2,285,119	2,311,153
18 and over	1,975,425	2,049,123	2,106,474	2,144,722	2,176,667	2,205,455	2,231,138
21 and over	1,847,513	1,925,755	1,985,141	2,031,084	2,061,355	2,088,250	2,112,036
62 and over	413,585	423,779	457,937	514,212	584,152	647,091	675,873
85 and over	51,770	58,762	66,506	70,951	73,209	77,146	87,969
Median Age	35.2	35.8	36.4	36.9	37.8	38.5	39.1

Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005, SummaryTabB1.
Internet Release Date: April 21, 2005

Table 3. Five-Year Level Changes of the Population by Selected Age Groups for Kansas: April 1, 2000 to July 1, 2030							
Age in Years	Level Change 2005-2010	Level Change 2010-2015	Level Change 2015-2020	Level Change 2020-2025	Level Change 2025-2030	Level Change 2000-2030	Level Change 2005-2030
Total	53,961	47,220	37,876	28,436	21,082	251,666	188,575
Under 5	5,091	1,955	-2,174	-1,931	-299	8,377	2,642
5 to 13	187	8,040	5,339	-1,606	-4,173	-5,802	7,787
14 to 17	-8,668	-1,023	2,766	3,185	-129	-6,622	-3,869
18 to 24	-7,428	-12,661	-4,487	4,366	4,312	-8,255	-15,898
25 to 44	-12,131	9,858	3,042	-14,178	-16,224	-58,262	-29,633
45 to 64	59,664	-3,382	-26,781	-26,237	-10,740	85,368	-7,476
65 and over	17,246	44,433	60,171	64,837	48,335	236,862	235,022
Under 15	2,994	10,588	3,729	-2,856	-4,797	825	9,658
16 and over	53,936	36,521	33,574	30,487	26,034	252,664	180,552
18 and over	57,351	38,248	31,945	28,788	25,683	255,713	182,015
21 and over	59,386	45,943	30,271	26,895	23,786	264,523	186,281
62 and over	34,158	56,275	69,940	62,939	28,782	262,288	252,094
85 and over	7,744	4,445	2,258	3,937	10,823	36,199	29,207
Median Age	0.6	0.6	0.9	0.7	0.5	3.9	3.3
Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005, SummaryTabB1. Internet Release Date: April 21, 2005							

Table 4. Five-Year Growth Rates of the Population by Selected Age Groups for Kansas: April 1, 2000 to July 1, 2030							
Age in Years	Percent Change 2005-2010	Percent Change 2010-2015	Percent Change 2015-2020	Percent Change 2020-2025	Percent Change 2025-2030	Percent Change 2000-2030	Percent Change 2005-2030
Total	2.0	1.7	1.3	1.0	0.7	9.4	6.9
Under 5	2.6	1.0	-1.1	-1.0	-0.2	4.4	1.4
5 to 13	0.1	2.3	1.5	-0.4	-1.2	-1.6	2.3
14 to 17	-5.3	-0.7	1.8	2.0	-0.1	-4.0	-2.4
18 to 24	-2.6	-4.6	-1.7	1.7	1.6	-3.0	-5.6
25 to 44	-1.6	1.4	0.4	-1.9	-2.2	-7.6	-4.0
45 to 64	8.9	-0.5	-3.7	-3.8	-1.6	14.9	-1.1
65 and over	4.8	11.8	14.3	13.5	8.9	66.5	65.6
Under 15	0.5	1.8	0.6	-0.5	-0.8	0.1	1.7
16 and over	2.5	1.7	1.5	1.4	1.1	12.3	8.5
18 and over	2.8	1.8	1.5	1.3	1.2	12.9	8.9
21 and over	3.1	2.3	1.5	1.3	1.1	14.3	9.7
62 and over	8.1	12.3	13.6	10.8	4.4	63.4	59.5
85 and over	13.2	6.7	3.2	5.4	14.0	69.9	49.7

Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005, SummaryTabB1.
Internet Release Date: April 21, 2005

Table 5. Percent of Total Population of Each Age Group Based on Interim Projections of the Population by Selected Age Groups for Kansas: April 1, 2000 to July 1, 2030							
	% of Census April 1, 2000 Population	% of July 1, 2005, Projection	% of July 1, 2010, Projection	% of July 1, 2015, Projection	% of July 1, 2020, Projection	% of July 1, 2025, Projection	% of July 1, 2030, Projection
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 5	7.0	7.1	7.1	7.1	6.9	6.8	6.7
5 to 13	13.3	12.5	12.3	12.4	12.4	12.2	12.0
14 to 17	6.2	5.9	5.5	5.4	5.4	5.5	5.4
18 to 24	10.3	10.3	9.8	9.2	8.9	9.0	9.1
25 to 44	28.6	26.9	26.0	25.9	25.6	24.9	24.2
45 to 64	21.4	24.3	25.9	25.4	24.1	23.0	22.4
65 and over	13.3	13.0	13.4	14.7	16.6	18.7	20.2
Under 15	21.9	21.1	20.8	20.8	20.6	20.3	20.0
16 and over	76.6	77.4	77.9	77.9	78.0	78.3	78.6
18 and over	73.5	74.5	75.1	75.2	75.3	75.6	75.9
21 and over	68.7	70.0	70.8	71.2	71.3	71.5	71.8
62 and over	15.4	15.4	16.3	18.0	20.2	22.2	23.0
85 and over	1.9	2.1	2.4	2.5	2.5	2.6	3.0
Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005, SummaryTabB1. Internet Release Date: April 21, 2005							

School-aged Children

In the original issues identification paper for Kansas, Inc. in March 2000, we indicated that from 2000 to 2010 there would be an increase in school-aged children. However, the 2000 census data had not yet been released, so we were using the most current population projections available from the Census Bureau at that time. With the release of 2000 data and subsequent estimates and projections, we see the expected trend has reversed. Table 6 shows that although the five-year projections fluctuate between 2000 and 2030, the total population for ages 5-17 is not expected to be higher than it was in 2000.

Table 6. Kansas Population Aged 5-17							
Age in Years	Census April 1, 2000	Projections July 1, 2005	Projections July 1, 2010	Projections July 1, 2015	Projections July 1, 2020	Projections July 1, 2025	Projections July 1, 2030
5-17	524,285	507,943	499,462	506,479	514,584	516,163	511,861
Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005, SummaryTabB1. Internet Release Date: April 21, 2005							

With fewer school-aged children expected from 2005-2030, compared to the 2000 level, one might expect lower total educational costs. However, if educational costs increase only 2.7 percent per year (an average inflation rate), total educational costs for the projected population of school-aged children in 2030 will be more than double what the costs were for the number of children in 2000.

Perhaps the biggest issue involved with a declining number of children and growing educational costs, is the potential for school consolidation. According to the Kansas Department of Education, "Nearly half the schools in Kansas are rural, and the state ranks seventh in the percentage of its students who attend smaller rural schools. Spending on rural school administration is high, while the percentage of rural school expenditures reaching classrooms is low. But rural class size is small and computer use in the classroom is high, and Kansas' rural teachers are among the most likely in the nation to feel support from parents. At the same time, they are among the lowest paid in the nation. Rural education is very important to Kansas, and merits serious policy attention."

The information below summarizes Kansas school consolidation over the past few years.

- For the 2002-03 school year, USD 280 (Morland) consolidated with USD 281 (Hill City).
- For the 2003-04 school year, USD 317 (Herndon) and USD 318 (Atwood) combined to create USD 105 (Rawlins County).
- For the 2004-05 school year, USD 302 (Smoky Hill) and USD 304 (Bazine) combined to create USD 106 (Western Plains).
- For the 2005-06 school year, USD 301 (Nes Tre La Go) dissolved with most of their students going to USD 106 (Western Plains).[20]

School consolidation is a particularly controversial topic. Those on each side of the issue can give valid reasons for the stands they take. Researchers seem to agree that many factors must be taken into account before a decision to consolidate is made. Those factors include efficiency, economics, student achievement, and community identity. Will a short-term reduction in costs be replaced by higher future costs? Will a reduction in the tax base and the fiscal capacity of a district be outweighed by the cost savings of consolidation? Will the communities involved in the consolidation be able to survive a school closing? Will students receive a better education and improved opportunities?

[20] Kansas Department of Education, response to e-mailed questions, Oct. 16, 2006.

There will be no easy answers to these questions; however, "a study of eight communities in North Dakota that had experienced school consolidations showed that the most important factor in easing the process of consolidation was holding public meetings."[21]

Aged 65 and Over

The table below provides a summary of demographic data for those aged 65 and older, as previously reported in Tables 2-5.

Table 7. Kansas Population Aged 65 and Older

	Projections July 1, 2005	Projections July 1, 2010	Projections July 1, 2015	Projections July 1, 2020	Projections July 1, 2025	Projections July 1, 2030
Number	358,069	375,315	419,748	479,919	544,756	593,091
Level Change From Previous 5-Year Period		17,246	44,433	60,171	64,837	48,335
Percent Change		4.8	11.8	14.3	13.5	8.9
Percent of Total Kansas Population	13.0	13.4	14.7	16.6	18.7	20.2

Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005, SummaryTabB1.
Internet Release Date: April 21, 2005

From 2005 through 2030, the number of people aged 65 and older is expected to increase by 235,022, bringing the total number of seniors to 593,091, representing 20.2 percent of the total expected population in Kansas in 2030. This trend of an increasingly aging population can be explained in two ways:

- The baby boomers are reaching retirement age.
- People are living longer. The number of people age 85 and older represented 1.9 percent of the total Kansas population in 2000, but will represent 3 percent by 2030.

Because people are living longer, more people may find themselves running out of money and needing financial assistance with health services and long-term care. The following discussion will provide an estimate of how much of an increase in Medicaid payments to the elderly the state could experience through 2030.

The most current Medicaid data we have is for 2003. That year there were 32,700 elderly enrollees in Kansas. The state's portion of Medicaid payments to them totaled $169.1 million, for a per capital average amount of $5,173. We will use the following

[21] Bard, Joe, "Rural School Consolidation: History, Research Summary, Conclusions, and Recommendations," National Rural Education Association, The Rural Educator, Winter 2006. From Sell, Randall S., Leitstritz, F. Larry, Thompson, JoAnn M. "YearJ Socio-economic impact of school consolidation on host and vacated communities, (Agricultural Economics Report No. 347), Fargo, North Dakota, Agricultural Experiment Station.

assumptions to provide a conservative estimate of the total additional state Medicaid payments from 2006 through 2030.

- Medicaid enrollment as a percent of total population will remain at the 2003 level of 12 percent through 2030.
- The elderly will continue to represent 10.1 percent of total Medicaid enrollees, as they did in 2003.
- The Federal Matching Rate for Medicaid will continue at the 2003 level, which was 63.15 percent. We know this number will make our estimate more conservative because we have Federal Matching Rates through 2007, which show a declining trend: 63.77 percent for 2004, 61.01 percent for 2005, 60.41 percent for 2006, 60.25 percent for 2007. As the Federal rate declines, the state must pay more to provide the same value of services.
- The price of Medicaid services will not increase. In other words, inflation will not be considered in our calculations.[22]
- Medicaid eligibility and services provided will not change.

Given these assumptions, the additional elderly population, over and above the 2003 population level, could conservatively cost the state an additional $258.1 million in Medicaid payments over the 25-year period from 2006 through 2030 (see Table 8). In other words, if the number of elderly remained the same as in 2003, the total state Medicaid payments to the elderly for the 25-year period would be approximately $4.229 billion. Because of the increasing numbers of elderly, we project the total state Medicaid payments to the elderly for the 25-year period to be approximately $4.487 billion.

[22] Medical care inflation has been significantly higher over the past 10 years than general inflation, 41.6 percent for medical care and 24.5 percent for general inflation. Consequently, this will contribute to the conservativeness of our projected Medicaid expenses.

Table 8. Calculation of Additional State Medicaid Payments Over and Above the 2003 Level, 2006-2030						
	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	Total 2006-2030
Average Kansas Population	2,778,490	2,829,080	2,871,628	2,904,784	2,929,543	
Average Medicaid Enrollment (12% of Av. KS pop.)	333,419	339,490	344,595	348,574	351,545	
Average Elderly Medicaid Enrollment (10.1% of Total Enrollment)	33,675	34,288	34,804	35,206	35,506	
Additional State Medicaid Payments to the Elderly *	$25,223,620	$41,081,460	$54,418,339	$64,811,249	$72,572,079	$258,106,746

*To illustrate the calculations in this row of the table, we will use the calculation for the 2006-2010 period: ((33,675 – 32,700) x $5,173 x 5 = $25,223,620. In other words, we multiply the number of average annual enrollees (over and above the number for 2003) times the annual per capita state Medicaid payment (as of 2003) times the number of years in the 2006-2010 period (which is 5).
Source: Average population calculated from U.S. Census Bureau, Population Division, Interim State Population Projections, 2005, SummaryTabB1. Internet Release Date: April 21, 2005
All Medicaid data is from The Henry J. Kaiser Family Foundation, www.statehealthfacts.org.
Medicaid calculations done by CEDBR.

If, at any time during this period, the state is unable to provide the money necessary to meet these levels of Medicaid payments, it will be necessary to find other funding sources or other avenues for meeting the needs of the state's elderly.

In addition to costs to the state, "caregiving costs individuals upwards of $659,000 over their lifetimes in lost wages, lost social security and pension contributions," according to Dr. Sandra Timmermann, director of MetLife's Mature Market Institute.[23] These figures are based on a 1999 study by MetLife, so we can expect that amount to be higher today because of inflation.

[23] Eldercare Costs the Average Worker $659,000, Senior World Online, www.seniorworld.com/articles/a20000210123512.html. Source: David Demko, AgeVenture News Service, www.demko.com, Boca Raton, Florida.

According to a 2003 study by the National Family Caregivers Association, Kansas had 256,493 family caregivers who provided 275 million hours of care at an annual market value of $2.421 billion.[24]

Businesses are impacted by the cost of eldercare, as well. According to a 2006 study by the MetLife Mature Market Institute, the total estimated cost to employers of all full-time employed caregivers is $33.6 billion, or $2,110 per employee.[25]

With the trend of an increasing elderly population, providing care and covering the costs of that care are societal issues that will need to be addressed by government and businesses, as well as family members.

Hispanic Population

Table 9. Kansas Hispanic Population

	Population	Level Change	Percent Change
2000 Census	188,252		
2005 Estimate	224,152	35,900	19.1
2010 CEDBR Estimate	256,206	32,054	14.3
2015 CEDBR Estimate	293,388	37,182	14.5
2020 CEDBR Estimate	331,852	38,464	13.1
2025 CEDBR Estimate	371,598	39,746	12.0
2030 CEDBR Estimate	405,276	33,678	9.1
2000-2010		67,954	36.1
2000-2030		217,024	115.3
2005-2030		181,124	80.8

Source: 2000 data is from the 2000 census; 2005 data is from the Census Bureau's 2005 American Community Survey; 2010-2025 data is estimated by CEDBR.

[24] National Family Caregivers Association in conjunction with Peter S. Arno, PhD, Department of Epidemiology and Population Health, Montefiore Medical Center and Albert Einstein College of Medicine, *Prevalence and Economic Value of Family Caregiving* , based on Dr. Arno's previous study, *Economic Value of Informal Caregiving: 2000*, presented at the American Association for Geriatric Psychiatry Conference, Orlando, FL, Feb. 24, 2002.

[25] MetLife Mature Market Institute and the National Alliance for Caregiving, *The MetLife Caregiving Cost Study: Productivity Losses to U.S. Business*, MetLife: July 2006, p. 17.

Table 10. Hispanic Population as a Percent of Kansas Population	
Year	Percent of Total Kansas Population
2000 Census	7.0
2005 Estimate	8.1
2010 CEDBR Estimate	9.1
2015 CEDBR Estimate	10.3
2020 CEDBR Estimate	11.5
2025 CEDBR Estimate	12.7
2030 CEDBR Estimate	13.8
Source: 2000 data is from the 2000 census; 2005 data is from the Census Bureau's 2005 American Community Survey; 2010-2025 data is estimated by CEDBR.	

When CEDBR did the original issues identification paper for Kansas, Inc. in March 2000, Census 2000 data was not yet available. Therefore, we used Census Bureau projections for 2000, 2005 and 2010.[26] Below are the Kansas Hispanic population data used in that report:

Table 11. Kansas Hispanic Population from the March 2000 Issues Paper			
	Population	Level Change	Percent Change
2000 projection	138,000		
2005 projection	166,000	28,000	20.3
2010 projection	191,000	25,000	15.1
2000-2010		53,000	38.4
Source: Campbell, Paul R., *Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025*, Washington, D.C.: U.S. Census Bureau, October 1996, PPL 47.			

Census 2000 data revealed the 2000 projection in Table 11 was 36.4 percent lower than the actual Hispanic population, as determined by the 2000 decennial count, thereby making the 2005 and 2010 projections lower, as well. We believe the CEDBR estimates, as shown in Table 9, may be fairly conservative estimates; however, given the uncertainties about future policies and actions in regard to immigration, we feel more conservative estimates may be wiser at this time.

- Table 9 shows that from 2000 to 2030, the Hispanic population in Kansas is likely to more than double, bringing the total to more than 400,000 people of Hispanic origin.
- CEDBR estimates that by 2030, people of Hispanic origin could represent nearly 14 percent of the population.

[26] Campbell, Paul R., *Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025*, Washington, D.C.: U.S. Census Bureau, October 1996, PPL 47.

Hispanic Population by Age

Table 12. Kansas Hispanic Population by Age							
Age in Years	2000 Census	2005 Estimate	2010 CEDBR Estimate	2015 CEDBR Estimate	2020 CEDBR Estimate	2025 CEDBR Estimate	2030 CEDBR Estimate
Less than 5	24,779	25,084	25,356	25,672	25,999	26,337	26,623
5-19	56,958	64,259	70,778	78,340	86,162	94,245	101,094
20-64	100,032	126,671	150,456	178,046	206,588	236,081	261,071
65 and over	6,483	8,138	9,616	11,330	13,103	14,935	16,488
85 and over	500	650	784	939	1,100	1,266	1,407
Total	188,252	224,152	256,206	293,388	331,852	371,598	405,276
Source: 2000 data is from the 2000 census; 2005 data is from the Census Bureau's 2005 American Community Survey; 2010-2025 data is estimated by CEDBR.							

- By 2030, approximately 64 percent of the Hispanic population will be of working age.
- By 2030, about one-fourth of the Hispanic population will be of school age.

Selected Characteristics of the Hispanic Population

In this study, we focused on the Hispanic population, rather than any other race or ethnic group in Kansas, because it comprises a larger percentage of the total population (8.4 percent[27]), than any other minority group. In addition, those of Hispanic or Latino origin comprise a larger percentage of foreign born in Kansas and have a higher proportion of people living below the poverty level.

Table 13. Selected Characteristics of Kansas Hispanic or Latino Population Compared to the State as a Whole, 2005			
	Hispanic or Latino Population	Kansas Population	Hispanic or Latino as a Percent of Kansas Total
Total	224,152	2,662,616	
Foreign born	82,130	153,535	53.5%
Foreign born as percent of total	36.6%	5.8%	
Living below the poverty level	52,263	309,608	16.9%
Those below poverty as a percent of total	23.3%	11.6%	
Source: U.S. Census Bureau, American FactFinder, 2005 estimates. Data are at a 90 percent margin of error and vary somewhat from the 2005 population projections from SummaryTabB1-1 used earlier in this report.			

[27] Calculation uses 2005 population estimates from U.S. Census Bureau, American FactFinder, as shown in Table 13.

School-aged children in poverty can add significantly to educational costs. According to the 2006 Kansas KIDS COUNT survey, "Children receiving free school meals provide the most current estimate of school-aged children living in or near poverty."[28] It costs 70 percent more in Kansas to bring a free lunch student up to any performance level, than a non-poverty student. This 70 percent is considered the median percentage, but the range is from 65 percent in rural districts to 115 percent in urban districts. It also costs 14 percent more to bring a bilingual student up to any performance level than a non-bilingual student. However, if a bilingual student also receives free lunches, the additional costs would not be a full 84 percent (70 percent plus 14 percent) because the 70 percent will also capture some of the higher costs associated with bilingual students.[29]

To meet 2005 educational performance standards in Kansas, the baseline cost per student was approximately $3,861. To bring a child in poverty up to these performance standards, the baseline cost per child was $6,371 - $8,301, depending on whether the child was in a rural or urban district.

If we apply these figures to our projections of Hispanic school age children as shown in Table 12, we determine that in the year 2030 it could cost $134.1 million more to bring the Hispanic children in poverty up to performance standards, than it would if those same children did not live in poverty. This calculation is based on the following assumptions:

- The number of children aged 5-19 in Table 12 are evenly distributed across age groups, so that the total number of children aged 5-17 can be determined.
- The percentage of children approved for free school meals will remain at 29.1 percent, the 2006 level.
- Hispanic children participate in the free lunch program at the same percentage level as the general population of students.
- The average annual inflation rate will be 2.7 percent from 2005 to 2030.

Three Kansas cities, Garden City, Liberal and Dodge City, have Hispanic populations that exceed 40 percent of their total populations. They also have overall educational costs that are higher than the average educational costs in Kansas. The poverty factor is the principal reason for these higher costs.[30]

Beyond the monetary costs of poverty are the human costs. "Growing up in poverty affects every aspect of a child's development. Poverty is associated with poor health outcomes, low academic achievement and risk-taking behaviors, such as teen

[28] Annie E. Casey Foundation, Kids Count 2006 Data Book Online, www.kac.org/docs/kc.Kansas.pdf.
[29] Duncombe, William and Yinger, John, "Estimating the Costs of Meeting Student Performance Outcomes Adopted by the Kansas State Board of Education," Education Finance and Accountability Program, Center for Policy Research, Syracuse, NY, December 2005, p. 30.
[30] Ibid, p. 37.

pregnancy, delinquency and substance abuse."[31] These outcomes in turn have an additional impact on the economy.

Trends and Issues – A Summary

Four trends emerge from our examination of Kansas demographic data:

- **A declining labor force:** The labor force age group, ages 16-64, is expected to grow by 6.3 percent through 2010, then decline by 5 percent through 2030.
- **Fewer school-aged children:** Although there will be fewer children aged 5-17 in 2030 than there were in 2000, educational costs for those children will more than double. Fewer children and growing educational costs could result in further school consolidation in rural areas.
- **More people aged 65 and older:** From 2005 through 2030, the number of people aged 65 and older is expected to increase by 235,022, bringing the total number of seniors to 593,091, representing 20.2 percent of the total expected population in Kansas in 2030. The additional elderly population, over and above the 2003 population level, could conservatively cost the state an additional $258.1 million in Medicaid payments over the 25-year period from 2006 through 2030.
- **A larger Hispanic population:** The Hispanic population comprises a larger percentage of the total population (8.4 percent), than any other minority group. In addition, those of Hispanic or Latino origin comprise a larger percentage of foreign born in Kansas and have a higher proportion of people living below the poverty level. Because it costs more to educate students living in poverty, in the year 2030 it could cost $134.1 million more to bring the Hispanic children in poverty up to performance standards, than it would if those same children did not live in poverty.

[31] Op. cit., Annie E. Casey Foundation.

ISSUES IDENTIFICATION: WORK FORCE AND INDUSTRY TRENDS

Employment Growth Rates – Kansas vs. the Nation

Following the March 2001 recession, Kansas shed jobs at a faster rate than the nation. Recovery from the recession has been slower for Kansas than the nation, as well (see Table 14). Between 2001 and 2003 employment declined 5.9 percent in the state, while it declined only 1.4 percent for the nation as a whole. The rate of recovery in 2004 and 2005 was slower for Kansas, with an employment gain of only 1.7 percent compared to a national gain of 2.6 percent. More recently, if we look at the 12 months ending August 2005 compared to the 12 months ending August 2006, we see the trend continuing, with a 0.9 percent increase in employment for Kansas, but a 1.4 percent increase for the nation.

Table 14. Kansas and U.S. Employment, 2000 – August 2006

	Kansas		United States	
	Total Nonfarm Employment	% Change from Previous Period	Total Nonfarm Employment (In thousands)	% Change from Previous Period
2000	295,200		131,785	
2001	298,600	1.2	131,826	0.0
2002	292,500	-2.0	130,341	-1.1
2003	281,000	-3.9	129,999	-0.3
2004	283,100	0.7	131,435	1.1
2005	285,900	1.0	133,463	1.5
12 months ending August 2005	285,883		132,812	
12 months ending August 2006	288,558	0.9	134,726	1.4

Source: Kansas Department of Labor and the U.S. Bureau of Labor Statistics.

Will this trend continue of a slower employment growth rate for Kansas compared to the nation? The table below indicates that through 2012, unless Kansas takes positive steps to increase employment levels, the trend will continue. According to employment projections produced by the Kansas Department of Labor and the U.S. Bureau of Labor Statistics, the Kansas annual growth rate, 2002-2012, will be 1.5 percent, while the growth rate for the United States during that same time period will be 1.6 percent.

Table 15. Total Nonfarm Employment for Kansas and the United States, 2002 and 2012				
	2002	2012	Jobs Added	Annual Growth Rate
Kansas	1,322,270	1,526,590	204,320	1.5
U.S.	131,064,000	152,689,000	21,625,000	1.6
Source: Kansas Department of Labor and the U.S. Bureau of Labor Statistics				

Available Labor Force

Given the employment level that is anticipated for Kansas in 2012, as shown in Table 15, the question becomes, "Will there be enough workers in 2012 to fill these positions?" There are a couple of methods that can be used to answer this question. In the first method, we use the estimated 2012 population as the base of our calculations, and we apply the following formula:

employment = population x labor force participation rate x employment rate

The table below demonstrates the application of this formula.

Table 16. Available Kansas Labor Force by 2012	
Estimated population aged 16 and older in 2012*	2,199,145
Labor force participation rate**	66.7%
Available labor force	1,466,830
Employment rate†	95.6%
Employment from available workers in 2012	1,402,289
Projected nonfarm employment in 2012††	1,526,590
Shortage of workers	124,301

*Estimated population aged 16 and over was calculated by evenly distributing, by year, the difference between the 2010 projected population and the 2015 projected population shown in Table 2.
**Source: Calculated for 2012 by CEDBR from Clark, Todd E. and Nakata, Taisuke, "The Trend Growth Rate of Employment: Past, Present, and Future," Economic Review, First Quarter 2006, p. 65. Traditionally, the state of Kansas has had a somewhat higher labor force participation rate than the nation. We used the national rate in our calculations above, but used the rate at the higher end of the confidence interval to take into account that Kansas' rate would likely be higher than the nation.
†Employment rate was determined by using the reciprocal of the average Kansas unemployment rate, 1996-2005.
††Shown in Table 15 above.

The second method begins with the projected nonfarm employment in 2012. This time we solve the formula above for population, rather than employment:

population = employment/(labor force participation rate x employment rate)

population = 1,526,590/(.667 * .956)

population = 2,394,080

This calculation shows that in order to have a projected employment of 1,526,590 in 2012, there would need to be 2,394,080 people in Kansas aged 16 and older. However, the Census Bureau is forecasting approximately 2,199,145 people in that age range in 2012. Consequently, this calculation indicates a shortage of 194,935 workers.

One would expect both calculation methods to produce the same worker shortfall. However, we do not know all of the economic indicator trends used by the Bureau of Labor Statistics to forecast their employment numbers. The best we can do in this situation is apply labor force participation rates and employment rates we feel to be reasonable in this situation.

We believe the two numbers resulting from these two calculation methods can provide a range (124,301 to 194,935) that represents a good estimate of the number of people over and above the Census Bureau's population estimate that will be needed to fill the number of jobs forecasted by The Bureau of Labor Statistics for 2012.

As discussed below, there are a number of ways this worker shortfall could be addressed:

- Increase the labor force participation rates
- Increase the skill levels of workers
- Increase net migration into our state

Labor Force Participation Rates

"Each age, sex, race, and ethnic group exhibits different socioeconomic trends and thus different labor force participation rates. … Changes in the overall and detailed labor force participation rates are the result of a combination of factors, including changes in the demographic composition of the population, as well as cyclical and structural changes in the economy."[32]

People aged 65 and older traditionally have a smaller labor force participation rate than the rest of the labor force population. "With the passage of every year after 2000, a segment of the baby-boomer population passes into the 55-years-and-older age group and thus moves from a group with a high participation rate in the labor force to an age category with a much lower participation rate, causing the overall participation rate to decrease."[33] Although many people in this age group will continue to work past age 65 or 66, it will probably not be enough to counteract the overall effect of that group's low participation rate on the overall rate.

"By 2020, one in three U.S. households is expected to be involved in caring for elderly or disabled relatives, up from one in four today," according to a recent survey by

[32] Toossi, Mitra, "Labor force projections to 2014: retiring boomers," Monthly Labor Review, November 2005, p. 29.
[33] Ibid, p. 30.

the National Alliance for Caregiving, a nonprofit coalition, and the MetLife Foundation.[34]
For this reason there is a potential for the labor force participation rate to drop somewhat because of the need for some caregivers to resign or retire to take care of family responsibilities. "About a quarter of all companies currently provide some basic elder-care benefits, mainly referrals that help employees find caregivers and legal services. … But other companies . . . are going beyond this to provide employees with additional benefits, which can include extended leaves of absence and subsidized in-home care when emergencies arise."[35] More Kansas businesses will need to address these employee needs to retain as many caregiving employees as possible.

Another trend in labor force participation rates is the deceleration in the participation rate of women. "The participation rate of women increased much more from 1955 to 1981 (from 35.6 percent to 52.1 percent) than it did from 1981 to 2005 (from 52.1 percent to 59.2 percent). Although many have speculated that the deceleration of the participation rate of women is tied to factors such as the incomes of spouses and more women deciding to stay home with children, the deceleration has proved hard to explain."[36]

Last year the Harvard Business Review and the Center for Work-Life Policy released an article and report on women who off-ramp – those who voluntarily leave their careers for a time, an average of 2.2 years. The survey done in conjunction with the study revealed that 44 percent leave because of family responsibilities, while about 23 percent leave to pursue a degree or other training. In addition, 93 percent of the women who off-ramped wanted to go back to work, yet only 74 percent would succeed in obtaining a job, and only 40 percent would return to full-time jobs. The article indicated that on-rampers were eager for help from the private sector. They believed a variety of company-sponsored initiatives could make a return to work more likely – initiatives such as re-training, new skill development, reduced hours and/or workloads, and flexible work arrangements.[37]

Although the overall labor force participation rate is partly a function of population characteristics, the discussion above indicates that it is also a function of business climate, employee benefits and company initiatives. To hold the labor force participation rate steady or to reverse its expected downward direction, businesses must

[34] McQueen, M.P., The Wall Street Journal, quoted in "Employers expand elder-care benefits," post-gazette.com, July 27, 2006.
[35] Ibid.
[36] Clark, Todd E. and Nakata, Taisuke, "The Trend Growth Rate of Employment: Past, Present, and Future," Economic Review, First Quarter 2006, p. 56, quoted from Bradbury, Katherine, and Katz, Jane, "Women's Rise – A Work in Progress: Are Professional Women Opting Out? Recent Evidence on College-Educated Women's Labor Force Participation," Federal Reserve Bank of Boston, Regional Review, First Quarter 2005.
[37] Center for Work-Life Policy, news release, Feb. 28, 2005, Off-Ramps and On-Ramps: Keeping Women on the Road to Success, content from Hewlett, Sylvia Ann and Luce, Carolyn Buck, "Off-Ramps and On-Ramps: Keeping Talented Women and the Road to Success," Harvard Business Review, Feb. 28, 2005.

realize they have the ability to affect the labor pool and must then be willing to take steps to meet the needs of potential workers.

Skill Levels of Workers

Another way to increase the number of available workers is to ensure that workers have the skills necessary for the jobs needing to be filled. Every two years the Kansas Department of Labor provides a ten-year occupational outlook for the state. The tables below provide data from KDOL's most recent report for 2012.

Table 17. Top Five High Demand Occupations in Kansas*, 2002-2012

	2002 Employment	2012 Employment	Annual Job Openings
Cashiers	35,870	41,410	2,310
Retail salespersons	39,020	44,320	1,960
Combined food preparation and serving workers, including fast food	20,700	26,170	1,450
Waiters and waitresses	20,490	24,240	1,450
Registered nurses	27,560	35,060	1,320

*KDOL defines high demand occupations as those having 500 or more projected average annual job openings. Annual openings include both new jobs and replacements.
Source: Kansas Department of Labor, 2012 Kansas Occupational Outlook Executive Summary.

Table 18. Top Five Fast Growing Occupations in Kansas*, 2002-2012

	2002 Employment	2012 Employment	Growth Rate, 2002-2012
Architects, except landscape and naval	830	1,210	45.8%
Medical assistants	2,780	4,050	45.7%
Teachers, primary, secondary, and adult, all other	6,560	9,470	44.4%
Medical records and health information technicians	2,190	3,120	42.5%
Reservation and transportation ticket agents and travel clerks	1,160	1,640	41.4%

*KDOL defines fast growing occupations as those having 1,000 or more jobs in the projected year (2012) and that have a percentage change in employment from 2002 at least twice that of the average for all occupations, which is 13.4 percent.
Source: Kansas Department of Labor, 2012 Kansas Occupational Outlook Executive Summary.

Among the five occupations determined to be in highest demand through 2012, none require a bachelor's degree and most require only some on-the-job training. All the occupations, except registered nurses, are relatively low-paying jobs.

Among the top five fastest growing occupations in Kansas through 2012, most require at least an associate degree, except medical assistants and reservation and travel clerks, which need only some on-the-job training. None of these occupations would be considered among the lowest-paying jobs, but only one, architects, could be considered among higher-paying jobs, based on median annual earnings.

In his paper, "What Do Expected Changes in U.S. Job Structure Mean for States and Workers in the Tenth District?," Chad Wilkerson, policy economist at the Federal Reserve Bank of Kansas City states, "In Kansas, projected job growth lags the nation in all but the lowest paying quintile of jobs (less than $20,730 annually)." This seems to indicate that among the top five high demand occupations shown above, only registered nurses are likely to experience a significant shortfall of workers.

Wilkerson goes on to say, "The largest shortfall in growth is for the highest paying jobs (more than $47,610 annually). This shortfall is related to the slow job growth expected in several important industries in the state that employ highly paid workers, such as aircraft manufacturing and telecommunications." His statement is reinforced by the table above that shows that among the five fastest growing occupations from 2002-2012, only one would be considered a high-paying job. These numbers indicate that Kansas' focus needs to be on creating more high-paying jobs and providing training that prepares workers for these jobs. In addition, Kansas recruitment needs to be focused on businesses that can provide high-paying job opportunities and workers able to fill those kinds of positions.

Work force development

The Kansas City area has received a $15 million grant from the U.S. Department of Labor through a three-year initiative called the Workforce Innovation in Regional Economic Development (WIRED). This grant will be used by 18 counties in Missouri and Kansas for economic development, workforce development, and education and training of workers in advanced manufacturing, biotechnology and health care. The program will be administered by a local alliance of business and education called OneKC WIRED. Institutions receiving funds are Johnson County Community College, Kansas City Area Life Sciences Institute, the Partnership for Regional Education Preparation, Metropolitan Community College, Kansas City Metropolitan Healthcare Council, the Alliance for Innovation in Manufacturing-KC and the Kansas City Area Development Council.[38] The Kansas City area is just one of 13 regions that will benefit from the $195 million being provided by the U.S. Department of Labor. This is a significant attempt by northeast Kansas to address the shortfall of workers in high-skill, high-paying occupations.

[38] Haas, Julie, Johnson County Community College Press Release, "JCCC shares in federal WIRED grant," Feb. 22, 2006.

In South Central Kansas, a world-class aviation technical school is going to be built at Jabara Airport in northeast Wichita. The facility will include an assessment and career development center, an aviation center and a manufacturing school for non-aviation workers. Construction on the campus will begin in fall 2007, with an expected completion date in 2009.

Manufacturing employment comprises nearly 21 percent of total employment in Wichita. In addition, "five major aviation companies have said that the number of trained workers they will need in 2006 could exceed 4,150 and that 1,000 new jobs will be created every year for the next decade." Consequently, local leaders are hopeful that this new facility will help meet the manufacturing industry's growing employment needs.[39] It is also hoped that the facility will attract people into the area and will raise awareness about manufacturing jobs among Wichita students graduating from high school.[40]

A statewide initiative is underway to help Kansas citizens, especially students, to successfully reach their career aspirations. The Educational Services and Staff Development Association of Central Kansas recently announced that it will be partnering with the Kansas Career Pipeline in these efforts. The Kansas Career Pipeline is a nonprofit organization comprised of businesses, K-12 educational entities, post secondary educational institutions, work force development and numerous nonprofits all dedicated to career development. The Kansas Career Pipeline will assist participants in determining interests, talents and aptitudes, then provide a seamless pipeline of career discovery, career investigation, and career placement that is aligned with both their individual needs and those of the Kansas business community.[41]

"The Kansas Department of Commerce administers a Workforce Development System that links businesses, job-seekers and educational institutions to ensure that Kansas employers can find skilled workers. The system recently underwent a once-in-a-generation overhaul, putting more emphasis on the specific needs of Kansas businesses and tailoring labor to meet those needs. This renewed focus on employers' needs has also led to a closer relationship between Kansas business and the state's educational institutions, which are tailoring their curriculum so that students will be better fits for Kansas companies upon graduation.

"Other Workforce Development System highlights include:

- Local Workforce Centers, which are located across Kansas and serve as a single point-of-entry to a network of employment, training and educational programs and providers for job-seekers.

[39] Isenberg, Barbara J., "County confirms aviation school grant," The Wichita Eagle, Oct. 17, 2006.
[40] Usher, Lori, executive director, Sedgwick County Technical Training Authority, interview on Oct. 16, 2006.
[41] Wyckoff, Steve, "ESSDACK Announces Partnership with Kansas Career Pipeline," Educational Services and Staff Development Association of Central Kansas Web site, www.essdack.org/?q=node/407, Aug. 17, 2006.

- The Kansas Center for Entrepreneurship, which was established as a component of the Kansas Economic Growth Act of 2004 to further establish entrepreneurship and small business as a priority for economic and community development in the state.
- The Registered Apprenticeship Program, which allows employers to train existing workers in the latest technologies without loss of production time.
- A variety of financial incentives and tax breaks for employers who are training new employees or retraining existing ones."[42]

Employers consistently indicate that many young workers lack basic employee skills, such as a strong work ethic, reliable and on-time attendance, the ability to work in a team, good communication skills and critical thinking skills. Whether these skill deficits are because of workers' maturity levels and lack of experience, or whether they represent a different set of work values of a new generation, they are issues that need to be addressed, by employer and employee alike. Perhaps employer expectations need to be communicated to students preparing for the work force, and perhaps employers need to have enough communication with young workers to understand their needs and values in regard to these issues. With the expected shortage of workers that is anticipated, employers may have to become more flexible and do a better job of understanding employee needs in order to retain the workers they need.

With the aging population, a new trend could develop. "Those nearing retirement age and beyond will have substantial knowledge and expertise that could continue to be tapped by providing seasoned leadership on public and private governing boards."[43]

Migration

The movement of people into and out of Kansas can have important implications for the state's economy. Migration involves three major flows – inflows from other states, outflow to other states and inflow of foreign-born from abroad. Migration patterns are important because they affect the overall supply of workers in the labor force and its educational composition. Over the past 50 years, Kansas has experienced a net outflow.

[42] Kansas Department of Commerce and Housing, response to e-mailed questions, Nov. 13, 2006.
[43] Op. cit., Usher.

Table 19. Migration Inflows and Outflows During 5-Year Periods *Percent of initial population*				
	Gross inflow from other states	Gross outflow to other states	Difference (net inflow from other states)	Gross inflow of foreign-born from abroad
Kansas				
1955-60	11.2	15.2	-4.0	0.3
1965-70	12.0	14.2	-2.3	0.3
1975-80	12.7	13.3	-0.6	N/A
1985-90	11.9	13.0	-1.0	0.8
1995-2000	11.3	11.6	-0.3	1.5
Average	**11.8**	**13.5**	**-1.6**	**0.7**
United States				
1955-60	9.0	9.0	.0	0.7
1965-70	9.3	9.3	.0	0.9
1975-80	9.9	9.9	.0	N/A
1985-90	9.6	9.6	.0	1.7
1995-2000	8.7	8.7	.0	2.3
Average	**9.3**	**9.3**	**.0**	**1.4**

Source: Census Bureau per www.KansasCityFed.org, Keeton, William R. and Geoffrey B. Newton, Migration in the Tenth District: Long-Term Trends and Current Developments, *Economic Review, Third Quarter 2006*, p. 37.

Net inflows from other states started out highly negative at mid-century but then improved over the rest of the century. During the second half of the century, Kansas foreign born migration increased; however, this flow was still a smaller source of population growth than national levels. In 2000, 5 percent of Kansas' total population was foreign born compared with 2.5 percent in 1990. At the national level, the foreign-born population represented 11.1 percent of the total population in 2000 compared with 7.9 percent in 1990. According to the Census 2000, of the total foreign born in Kansas, 47 percent were born in Mexico, 6.8 percent in Vietnam, and 3.7 percent in India. At the national level, the top three countries of birth were Mexico (29.5 percent), the Philippines (4.4 percent), and India (3.3 percent). Census 2000 reported that 33.2 percent of all foreign born in Kansas were citizens, compared with 40.3 percent at the national level.[44]

Migration trends, as shown in Table 19, indicate that Kansas has diminishing net losses to other states and increasing gains of foreign-born. The most recent estimates from the Census Bureau, shown in Table 20, indicate that net losses to other states are continuing to decline, but international migration is declining, as well.

[44] Migration Information Source, www.migrationinformation.org/USFocus/state.cfm?ID=KS.

Table 20. Annual Estimates of Components of Population Change Kansas and the United States 2001 - 2005							
		Natural Increase			Net Migration		
Geographic Area	Total Population*	Total	Births	Deaths	Total	Net Internal Migration	Net International Migration
Kansas							
2001	2,700,879	14,030	38,900	24,870	-5,885	-13,548	7,663
2002	2,712,454	13,878	38,661	24,783	-2,356	-10,263	7,907
2003	2,724,224	14,907	39,221	24,314	-3,124	-10,575	7,451
2004	2,733,697	14,781	39,058	24,277	-4,440	-11,117	6,677
2005	2,744,687	14,482	39,140	24,658	-3,571	-9,998	6,427
United States							
2001	285,107,923	1,628,038	4,047,314	2,419,276	1,286,408	0	1,286,408
2002	287,984,799	1,576,986	4,006,985	2,429,999	1,299,890	0	1,299,890
2003	290,850,005	1,630,098	4,052,799	2,422,701	1,235,108	0	1,235,108
2004	293,656,842	1,684,574	4,105,045	2,420,471	1,122,263	0	1,122,263
2005	296,410,404	1,704,036	4,128,641	2,424,605	1,049,526	0	1,049,526
*Total population change includes residual – see "State and County Terms & Definitions"							
Source: Population Estimates Program, U.S. Bureau of the Census http://www.census.gov/popest/national/files/NST_EST2005_ALLDATA.csv. Release Date: December 22, 2005							

As the labor markets tighten due to the limited supply of workers, available jobs and decreasing wage differentials may encourage additional migration from other states and diminish the outflow of workers to other states. Growth industries within the state will likely attract increased foreign born migration and migration from other states.

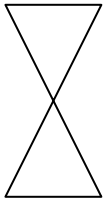
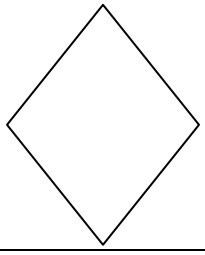
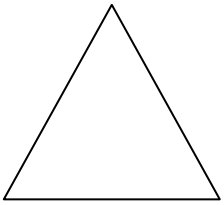
In addition to the supply of workers in the Kansas labor force, it is important to consider the skill level of the workforce. According to William R. Keeton, assistant vice president and economist at the Federal Reserve Bank of Kansas City,[45] there are two key facts about the educational composition of migration flows during the second half of the 1990s. Kansas, along with the other plains states, suffered net outflow of college graduates to other states. These outflows were only partially offset by inflows of college graduates from abroad.

The educational level of migrants into and out of Kansas from other states roughly approximates the national distribution for educational attainment. The graphical depiction of educational attainment for Kansas, the United States and other developed countries resembles a diamond shape with the masses of workers attaining a high school diploma. When educational attainment is graphically depicted for developing countries, the shape more closely resembles a pyramid with the masses of workers not attaining a high school diploma. The educational attainment of international migrants most closely resembles an hourglass. There are vast differences in educational attainment among

[45] Keeton, William R. and Geoffrey B. Newton, Migration in the Tenth District: Long-Term Trends and Current Developments, *Economic Review, Third Quarter 2006*. p. 50-57.

international migrants. Large percentages are college educated, a small percent have high school diplomas, and large percentages do not have high school diplomas.

Table 21. Distribution of Population by Educational Attainment - simplification

	International Migrants	Developed Countries	Less Developed Countries
College High school diploma Less than high school diploma			

The second fact noted by Keeton is that during the second half of the 1990s, Kansas and other plains states received inflows of less-educated immigrants from abroad – those without high school diplomas. These inflows were greatest in Kansas and Nebraska, which also received substantial net inflows of less-educated immigrants from other states. Despite the inflows of less-educated immigrants, the number of people aged 25-64 without high school diplomas declined in Kansas during the 1990s. The main reason the total supply of people without high school diplomas declined was that large numbers of older people without high school diplomas were being replaced in the labor force by young people with a high school diploma or more. This cohort replacement demonstrates the long-term benefits of increasing educational attainment.

Census reports indicate foreign-born workers without high school diplomas were employed in unskilled jobs generated primarily by growth industries in the local economy, as shown in Table 22.

Table 22. Distribution Across Industries of Foreign-Born Workers Without High School Diplomas, 2000		
Percent of total		
	Kansas	**United States**
Construction	12.6	12.5
Restaurants	11.5	11.0
Retailers	3.5	6.3
Agriculture	5.1	5.0
Landscaping	2.2	2.9
Traveler accommodations	2.0	2.6
Janitorial	1.2	2.5
Meatpacking	21.4	1.5
Other manufacturing	16.2	20.2
All other	24.3	35.5
Total	100.0	100.0
Source: Census Bureau per www.KansasCityFed.org, Keeton, William R. and Geoffrey B. Newton, Migration in the Tenth District: Long-Term Trends and Current Developments, *Economic Review, Third Quarter 2006*, p. 57.		

Table 23. Distribution Across Selected Industries of Foreign-Born Workers With College Degrees, 2000		
Percent of total		
	Kansas	**United States**
Hospitals	7.8	7.4
Colleges and universities	13.5	6.8
Elementary and secondary schools	8.3	6.0
Computer systems design	3.4	3.9
Offices of doctors	2.1	2.4
Restaurants	3.2	2.4
Engineering and architecture	2.1	2.3
Construction	2.1	2.3
Banking	0.6	2.1
Electronics manufacturing	0.9	2.0
Consulting services	1.0	1.9
Securities trading	0.8	1.9
Insurance	2.2	1.8
Real estate	0.8	1.4
R & D	0.7	1.4
Legal services	0.5	1.3
All other	50.0	52.9
Total	100.0	100.0
Source: Census Bureau per www.KansasCityFed.org, Keeton, William R.		

Table 23 shows that nearly a third of foreign-born workers with college degrees were employed in education and health care in Kansas in 2000.

Reversing the net loss of workers could help reduce the worker shortfall expected through 2012. However, it would be in the state's best interest if those workers attracted to the state were well-educated and highly skilled. For this to happen, the state has to have job openings requiring these kinds of workers.

Industry Analysis

In the paper mentioned above, "What Do Expected Changes in U.S. Job Structure Mean for States and Workers in the Tenth District?" Chad Wilkerson analyzes the United States' industrial structure and then compares the industrial structures of Tenth District states to that of the United States. He first determined the U.S. industries projected to add and shed jobs at the fastest rate from 2002-2012. The table below shows this information.

Table 24. U.S. Industries Projected to Add and Shed Jobs at the Fastest Rate, 2002-2012*	
Industries with the fastest projected job growth	**Industries with the fastest projected job declines**
1. Software publishers	1. Cut and sew apparel manufacturing
2. Management, scientific, and technical consulting services	2. Textile mills
3. Community care facilities for the elderly and residential care facilities	3. Fabric mills
4. Computer systems design and related services	4. Federal government enterprises
5. Employment services	5. Other chemical product and preparation manufacturing
6. Individual, family, community, and vocational rehabilitation services	6. Iron and steel mills and ferroalloy manufacturing
7. Ambulatory health care services	7. Oil and gas extraction
8. Internet services, data processing, and other information services	8. Computer and peripheral equipment manufacturing
9. Child day care services	9. Pulp, paper, and paperboard mills
10. Commercial and industrial machinery and equipment rental and leasing	10. Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing
11. Offices of health practitioners	11. Natural gas distribution
12. Consumer goods rental and general rental centers	12. Basic chemical manufacturing
13. Cable and other subscription programming and program distribution	13. Aerospace product and parts manufacturing
14. Amusement, gambling, and recreation industries	14. Agricultural products
15. Transit and ground passenger transportation	15. Semiconductor and electronic component manufacturing
*Among industries with over 100,000 employees in 2002. Source: U.S. Bureau of Labor Statistics from Wilkerson, Chad, "What Do Expected Changes in U.S. Job Structure Mean for States and Workers in the Tenth District?" Economic Review, Second Quarter 2005, p. 65.	

He then compared states' industrial structures to that of the United States as a whole. "States with a more favorable industrial structure than the nation have high concentrations in industries expected to add jobs rapidly and low concentrations in industries projected to reduce employment or to add jobs slowly." According to Wilkerson, Kansas ranks among the bottom third of states when comparing its projected job growth rate to that of the United States. Four of the five most important industries to Kansas' projected growth rate provide negative contributions, as shown below.[46]

[46]Wilkerson, Chad, "What Do Expected Changes in U.S. Job Structure Mean for States and Workers in the Tenth District?" Economic Review, Second Quarter 2005, p. 68-70.

Table 25. Industries Contributing the Most to the Difference in Kansas' Projected 2002-2012 Employment Growth Rate from the National Rate		
	Positive or negative contribution	Due to large or small presence
1. Aerospace product and parts manufacturing	Negative	Large
2. Agricultural products	Negative	Large
3. Employment services	Negative	Small
4. Telecommunications, except cable	Negative	Large
5. Cut and sew apparel manufacturing	Positive	Small
Source: Wilkerson, Chad, "What Do Expected Changes in U.S. Job Structure Mean for States and Workers in the Tenth District?" Economic Review, Second Quarter 2005, p. 70.		

Wilkerson states, "Kansas has high concentrations in aircraft manufacturing, telecommunications, agriculture, and state and local government, industries expected to shed jobs or add jobs only sparingly in the years ahead. These concentrations pull its projected job growth rate down below the national average – as does its low concentration in the fast-growing computer systems design industry. On the positive side, Kansas benefits somewhat from the large presence of several health and social service industries in the state."[47] His statement is based on information below.

Kansas has high concentrations in the following industries expected to add jobs rapidly:

- Community care facilities for the elderly and residential care facilities
- Individual, family, community, and vocational rehabilitation services
- Nursing care and residential mental health facilities
- Truck transportation and couriers and messengers
- Office administration and facilities support services
- State and local government education[48]

Kansas has high concentrations in the following industries expected to reduce jobs or add jobs slowly:

- Aerospace product and parts manufacturing
- Agricultural products
- Telecommunications, except cable
- State and local government hospitals
- Rail transportation[49]

[47]Ibid, p. 72.
[48] Ibid, p. 73.
[49] Ibid, p. 74.

Kansas has low concentrations in the following industries expected to add jobs rapidly:

- Employment services
- Educational services
- Computer systems design and related services[50]

In conclusion, Wilkerson states that Kansas is one of four Tenth District states "that is not projected to produce as big an improvement in average pay as in the nation. … States can make themselves more attractive to high-skill workers by enhancing their quality of life and by providing the infrastructure necessary for the jobs of the future. States can also increase the prospects of their current and future workers by focusing on improving educational institutions and worker training programs."[51]

One thing that is important to consider about Wilkerson's study is that just because an industry is projected to lose jobs nationally doesn't necessarily mean it will lose jobs in all areas of the country. A good example may be the aerospace manufacturing industry in Kansas. At least in South Central Kansas, as mentioned above, the industry is expected to gain jobs over the next decade, although some of those jobs will be replacement jobs. The new aviation manufacturing training center in Wichita is a response to that current and future need. It could also be considered an effort to strengthen that industry cluster. An appropriate response to an industry considered to be both a strength and a weakness in the state might be to develop a stronger cluster around it. Attracting suppliers, similar industries or supportive services could help enhance the industry's strengths, while reducing its weaknesses. It could also help diversify the regional economy and reduce cyclical shocks.

Women in the Labor Force

According to the U.S. Bureau of Labor Statistics, women who were full-time wage and salary workers in 2005 had median weekly earnings of $585, or 81 percent of the $722 median for men. This ratio has grown from 63 percent in 1979.[52]

"Only eight companies in the Fortune 500 were led by a woman CEO in 2005, and none of those companies were among the Fortune 100," according to the 2005 Catalyst Census of Women Corporate Officers and Top Earners of the Fortune 500. Women held only 6.4 percent of top earner positions, and 75 percent of Fortune 500 companies reported no women as top earners.[53] Yet, according to a 2004 Catalyst report, "Fortune 500 companies with the highest percentages of women corporate officers yielded, on average, a 35.1 percent higher return on equity and 34 percent higher total return to shareholders than those with the lowest percentages of women corporate

[50] Ibid, p. 76.
[51] Ibid, pp. 89-90.
[52] U.S. Department of Labor, U.S. Bureau of Labor Statistics, "Highlights of Women's Earnings in 2005," Report 995, September 2006.
[53] Catalyst, "Rate of Women's Advancement to Top Corporate Officer Positions Slow, New Catalyst Tenth Anniversary Census Reveals," news release, July 26, 2006.

officers." Companies that understand the importance of diversity and are proactive and successful at harnessing all their talent will have significant advantages over companies who do not.[54]

Trends and Issues – A Summary

From the work force and industry data and information gathered, these trends emerge:

- **A slower job growth rate than the nation:** The Kansas Department of Labor and the Bureau of Labor Statistics projected an annual growth rate of 1.5 percent for Kansas from 2002-2012, while the growth rate for the United States is expected to be 1.6 percent for that same time period.
- **An expected shortfall of workers through 2012:** The Center for Economic Development and Business Research forecasts a shortage of 124,301 to 194,935 workers by 2012.
  - ***A reduced labor force participation rate:*** As the baby boomers age and drop out of the labor force, the labor force participation rate will drop due to the size of this cohort group.
  - ***A need for skilled workers for high-paying jobs:*** "In Kansas, projected job growth lags the nation in all but the lowest paying quintile of jobs (less than $20,730 annually). The largest shortfall in growth is for the highest paying jobs (more than $47,610 annually)."[55]
  - ***A need to reverse net outflow of workers to other states and increase inflow of foreign-born workers:*** The state continues to have a net out-migration of workers even though net losses of workers to other states are declining. This is due to the decline of international migration into the state.
- **A current industry structure unlikely to maximize employment growth through 2012:** Compared to the nation as a whole**,** Kansas has a large presence of aerospace product and parts manufacturing, agricultural products and telecommunications, except cable, all of which are expected to reduce jobs or add jobs slowly; and a small presence of employment and private educational services, which are expected to add jobs rapidly.[56]
- **Continuing unequal pay and employment opportunities for women:** Women who were full-time wage and salary workers in 2005 had median weekly earnings of $585, or 81 percent of the $722 median for men.[57]

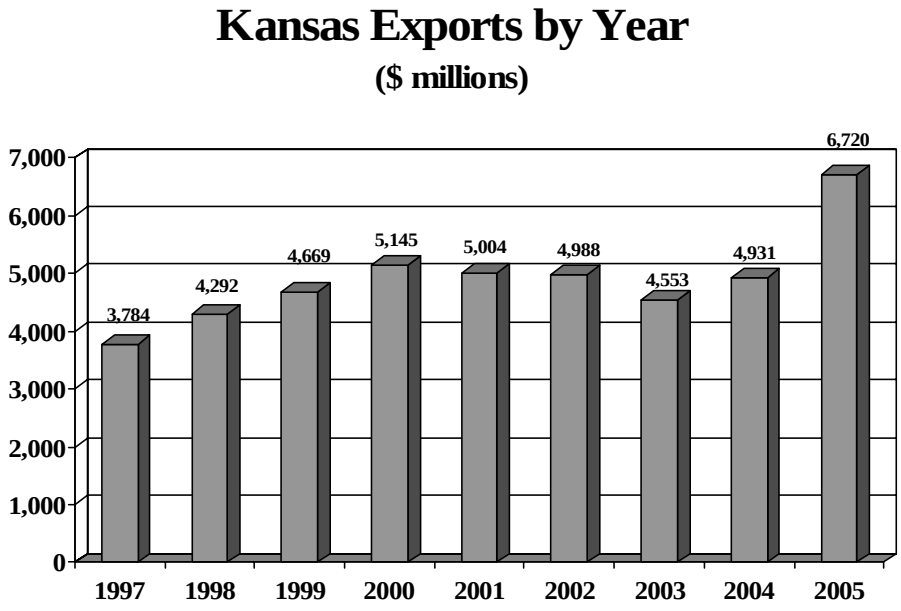
[54] Ibid, from Catalyst, "The Bottom Line: Connecting Corporate Performance and Gender Diversity," 2004.
[55] Op. cit., Wilkerson.
[56] Ibid, pp 70-76.
[57] Op. cit., "Highlights of Women's Earnings in 2005."

ISSUES IDENTIFICATION: TRADE AND GLOBALIZATION

"Although globalization has its critics, I say with some conviction that the increasing interaction among national economies has engendered benefits that have significantly exceeded their costs over the years," stated Alan Greenspan, then chairman of the Federal Reserve, in Mexico City in 2000.[58]

Kansas Export Data

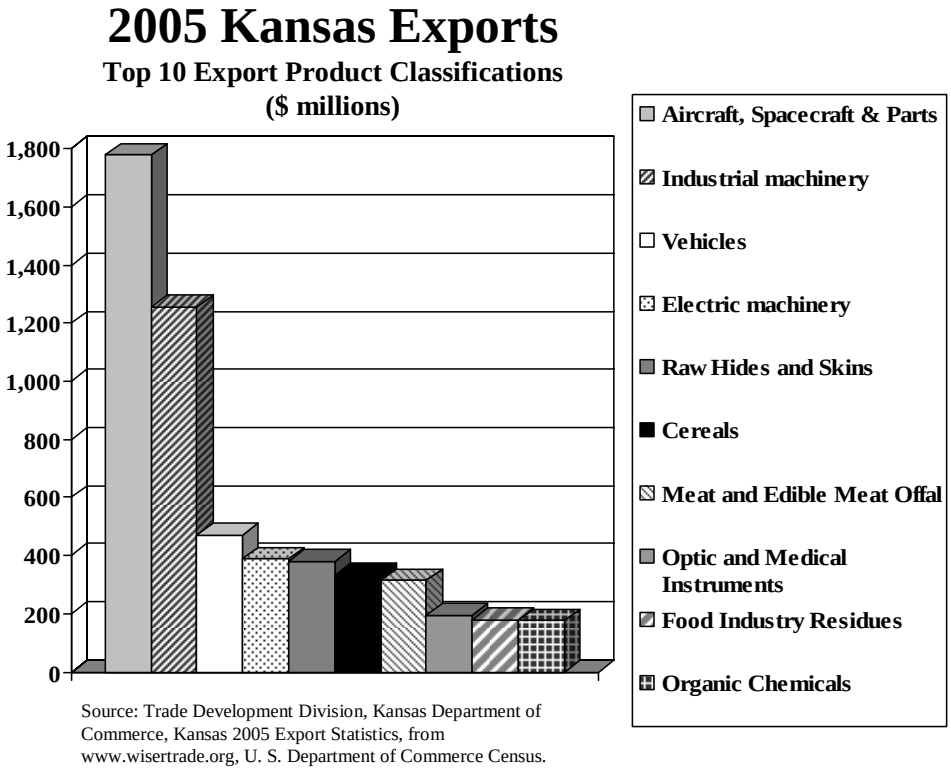
According to the U.S. Department of Commerce, Kansas exports in 2005 totaled $6.72 billion, an increase of 36 percent over 2004. From 1997 to 2005, Kansas exports increased $2.93 billion or 77 percent.



Source: Trade Development Division, Kansas Department of Commerce, Kansas 2005 Export Statistics, from www.wisertrade.org, U. S. Department of Commerce Census.

The aircraft, spacecraft and parts industry, along with the industrial machinery sector, accounted for nearly 45 percent of the state's exports.

[58] Greenspan, Alan, "Globalization," Remarks at the Banco de Mexico 75th Anniversary Conference, Stabilization and Monetary Policy: The International Experience, Mexico City, Mexico, Nov. 14, 2000.



Source: Trade Development Division, Kansas Department of Commerce, Kansas 2005 Export Statistics, from www.wisertrade.org, U. S. Department of Commerce Census.

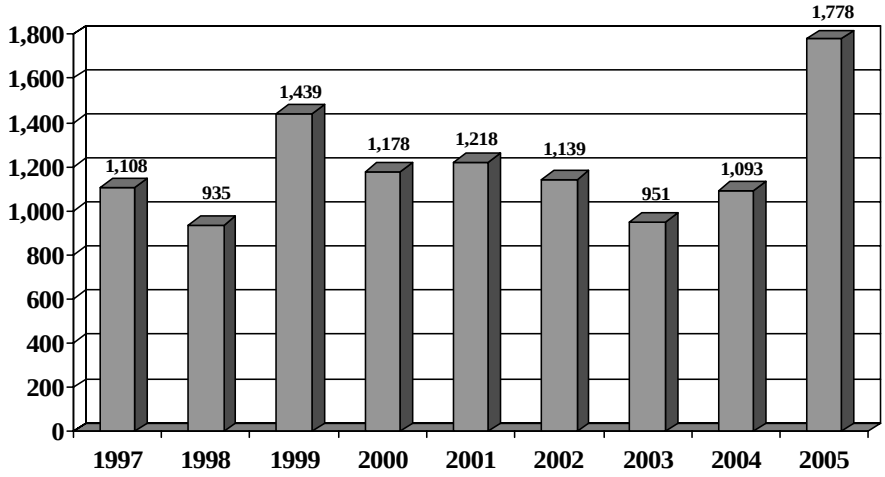
As shown below, some of the smaller markets are showing significant growth, which could help the state to diversify its economy. From 2004 to 2005:

- Aircraft, spacecraft and parts increased $680 million or 63 percent
- Industrial machinery increased $440 million or 54 percent
- Vehicles increased $49 million or 11 percent
- Electric machinery increased $60 million or 18 percent
- Raw hides and skins increased $22 million or 6 percent
- Cereals increased $38 million or 13 percent
- Meat and edible meat offal increased $83 million or 36 percent
- Optic and medical equipment increased $11 million or 6 percent
- Food industry residues increased $28 million or 19 percent
- Organic chemicals increased $118 million or 202 percent

The value of aircraft industry exports reached an all-time high in 2005, rebounding 87 percent from the most recent low in 2003.[59]

[59] Trade Development Division, Kansas Department of Commerce, Kansas 2005 Export Statistics, from www.wisertrade.org, U.S. Department of Commerce Census.

1997-2005 Exports of Aircraft
($ millions)



Source: Trade Development Division, Kansas Department of Commerce, Kansas 2005 Export Statistics, from www.wisertrade.org, U. S. Department of Commerce Census.

The top ten Kansas export markets are shown in Table 26 below. It is interesting to note that even though exports of beef to Japan and Korea were nearly non-existent in 2004 and 2005 because of concerns about mad cow disease (bovine spongiform encephalopathy), total exports from Kansas to Japan and Korea still increased 18 percent from 2004 to 2005.

Table 26. 2005 Top Ten Kansas Export Markets ($ millions)						
	% of Total	% Change	EXPORTS			
	KS Exports	2004-2005	2005	2004	2003	2002
Canada	27%	37%	$1,792	$1,310	$1,021	$1,217
Mexico	13%	32%	854	645	602	664
China	5%	49%	313	210	176	200
United Kingdom	5%	7%	306	286	249	233
Germany	4%	50%	280	187	180	165
Japan	4%	30%	259	198	543	528
Australia	3%	44%	192	133	108	99
Brazil	3%	47%	188	128	63	145
Korea	3%	3%	173	168	321	293
Singapore	2%	32%	167	126	130	34
Top Ten Total	67%	33%	$4,524	$3,391	$3,393	$3,578
Total KS Exports		36%	$6,720	$4,930	$4,553	$4,988
Source: Trade Development Division, Kansas Department of Commerce, Kansas 2005 Export Statistics, from www.wisertrade.org, U.S. Department of Commerce Census.						

Kansas ranks 31 among the 50 states for total value of world exports in 2005. Its top three export markets were Canada, Mexico and China in 2005, with 44 percent of total exports going to these countries. According to Karyn Page, president/CEO of the Kansas World Trade Center, Inc., "We will see a focus on India, Brazil and perhaps Russia in the next two to five years, with continued importance regarding trade with China. More companies will do more business in developing countries, as developed markets are penetrated and become established, and a greater percentage of companies will have to 'go global' earlier in their development to survive."

The Trade Deficit

The United States has had a trade deficit every year since 1975. It nearly doubled from 2001 to 2005, reaching $717 billion. This situation causes anxiety among some policymakers, economic commentators and the majority of Americans. A May 2005 poll by the Pew Research Center found that 63 percent of Americans believe the trade deficit is a big problem for the nation's economy.[60] However, Daniel T. Griswold, director of the Cato Institute's Center for Trade Policy Studies, has written numerous articles indicating that the trade deficit is not an economic problem.

[60] Americans & the World: Public Opinion on International Affairs, International Trade: Reservations About the Effects of Trade in Practice, www.americans-world.org/digest/global_issues/intertrade/reservations_trade.cfm.

The following table shows U.S. economic performance when the trade deficit is rising and when it's falling.

Table 27. U.S. Economic Performance		
	Years When the Trade Deficit Increases	Years When the Trade Deficit Decreases
Real GDP growth	3.5%	2.6%
Change in unemployment rate	-0.4	0.4
Change in manufacturing output	4.6%	1.0%
Change in manufacturing jobs	2,500	-116,700
Change in poverty rate	-0.2	0.3
Change in domestic car/truck output	6.1%	-5.5%
Change in car/truck output (units)	520,000	-610,000
Source: Griswold, Daniel T., "America's Record Trade Deficit: A Symbol of Economic Strength," CATO Institute, Center for Trade Policy Studies, Feb. 9, 2001.		

The data in Table 27 help demonstrate that trade deficits do not diminish economic growth, destroy jobs, negatively impact manufacturing, or create more poverty.

According to Griswold, "The trade deficit is not the cause of real or illusory problems in the U.S. economy but the result of strong growth and a healthy investment climate."[61] In another article he states, "No aspect of international trade is talked about more and understood less than America's perennial trade deficit. Critics of free trade, and most Americans for that matter, believe the trade deficit is prima facie evidence that American companies are failing to compete in global markets or that U.S. exporters face 'unfair' trade barriers abroad, or both. The obvious implication is that, if other nations were to open their markets as wide as we have supposedly opened ours, or if American companies became more competitive against foreign rivals, we could export more relative to imports, thus reducing the trade deficit."[62]

Yet, "trade deficits are not determined by the microeconomics of trade policy or industrial competitiveness. They reflect underlying macroeconomic factors, specifically investment flows and, ultimately, the national rates of savings and investment that determine those flows. … If a country is buying more goods and services from the rest of the world than it is selling, the country must also be selling more assets to the rest of the world than it is buying."[63]

[61] Griswold, Daniel T., "America's Record Trade Deficit: A Symbol of Economic Strength," Cato Institute, Center for Trade Policy Studies, Feb. 9, 2001, p. 6.
[62] Griswold, Daniel T., "Trade Policy Analysis No. 2, America's Maligned and Misunderstood Trade Deficit," Cato Institute, Center for Trade Policy Studies, Apr. 20, 1998, p. 2.
[63] Ibid.

This concept is best demonstrated in the following formula:

Savings – Investment = Exports – Imports[64]

Consequently, our trade deficit indicates that America remains attractive to international investors. "The trade deficit allows Americans to maintain a level of investment in our future productivity that would be impossible if we were required to rely solely on our current level of domestic savings."[65]

So, Griswold believes that the biggest threat associated with the trade deficit is that those who misunderstand it might seek policy changes to "fix it," and that those "fixes" might actually harm the economy. He says, "The best policy would be to ignore the U.S. trade deficit and concentrate on maintaining a strong and open domestic economy that welcomes foreign investment. As long as investors around the world see the United States as a safe and profitable haven for their savings, the trade deficit will persist, and Americans will be better off because of it."

Outsourcing

According to Karyn Page, president/CEO of the Kansas World Trade Center, Inc., "Outsourcing as a means of remaining competitive and profitable will play a more important role as Kansas companies are forced to become globally integrated." This may not be good news to some who view the outsourcing of American jobs as a threat to the U.S. economy. Like the trade deficit, the benefits of outsourcing are often misunderstood.

Daniel W. Drezner, associate professor of international politics at the Fletcher School of Law and Diplomacy at Tufts University, stated in a 2004 article that "outsourcing actually brings far more benefits than costs, both now and in the long run."[66]

Fear of outsourcing seems to escalate during slower economic times, especially if employment is dropping. This has been particularly true with the decline of manufacturing jobs. Yet, the drop in manufacturing jobs has much more to do with technological innovation than outsourcing. Drezner states, "If outsourcing were in fact the chief cause of manufacturing losses, one would expect corresponding increases in manufacturing employment in developing countries. An Alliance Capital Management study of global manufacturing trends from 1995 to 2002, however, shows that this was not the case: the United States saw an 11 percent decrease in manufacturing employment over the course of those seven years; meanwhile, China saw a 15 percent decrease and Brazil a 20 percent decrease. Globally, the figure for manufacturing jobs lost was identical to the U.S. figure – 11 percent. The fact that global manufacturing output

[64] Ibid, p. 5.
[65] Ibid., p. 13.
[66] Drezner, Daniel W., "The Outsourcing Bogeyman," Foreign Affairs, May/June 2004, www.foreignaffairs.org.

increased by 30 percent in that same period confirms that technology, not trade, is the primary cause for the decrease in factory jobs."[67]

Even if the most dire predictions of jobs outsourced came true, the actual impact on the U.S. economy would be negligible. Forrester Research predicted 3.3 million lost jobs spread over 15 years, ending in 2015. This would be about 220,000 jobs per year.[68] This sounds significant, but total employment in the United States is about 136 million. Consequently, outsourcing would affect fewer than 0.2 percent of employed Americans annually. Also, it should be taken into account that potentially millions of new jobs could be created domestically during that same period.

Research has shown there are measured benefits to outsourcing. Catherine Mann of the Institute for International Economics conservatively estimates that the globalization of IT production has boosted U.S. GDP by $230 billion over the seven years ending in 2004. McKinsey Global Institute has estimated that for every dollar spent on outsourcing to India, the United States reaps between $1.12 and $1.14 in benefits. Finally, the Bureau of Labor Statistics stated the number of outsourced jobs increased from 6.5 million in 1983 to 10 million in 2000. The number of in-sourced jobs increased even more in the same period, from 2.5 million to 6.5 million.[69]

All of these benefits, though, mean very little to the individual who loses a job to outsourcing. Outsourcing would not be feared quite so much if efforts were made by companies to help people transition into new jobs. McKinsey Global Institute estimates that for as little as four or five cents per dollar saved from offshore outsourcing, firms could purchase targeted insurance policies to offset the transition costs to workers directly affected by offshore outsourcing.[70] Providing good retraining options could be helpful, as well.

Like other aspects of globalization, more education needs to be done to help everyone better understand the effects and benefits of outsourcing. It will be important for policy makers to understand that the level of discussion and opposition to outsourcing is not necessarily directly related to its level of significance to the economy. Any actions taken must be evaluated in terms of their necessity and their ability to do more good than harm. Strong vocal opposition to any trend or issue does not necessarily translate into the need for urgent or immediate response. Many "issues" can become "non-issues" with time.

International Education

According to Karyn Page, president/CEO of the Kansas World Trade Center, Inc., "International education will need to be given priority from primary grades through university, in order to prepare Kansans to be successful in a globalized work force. In

[67] Ibid.
[68] Ibid.
[69] Ibid.
[70] Op. cit., Drezner.

addition, the knowledge base of how to do business internationally needs to be improved within Kansas companies."

The kinds of knowledge needed include foreign languages, world geography, history and culture, foreign government structures, export regulations, import regulations and rules, and an awareness of international resources. Education needs to range from specific training in areas such as filling out import and export forms to master's degree level educational programs.

Besides the specific skills and knowledge that are necessary to manage the mechanics of trade, there also needs to be a global mindset and understanding. At a young age, our students need to develop an interest and curiosity about the world and to view themselves as world citizens as well as U.S. citizens. Career counseling could be a good opportunity to encourage students to consider global business degrees.

Citizens, policy makers, and businesses need to be educated about those aspects of trade and globalization that are often misunderstood, such as outsourcing and the balance of trade.

With a growing number of companies looking outside domestic markets for continued growth, international education will become increasingly important.[71]

Future of Trade and Globalization in Kansas

Kansas has a number of strengths to help it achieve success in trade and globalization. Location within the NAFTA corridor is a plus, but there continue to be challenges in the logistics of moving goods and people. The state has developed excellence within industries such as aviation, bioscience and agriculture, but more could be done with vertical integration within these industries. Also, efforts to create more industry diversity could help create a more stable economy.

Kansas residents themselves have characteristics important to the success of international business. They have a strong work ethic, general business acumen and personal amiability.

Perhaps the most significant step that could be taken to move Kansas ahead globally would be a strategic plan for trade in the state, which it currently does not have. Such a plan could result in more efficiency, more resource commitment and increased forward momentum.

Trade is currently booming in Kansas. The current state administration understands the importance of exports to the economy and federally elected officials communicate the importance of trade to their constituents, but when administrative

[71] Page, Karyn, President/CEO, Kansas World Trade Center, Inc., interview on Oct. 11, 2006.

changes occur at any level of government, priorities and support can change for any issue.[72]

Trends and Issues – A Summary

Below are the trends and issues surrounding Kansas trade and globalization.

- **Kansas exports are growing:** Kansas exports totaled $6.72 billion in 2005, an increase of 36 percent over 2004, and Kansas is on track to break export records again in 2006. The value of aircraft industry exports reached an all-time high in 2005, increasing 87 percent from the most recent low in 2003.[73]
- **The U.S. trade deficit is growing:** The U.S. trade deficit nearly doubled from 2001 to 2005, reaching $717 billion and indicating that America continues to be attractive to international investors.
- **Outsourcing is expected to grow:** As Kansas companies are forced to become globally integrated, they may use outsourcing as a means to remain more competitive and profitable.[74] Yet, research has shown that through 2015, outsourcing will probably affect only 0.2 percent of employed Americans annually.
- **More international education is needed:** Besides the specific skills and knowledge that are necessary to manage the mechanics of trade, there also needs to be a global mindset and understanding. More education of the general public could help create a more positive, less fearful attitude toward world trade and globalization.

[72] Ibid.
[73] Op. cit., Trade Development Division, Kansas Department of Commerce.
[74] Op. cit., Page, Karyn.

ISSUES IDENTIFICATION: TECHNOLOGY

The digital revolution and the ease of global communication will continue to change the way we live and work. What are the infrastructure issues and needs, both human and physical, for Kansas to compete in this changing world?

Telecommunication infrastructure is critical to sharing knowledge, ideas and increasing productivity. Investing in infrastructure can be an effective economic development strategy, particularly for underdeveloped rural areas as it attracts business investment, creates jobs, and stimulates demand for goods and services.

Technology Availability

The most recent changes to the federal policy are incorporated in the Farm Security and Rural Investment Act of 2002.[75] This legislation focuses on rural development and authorizes $100 million for grants, loans, and loan guarantees for the purpose of improving access to broadband telecommunications services in rural areas. The funds are earmarked for construction, improvement, and purchase of equipment and facilities for rural broadband services in eligible communities.[76]

Peter Stenberg, senior economist at the Economic Research Service (ERS) states, "Two major developments, wireless and satellite telephony, have often been cited by their promoters as overcoming the economic disadvantages rural areas have in the use of traditional telephone service. However, both technologies still face constraints that keep their costs high relative to the quality of the service they provide." Wireless services have some cost advantages in covering the "last mile" from a phone company's switch to the household, but limitations in the technology and terrain issues keep costs high – overcoming dead zones (i.e., areas either too far from a communications tower or where physical barriers impeded the signal) in areas with low population density quickly reduces any cost advantages. Although satellites hold some promise in providing broadband internet service to rural households, the transmission quality has not reached the level of hardwired systems, noted Stenberg. Service speed may never match broadband services obtained through telephone or cable systems because of technical limitations.[77]

Technology and Economic Development

According to Joel Keller, general manager of SKT Business Communication Solutions, "It will be critical that Kansas continue to explore and further build out its backbone for high speed IP communications and connectivity. Cost effective and reliable access to this technology is critical to afford even the most rural areas to benefit from the

[75] Farm Security and Rural Investment Act of 2002, p. 293-307, www.ers.usda.gov/Features/FarmBill/2002FarmAct.pdf.
[76] Stenberg, Peter. Infrastructure in Rural Areas: Telecommunications. *Profitwise News and Views, Special Edition*. July 2006, p. 33, PNV Sp Ed July 2006.pdf.
[77] Ibid., p 34.

many advances in communications. In addition, economic development should be stepped up through government, industry, and universities acting together to build and strengthen these building blocks: schools, a highly skilled workforce, and sources of scientific learning and know-how. Creating a strong foundation, although a long-term endeavor, has been proven to help grow regional technology centers (hubs for commercial technology oriented business and industry). These centers in turn will help continue to drive our area forward, and allow us to better compete with other states and countries around the world."

Every region needs infrastructure to provide linkage to other communities. Good infrastructure in a region can save businesses and residents time and money and may result in the expansion or diversification of a local area's economic base – increasing wages and generating higher business income (The correlation coefficient[78] between income growth, 1993-2003, and infrastructure is 0.22. Similarly, the correlation between employment growth, 1993-2003, and infrastructure is 0.19 per BEA-REIS).[79]

Technology Use and Taxation

Access to digital communications for metropolitan areas is well established, and there are numerous state and local programs that offer tax and other incentives for redeveloping older downtown areas that can be used for technology-based infrastructure. However, rural access and ability to use the Internet and related technology has taken somewhat longer.

A recent USDA study has found that farmers today use the Internet for purchases, sales, information, financial and other uses. Price tracking, agricultural information and accessing USDA information were the most common. According to the U.S. Census Bureau, buying and selling over the Internet accounted for approximately $665 million in 2000, or 0.33 percent of all farm purchases and sales. In comparison, Internet retail sales in 2000 accounted for 0.9 percent of total retail sales. In 2004, the most recent year for which data are available, Internet retail sales had increased to 2 percent of all sales. Business-to-business Internet sales have increased to 20.1 percent of total sales.

In a report by the Center for Economic Development and Business Research in 2002,[80] several technology infrastructure issues were raised by business and community leaders, including:

[78] A correlation coefficient is a common statistic for indicating the strength of a linear relationship between two variables. It is a number ranging between negative 1 (-1) and 1. A positive correlation means that as the value of one variable increases, the value of the other variable also tends to increase. A small or zero correlation coefficient tells us that the two variables are unrelated, while a value close to 1 indicates a strong positive linear relationship. A value close to negative 1 (-1) indicates a strong negative relationship. The correlation coefficients of 0.22 and 0.19 above indicate a low correlation, but a significant one.
[79] Regional Asset Indicators: Infrastructure, Center for the Study of Rural America. Federal Reserve Bank of Kansas City. May 16, 2006, www.kansascityfed.org/RuralCenter/Indicators/Infrastructure_506.pdf.
[80] Strategic Economic Development Master Plan, CEDBR, 2002.

- Assure equitable treatment for all providers as technology and delivery systems emerge.
- Analyze state regulations to assure that they encourage investment and provision of technology infrastructure as well as economic development.
- Analyze taxes and fees in Kansas compared with other states, to assure that Kansas' telecommunications fee structure supports economic development and adoption of technology within the state.

To date, we are unaware of any state-funded studies regarding a comparison of Kansas regulatory and taxing policies versus other states. This information would provide clarification of areas for improvement or information that could be used by area economic development professionals to promote Kansas as a location favorable to technology-based businesses.

Technology Security

Technology security is still relatively new and systems are improving, but are still prone to risky and possibly devastating consequences.[81] According to "the Global State of Information Security 2006" survey, "This year, nearly one-third of respondents admitted that they did not know how many breaches or unauthorized access events occurred within their organization. Attacks can be hard to identify, and networks can be extensive. What's less comprehensible is that a significant portion of respondents said that they have not installed some of the most rudimentary network safeguards. Only one-third of respondents have put in place patch management tools or monitor use activity. Less than half use intrusion detection software or monitor log files (the two best methods organizations can employ to detect breaches) and even fewer use intrusion prevention tools. Surprisingly more than 20 percent of respondents don't even have a network firewall."[82]

Trends and Issues – A Summary

The following trends emerge regarding technology infrastructure in Kansas:

- **The Farm Security and Rural Investment Act of 2002:** This act focuses on rural development and authorizes $100 million for grants, loans, and loan guarantees for the purpose of improving access to broadband telecommunications services in rural areas.
- **Technology infrastructure and economic growth:** The correlation coefficient between income growth, 1993-2003, and infrastructure is 0.22. Similarly, the correlation between employment growth, 1993-2003, and infrastructure is 0.19 per BEA-REIS.[83] These correlations are low, but significant.

[81] Holmes, Allen. "The Global State of Information Security 2006". *CIO*. September 15, 2006, p. 1. www.cio.com/archive/091506/security_survey.html.
[82] Ibid., p. 7.
[83] Op. cit., Regional Asset Indicators: Infrastructure.

- **Increasing Internet use:** Purchasing, selling and information gathering over the Internet are increasing for all business sectors, placing greater demands on existing services and offering opportunities for expansion. Farmers and ranchers are increasingly adopting the Internet as a business tool.
- **Legislative issues:** Kansas needs to assure that its regulation, taxing and fee policies regarding Internet and other technology development and usage support economic development throughout the state. If not currently available, a comparative study of Kansas and other state regulations and fees would clarify opportunities for improvement or for promotion of the state as a favorable location for technology-based businesses.
- **Technology security:** Security practices are still immature and potentially risky. Security tools are available, but not widely used.

ISSUES IDENTIFICATION: THE ENVIRONMENT

Water Table

The High Plains Aquifer lies below approximately 33,500 square miles of 46 counties in western and south-central Kansas and is the most important water resource in those areas. It is also present in seven other states in the Great Plains region of the United States. This aquifer was formerly referred to as the Ogallala Aquifer in Kansas, but the name was changed because the U.S. Geological Survey determined that other geologic units, as well as the Ogallala, form the High Plains Aquifer.[84]

The Ogallala portion of the High Plains Aquifer is located primarily in western Kansas. Because it is crucial to the water supply in that area, efforts must be made to reduce its decline. The good news is that from 1969 to 1999, the average rate of decline was reduced (see Table 28). However, all of that decline cannot be attributed to the state's intentional efforts. The reduction is due, in part, to technological advances in irrigation sprinkler systems and a wetter decade in the 1990s, resulting in lower water use and higher rates of ground water recharge. In addition, a state law in 1978 requiring a water right permit before drilling a well, a more efficient use of water, and an increasing awareness by the general public of the importance of water conservation have all contributed to this more positive scenario.

Table 28. Average Annual Rate of Decline, in Feet per Year, of the Ogallala Aquifer

	1969-1979	1979-1989	1989-1999
Ogallala Aquifer	1.40	0.82	0.55

Source: Kansas Water Office, "Assessment of Water Level Decline Rates Within the Ogallala Aquifer Kansas," www.kwo.org/Reports%20%26%20Publications/Ogallala_decline_assessment.pdf.

Yet, all of these efforts have not, nor will not, prevent the decline of water levels. The table below shows the projected depth to water in 2010.

Table 29. Average Water Level and Trend, in Feet, Projected to the Year 2010, for the Ogallala Aquifer

	Average Depth to Water, 1999	Average Rate of Decline Per Year	Projected Depth to Water, 2010
Ogallala Aquifer	135.29	0.900	145.19

Source: Kansas Water Office, "Assessment of Water Level Decline Rates Within the Ogallala Aquifer Kansas," www.kwo.org/Reports%20%26%20Publications/Ogallala_decline_assessment.pdf.

What the table above does not show is that the projected water level will not be uniform across the whole aquifer. In 2010, the water depth is projected to range from 111.15 feet in some areas to 197.5 feet in others. Ground water declines in the southern part of the Ogallala have been and are projected to be greater than those in the central and northern portions of western Kansas.

[84] Macfarlane, P. A., Misgna, G., and Buddemeier, R. W., "Aquifers of the High Plains Region," www.kgs.ku.edu/HighPlains/atlas/ataqhpr.htm.

Also important to consider is that slowing the decline of the water level in some places is not due to decreased demand, but due to the fact that the water level is low enough to make further pumping impractical. So, just because one area may show a slower decline in the water level does not mean that area has a more adequate supply of water or a lower demand than an area where the water level is declining more rapidly, but is being pumped from a larger and more accessible water source.

The state of Kansas has made concerted efforts to extend the life of the Ogallala Aquifer with the Water Appropriation Act, the Groundwater Management District Act and the Kansas Water Planning Act. Yet, the amount of water being used is not being replenished, so the water levels will continue to decline, perhaps at a slower rate, but eventually to a point where it will not be able to support the demands put upon it.[85]

Numerous or prolonged Kansas droughts could have a negative impact on the state's aquifers. The table below shows the number of drought vulnerable public water suppliers for various years and the number projected for 2010.

Table 30. Total Number of Drought Vulnerable Public Water Suppliers

	Year			
	1992 Estimated	1995 Estimated	1998 Estimated	2010 Projected
Kansas	243	218	150	85

Source: Kansas Water Office, "2010 Objective Assessment Project Summary Drought Vulnerable Kansas Public Water Suppliers, August 2001, www.kwo.org/Reports%20%26%20Publications/statedroughtassess.pdf

A 2010 Kansas Water Plan Objective is that fewer than 5 percent of public water suppliers be drought vulnerable. Yet, it is projected that 85 suppliers will be drought vulnerable in 2010, which is 10 percent of the state's public water suppliers. There would need to be no more than 35 drought vulnerable suppliers to meet the state's objective. Although any supplier could be drought vulnerable depending on the extent of a drought, those with approved municipal water conservation plans will fare better than those without.[86]

Water Quality

For the 2006 Kansas Water Quality Assessment Report, the Kansas Department of Health and Environment monitored 18,493 miles of Kansas streams and 245,227 acres of publicly owned or publicly accessible lakes and wetlands. This represents 60 percent of the state's classified stream mileage and 95 percent of its classified lake and wetland acreage.

[85] Kansas Water Office, "Assessment of Water Level Decline Rates Within the Ogallala Aquifer Kansas," www.kwo.org/Reports%20%26%20Publications/Ogallala_decline_assessment.pdf.
[86] Kansas Water Office, "2010 Objective Assessment Project Summary Drought Vulnerable Kansas Public Water Suppliers, August 2001, www.kwo.org/Reports%20%26%20Publications/statedroughtassess.pdf.

"KDHE reported that 53 percent of the state's assessed stream mileage fully supports all designated uses, 7 percent is fully supported but threatened for at least one use and 39 percent is impaired for one or more uses. Approximately 15 percent of assessed lake acreage fully supports all uses, whereas 76 percent is impaired for one or more designated uses. Sixteen percent of wetland acres either fully support all uses or lack sufficient data to evaluate conditions; the remaining 84 percent are impaired for one or more uses.

"The primary source of pollutants in Kansas streams include agriculture (irrigated and non-irrigated crop production; intensive animal feeding operations), natural phenomena, such as mineralized groundwater intrusion, and habitat degradation. Agriculture, municipal point sources, and natural phenomena are the primary factors contributing to water quality impairments in lakes. Approximately 61 percent of the state's assessed lake acreage has exhibited no change in trophic condition in recent years. Another 28 percent has experienced a measurable increase in trophic state and 4 percent has exhibited some improvement in trophic condition."[87]

According to the 2006 Water Quality Report, "Kansas no longer maintains a statewide groundwater quality monitoring program and funding for the renewal of such an enterprise appears unlikely in the near future." A database is still available from an earlier monitoring program that was suspended in 2002 for budgetary reasons, but this database will become more irrelevant with each passing year.

KDHE does continue to gather some groundwater quality data through its major regulatory bureaus, primarily in high risk areas around abandoned landfills, storage tank cleanup sites, some surface mining operations, and some hazardous waste sites. However, "all of these monitoring activities focus on surficial groundwater and/or a very limited set of analytical parameters. Although public water supply systems are monitored for a wide range of parameters pursuant to the federal Safe Drinking Water Act, samples are collected after treatment and do not reliably reflect the condition of the raw water source."[88]

Wetlands

Wetlands are among the most biologically productive natural ecosystems in the world. They can be compared to tropical rain forests and coral reefs in the diversity of species they support. They are important because they yield fish for the nation, provide recreational opportunities, improve water quality and help control floods. It is estimated that Kansas had 841,000 acres of wetlands in the 1780s, but by 1980 more than 40 percent had been lost, leaving 435,400 acres of wetlands.[89]

---

[87] Kansas Department of Health and Environment, "2006 Kansas Water Quality Assessment (305(b) Report), Part 1: Executive Summary" Topeka, KS, April 1, 2006.
[88] Ibid., Part IV: Groundwater, p. 27.
[89] United States Department of Agriculture, Natural Resources Conservation Service, www.ks.nrcs.usda.gov/news/2005wetlands.html, from The U.S. Geological Survey Northern Prairie Wildlife Research Center.

Most Kansas wetlands are on private lands, but there are 55,969 classified wetland acres that are publicly owned or publicly accessible. As mentioned earlier, 84 percent of the publicly owned acres of wetlands are impaired for one or more uses. According to the Kansas Partners for Fish and Wildlife of the U.S. Fish and Wildlife Service, it costs approximately $400 to restore one acre of Kansas wetlands. From 1992 through 2005, the Kansas Partners for Fish and Wildlife restored or enhanced 21,391 wetland habitat acres. They anticipate a future need to restore another 3,000 wetland acres.

Solid Waste

In 2005, the average Kansan landfilled 6.1 pounds of municipal solid waste per day.[90] Yet we recycle only about 20 percent of this waste,[91] compared to the national average of 30 percent.[92]

Paper and paperboard contribute the largest component of solid waste by weight. Yet for every ton of paper recycled, we save:

- 17 trees
- 6,953 gallons of water
- 463 gallons of oil
- 587 pounds of air pollution
- 3.06 cubic yards of landfill space
- 4,077 kilowatt hours of energy

In addition, recycling creates ten times more jobs than landfilling.[93]

Currently in the United States, 30.1 percent of municipal solid waste is recovered and recycled or composted, 14.5 percent is burned at combustion facilities and the remaining 55.3 percent is disposed of in landfills. If the amount of waste could be reduced it would, in turn, reduce greenhouse gas emissions that affect global climates, prevent the emission of many water pollutants, save energy, supply valuable raw materials to industry, create jobs, stimulate the development of greener technologies, conserve resources for our children's future and reduce the need for new landfills and combustors.[94]

Methane is a potent greenhouse gas that has greater global-warming potential than carbon dioxide. Landfill gas is approximately 50 percent methane[95] and is the single

[90] Kansas Department of Health & Environment, "Solid Waste Update," Vol. 11, No. 1, August 2006, p. 1.
[91] Kansas Department of Health & Environment, www.getcaughtrecycling.org/truth.htm.
[92] U.S. Environmental Protection Agency, Region 7: Solid Waste Program, www.epa.gov/Region7/waste/solidwaste/index.htm.
[93] Op. cit., www.getcaughtrecycling.org/truth.htm.
[94] Op. cit., U.S. Environmental Protection Agency.
[95] Horry County Solid Waste Authority Methane Gas Facility, www.solidwasteauthority.org/consumers/methane/default.htm.

largest source of U.S. methane emissions from human activity.[96] Using gas recovery systems, landfill gases can be transformed into renewable energy. Partnerships between the U.S. EPA's Landfill Methane Outreach Program (LMOP), energy providers, communities, businesses, and landfill owners can make these "Green Power" projects happen.

Kansas has LMOP landfill gas energy projects of various types at four landfill sites: Allen County Landfill, Wichita's Brooks Landfill, Forest View Landfill, LLC in Kansas City and Johnson County Landfill. According to the Landfill Methane Outreach Program, Kansas has six other landfills that can be considered candidates for energy projects. They are:

- Harvey County Landfill
- N.R. Hamm Landfill in Jefferson County
- Reno County Landfill
- Salina County Landfill
- Western Plains Landfill in Garden City
- Wheatland Landfill in the city of Columbus, Cherokee County

Twenty-four other Kansas landfills could be potential targets for energy projects.[97] Consequently, much could still be done in the state to improve the environment and make use of an abundant renewable source of energy.

Alternative Sources of Energy

Kansas continued to be a net energy importer in 2005, consuming 432 trillion BTUs (British Thermal Units) more than it produced. Although the gap between consumption and production is expected to continue growing over the next five years, the rate of growth will slow. High fuel prices will be responsible for the slowing of the gap between consumption and production. Consumers will use less energy and producers of oil and gas will continue to produce at their maximum rates and search for more sources. The table below shows the state's estimated net imports of energy for selected years.

Table 31. Kansas Net Energy Imports for Selected Years (in trillion BTUs)

Year	Consumption	Production	Net Imports
2006	1,119	668	451
2008	1,116	641	475
2010	1,135	608	527

Source: Kansas Energy Council, Kansas Energy Report 2006, www.kansasenergy.org.

[96] Energy Information Administration, U.S. Department of Energy, "Emmissions of Greenhouse Gases in the United States 2000, Methane Emissions," www.eia.doe.gov/oiaf/1605/ggolrpt/methane.html.
[97] U.S. Environmental Protection Agency, Landfill Methane Outreach Program, www.epa.gov/lmop/index.htm.

The Kansas Energy Council estimates that in 2002 Kansans spent about $1.6 billion importing energy from outside the state. With the price of energy rising and the state's demand for imported energy growing, this figure can only be expected to increase in the coming years.

Wind Energy

According to the Kansas Energy Report 2006, wind energy has the potential to meet roughly 10 percent of Kansas electric power needs in the next decade. There currently are five wind projects in Kansas capable of producing 363 megawatts of wind power. "The 30 MW Sunflower Electric Power wind farm in western Kansas is expected online in 2007, raising Kansas wind capacity to 393 MW. While it is possible that other large wind farms could be built between 2008 and 2010, no local utilities have announced plans to buy more wind, and without other mandates, no large wind farms are expected to come online during this period. Up to 10 MW of new small Community Wind projects are expected to come online annually from 2008 to 2010, leading to wind capacities of 403 and 423 MW for 2008 and 2010, respectively. Based on a 35 percent capacity factor and adjusting for the time of year these projects are expected to start producing electricity, the electrical generation forecast in Kansas from wind for 2006, 2008 and 2010, is 806,000 MWh, 1,236,000 MWh and 1,297,000 MWh, respectively."[98]

In order for Kansas to produce 10 percent of the electricity it is projected to use in 2016 with wind power (as stated above in the Kansas Energy Report 2006), it will need to generate about 6.5 times more MWh of wind power than it is expected to produce in 2006. This will require further development of the wind industry in Kansas.

One of the most significant existing federal policies to promote the development of renewable energy is the energy production tax credit. As part of the Energy Policy Act of 1992, this credit is available to corporate entities building new renewable energy production facilities such as wind electric power production plants. The tax credit, at its inception, was $0.015 per kilowatt hour produced by the facility and was set up to increase each year by the official rate of inflation from the previous year, for the first ten years of operation of the equipment.[99] This credit has sparked significant activity and interest in wind energy. However, from 1999 until 2004, the production tax credit expired on three separate occasions, with lapse times of two to 10 months before reinstatement of the credit. This on-again, off-again history of the tax credit has created cycles of industry growth followed by dramatic slow downs, making it difficult for developers to gain any real momentum.

Fortunately, for the first time in 2005, the expiration date of the energy production tax credit was extended prior to its expiration on Dec. 31, 2005. The extension changed the expiration date to Dec. 31, 2007. The national wind industry is expected to break records in 2006 and 2007, adding at least 3,000 MW of new wind facilities each year.

---

[98] Kansas Energy Council, "Kansas Energy Report 2006," p. 32, www.kansasenergy.org.
[99] Worldlink Specialty Insurance, "Federal Production Tax Credit Qualification Failure Insurance for the Wind Energy Industry," January 2003, www.worldlinkinsurance.com/windpro/PTC.htm.

The extension of the tax credit through 2007 has helped to fuel the momentum needed to break these records. Keeping this tax credit from expiring is crucial to sustaining long-term growth of wind energy. The planning and permitting process for new wind facilities can take up to two years or longer to complete. Consequently, developers that depend on the tax credit are hesitant to start a new project if they are unsure about whether the credit will be available to them when the project is completed.[100]

Ethanol and Biodiesel Production

The United States has nearly tripled its energy use in the past 50 years. Other nations, particularly India and China, are rapidly increasing their consumption as well. Our oil supplies are running out, so it is essential that we find and develop renewable sources of energy.[101]

Ethanol is a clean-burning fuel, usually made with corn or sorghum. Ethanol production and consumption benefit Kansas agriculture, the workforce, the economy and the environment. It is most often found in E10 (10 percent ethanol and 90 percent regular gasoline) or E85 (85 percent ethanol) blends.[102]

About 76 million bushels of corn and grain sorghum are used to produce 215 million gallons of ethanol per year in Kansas.[103] Ethanol production will be increasing. There are currently seven ethanol plants in Kansas, with five more under construction and another 16 proposed.[104] Ethanol production in Kansas could quadruple in the next two to three years.[105]

According to the most recent USDA and Department of Energy studies, the energy balance of ethanol is between 1 to 1.35 and 1 to 1.67, which means that ethanol produces more energy than is used to produce the fuel. Continued improvement in agriculture and ethanol processing should increase that ratio.[106]

The use of 4 billion gallons of ethanol in 2005 reduced greenhouse gas emissions by 7.8 tons, the equivalent of taking 1.2 million cars off U.S. roads.[107]

Flexible fuel vehicles, which can run on regular gasoline and mixtures up to 85 percent ethanol, are now available from all American automakers. There are currently

---

[100] Union of Concerned Scientists, "Renewable Energy Tax Credit Saved Once Again, but Boom-Bust Cycle in Wind Industry Continues," www.ucsusa.org/clean_energy/clean_energy_policies/production-tax-credit-for-renewable-energy.html.
[101] Kansas Department of Agriculture, "Biofuels – Building a Road from Rural to Urban America," www.ksda.gov/Default.aspx?tabid=430.
[102] Ibid.
[103] Kansas Ethanol: Clean Fuel from Kansas Farms, "Kansas Ethanol Production: Kansas Ethanol Fact Sheet," www.ksgrains.com/ethanol/kseth.html.
[104] Kansas Energy Information Network, "Proposed and Existing Ethanol Plants in Kansas," November 2006.
[105] Op. cit., Kansas Ethanol.
[106] Op. cit., Kansas Department of Agriculture.
[107] Op. cit., Kansas Ethanol.

more than five million flexible fuel vehicles on the road. Having more flexible fuel vehicles in service means an increasing need for E85 gas stations.[108] There are approximately 12 E85 stations in Kansas at the present time, with several more being planned.[109]

In Kansas more ethanol is made with grain sorghum than with corn. The two grains are interchangeable in the ethanol-making process.[110] This is good for Kansas because corn requires more water to cultivate than sorghum, which has a drought-tolerant reputation. With Kansas' diminishing water supply, it would be good to consider making all of Kansas ethanol with sorghum.

Biodiesel fuel is another clean transportation fuel made from fats or vegetable oils. It is primarily produced from soybeans, an important Kansas crop. Biodiesel can be blended at any level with petroleum diesel to create a fuel blend for use in diesel engines. The blend can range from B2 (2 percent biodiesel and 98 percent petroleum diesel) to B100. B2 is the most common blend, which is offered in more than 25 Kansas stations.

Biodiesel has the highest energy balance of any fuel, yielding 280 percent more energy than petroleum diesel.

According to the American Soybean Association, if every farmer in the United States used B2 biodiesel, the fuel would require 51.1 million bushels of soybeans annually, which represents 90 percent of the entire Kansas crop. If every trucker used B2, it would consume 474 million bushels annually. Those numbers mean higher prices to farmers, more production facilities, more jobs in rural areas and cleaner air.[111]

However, the water issue comes into play again when considering the production of biodiesel fuel. Soybeans, like corn, require more water to cultivate than some other crops. At some point it may be important to weigh the economic benefits of soybean crops against the toll those crops take on the state's water supply.

Trends and Issues – A Summary

Five trends emerged in our discussion of the environment.

- **Declining water supply:** The amount of water being used from the Ogallala Aquifer is not being replenished and will some day be unable to support the demands put upon it.

[108] Op. cit., Kansas Department of Agriculture.
[109] Kansas Ethanol: Clean Fuel from Kansas Farms, "E85 Fuel for Flexible Fuel Vehicles," www.ksgrains.com/ethanol/e85.html.
[110] Op. cit., Kansas Ethanol: Clean Fuel from Kansas Farms, "Kansas Ethanol Production."
[111] Op. cit., Kansas Department of Agriculture.

- **Polluted streams and lakes:** Thirty-nine percent of the state's assessed stream mileage is impaired for one or more uses, and 76 percent of assessed lake acreage is impaired for one or more designated uses.[112]
- **Loss of wetlands:** From the 1780s to 1980, Kansas lost more than 40 percent of its wetlands.[113] Of the publicly owned acres of wetlands, 84 percent are impaired for one or more uses.[114]
- **Continuing issues regarding solid waste:** In 2005, the average Kansan landfilled 6.1 pounds of municipal solid waste per day,[115] yet we recycle only about 20 percent of this waste,[116] compared to the national average of 30 percent.[117] There are currently gas energy projects at four Kansas landfills, but much more could be done to turn landfill gases into renewable energy.[118]
- **Increasing development of alternative sources of energy:** Kansas continued to be a net energy importer in 2005, consuming 432 trillion BTUs (British Thermal Units) more than it produced.[119] However, wind energy has the potential to meet roughly 10 percent of Kansas electric power needs in the next decade, and ethanol production is increasing in the state.

[112] Op. cit., Kansas Department of Health and Environment, "2006 Kansas Water Quality Assessment (305(b) Report).
[113] Op. cit., United States Department of Agriculture, Natural Resources Conservation Service.
[114] Op. cit., Kansas Department of health and Environment, "2006 Kansas Water Quality Assessment (305(b) Report).
[115] Op. cit., Kansas Department of Health and Environment, "Solid Waste Update."
[116] Kansas Department of Health & Environment, www.getcaughtrecycling.org/truth.htm.
[117] Op. cit., U.S. Environmental Protection Agency, Region 7: Solid Waste Program.
[118] Op. cit., U.S. Environmental Protection Agency, Landfill Methane Outreach Program.
[119] Op. cit., Kansas Energy Council.

ISSUES IDENTIFICATION: RURAL DEVELOPMENT

Population

From 1900 to 2000 in the United States, the rural population as a percentage of total population has decreased from 60.4 percent to 21 percent. This rural to urban migration trend has also been evident in Kansas. The Kansas rural population as a percentage of total population has decreased from 77.6 percent to 28.6 percent.

Table 32. Rural and Urban Population as a Percentage of Total Population

United States				Kansas		
	Urban	Rural			Urban	Rural
1900	39.6	60.4		1900	22.4	77.6
1950	64.0	36.0		1950	52.1	47.9
1990	75.2	24.8		1990	69.1	30.9
2000	79.0	21.0		2000	71.4	28.6

Source : U. S. Census Bureau

The most recent release of population estimates from the Census Bureau indicates that 83 Kansas counties lost population between 2000 and 2005. These included 54 of the 56 counties that recorded population losses between 1990 and 2000, joined by 24 counties that had grown through the 1990s.

Table 33. Percent of Population Change for Kansas Counties, 2000 – 2005 and 1990 – 2000

Kansas Counties	% change in pop 2000-2005	% change in pop 1990-2000	Kansas Counties	% change in pop 2000-2005	% change in pop 1990-2000
Allen County	-4.16	-1.73	Lincoln County	-4.67	-2.05
Anderson County	0.89	3.93	Linn County	3.59	15.94
Atchison County	0.18	-0.93	Logan County	-8.27	-1.14
Barber County	-6.58	-9.65	Lyon County	-0.91	3.46
Barton County	-0.35	-4.01	Marion County	-3.06	3.67
Bourbon County	-2.48	2.76	Marshall County	-5.11	-6.32
Brown County	-4.52	-3.63	McPherson County	-0.10	8.38
Butler County	4.83	17.60	Meade County	-0.13	9.04
Chase County	1.68	0.30	Miami County	7.57	20.82
Chautauqua County	-5.74	-1.09	Mitchell County	-7.39	-3.76
Cherokee County	-4.64	5.76	Montgomery County	-4.64	-6.61
Cheyenne County	-6.92	-2.41	Morris County	-0.90	-1.52
Clark County	-4.48	-1.16	Morton County	-8.58	0.46
Clay County	-2.19	-3.67	Nemaha County	-2.56	2.59
Cloud County	-4.96	-6.85	Neosho County	-2.75	-0.22
Coffey County	-2.05	5.49	Ness County	-12.88	-14.36
Comanche County	-1.63	-14.96	Norton County	-4.85	0.10
Cowley County	-2.74	-1.69	Osage County	2.62	9.60

Table 33. Percent of Population Change for Kansas Counties, 2000 – 2005 and 1990 – 2000 (cont.)						
Kansas Counties	% change in pop 2000-2005	% change in pop 1990-2000		Kansas Counties	% change in pop 2000-2005	% change in pop 1990-2000
Crawford County	-0.05	7.52		Osborne County	-9.03	-8.53
Decatur County	-8.09	-13.65		Ottawa County	-0.65	9.39
Dickinson County	-0.70	2.04		Pawnee County	-6.83	-4.26
Doniphan County	-5.25	1.41		Phillips County	-8.28	-8.94
Douglas County	2.95	22.21		Pottawatomie County	5.05	12.90
Edwards County	-4.55	-8.93		Pratt County	-1.57	-0.57
Elk County	-5.70	-1.98		Rawlins County	-9.91	-12.87
Ellis County	-2.69	5.78		Reno County	-1.90	3.85
Ellsworth County	-2.79	-0.93		Republic County	-11.50	-9.98
Finney County	-3.79	22.54		Rice County	-2.87	1.42
Ford County	3.98	18.19		Riley County	-0.03	-6.40
Franklin County	5.90	12.69		Rooks County	-5.88	-5.86
Geary County	-12.03	-8.23		Rush County	-4.08	-7.57
Gove County	-9.94	-5.04		Russell County	-7.12	-5.93
Graham County	-7.64	-16.85		Saline County	0.60	8.71
Grant County	-4.79	10.48		Scott County	-10.16	-3.20
Gray County	-0.73	9.41		Sedgwick County	2.91	12.19
Greeley County	-12.06	-13.53		Seward County	3.39	20.10
Greenwood County	-4.37	-2.22		Shawnee County	1.47	5.53
Hamilton County	-2.47	11.81		Sheridan County	-7.89	-7.56
Harper County	-6.96	-8.25		Sherman County	-8.98	-2.40
Harvey County	2.96	5.93		Smith County	-9.15	-10.67
Haskell County	-1.74	10.83		Stafford County	-6.29	-10.74
Hodgeman County	1.20	-4.23		Stanton County	-6.69	3.13
Jackson County	6.94	9.82		Stevens County	-0.93	8.22
Jefferson County	3.69	15.85		Sumner County	-4.43	0.41
Jewell County	-11.58	-10.82		Thomas County	-6.61	-0.94
Johnson County	12.30	27.05		Trego County	-8.10	-10.15
Kearny County	-0.33	12.52		Wabaunsee County	0.49	4.27
Kingman County	-5.86	4.59		Wallace County	-10.06	-3.95
Kiowa County	-8.97	-10.44		Washington County	-7.31	-8.34
Labette County	-2.92	-3.62		Wichita County	-8.77	-8.23
Lane County	-12.11	-9.26		Wilson County	-4.82	0.42
Leavenworth County	6.44	6.71		Woodson County	-5.70	-7.97
Source: Bureau of Labor Statistics				Wyandotte County	-1.35	-2.54

Counties estimated to have lost population over the last five years included:

- three of 17 metropolitan counties
- 11 of 14 micropolitan counties with urban populations adjacent to a metro area

- 28 of 31 micropolitan counties with urban populations not adjacent to a metro area
- three of four rural counties adjacent to a metro area

Yet, the great majority of counties that lost population over the last five years were non-core counties.[120] Of the 39 Kansas non-core counties – counties containing no community of 2,500 or more residents and not adjacent to a metro area – 38 are estimated to have declined in total population since the 2000 census.

These numbers clearly indicate a continuing concentration of Kansans in metropolitan centers and their suburbs. It is estimated that 63 percent of Kansans live in metropolitan counties, 22 percent live in micropolitan counties and 15 percent live in non-core counties.

New challenges are emerging as the growth of cities has led to an increasing demand for lower-density perimeter sites, effectively extending urban areas into previously rural areas. Given that residents' willingness to pay for an acre of residential land is much higher than virtually any other traditional rural use of the land, such as production of agriculture, the value of land near these urban areas is increasing rapidly.[121]

Consolidation

As a result of depopulation, some communities have considered city-city consolidation, county-county consolidation and school district consolidation. According to Suzanne M. Leland, associate professor, University of North Carolina at Charlotte, most consolidation attempts occur in rural communities. Leland has studied the factors affecting the outcomes efforts to consolidate two local governments. Though the idea of reforming two local governments through merger sounds enticing, the majority of these efforts fail, either during the process of drafting the charter or once they reach the ballot. Consolidation of cities and counties occurs in less than 15 percent of the cases. There have only been five successful passages nationwide since 1990.[122]

Successful consolidations occur when civic leaders are able to define the economic development vision for the communities, determine that the existing political structures are inadequate to support and implement that vision, and then successfully convince the average voter that consolidation is the solution to the communities' economic development problems. The key is helping voters understand the consolidation will help the whole community, not just the leaders.[123]

---

[120] For a definition of metropolitan and micropolitan areas, visit the Census Bureau's Web site at www.census.gov/population/www/estimates/metroarea.html.
[121] Novack, Nancy, "Agricultural Credit Conditions: Booming Farmland Values," *Main Street Economist*, Center for the Study of Rural America, Federal Reserve Bank of Kansas City, June, 2005, www.kc.frb.org/ruralcenter/mainstreet/MSE_0605.pdf.
[122] Leland, Suzanne and Kurt Thurmaier. "When Efficiency is Unbelievable: Normative Lessons from 30 Years of City-County Consolidations." *Public Administration Review*. July/August 2005, Vol. 65, No.4, p. 475, www.blackwell-synergy.com/doi/pdf/10.1111/j.1540-6210.2005.00473.x.
[123] Ibid., p. 487.

A recent consolidation proposal in Kansas (Topeka and Shawnee County) was defeated due to a requirement that the question win a majority of the votes in the city and a majority in the county outside the city, a dual majority.[124]

Urban Expansion and Watersheds

Urban expansion can create negative externalities for rural areas, particularly in terms of environmental impacts. According to the U.S. Environmental Protection Agency, urban expansion into the watershed is a major concern. Reservoirs suffer from cultural eutrophication, or rapid aging. Eutrophication occurs in all lakes, even those with natural, undisturbed watersheds. But many problems come from human activities that increase the amount of nutrients (phosphorus and nitrogen) in reservoirs, which speed eutrophication. Cultural eutrophication can cause blue-green algae blooms, floating plants, a shortage of dissolved oxygen necessary for survival of aquatic life, fish kills, and undesirable taste and odors in drinking water. Other problems include concentration of the pesticides atrazine and alachlor.[125]

Eutrophication has occurred in the Hillsdale Reservoir in Miami County. A comprehensive watershed water quality management project has been implemented. The project will work to slow the eutrophication of Hillsdale Reservoir by controlling nitrogen and phosphorus discharges from cities, industries, urbanized land, and agricultural land. The project will also help reduce pesticide use, control soil erosion and livestock pollution sources, rotate crops, maintain septic tanks and other on-site wastewater disposal systems and establish permanent vegetation.[126]

Watershed protection projects have five elements that include information and education, adopting management practices, installing structural practices, monitoring and evaluation to determine if the project is progressing as planned and achieving its water quality objectives, allowing for adjustments as necessary.[127]

Urban Expansion and Brownfields

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Often the potential liability associated with contamination complicates business development, property transactions, or expansion on these properties.[128]

---

[124] City-county consolidation – Keep trying. CJOnline.com/Topeka Capital-Journal. October 23, 2006, cjonline.com/stories/102306/opi_consolidationed.shtml.
[125] Pollution Runoff (Nonpoint Source Pollution) Kansas, U.S. Environmental Protection Agency, www.epa.gov/owow/nps/Section319I/KS.html.
[126] Ibid.
[127] Ibid.
[128] Kansas Brownfields Program, The Kansas Department of Health and Environment, www.kdheks.gov/brownfields/index.html.

Every city and county in both rural and urban areas has abandoned underutilized and potentially contaminated properties. Remediation efforts can remedy or repair the property and restore value and usability, reducing the tendency to develop on open spaces on the outskirts of cities. Brownfield redevelopment can benefit both private investors and the communities in which they are located. For the private sector, brownfields redevelopment can mean new business opportunities, the potential for profit on unused or under-utilized properties, improved community and environmental stewardship.[129]

According to the State Brownfields and Voluntary Response Programs, as of June 1, 2006, the Voluntary Cleanup and Property Redevelopment Program (VCPRP) has received 399 applications with 263 properties currently active in either investigation or cleanup and an additional 123 sites that have been completed and have received No Further Action letters.[130]

Health Care

The 2006 Report to the Secretary of Health and Human Services, by the National Advisory Committee on Rural Health and Human Services examines three key topics: access to pharmaceuticals and pharmacy services in rural areas, health information technology in rural areas, and family caregiver support for the rural elderly.[131]

Financial access to pharmaceuticals is a major issue in rural areas where a higher percentage of families lack health insurance and there are fewer employment opportunities that include insurance coverage for prescriptions. Independent pharmacies are the most common type of pharmacy in rural areas. Some rural experts are worried that access to local pharmacies may be at risk in rural communities if the prescription drug plans rely too heavily on mail-order companies to distribute the drugs or if rural beneficiaries are forced to use mail-order services. Rural communities may lose their independent pharmacies, which could create a void of consumer support and information about prescription drug use.[132]

An additional concern is workforce availability of pharmacists and other qualified health care professionals. Only 12 percent of pharmacists nationwide practice in rural areas, and rural areas have fewer pharmacists proportionally to serve a higher percentage of elderly.

A second issue in rural health care is health information technology. In April of 2004, President George W. Bush issued an Executive Order calling for most Americans to be connected to an electronic health record within ten years. Rural providers must successfully achieve adoption of health information technology (HIT) at the start of the

[129] More on KDHE's Brownfields Program, The Kansas Department of Health and Environment, www.kdheks.gov/brownfields/more.html.
[130] State Brownfields and Voluntary Response Program: An Update from the States, U.S. Environmental Protection Agency, www.epa.gov/brownfields/pubs/st_res_prog_report.htm.
[131] The 2006 Report to the Secretary: Rural Health and Human Service Issues. The National Advisory Committee on Rural Health and Human Services, p. 1, ruralcommittee.hrsa.gov/NAC06AReport.htm.
[132] Ibid.

national movement. The limited infrastructure and availability of capital in rural areas makes the planning and adoption an even more critical and immediate step for rural areas. A recent Institute of Medicine report asserts that investing in HIT in rural areas will help make health care safer, more effective, patient-centered, timely, efficient and equitable.[133]

A third issue facing rural health care is support for family caregivers who are caring for a higher proportion of the elderly. On the whole, the rural elderly have less access to skilled nursing and other long-term care services compared to their urban and suburban counterparts. Without these formal services available, the rural elderly rely even more on family and friends for assistance. Rural family caregivers are often geographically isolated and hence lack the opportunity to learn of available services from the limited service providers that do serve rural communities.[134]

Additional health care issues have been identified by the Institute for the Future. Key issues previously identified by the Institute include cost containment while improving access to care for people and maintaining quality of service. A new group of issues are forecast to challenge the health care system. They include organizing insurers and intermediaries, along with providers; incorporating consumers into health care decision making; determining responsibility for medical management; and improving the health behaviors of the American people.[135]

Rural Job Growth

The economic recovery in rural Kansas has continued in 2006. Economic strengths have emerged from private sector firms, with both services and goods-producing sectors posting stronger job growth. Professional and business service firms continued to experience the strongest growth. Professional and business service firms, which tend to employ people with higher skill levels, reflect the continuing transformation of the rural economy toward high-skill activity.[136] Many firms are engaging in "homeshoring," out-sourcing jobs to rural America instead of overseas. Rural wages tend to be lower than major metro markets. In addition, "rural-sourcing" offers closer proximity to U.S. firms than "off-shoring" does.[137]

Education -- Development of Human Capital

"Homeshoring" or "rural-sourcing" success is dependent on the rural employee possessing the correct combination of occupational skills that are demanded by the global economy. Education and training programs play a big role in creating human capital, an

[133] Ibid., p. 2.
[134] Ibid., p. 3.
[135] Health and Health Care 2010: The Forecast, The Challenge, second edition. Institute for the Future. January 2003, p. 1, www.iftf.org/docs/SR-794_Health_&_Health_Care_2010.pdf.
[136] Henderson, Jason. "A Robust Rural Economy in 2006?" *Economic Review*, Federal Reserve Bank of Kansas City, First Quarter 2006, p. 144, cjonline.com/stories/102306/opi_consolidationed.shtml.
[137] Ibid., p. 152.

essential ingredient in robust regions; therefore, economic development should be a core mission for community colleges and regional universities.

Rates for four-year college degrees in rural areas have risen steadily since the 1960s, but they still trail rates in metro areas. In rural America, the share of students earning bachelor, graduate and professional degrees is 40 percent smaller than the share of metro students earning those degrees, and the gap has widened slightly since 1995. At the same time, the share of rural students earning associate degrees is 20 percent greater than the share for students in metro areas – and that lead is growing.[138]

Many high-skill occupations rely on precisely the kinds of skill-oriented training that associate degrees provide. Over half of the healthcare, life science, physical science, and social science technicians in the United States have earned an associate degree rather than a bachelor's degree. Almost a third of occupations in management, business, financial, science, engineering, computer, and healthcare are filled by people with two-year degrees.[139] Knowledge is the fuel for economic growth in the 21st century.

Rural Economic Development Policy

Effective economic development policy will reflect the globalization of markets for goods, services, and capital markets. Mark Drabenstott of the Federal Reserve Bank of Kansas City, suggests making regional competitiveness the goal of development policy and design efforts to help regions seize innovations and grow entrepreneurs. These shifts in policy will be critical in helping regions hone their competitive advantage.[140] Drabenstott states that programs aimed at knowledge infrastructure will be critical to the 21st century and that economic development strategies are now driven by a region's distinct economic assets and its unique market opportunities, i.e. its indigenous strengths.[141]

Economic development policies that are focused on regional competitiveness attempt to exploit indigenous strengths fueled by innovation and the ability to invent ideas and a base of knowledge that can open up new economic vistas.[142] Understanding inherent regional economic strengths and how to exploit them in the global market is fundamental to economic development policy.

Drabenstott identifies areas where the federal government can best contribute to regional economic development:

1. Spurring innovation in regional governance

---

[138] Henderson, Jason. "Rural America's New Path to Workforce Skills." *The Main Street Economist*, July 2005. p. 2, www.kc.frb.org/RuralCenter/mainstreet/MSE_0705.pdf.
[139] Ibid.
[140] Drabenstott, Mark. "Rethinking Federal Policy for Regional Economic Development." *Economic Review*. Federal Reserve Bank of Kansas City. First Quarter 2006. p. 116, www.kc.frb.org/Publicat/econrev/PDF/1q06drab.pdf.
[141] Ibid., p. 119.
[142] Ibid., p. 125.

2. Investing in the leadership capacity of regions
3. Continuing investment in public goods, such as highways
4. Doing basic research for a knowledge-driven economy
5. Crafting a national policy on entrepreneurship[143]

Furthermore, Drabenstott suggests roles for state and local governments to explore:

1. Building effective structures for regional governance
2. Ensuring partnerships across public and private sectors
3. Developing tools that help regions understand their unique complement of economic assets
4. Developing effective analytical tools that help regions diagnose their competitive advantage
5. Creating effective entrepreneurial development systems
6. Boosting innovation by linking public research discoveries with emerging regional development strategies[144]

The good news for rural Kansas is that research finds a large population center is not a prerequisite for innovation.[145] Less populous, often rural, regions can compete in relatively mature technological fields, especially related to agriculture and natural resource extraction. Patenting in tractor-type machinery and mineral oils are over ten times larger in some rural counties than the nationwide share of these patents.[146]

The location of innovation depends on technological maturity – mature industries thrive in rural regions where costs are low and agricultural and mineral extraction clusters exist.[147] Rural regions can become more attractive to inventors in mature technological fields by implementing policies that increase access to areas with high economic activity. Examples of such policies include partnering with urban business networks, increased communication through broadband internet access and increased transportation infrastructure.[148]

Fostering innovative, regional, entrepreneurial partnerships of people, business, communities, and institutions could be the most essential ingredient to building a rural knowledge economy for the 21st century.

---

[143] Ibid., p. 133.
[144] Ibid., p. 134.
[145] Orlando, Michael and Michael Verba. 2005. "Do Only Big Cities Innovate? Technical Maturity and the Location of Innovation." *Economic Review*. Federal Reserve Bank of Kansas City. Second Quarter. www.kc.frb.org/Publicat/econrev/PDF/2q05orla.pdf.
[146] Regional Asset Indicators: Innovation. July 2006, www.kansascityfed.org/RuralCenter/Indicators/Innovation_706.pdf.
[147] Op. cit., Orlando and Verba. 2005.
[148] Regional Asset Indicators: Innovation. July 2006, www.kansascityfed.org/RuralCenter/Indicators/Innovation_706.pdf.

The biggest risk to a robust rural economy will be high energy prices. Higher energy prices could have a bigger impact on rural economies than metropolitan economies, given their industry mix. Rural manufacturers are more concentrated in energy-intensive industry. For example, in rural manufacturing more than a third of earnings come from industries with above average energy costs, compared to a quarter in metro manufacturing.

Additionally, the rural impact may be larger due to rural Kansas' reliance on the automobile and longer commuting patterns. Coupled with rural Kansas' lower income levels, rural households spend a greater share of their income on gas than urban households.[149]

While higher energy prices hurt the rural economy, they also bring new investments and new market opportunities to rural Kansas through bio-fuel production.[150]

Agriculture

According to the U.S. Department of Agriculture the number of farms in the United States has declined from 2,215,876 in 1997 to 2,128,982 in 2002. The average size of the farms has increased from 431 acres in 1997 to 441 acres in 2002. The 1997 estimated market value of land and buildings (average per acre) was $967, and the 2002 estimated market value of land and buildings (average per acre) was $1,213.

The number of farms in Kansas is also declining, but the size of Kansas farms is considerably larger than the national average. 1997 Census of Agriculture stated that the number of farms in Kansas was 65,476, with an average size of 712 acres. The 1997 estimated market value of land and buildings (average per acre) was $586. The 2002 Census of Agriculture states that the number of farms in Kansas is 64,414, with an average size of 733 acres. The 2002 estimated market value of land and buildings (average per acre) was $687.

Table 34. Farm Census Statistics for U.S. and Kansas, 1997 and 2002

United States					Kansas			
	Number of Farms	Average size of Farms in Acres	Est. Market Value per Acre			Number of Farms	Average size of Farms in Acres	Est. Market Value per Acre
1997	2,215,876	431	$ 967		1997	65,476	712	$586
2002	2,128,982	441	$1,213		2002	64,414	733	$687

Source: U. S. Census Bureau.

[149] Henderson, Jason. "A Robust Rural Economy in 2006?" *Economic Review*, Federal Reserve Bank of Kansas City, First Quarter 2006. p. 155, cjonline.com/stories/102306/opi_consolidationed.shtml.
[150] Ibid.

Income

Even with rising production costs, the 2005 farm income statement was strong, as robust livestock and crop sectors, coupled with large government payments, offset higher production costs. Net farm income was expected to reach $71.5 billion in 2005. While 2005 income was 13 percent below 2004 levels, it was the second highest on record.[151]

Strong demand for protein in domestic and foreign markets continues to bolster the livestock market. The rural economy appears positioned to reap another year of prosperity, especially if the national economy grows as private sector forecasters expect. Given supply and demand conditions, the farm sector could reap another bountiful year.[152] Demand appears strong enough to keep farm prices at or above historic levels. Although crop prices are expected to remain weak, government payments should offset revenue losses. Higher energy prices pose a risk to the rural outlook.[153]

Soil

Concerns for Kansas soils parallel the concerns for global soils. The loss of soil from land surfaces by erosion is widespread globally and adversely affects the productivity of all natural ecosystems, as well as agricultural, forest, and rangeland ecosystems. Concurrent with escalating human population, soil erosion, water availability, energy, and loss of biodiversity rank as the prime environmental problems throughout the world. Future world population will require ever-increasing food supplies. Maintaining and augmenting the world food supply basically depends on the productivity and quality of all soils[154]

According to David Pimentel, professor of ecology at Cornell, the U.S. is losing soil 10 times faster – and China and India are losing soil 30 to 40 times faster – than the natural replenishment rate.[155] The economic impact of soil erosion in the U.S. costs the nation about $37.6 billion each year in productivity losses.[156] Soil erosion also reduces the ability of soil to store water and support plant growth, thereby reducing its ability to support biodiversity.[157] Erosion promotes critical losses of water, nutrients, soil organic matter and soil biota, harming forest, rangeland and natural ecosystems.[158] Erosion increases the amount of dust carried by wind, which not only acts as an abrasive and air pollutant but also carries about 20 human infectious disease organisms, including anthrax and tuberculosis.[159]

---

[151] Henderson, Jason. "A Robust Rural Economy in 2006?" *Economic Review*. Federal Reserve Bank of Kansas City. First Quarter 2006, p. 150, cjonline.com/stories/102306/opi_consolidationed.shtml.
[152] Ibid., p. 151.
[153] Ibid., p. 156.
[154] Pimentel, David. "Soil Erosion: A Food and Environmental Threat." *Environment, Development and Sustainability* (2006) 8: 119-137, p 119, www.clarkecenter.org/Readings-Resources/soil.erosion.06.pdf.
[155] Ibid., p. 123.
[156] Ibid., p. 124.
[157] Ibid., p. 125.
[158] Ibid., p. 131.
[159] Ibid., p. 130.

Trends and Issues – A Summary

Five trends emerge from our rural development data:

- **Depopulation in rural areas:** The Kansas rural population as a percentage of total population decreased from 77.6 percent in 1900 to 28.6 percent in 2000.
- **Continuing environmental issues:** Urban expansion into the watersheds is a major concern due to problems that come from human activities that increase the amount of nutrients (phosphorus and nitrogen) in reservoirs. Environmental restoration of real property to remove hazardous substance increases the efficient use of urban and rural land.
- **Rural health care needs:** Access to local pharmacies may be at risk in rural communities if prescription drug plans rely too heavily on mail-order companies to distribute drugs. Immediate planning and adoption of health information technology is required due to limited infrastructure and availability of capital in rural areas. Support for family caregivers and long-term care services are deficient in rural areas.[160]
- **Changing rural economics:** "Homeshoring" or "rural-sourcing," a new trend, is dependent on the rural employee possessing the correct combination of occupational skills that are demanded by the global economy.[161] Economic development strategies must be driven by a region's distinct economic assets and its unique market opportunities or indigenous strengths.[162]
- **Agricultural prosperity that could be dampened by lowered productivity:** The rural economy appears positioned to reap another year of prosperity. Soil conservation needs to be a priority to maintain the productivity level of existing farmland.

[160] Op. cit., The 2006 Report to the Secretary: Rural Health and Human Service Issues.
[161] Op. cit., Henderson, Jason, "A Robust Rural Economy in 2006?"
[162] Op. cit., Drabenstott, Mark.

ISSUES IDENTIFICATION: AGRICULTURE AND HOMELAND SECURITY

According to a report prepared for the National Institute of Justice in 2005, "America's food supply is among the *most* vulnerable and *least* protected of all potential targets of terrorists." The report also states that agricultural experts, economists, law enforcement officials, researchers, and politicians agree that America's food supply is not safe from terrorist attack; farms, fields, and feedlots are not adequately protected from agroterrorism; and America's beef industry and the country's economy could not survive an outbreak of a foreign animal disease, such as foot-and-mouth disease.[163]

Kansas is one of the nation's leading agricultural states. According to the 2002 U.S. Census of Agriculture, Kansas ranked fifth among the 50 states in the total value of agricultural products sold, which totaled $8.746 billion. Nearly 20 percent of all Kansans, rural and urban, are employed in jobs related to agriculture.[164] Consequently, if terrorists wanted to harm the United States by agricultural means, Kansas could likely be a chosen target.

Foot-and-Mouth Disease

Experts agree that the single greatest threat to our agricultural economy is foot-and-mouth disease (FMD). It is regarded as the most contagious known virus (20 times more infectious than smallpox) and can be spread from animal to animal through the air for up to 50 miles. Besides attacking cattle, it attacks other cloven-hoofed animals: sheep, swine, deer, elk and goats.

According to the U.S. Department of Agriculture's total cattle inventory, Jan. 1, 2004, Kansas ranked second in number of heads of cattle, with 6.65 million. Only Texas had more heads of cattle, with 13.9 million. Consequently, this is a significant issue for Kansas.

Five of the seven authors of the National Institute of Justice study mentioned above were affiliated with Kansas institutions; and consequently, much of the research for the study was done in Kansas. We found that study very helpful and used it for our following discussion.

If an outbreak of FMD occurred, law enforcement would have two roles: (1) establish and enforce a strict quarantine area with a six-mile radius around the point of origin of the infection and (2) implement a statewide stop movement order on cloven-hoofed animals.[165]

---

[163] Knowles, Terry; Lane, James; Bayens, Gary; Speer, Nevil; Jaax, Jerry; Carter, David; Bannister, Andra; "Defining Law Enforcement's Role in Protecting American Agriculture from *Agroterrorism*," prepared for the National Institute of Justice, Sandra L. Woerle, NIJ Research Project Manager, Grant No. 2003-IJ-CX-1024, Washington, D.C., June 30, 2005, pp. 1-2.
[164] Kansas Department of Agriculture, www.ksda.gov/Default.aspx?tabid=167.
[165] Op. cit., Knowles, p. 4.

To better understand the magnitude of a stop movement order and its impact on law enforcement resources, the authors of the NIJ study hired several off-duty sheriff deputies to observe and count the number of cattle trucks in Ford, Finney, Lyon and Seward counties during a 16-hour period in June and September of 2004. Time frames were chosen to parallel the slaughter schedule of the beef processing facilities in the participating counties. The table below shows the results of those observations.

Table 35. Traffic Counts of Cattle Trucks in Ford, Finney, Lyon, and Seward Counties

	Counties				
Category	Ford	Finney	Lyon	Seward	Total
Semi-Tractors with Livestock Trailers	120	79	25	41	265
Semi-Tractors with Hopper Trailers	43	112	23	0	178
Semi-Tractors with By-Product Materials	85	15	0	68	168
Pick-Up Trucks with Livestock Trailers	29	4	21	35	89
Feed Delivery Trucks	17	7	10	1	35
Total	294	217	79	145	735

Source: Knowles, Terry; Lane, James; Bayens, Gary; Speer, Nevil; Jaax, Jerry; Carter, David; Bannister, Andra; "Defining Law Enforcement's Role in Protecting American Agriculture from *Agroterrorism*," prepared for the National Institute of Justice, Sandra L. Woerle, NIJ Research Project Manager, Grant No. 2003-IJ-CX-1024, Washington, D.C., June 30, 2005, p. 90.

A stop movement order normally includes all agriculture-related vehicles. Although the number of vehicles can change seasonally, the NIJ study determined that law enforcement would need to stop and evaluate an average of nearly 50 vehicles per hour on the first day of a stop movement order. If a whole county or state were placed under a stop movement order, all law enforcement resources within that jurisdiction would probably be required to stop traffic for evaluation. Yet, there would still need to be resources in place to enforce the quarantine orders and carry out the regular duties of law enforcement. In small and/or rural counties where there are only three or four law enforcement officers, the system could be overwhelmed without outside assistance.[166]

If a regional stop movement were ordered for the Kansas/Texas region to control the spread of FMD, transactions at feed yards and packing plants would cease, as well. The packing plants in these two states have a combined daily capacity of 42,300 head, which is approximately 40 percent of the U.S. daily slaughter capacity. The NIJ study states that the total economic impact from these lost cattle sales in the two states would amount to $207 million per day. If that amount is expressed from the perspective of two eight-hour shifts, the equivalent would be $215,000 per minute.[167]

If a stop movement order were to persist long enough to shut down businesses, the 18,700 Kansas employees associated with the food-processing industry could be without work. Much of the impact discussed above would be in the southwest corner of Kansas, bordered by I-70 on the north and I-35 on the east. This area contains nearly 80

[166] Ibid., pp. 89-92.
[167] Ibid., pp. 104-106.

percent of the state's processing capacity and 90 percent of the state's feedlot cattle inventory.[168]

The researchers of the NIJ study came to these conclusions:

- "Law enforcement has insufficient resources to adequately respond to an FMD outbreak.
- "Law enforcement has remained reactive, if not passive, in acknowledging agroterrorism as a serious threat.
- "Criminal intelligence concerning threats to agriculture is virtually non-existent.
- "Published information is silent on law enforcement's role in addressing threats targeting American agriculture."[169]

During the NIJ research study, preventive strategies for law enforcement were developed and implemented. Below are those pertaining specifically to livestock.

- Agro-Guard is a community policing partnership between agriculture and law enforcement featuring the reporting of suspicious activity, posting warning signs throughout the livestock industry, and holding community meetings with presentations on law enforcement and animal health issues.
- Regional Response Teams are comprised of state/federal special agents and state/federal field veterinarians. These specially-trained teams combine the expertise of criminal investigators and veterinary medicine in responding to threats targeting the livestock industry.[170]

Scientific research into the spread of diseases, countermeasures and disposal of affected carcasses will be expanded through the creation of the $54 million National Agricultural Biosecurity Center at Kansas State University, to be housed in Pat Roberts Hall.[171]

There is still much to do to protect us from agroterrorism. Increased prevention measures reduce the need for emergency responses, yet law enforcement must accept both roles. There needs to be:

- more local training
- more identification of local threats and vulnerabilities
- more partnerships between law enforcement and the agriculture industry
- more community policing strategies for the livestock industry
- establishment of an awareness and criminal intelligence database
- more local response plans.

---

[168] Ibid, p. 107.
[169] Ibid., p. iv.
[170] Ibid, p. 10.
[171] Roe, Adassa, "News Building Housing K-State's New Biosecurity Research Institute to be Named for Sen. Pat Roberts," news release by Kansas State University, Oct. 20, 2006.

None of this will be possible without continuing efforts to ensure adequate funding through grants and Federal appropriations from the Department of Homeland Security's annual budget.

Crop Vulnerability

As mentioned earlier, the total value of Kansas agricultural products sold in 2002 totaled $8.746 billion. The value of Kansas exports of cereals in 2005 totaled $334 million. Even though the threat to crops might not be as great as a threat like foot-and-mouth disease is to livestock, a terrorist attack against Kansas crops could have serious economic repercussions.

"A bioterrorist attack on agricultural targets in the United States has been considered by some to be a "high consequence – high probability event." Below are some reasons for that perspective.

- "The technological barriers to obtaining and weaponizing agricultural pathogens are relatively minimal.
- "Many crop and animal pathogens can be isolated from the environment or obtained from laboratories without substantial difficulty.
- "An attack against crops or livestock could be carried out relatively easily without sophisticated equipment or expertise.
- "Only a small quantity of the affecting agent would be needed, since many of the agents of concern are highly transmissible between animals or plants, via the air.
- "Crops are openly exposed and relatively vulnerable to an attack.
- "Certain sectors of the food-production industry are geographically localized, so an attack on one sector could have a dramatic impact on a local, state, or regional economy.
- "Limited genetic diversity in U.S. agriculture promotes susceptibility to specific pathogens.
- "Damaging crops and livestock is not as morally serious as committing terrorist acts involving loss of human life; therefore, agroterrorism may be more acceptable to some potential perpetrators than other forms of terrorism.

"Besides the direct impact on producers, an attack on the agricultural sector would affect other industries as well, such as shippers, wholesalers, distributors, exporters, retailers and possibly tourism."[172]

[172] Center for Infectious Disease Research & Policy, Academic Health Center, University of Minnesota, "Overview of Agricultural Biosecurity," www.cidrap.umn.edu/cidrap/content/biosecurity/ag-biosec/biofacts/agbiooview.html, from Casagrande, R., "Biological terrorism targeted at agriculture: the threat to U.S. national security, Nonproliferation Review, 2000 Fall/Winter; Parker, H.S., "Agricultural bioterrorism: a federal strategy to meet the threat, Institute for National Strategic Studies, National Defense University, McNair paper, March 2002; and Wheelis, M., "Agricultural biowarfare and bioterrorism, Federation of American Scientists, Chemical & Biological Arms Control Program, 2002.

The following Kansas initiatives were developed to address crop vulnerabilities.

- Smuggled-Food Interdiction Teams are comprised of local law enforcement officers and USDA inspectors. These interdiction teams conduct investigations to identify and seize illegal food products being smuggled into the United States and sold at local markets and outlets.[173]
- A 2002 USDA grant of $1.6 million for homeland security aimed at developing and enhancing programs for rapid detection of plant diseases and molecular diagnosis of farm crop diseases.[174]
- A 2004 USDA grant of $450 thousand to train first detectors in agroterrorism.[175]
- A 2005 USDA grant of $370 thousand dedicated to identifying vulnerabilities in the food production chain and improving response capabilities.[176]

Water Supply

According to the Kansas Department of Health and Environment, all threats to water supplies carry some degree of probability. One way to assess manmade threat probabilities is to determine if those threats have occurred in the past. "Credible terroristic threats to water systems in Kansas have been virtually non-existent." KDHE states that "therefore, terroristic threats could occur, but do not have a high probability of occurrence. The types of terroristic threats that could affect a water supply are chemical, biological, radiological, and destruction/disruption. Due to the large volume of water in a system, chemical and biological agents are thought to be very unlikely contaminants. The agents would be diluted many times over, and possibly rendered less effective by disinfectants used to treat the water. The primary radiological threat is thought to be a "dirty bomb" – explosives combined with waste radiological material. Again, this type of terroristic act is thought to be highly unlikely.

"The most likely terroristic threat is from destruction of all or a portion of a system by use of conventional explosives. Explosives are readily available, and many public water supply assets are not well protected. Destruction of specific system components could render a facility unable to supply water. The inability to supply water could cause public health problems and lessen the public's confidence in the water supplier and ability of various levels of government to protect their interests."[177]

"Federal law requires Public Water Supply Systems serving populations larger than 3,300 to conduct vulnerability assessments and develop or revise Emergency

[173] Op. cit, Knowles, p. 10.
[174] Melgares, Pat, "Veneman, Roberts Announce $1.6M Grant for Homeland Security in Kansas", K-State Research and Extension news release, May 31, 2002.
[175] Peter, Mary Lou, "K-State, Other Universities Win Homeland Security Grant—Funds to Go for Training in Crop Biosecurity," K-State Research and Extension news release, Mar. 3, 2004.
[176] Polansky, Adrian, "The State of Kansas Agriculture," Presentation to the House and Senate Agriculture Committees, Jan. 12, 2005.
[177] Kansas Department of Health and Environment, Bureau of Water, "Simplified Vulnerability Assessment Tool for Drinking Water," Topeka, KS, January 2003, p. 4.

Response Plans. KDHE encourages Public Water Supply Systems serving populations of 3,300 or fewer to perform vulnerability assessments. Emergency Response Plans are required by the KDHE of all systems regardless of size. In addition, the Department of Homeland Security is implementing the National Information Management System for coordinating federal, state and local responses to terrorist events."[178]

Besides the documents quoted in this report, the KDHE also provides two other documents for water suppliers: "Guidance for Developing an Emergency Water Supply Plan" and "Drinking Water Supply Emergency Plan."

"The day-to-day management and operation of public water supply systems generally rests with local agencies, including rural water districts. The number of public water supply systems regulated by the KDHE rose to 1,069 (as of January 2005), and the number of service connections continues to increase. The success of Public Water Supply Systems is reflected by the rarity of waterborne illnesses."[179]

Trends and Issues – A Summary

The issues below emerged in our discussion of agriculture and homeland security.

- **Threat of foot-and-mouth disease:** FMD is the single greatest threat to our agricultural economy, in part because Kansas was ranked second in the nation for its total cattle inventory in 2004.[180]
- **Crop vulnerabilities related to terrorism:** Obtaining plant pathogens and exposing them to crops would be relatively easy and would require little expertise. Because crops are openly exposed, they are quite vulnerable to attack.[181]
- **A water supply dependent on the vigilance of day-to-day management:** KDHE believes that terrorist attacks on our water systems could occur, but because of past experience, there is not a high probability of that happening. The safety of local water systems is dependent upon accurate vulnerability assessments, appropriate deterrents and vigilant system operators.

[178] Kansas Department of Health and Environment, Division of Environment, Bureau of Water, "Emergency Response Planning Guidance for Kansas Public Water Supply Systems," Topeka, KS, January 2005.
[179] Ibid., p. iv.
[180] Op. cit., Knowles, Terry.
[181] Op. cit., Center for Infectious Disease Research & Policy.

KANSAS, INC.

Created by the Legislature in 1986, Kansas, Inc. is an independent, objective, and non-partisan organization designed to conduct economic development research and analysis with the goal of crafting policies and recommendations to insure the state's ongoing competitiveness for economic growth. To attain our mission, Kansas, Inc. undertakes these primary activities: 1) Identifying, building, and promoting a Strategic Plan for economic development efforts in the State of Kansas; 2) To complement the Strategic Plan, Kansas, Inc. develops and implements a proactive and aggressive research agenda, which is used to identify and promote sound economic development strategies and policies; 3) Through collaboration and outreach with economic development entities and other potential partners, Kansas, Inc. conducts evaluation reviews and provides oversight of economic development programs to benchmark development efforts in the State of Kansas.

Co-Chaired by the Governor, Kansas, Inc. is governed by a 17-member Board of Directors. Board members, as mandated by legislation, include four members of Legislative leadership, a representative from the Board of Regents, the Secretary of Commerce, the Commanding General of the Kansas Cavalry, a representative from labor, and eight other members from the private sector representing key Kansas industrial sectors. Private sector members are appointed by the Governor and confirmed by the Kansas Senate.

Through analysis and open dialogue, Kansas, Inc. identifies policy options and builds the consensus essential for concerted action on vital economic issues. Kansas, Inc. is designed to be a public-private partnership with expectations that state investments are leveraged with other funds to maintain a strong research portfolio.

BOARD OF DIRECTORS

CO-CHAIRS

Governor Kathleen Sebelius
Topeka

Gene Argo
American Rodeo Company, Hays

MEMBERS

Patti Bossert
Key Staffing, Topeka

Rep. Tom Burroughs
State Representative, Kansas City

Secretary Howard Fricke
Kansas Department of Commerce, Topeka

Rep. Lana Gordon
State Representative, Topeka

Donna Johnson
Pinnacle Technology, Lawrence

Sen. Laura Kelly
State Senator, Topeka

Wil Leiker
AFL-CIO, Topeka

Lawrence L. McCants
First National Bank, Goodland

Sen. Stephen Morris
Senate President, Hugoton

John Pilla
Spirit AeroSystems, Wichita

Reginald Robinson
Kansas Board of Regents, Topeka

Donald P. Schnacke
Donald P. Schnacke, P.A., Topeka

Stephen L. Waite
Kansas Calvary, El Dorado

KANSAS, INC. STAFF

Stan R. Ahlerich
President

Melissa Brown
Administrative Assistant

Debby Fitzhugh
Director of Operations

Daniel Korber
Sr. Research Analyst

632 SW Van Buren, Suite 100
Topeka, KS 66603
(785) 296-1460
(785) 296-1463 (fax)
www.kansasinc.org
ksinc@ink.org