



# The Impact of the Kansas Board of Regents System To the State's Economy

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### Preface

The goal of this study is to evaluate the economic importance and contributions of the institutions of the Kansas Board of Regents System (hereafter KBOR System). The subsequent pages contain specific information that quantifies and explains the many ways the KBOR System contributes to the state's economic progress. Additionally, this study evaluates how investments in higher education produce significant and positive returns for the state. It was concluded that the investment in higher education results in long-term economic benefits, including productivity and earnings gains from an educated workforce, new knowledge creation, new products and services, an increase in the supply of skilled professionals, and an improvement in the general quality-of-life.

#### Specific Goals of the Study Are:

- ◆ Measure the business volume, employment, and government revenue impact of the KBOR System's yearly operations and capital spending.
- ◆ Measure the economic impact of visitors who attend conferences, sporting, cultural and alumni events.
- ◆ Quantify the economic and social impact of students, employees and alumni.
- ◆ Quantify the economic impact on non-education organizations throughout the state.
- ◆ Quantify the spin-off effects of institutional research on new business formation, enterprise growth, employment, and Kansas government revenue.
- ◆ Estimate the impact of the KBOR System on Kansas "brain gain."
- ◆ Estimate the rate of return for taxpayer investments in the KBOR System.

The Goss & Associates research team thanks the staff of the Kansas Board of Regents for their assistance in facilitating the completion of this study. However, any errors, omissions, or misstatements are solely the responsibility of Goss & Associates and the principal investigator.

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# Executive Summary

In the subsequent pages of this study, the impacts of the Kansas Board of Regents System (hereafter KBOR System) are identified and estimated.<sup>1</sup> For 2010, it is estimated that the KBOR System produced approximately \$7.3 billion in overall impacts, \$3.4 billion in wages and salary impacts, 95,327 in additional jobs, and \$485 million in state and local tax collections. **In terms of the rate of return, each one dollar in state tax support resulted in \$11.94 in Kansas economic activity.** It is found that the payback period, or years to recover taxpayer support, was less than five years for most occupations of graduates. Furthermore, it was concluded that counties with KBOR System institutions experienced higher rates of growth in technology firms, lower rates of net out-migration, and higher rates of job growth, all of which contribute to the state's economic progress.

## General Impacts

- The 32 institutions of the KBOR System have provided economic stability for the state over the past decade.<sup>2</sup>
- January 2011 Bureau of Labor Statistics data show unemployment rates of 16.5 percent for workers without a high school diploma, 10.7 percent for workers with a high school diploma, 8.5 percent for workers with an associate's degree, and 4.5 percent for those with a bachelor's degree.<sup>3</sup>
  - ◊ For the period 1994 to 2009, workers with a bachelor's degree or higher enjoyed wage growth of 92.6 percent compared to 50.0 percent for workers with an associate's degree, to 50.3

<sup>1</sup>Impacts are expressed in 2011 dollars throughout the study.

<sup>2</sup> In 2011 the KBOR System was composed of: seven public universities, six technical colleges, and nineteen community colleges. In this study, Kansas State University College of Veterinary Medicine, the University of Kansas Medical School, and Kansas State University Extension Service are included with the rest of the respective institutions.

<sup>3</sup> <http://www.bls.gov/news.release/pdf/empisit.pdf>

percent for workers with a high school diploma and to 52.6 percent for those without a high school diploma.

- ◊ In 2009 compared to the high school dropout, workers with a bachelor's degree earned almost \$50,000 more while workers with an associate's degree earned a \$22,000 premium.
- Thus, by elevating the education level of the Kansas population, the KBOR System is boosting income and lowering joblessness in the state.
- Between 2000 and 2008, U.S. population growth was roughly three percentage points higher than that of Kansas.
  - ◊ Since 1970, 41 Kansas counties have lost population for each of the four decades.
    - » Only four counties with KBOR System institutions lost population for all four decades.
    - » Thirty-seven counties without KBOR System institutions lost population for all four decades.
    - » None of the counties with KBOR System universities lost population for all four decades.
- Between 2000 and 2008, Kansas lost more than 5,000 residents per 100,000 in population to other states via migration. During the same period of time, Kansas gained more than 1,200 residents per 100,000 in population from international in-migration.<sup>4</sup>
  - ◊ In terms of median domestic migration for each 100,000 in population, counties with KBOR universities lost 1,754 residents, counties with KBOR community and technical colleges lost 5,322 residents, while counties with no KBOR institution lost a much larger 7,565 residents.

<sup>4</sup> International migrants are non-U.S. citizens that lived outside the U.S. the previous year.

- ◇ In terms of median international migration for each 100,000 in population, counties with KBOR universities gained 1,684 residents, counties with KBOR community and technical colleges added 454 residents, while counties with no KBOR institution added a much smaller 211 residents.

## Impact on the Overall Economy for 2010<sup>5</sup>

- The KBOR System generated more than \$7.3 billion in sales or business volume for the state of Kansas; of the total, \$2.0 billion were spillover impacts.<sup>6</sup>
- For each \$1 of **state** taxpayer support, the KBOR System produced \$11.94 in economic returns.
- For each \$1 of **state** and **local** taxpayer support, the KBOR System generated \$3.24 in economic returns.

## Impact on the State and Local Tax Collections for 2010

- It is estimated that the KBOR System accounted for more than \$485 million in state and local tax collections.
- Of total state and local taxes created, 26.8 percent were sales taxes, 27.6 percent were individual income taxes, 3.4 percent were corporate taxes, 30.5 percent were property taxes and the remaining 11.7 percent came from other, or miscellaneous taxes.
- Kansas taxpayers recover their financial support for university graduates in 3.5 years for accounting graduates, 2.6 years for

electrical engineers, 3.2 years for architects and 6.1 years for computer systems analysts.

- Kansas taxpayers recover their financial support for community and technical college graduates in 1.6 years for dental hygienists, 2.0 years for biological technicians, and 3.1 years for welders.

## Impact on the State's Labor Force

- Both directly and indirectly, institutional spending supported an average of 95,327 jobs with a total payroll of approximately \$3.4 billion in 2010.
- Average salaries and wages for the direct and indirect jobs supported was approximately \$35,430.<sup>7</sup>

## Impact on Related Industries (Spillovers)

- For 2010, 388 of Kansas' 394 industries experienced impacts from institutional spending. For example, for the state's real estate industry, KBOR System spending supported approximately 4,392 jobs, \$105 million in wages and salaries, and \$549 million in sales or business volume.

## Impact on State and Local Long-Term Economic Growth

- The presence of the 32 institutions increases the attractiveness of the home community and encourages the startup and/or relocation of other businesses to the state.
  - ◇ Between 2000 and 2008 per 100,000 population, counties with KBOR System universities added a median of 13.7 high tech companies, and counties with KBOR System community and technical colleges gained a median of 2.8 high tech firms.

<sup>5</sup> This study was completed using the Implan Input-Output methodology explained in Appendices A and B. The economic impact in future years will be higher or lower based on the inflation rates, the number of students, capital expansion, increases in external research and the level of state appropriations.

<sup>6</sup> \$7.3 billion (total impact) minus almost \$5.3 billion (direct impact). Spillover impacts represent 'ripple' impacts in related businesses as higher education dollars are re-spent in the community. For example, vendors of the institutions will spend a portion of their earnings in the retail sector. This spending creates sales, earnings and jobs, termed spillover impacts, for business in the retail trade sector.

<sup>7</sup> Includes both part-time and full-time jobs.

- ◇ The median county with no KBOR System institution experienced no change in the number of high tech firms.<sup>8</sup>
- Almost one-fifth of the students attending an institution in the KBOR System come from outside Kansas. However, there was a great deal of variation within the total with 28.9 percent of KBOR System university students, 8.8 percent of KBOR System community college students, and 0.3 percent of KBOR System technical college students originating from outside Kansas.
- On the other hand only ten percent of all Kansas residents came from outside the state.<sup>9</sup>

(sales) impact on the state economy is estimated to be more than \$7.3 billion and more than \$485.0 million in state and local taxes.

In the remainder of this study, impacts are estimated for a) the state, b) individual industries, c) each Kansas county, d) each Kansas Senate District, e) each Kansas House District, and f) each of the 32 institutions in the KBOR System. The results presented in this study are estimated for 2010. The economic impact in future years will be higher or lower based on the inflation rates, the number of students, capital expansion, changes in funded research, and the level of state and local appropriations.

The assumptions and methodologies used to produce these estimates are contained in Appendices A and B.

Table E.1 summarizes the monetary impacts of the KBOR System. By supporting an average of 95,327 jobs each year, the KBOR System’s total monetary

Sales (Business Volume)	\$7,347,976,087
Salary and wages	\$3,377,443,495
Proprietor income	\$315,582,940
Average year-round jobs	95,327
Total state & local taxes	\$485,035,983
Return for each \$1 of higher education spending (state only)	\$11.94
Return for each \$1 of higher education spending (state and local)	\$3.24
Contribution to brain gain (2000 - 08)	\$295,926,061
Value of volunteer hours (2010)	\$206,115,800
Source: Implan Multiplier System	

<sup>8</sup> High tech NAICS codes and industries are defined as: 3254 Pharmaceutical and medicine; 334 Computer and electronic product; 3391 Medical equipment and supplies; 5413 Architectural, engineering, and related; 54143 Graphic design; 5415 Computer systems design and related; 5416 Management, scientific, and technical.

<sup>9</sup> Defined by U.S. Census as residents that lived in a different state five years earlier.

# 1

## Chapter 1: Kansas Public Higher Education and Economic Development

### Introduction

The State of Kansas invests in higher education in order to promote economic development and to enhance its citizens' quality-of-life. These investments generate long-term economic benefits including productivity growth, increases in wages, new knowledge creation, and byproducts from research and development. Furthermore, within each area served by a KBOR System institution, local businesses benefit from access to a large pool of part-time and full-time highly skilled and educated workers. Beyond the economic impacts, institutions of the KBOR System develop human capital, defined as the accumulation of investment in the skills and knowledge, for current residents, for non-residents who move to Kansas, and for individuals that gain from the institution's online or distance learning opportunities.

Through the 32 public institutions listed in Table 1.1, the seven public universities and 25 public community and technical colleges, millions of dollars are injected into local communities across the state. From research to sports, few industries have such a broad and far-reaching impact on the state as that of the KBOR System. The goal of this study is to gauge the significant role that the KBOR System plays in the state's economy.

### Higher Education and Worker Pay and Unemployment

Separate from the direct economic impact of institutional spending, one of the most important impacts of the KBOR System is to raise the earnings capacity of its graduates. Data show a clear, positive association between education levels and income, and the correlation has been growing stronger. In fact, the value of a college education has continued to increase over the last three decades, as the gap widened between earnings for college graduates and income for those with a high school diploma or less.

In 1980, bachelor's degree holders earned 60 percent more than workers with a high school diploma. Almost 30 years later, the income gap has widened to the point to where those with at least a bachelor's degree earn more than twice that of a high school graduate. A significant earnings gap also existed between associate degree holders and workers with a high school diploma. In 2009, male workers with an associate's degree earned from 23 percent to 43 percent more than those with a high school diploma. In 2009, female workers with an associate's degree earned from 27 percent to 38 percent more than their peers who had a high school diploma.<sup>10</sup>

*In 2009, compared to the high school dropout, workers with a bachelor's degree earned almost \$50,000 more; workers with an associate's degree earned \$22,000 more; and workers with a high school diploma earned approximately \$13,000 in additional wages.*

<sup>10</sup> By the Numbers: The Rising Value of a College Education," American Council on Education," <http://www.acenet.edu/AM/Template.cfm?Section=InfoCenter&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=33955>

<b>Table 1.1: KBOR System Institutes</b>		
<b>KBOR Public Universities</b>		
<b>Institution</b>	<b>Community</b>	<b>County</b>
Emporia State University	Emporia	Lyon
Fort Hays State University	Hays	Ellis
Kansas State University	Manhattan	Riley
Pittsburg State University	Pittsburg	Crawford
University of Kansas	Lawrence	Douglas
Washburn University (Washburn Institute of Technology)	Topeka	Shawnee
Wichita State University	Wichita	Sedgwick
<b>KBOR Community Colleges</b>		
<b>Institution</b>	<b>Community</b>	<b>County</b>
Allen County Community College	Iola	Allen
Barton County Community College	Great Bend	Barton
Butler Community College	El Dorado	Butler
Cloud County Community College	Concordia	Cloud
Coffeyville Community College	Coffeyville	Montgomery
Colby Community College	Colby	Thomas
Cowley College	Arkansas City	Cowley
Dodge City Community College	Dodge City	Ford
Fort Scott Community College	Fort Scott	Bourbon
Garden City Community College	Garden City	Finney
Highland Community College	Highland	Doniphan
Hutchinson Community College	Hutchinson	Reno
Independence Community College	Independence	Montgomery
Johnson County Community College	Overland Park	Johnson
Kansas City Kansas Community College	Kansas City	Wyandotte
Labette Community College	Parsons	Labette
Neosho County Community College	Chanute	Neosho
Pratt Community College	Pratt	Pratt
Seward County Community College	Liberal	Seward
<b>KBOR Technical Colleges</b>		
<b>Institution</b>	<b>Community</b>	<b>County</b>
Flint Hills Technical College	Emporia	Lyon
Manhattan Area Technical College	Manhattan	Riley
North Central Kansas Technical College	Beloit	Mitchell
Northwest Kansas Technical College	Goodland	Sherman
Salina Area Technical College	Salina	Saline
Wichita Area Technical College	Wichita	Sedgwick
Source: Kansas Board of Regents		

Table 1.2 lists wage data between 1994 and 2009. Data show that more highly educated workers experienced higher pay and pay growth from 1994 to 2009. For the full period 1994 to 2009, workers with a bachelor’s degree or higher enjoyed wage growth of 92.6 percent compared to 50.0 percent for workers with an associate’s degree, to 50.3 percent for workers with a high school diploma, and to 52.6 percent for those without a high school diploma. In 2009, compared to the high school dropout, workers with a bachelor’s degree earned almost \$50,000 more; workers with an associate’s degree earned approximately \$22,000 more; and workers with a high school diploma earned more than \$13,000 in additional wages.

	Median yearly pay			Wage Growth		
	1994	2000	2009	1994-2000	2000-09	1994-2009
Bachelor’s degree & above	\$35,613	\$43,689	\$68,603	22.7%	57.0%	92.6%
Associate’s degree	\$27,681	\$30,774	\$41,529	11.2%	34.9%	50.0%
High school diploma	\$21,836	\$24,267	\$32,812	11.1%	35.2%	50.3%
High school dropout	\$12,799	\$17,337	\$19,535	35.5%	12.7%	52.6%

Source: U.S. Census Bureau

Not only do better educated workers earn higher pay, they experience lower rates of joblessness. U.S. Bureau of Labor Statistics unemployment data for January 2011 show unemployment rates of 16.5 percent for workers without a high school diploma, 10.7 percent for workers with a high school diploma, 8.5 percent for workers with an associate’s degree, and 4.5 percent for those with a bachelor’s degree and above. Table 1.3 highlights the varying rates of joblessness by education level. Also, as indicated over the past decade, unemployment rates have grown significantly more for the less educated.<sup>11</sup>

	January 2001	January 2011
Bachelor’s degree & above	1.7%	4.5%
Associate’s degree	3.2%	8.5%
High school diploma	4.4%	10.7%
High school dropout	8.2%	16.5%

Source: U.S. Bureau of Labor Statistics

## Higher Education, Job and Business Growth

One of the most important benefits of Kansas higher education institutions is their impact on the clustering of firms dependent on highly educated and/or skilled workers. Research has found that companies and agencies that depend on highly specialized skills often cluster around colleges and universities, and this has been particularly the case for high tech and information based companies. Thus, the presence of a strong higher education system is a factor in attracting new business to the state and to specific areas of the state.<sup>12</sup>

<sup>11</sup> <http://www.bls.gov/news.release/pdf/empst.pdf>

<sup>12</sup> Goss, Ernest and George Vozikis. “High Tech Manufacturing: Firm Size, Industry Size and Population Density,” *Small Business Economics*, April 1994, pp. 291-297.

Table 1.4 lists private job growth data by category.<sup>13</sup> Between 2000 and 2008, counties containing a KBOR System university gained a median rate of 10.6 percent job growth with only one county, Lyon County, losing employment. For counties with a KBOR System community or technical college, the median growth rate was -0.3 percent with 9 of 21 counties having fewer workers in 2008 than 2000. Counties without a KBOR System institution suffered much slower private employment growth between 2000 and 2008 with 31 of 77 counties losing jobs with a median job growth rate of -0.9 percent.

<b>Table 1.4: Median Private Employment Job Growth by County Group, 2000-08</b>			
	<b>2000</b>	<b>2008</b>	<b>Growth, 2000-08</b>
All Kansas counties	1,991	1,976	-0.8%
Counties with KBOR System university	19,657	21,738	10.6%
Counties with KBOR System community or technical college	9,834	9,808	-0.3%
All KBOR System counties	12,144	13,175	8.5%
No KBOR System institution	1,300	1,288	-0.9%
Source: U.S. Census, County Business Patterns, 2000 and 2008			

As many counties in Kansas have lost jobs, they have also lost business establishments. Table 1.5 lists the median number of private businesses by county group adjusted for population. Again, data show that while the median county in the state lost 7.7 percent of its private business establishments, counties with no KBOR System institution suffered a larger loss at 9.6 percent.<sup>14</sup>

<b>Table 1.5: Median Number Private Businesses for Each 100,000 Residents by County Group, 2000-08</b>			
	<b>2000</b>	<b>2008</b>	<b>Median Growth 2000 - 08</b>
All Kansas counties	2,971	2,742	-7.7%
Counties with KBOR System university	2,625	2,707	3.1%
Counties with KBOR System community or technical college	2,892	2,705	-6.4%
All KBOR System counties	2,765	2,706	-2.1%
No KBOR System institution	3,102	2,803	-9.6%
Source: U.S. Census, County Business Patterns, 2000 and 2008.			

Past research has concluded that high tech firms are more likely to cluster near institutes of higher learning. Table 1.6 lists the median change in high tech businesses per 100,000 residents by category between 2000 and 2008. Data indicate that in terms of new high tech firms, counties with KBOR System institutions benefited from having an institute of higher learning in the county. Data show that the median Kansas county experienced no change in the population adjusted number of high tech firms. On the other hand, counties with a KBOR System university gained 13.7 high tech firms per 100,000 population between 2000 and 2008.

The University of Kansas' Cancer Center is an example of how institutions in the KBOR System stimulate the

<sup>13</sup> Private employment excludes government workers.

<sup>14</sup> For most of this study, we use county median comparisons to prevent large population county data from "swamping" or masking results for smaller population counties.

development of high tech firms in the area. It is estimated that federal research grant funding for this center will grow from \$43 million to \$80 million over the next ten years. Moreover, “That research base will propel related construction activities, operations, licensing revenues and cancer mortality reductions equal to more than \$1.3 billion in overall annual benefits, and as many as 9,400 permanent jobs in 10 years.”<sup>15</sup>

**Table 1.6: Median Change in the High Tech Businesses for Each 100,000 Residents by County Group, 2000-08**

	# High Tech Firms Change 2000-08
All Kansas counties	0.0
Counties with KBOR System university	13.7
Counties with KBOR System community or technical college	2.8
All KBOR System counties	10.4
No KBOR System institution	0.0

Source: U.S. Census, County Business Patterns, 2000 and 2008

The National Institute for Aviation Research at Wichita State University is another prominent example of the synergy between academic institutions of the KBOR System and private business development. The institute is home to more than a dozen labs with a mission to provide research, transfer technology and education in order to advance the nation’s aviation industry. In 2009, this institute had almost 100 private business clients, most of whom are fast growing technology companies.<sup>16</sup>

*Given the importance of the aviation industry to the state’s growth, the financial seed funding from the state produces significant economic returns to the Kansas taxpayer.*

## Kansas Board of Regent Institutions Contributions to Kansas “Brain Gain”

Kansas and other agriculturally-based economies have experienced sharp relative declines in population since the 1930s and have lost residents and human capital (brain power) to other states. As a result of increasing farm productivity, sharp increases in the size of the farm and an aging farmer, counties in the Mid-American region<sup>17</sup> that depend heavily on agriculture have suffered either outright population declines, or very slow relative population growth. However, data in the subsequent tables suggest that losses were not as significant for counties with KBOR System institutions. In fact, it could be argued that the KBOR System may have contributed instead to a “brain gain” rather than a “brain drain.”

Data in Table 1.7 detail that over the past four decades Kansas has gained population at a rate significantly less than the U.S. and, except for Nebraska, all of its neighbors.<sup>18</sup> Had Kansas experienced the same population growth as the nation, it would have 561,590 additional residents in 2008 than it actually had.<sup>19</sup>

<sup>15</sup> <http://cancer.kumc.edu/nci.html>

<sup>16</sup> <http://www.niar.wichita.edu/partnerships/clients.asp>

<sup>17</sup> The Mid-America region includes the states of Arkansas, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, and South Dakota. This region is the same as that used by the author in a monthly survey of businesses ([www.outlook-economic.com](http://www.outlook-economic.com)).

<sup>18</sup> For the purpose of this study, Kansas’ neighbors are those states with which it shares a geographic border.

<sup>19</sup> In 1970, Kansas population was 1.11% of U.S. population but by 2008, Kansas population had dipped to 0.92% of the nation’s population. Had Kansas maintained its 1.11% share, it would have had a population of 3,363,724 in 2008, or an additional 561,590 residents.

As listed in Table 1.7, the state of Kansas gained population for each decade between 1970 and 2008. However for many of the state's counties, there was much variation in population change for the decades. Table 1.8 compares Kansas county population growth by decade, comparing counties in which there is a KBOR System institution with other counties in the state.

	1970-80	1980-90	1990-2001	2001-2008	1970-2008
<b>CO</b>	30.8%	14.0%	34.1%	11.8%	123.5%
<b>KS</b>	5.1%	4.8%	8.8%	4.0%	24.6%
<b>MO</b>	5.1%	4.1%	10.0%	5.0%	26.4%
<b>NE</b>	5.7%	0.5%	8.5%	4.1%	20.1%
<b>OK</b>	18.2%	4.0%	10.0%	5.3%	42.3%
<b>US</b>	11.4%	9.8%	14.5%	6.8%	49.6%

Source: Author calculations based on U.S. Census data.

From 1970 to 1980, 51 Kansas counties, or 48.6 percent, lost population, but only five KBOR counties with a KBOR System institution experienced population losses. On the other hand, 46, or 59.7 percent of counties with no KBOR System institution lost population. From 1980 to 1990, 79 Kansas counties, or 75.2 percent, lost population, but only 17 counties with KBOR System institutions experienced population losses. On the other hand, 62, or 80.5 percent of counties with no KBOR System institution lost population. From 1990 to 2001, 57 Kansas counties, or 54.3 percent, lost population, but only 13 KBOR System counties experienced population losses. On the other hand, 44 counties, or 57.1 percent of counties with no KBOR institution lost

	1970-80		1980-90		1990-2001		2001-09	
	Number of counties losing population (percent of category)	Percent change in population	Number of counties losing population	Percent change in population	Number of counties losing population	Percent change in population	Number of counties losing population	Percent change in population
Kansas	51 (48.6%)	5.1%	79 (75.2%)	4.8%	57 (54.3%)	8.5%	85 (81.0%)	4.8%
Counties with KBOR universities	1 (14.3%)	5.5%	3 (42.9%)	3.9%	1 (14.7%)	5.8%	1 (14.7%)	3.8%
Counties with KBOR community or technical college	4 (19.5%)	5.0%	14 (66.7%)	-6.0%	12 (57.1%)	-0.6%	15 (71.4%)	-3.6%
All KBOR counties	5 (17.9%)	5.0%	17 (60.7%)	-3.1%	13 (46.4%)	2.1%	16 (57.1%)	-2.4%
All non-KBOR counties	46 (59.7%)	-3.0%	62 (80.5%)	-8.4%	44 (57.1%)	-1.5%	70 (90.9%)	-9.5%

Source: Author calculation based on U.S. Census Bureau data

population. For the most recent period 2001 to 2009, fully 85 counties, or 81.0 percent, of Kansas counties lost population, but only 57.1 percent of counties with a KBOR institution experienced a population loss. Furthermore, 90.9 percent of counties with no KBOR institution suffered a population loss.

Table 1.9 provides additional data supporting the importance of the KBOR System to population gains. According to the U.S. Census data, 41 Kansas counties lost population in each of the four decades. Of the 41 counties suffering population losses for each decade, 37 did not have a KBOR System institution. Furthermore, none of the counties with a KBOR System university experienced population losses for all four decades.

	Decade of 70s	Decades of 70s and 80s	Decades of 70s, 80s and 90s	Decades of 70s, 80s, 90s and 2000s
All Kansas counties	51	49	41	41
Counties with KBOR universities	1	0	0	0
Counties with KBOR community college or technical college	4	4	4	4
All KBOR counties	5	4	4	4
All Non-KBOR counties	46	45	37	37

Source: Author calculations based on U.S. Census data.

### Projected Population Growth

Table 1.10 presents projected county population change between 2010 and 2020 for the categories of counties. According to the projections, the median county in the state of Kansas is expected to lose 9.2 percent of its population during this decade. By contrast, Ellis County is the only KBOR System university county that is projected to lose population between 2010 and 2020. However, 16 counties with KBOR community and technical colleges are projected to experience population declines. According to the data, 61, or 79.2 percent, of counties with no KBOR System institution are expected to lose population between 2010 and 2020.

	Total 2010 Population	Population change 2010-2020	# of counties losing population (percent of total)	Median loss	Median percent loss
All Kansas counties	2,738,830	142,656	78 (74.3%)	-495	-9.2%
KBOR university	931,177	57,812	1 (14.3%)	-124	-0.5%
KBOR community or technical school	1,194,871	132,499	16 (76.2%)	-796	-5.3%
No KBOR institution	675,934	-5,241	61 (79.2%)	-445	-10.6%

Source: Author calculations based on data from KU Institute for Policy & Social Research

Of course the losses in Table 1.10 are the result of continuing negative migration trends for many of the counties in the state. Institutes of higher learning are important in terms of bringing new residents to the state. For Kansas, counties with higher education institutions have tended to bring new residents to the area either via hiring of faculty, staff and/or recruitment of students.

Table 1.11 divides the student population of the KBOR System into resident and non-resident<sup>20</sup> (those from outside the state) categories. As indicated, almost one-fifth of KBOR System students come from outside Kansas. However, there was a great deal of variation within the total with 28.9 percent of KBOR System university students, 8.8 percent of community college students and 0.3 percent of technical college students coming from outside Kansas.

	Fall 2010 total student enrollment	Number of non-residents	Percent from Outside state
Universities	93,131	26,875	28.9%
Community colleges	81,171	7,170	8.8%
Technical schools	5,886	16	0.3%
Total KBOR institutions	180,188	34,061	18.9%

Source: Kansas Board of Regents and author calculations

How has this success in bringing new students from outside Kansas to the state translated in terms of overall migration for the state's counties? How does this compare with the general population of Kansas? In 2000, of Kansas residents over five years of age, only 11.1 percent resided outside Kansas five years earlier. This points to a potential positive and significant impact of KBOR System institutions in bringing new residents to the state that are high in human capital or, human capital potential.

Table 1.12 compares migration experience of Kansas counties. As presented, counties with KBOR System institutions experienced the top migration, both international and domestic, among the categories. In contrast, counties without a KBOR System institution had the worst migration experience, losing a net median of 7,354 residents per 100,000 in population, international and domestic migration, to other states.

	Median migration per 100,000 population		
	International	Domestic	Total
Counties with KBOR universities	1,684	-1,754	-70
Counties with community and technical colleges	454	-5,322	-4,868
All counties with KBOR institutions	672	-4,664	-3,992
Counties with no KBOR institutions	211	-7,565	-7,354

Source: U.S. Census Bureau and author calculations

<sup>20</sup> Based on payment of tuition.

Despite the clear association among earnings, higher education spending and positive labor market outcomes, Kansas spends less per FTE than the U.S. average and lower than any of its geographic neighbors. Table 1.13 lists spending per FTE showing that for 2008, Kansas spent almost \$2,000 less than the U.S. average and \$4,375 less than its highest spending neighbor Oklahoma.

**Table 1.13: Spending per FTE for Kansas, its Neighbors and the U.S. (2008)**

	State	Local	Total
<b>U.S.</b>	\$17,836	\$3,481	\$21,317
<b>Colorado</b>	\$22,955	\$711	\$23,666
<b>Kansas</b>	\$14,157	\$5,265	\$19,422
<b>Missouri</b>	\$16,586	\$4,534	\$21,120
<b>Nebraska</b>	\$18,426	\$3,724	\$22,150
<b>Oklahoma</b>	\$23,797	\$0	\$23,797

Source: Author calculation based on U.S. Census Bureau data.

Table 1.14 lists government higher education appropriations per FTE for 2000 and 2008 along with the growth rates for Kansas, its neighbors and the U.S. Appropriation data also highlight Kansas' lower allocations to higher education in the state.

**Table 1.14: Appropriations per FTE for Kansas, Its Neighbors and the U.S., 2000 - 2008**

	2000	2008	Growth 2000 - 08
<b>U.S.</b>	\$6,001	\$7,059	17.6%
<b>Colorado</b>	\$4,233	\$4,213	-0.5%
<b>Kansas</b>	\$6,128	\$6,125	0.0%
<b>Missouri</b>	\$6,484	\$6,032	-7.0%
<b>Nebraska</b>	\$5,151	\$7,622	48.0%
<b>Oklahoma</b>	\$5,678	\$7,164	26.2%

Source: Author calculation based on NCHEMS Information Center. <http://www.higheredinfo.org/dbrowser/?year=2008&level=nation&mode=data&state=0&submeasure=67>

A summary of the major economic impacts of the Kansas public institutes of higher education is presented in Chapter 3 of this study. These impacts result from operations and capital spending, student spending, sports expenditures, and the additional earnings of the alumni of Kansas' public institutes of higher education who earn higher wages and salaries because of their education.

The results that follow are based on an analysis of the overall economic effects of the KBOR System for the latest fiscal year for which complete institutional data are available. Additionally, this study documents the influence of the KBOR System on the increased earning power in the state. Although the state's taxpayers understand that a link between education and economic development exists, the connection is often not well understood. The goal of this study is to detail the linkage.

The next chapter examines the impact of the KBOR System on the quality-of-life of Kansas residents.

# 2

## Chapter 2: The Contribution of the Kansas Board of Regents System to Local Communities' Quality-of-Life

In addition to generating quantifiable monetary impacts on the state's economy, KBOR System institutions boost the quality-of-life (QOL) of its residents and enhance economic development prospects in its service areas and beyond. Located throughout the entire state, the 32 institutions enrich Kansas communities with arts and humanities programs, business seminars, and other programs that enhance the QOL of residents and visitors to Kansas. For example, the institutions bring local, national, and international lectures, music, and theatrical programs to the campuses and communities they serve. Importantly, students, faculty and staff of the institutions provide thousands of volunteer services that are not included in the economic impacts identified in Chapter 3.

As such, Kansas citizens rely on KBOR System campuses to serve as the hub for cultural programming, entertainment activities, and community-building events above direct university educational activities.<sup>21</sup> Among the non-quantifiable benefits of the institutions include the publicity and prestige for communities resulting from the educational and non-educational programs of the KBOR System. These are all factors that not only benefit the current citizens of an area, but also enhance a community's ability to attract and retain talented people – including those with no direct connection to the school itself. For example, Kansas State University provides extension services in each of the state's 105 counties.

Furthermore, KBOR System institutions furnish cultural, sports, and educational programs and facilities to the general public and provide intangible benefits to the host area by bringing visitors to the area. The gains from outsiders attending local events provided by KBOR System institutions ripple across all of the state's 105 counties. Quantifying many of these long-term impacts is beyond the scope of this study. However, they are identified and quantified when appropriate and possible.

In addition to enriching the lives of its citizens through the arts, humanities, business and economic development, KBOR System institutions directly enhance the health of citizens of the state. The Herndon Speech, Language, Hearing Clinic at Fort Hays State University is an example. This clinic provides comprehensive diagnostics and treatment to 485 children of Western Kansas. An additional example is provided by the University of Kansas Medical School. Beginning in 1991 with a single connection to a community in western Kansas, the Kansas telehealth network has provided access to more than 100 sites throughout the state, and has conducted many thousands of clinical consultations for state residents. Furthermore, it has hosted hundreds of educational events for health professionals, teachers, students and the public throughout the state. This outreach activity has had a significant and positive impact on state residents, in some cases allowing the delivery of medical care to remote areas of the state.

*For example, Kansas State University provides extension services in each of the state's 105 counties.*

A sampling of some of the services provided by KBOR System institutions is contained in Appendix C.

<sup>21</sup> Source: Kansas Board of Regents. <http://www.kansasregents.org/>

## Value of Volunteer Services

Over and above the provision of seminars, art exhibits, extended learning, and formal programmatic community outreach, students, faculty and staff of the 32 institutions of the KBOR System supply valuable volunteer services to non-profit organizations, individual citizens, and businesses in the area.

Tripp Umbach developed a methodology for estimating the value of volunteer services of institutions of higher learning.<sup>22</sup> Goss & Associates uses this same methodology to estimate the value by Kansas county. In some cases consultants mistakenly use the minimum wage or the national median wage as a basis for their computation. However, many of the volunteer tasks could not be completed by a person recruited to work at the minimum wage. Consultants also err by pricing the volunteer service at the wage rate of the person performing the service. For example, if a physician volunteers to perform medical examinations, then it is justified to estimate the dollar value of that donated service at the hourly rate normally charged by that physician. But if that same doctor volunteers to paint houses in the community, it is clearly not appropriate to value the services at the physician's hourly salary.

In the case of the KBOR System, we make two conservative assumptions. First, we use the hourly rate of \$20.10, and second we do not include volunteer services of faculty and staff. Table 2.1 lists estimated impact by county. While many Kansas counties are not listed as receiving impacts, the institutions' impacts go well beyond county borders. This is recognized here, but not quantified.

## Inflow of Earnings

Separate from the impacts listed in Chapter 3, KBOR System institutions serve surrounding counties by supplying employment opportunities to non-residents. Each year, the U.S. Bureau of Economic Analysis estimates the inflow and outflow of earnings to produce a residency adjustment. An inflow results when a worker leaves his/her county of residence to work in another county. They then bring in new dollars to their county of residence. For a county, a net outflow of earnings indicates that the outflow of wage

**Table 2.1: Value of Volunteer Services by County Provided by the KBOR System, 2010**

Allen	\$3,187,800
Barton	\$5,690,300
Bourbon	\$2,262,700
Butler	11,111,100
Cloud	\$3,006,300
Cowley	\$4,933,500
Crawford	\$7,843,000
Doniphan	\$4,073,300
Douglas	\$32,364,200
Ellis	\$13,071,300
Finney	\$2,209,900
Ford	\$1,987,700
Johnson	\$22,955,900
Labette	\$1,868,900
Lyon	\$7,632,900
Mitchell	\$849,200
Montgomery	\$3,521,100
Neosha	\$2,547,600
Pratt	\$1,830,400
Reno	\$6,193,000
Riley	\$26,686,000
Saline	\$457,600
Sedgwick	\$18,626,300
Seward	\$2,061,400
Shawnee	\$8,874,800
Sherman	\$422,400
Thomas	\$1,535,600
Wyandotte	\$8,311,600
<b>Total</b>	<b>\$206,115,800</b>

Source: Goss & Associates using Tripp Umbach methodology

<sup>22</sup>“Tripp Umbach, an economic consulting firm, has conducted survey research at many other universities where students, faculty, and staff provide estimates on spending patterns, including information on the number of volunteer hours and charitable donations they provide. Tripp Umbach utilized this research to make conservative assumptions about UAB’s Volunteerism and charitable giving. This methodology was originally used by the Points of Light Foundation.” [http://www.uab.edu/impact/images/UAB\\_Economic\\_Impact\\_Report\\_November\\_2010.pdf](http://www.uab.edu/impact/images/UAB_Economic_Impact_Report_November_2010.pdf)

and salary income to out-of-county commuters exceeds the inflow of earnings brought into the county by resident commuters. That is, a net inflow of earnings indicates that the residents of a county are commuting to another county to earn their living. Of course, this would tend to result in spending in their county of residence.

*This data suggest that not only does the KBOR System serve the citizens of their base county, it provides significant employment and income opportunities for residents of surrounding counties as KBOR System employees spend their income in their county of residence.*

Table 2.2 lists net 2008 inflows for Kansas counties. As presented,

counties with no KBOR System institution experienced significantly higher net inflows of earnings, \$260.42 per capita for 2008, than counties with a KBOR System institution. This, of course, enhances the QOL for residents of counties with no KBOR System institution, but who live in a border county.

**Table 2.2: Net Inflow of Earnings by County Category, 2008**

	Total inflow	Total outflow	Net inflow	Net inflow per capita
Counties with KBOR university	\$29,718,444	\$21,217,533	\$8,500,911	\$9.58
Counties with KBOR community & technical college	\$80,202,117	\$80,360,904	-\$158,788	-\$0.14
All counties with KBOR institution	\$109,920,561	\$101,578,437	\$8,342,124	\$4.19
Counties with no KBOR institution	\$413,350,503	\$231,448,793	\$181,901,710	\$260.42

Source: Author calculation based on U.S. Bureau of Economic Analysis data

Table 2.3 provides just one example of the impact of KBOR System institutions on non-educational industries. These data suggest that KBOR System institutions encourage the development of jobs associated with higher QOL. For 2008, the differences were quite dramatic, with counties with KBOR System institutions having more than twice the average number of performing arts jobs per capita as counties with no KBOR System institution.

**Table 2.3: Median Number of Performing Arts Jobs by County Category, 2008**

	Performing Arts Jobs	Per 100,000 in Population	
		Average	Median
Counties with KBOR university	941	106	79
Counties with KBOR community & technical college	1,015	92	16
All counties with KBOR institution	1,956	98	26
Counties with no KBOR institution	323	46	0

Source: U.S. Census Bureau, County Business Patterns, 2008

## County QOL, Demographic Outcomes, and Brain Gain

The agricultural states that lie east of the Rocky Mountains have experienced significant losses of young, educated workers, resulting in a brain drain that could leave the region lagging the rest of the nation for many years to come. However, KBOR System institutions have reduced some of the net losses. In fact, the 32 institutions of the KBOR System make significant contributions to the expansion of the number of Kansas residents possessing higher education credentials. They do this via 1) increasing the education level of current residents and thus income, and 2) bringing non-Kansas residents to the state and educating them. A large share of graduates from KBOR System institutions then remain in the state, adding to the economic vitality of the state. According to a 2006 study by William Keeton<sup>23</sup> “...the best hope for a state like Kansas to generate such jobs (high skill) may be to improve education at all levels, including its high schools and community colleges as well as universities.”

As part of this study, Goss & Associates surveyed each of the KBOR System institutions to determine the geographic origin of students and the geographic destination of graduates. Table 2.4<sup>24</sup> provides details on this survey along with other data supporting the importance of KBOR institutions in attracting and/or retaining individuals with significant human capital.

Percent of KBOR students from Kansas (Source: Goss & Associates survey)	71.1%
Percent of KBOR students from Kansas (Source: Kansas Board of Regents)	81.1%
Percent of KBOR graduates remaining in Kansas (Source: Goss & Associates survey)	52.7%
Percent of Kansas college graduates (bachelor's degree) remaining in the state	52.0%
Percent of Nebraska college graduates (bachelor's degree) remaining in the state	44.0%
Percent of Iowa college graduates (bachelor's degree) remaining in the state	41.0%
Percent of Oklahoma college graduates (bachelor's degree) remaining in the state	40.0%

Table 2.5 provides details on the estimated value of “brain gain” for the most recent year for which there were reliable data. As listed, KBOR institutions graduated 48,962 individuals in 2009. Assuming each graduate increased his/her earnings by the difference between the average graduate salary and the average salary of a

*For 2008, the per capita differences were quite dramatic with counties with KBOR System institutions having more than twice the average number of performing arts jobs as counties with no KBOR System institution.*

<sup>23</sup> “People on the Move: Migration in Kansas,” William R. Keeton, Assistant Vice President and Economist, Federal Reserve of Kansas City, April 2006 presentation to Kansas Economic Forums.

<sup>24</sup> Percent of Nebraska college graduates: [http://www.higheredinfo.org/catcontent/students\\_states/NebraskaProfile.pdf](http://www.higheredinfo.org/catcontent/students_states/NebraskaProfile.pdf). Percent of Iowa college graduates: [http://www.higheredinfo.org/catcontent/students\\_states/IowaProfile.pdf](http://www.higheredinfo.org/catcontent/students_states/IowaProfile.pdf). Percent of Oklahoma college graduates: [http://www.higheredinfo.org/catcontent/students\\_states/OklahomaProfile.pdf](http://www.higheredinfo.org/catcontent/students_states/OklahomaProfile.pdf). Percent of Kansas college graduates Goss & Associates survey. Included in the Kansas number are individuals with post-graduates degrees. If it were possible to identify and omit these individuals, the Kansas percentage would likely be even higher.

Kansas high school graduate, increases of \$17,145 and \$4,606 are estimated for university and community and technical school graduates, respectively. Next applying the percentages of graduates remaining in Kansas generates the brain gain listed in column (5) of almost \$296 million for 2009.

Table 2.5: Estimated Value of Brain Gain from KBOR System, 2009					
	(1) # of Graduates - 2009	(2) Adding earning capacity	(3) Total contribution (1) x (2)	(4) Percent remaining in Kansas	(5) Net brain gain (3) x (4)
KBOR universities	18,526	\$17,145	\$317,628,270	52.0%	\$165,166,700
KBOR community colleges	23,005	\$4,606	\$105,961,164	91.2%	\$96,636,581
KBOR technical colleges	7,431	\$4,606	\$34,225,456	99.7%	\$34,122,779
Total 2009	48,962	n.a.	\$457,814,889	n.a.	\$295,926,061

Source: Goss & Associates

The next chapter provides estimated impacts for the KBOR System for 2010. Using the Implan Multiplier System, impacts are estimated for the state, 20 of the state's largest industries, each of the state's 105 counties, each of the state's 40 Senate Districts, each of the state's 125 House Districts and the 32 KBOR institutions.



University of Kansas students participating in the university's annual student volunteer day  
([www2.ljworld.com](http://www2.ljworld.com))

# 3 Chapter 3: Estimated Economic Impacts

## Introduction

The expenditures of Kansas’ public institutions of higher education provide a source of jobs and income for residents of the state. This spending for locally-supplied goods and services consists of construction outlays, equipment and supply purchases, and spending by staff, faculty and students. This initial spending leads to further spending for residents, with a resultant impact that is a multiple of “first round” spending. Thus, the impact of Kansas public higher education continues after the initial money is spent for goods and services. It supports

many enterprises and individuals that are indirectly linked to the public higher education system.

Based on 2009<sup>25</sup> institutional levels of spending, the task is to estimate the economic impact of these outlays of the 32 institutions listed in Table 1.1. The impact of institutional spending on the state is greater than, or a multiple of, the initial round

of outlays. Using Input-Output



([www.mccckc.edu](http://www.mccckc.edu))

multipliers, the study will provide sales, earnings and job impacts in addition to estimating the impact of the initial spending on state and local tax collections. Input-Output multipliers show how spending initiated in one industry, post-secondary institution spending in this case, is filtered throughout the state economy. For each dollar generated by the 32 institutions, there are direct effects for the initial spending plus the spillover impacts into the rest of the state economy.

Input-Output multiplier models are the most frequently-used type of analysis tool for economic impact assessment. Input-Output analysis assumes that each sector purchases products and services from other sectors and then sells its output to other sectors and/or final consumers. The multiplier system that will be used is Implan.<sup>26</sup> This is a widely used and accepted methodology and is described in more detail in the Appendices.

In tailoring the IMPLAN model for Kansas public higher education spending, Goss & Associates used

<sup>25</sup> 2009 was the latest available data for this report. 2010 data were available for community colleges and universities, but not technical colleges. Impacts are for 2010 based on 2009 spending.

<sup>26</sup> IMPLAN is a computer software package that consists of procedures for estimating economic impacts. The acronym is for Impact Analyses and Planning. The U.S. Forest Service, in cooperation with the Federal Emergency Management Agency and the Interior’s Bureau of Land Management, originally developed IMPLAN to assist in land and resource management planning. Since 1993, the Minnesota Implan Group Inc. in Stillwater, Minnesota has continued development and maintenance of the IMPLAN system. This group licenses and distributes the software to users. Goss & Associates is a licensed user of Implan.

conservative assumptions. Impacts were calculated for five categories that reflect the contribution of the KBOR System to the state and local economy.

1. Output-contribution to overall economic activity.
2. Employment-contribution to the job base.
3. Wages and salaries-contribution to wages and salaries of workers in the state.
4. Proprietorship-contribution to the income of self-employed individuals.
5. Taxes-contribution to state and local tax collections.

Impacts are estimated for a) the state, b) individual industries, c) each Kansas county, d) each Kansas Senate District, e) each Kansas House District and f) each of the 32 institutions of the KBOR System. The results presented in this study are estimated for 2010.<sup>27</sup> The economic impact in future years will be higher or lower based on the inflation rates, the number of students, capital expansion, changes in external research funding and the level of state appropriations.

## Total Impact on Kansas Economic Activity

The first step in measuring impacts was to input 2009 direct spending into the Implan Multiplier System.<sup>28</sup> Table 3.1 lists impacts. As indicated, the initial spending generated a total of more than \$7.3 billion in sales<sup>29</sup>, almost \$3.4 billion in wages and salaries, more than \$315 million in proprietor income<sup>30</sup>, and supported approximately 95,327 jobs for 2010. In terms of the overall state economy, 2010 spending by the 32 institutions added more than \$5.1 billion to the state’s gross domestic product (not listed). Thus according to these estimates, the KBOR System generated \$3.24 for each dollar of **state** and **local** taxpayer support and \$11.94 for each dollar of **state** taxpayer support.<sup>31</sup>

Sales or business volume	\$7,347,976,087
Salary and wages	\$3,377,443,495
Proprietor income	\$315,582,940
Average year-round jobs	95,327
Return for each \$1 of state higher education spending	\$11.94
Return for each \$1 of state and local higher education spending	\$3.24
Source: Implan Multiplier System	

## Impact on State and Local Tax Collections

While the KBOR educational institutions examined in this study are non-profit entities, their employees, students and vendors, as well as businesses tied to these groups, do pay state and local taxes. Through the spending from related institutional operations, state and local tax collections are created. Table 3.2 provides detailed estimates of the impact on state and local taxes. As indicated, the outcome is more than \$485 million in state and local tax collections.

<sup>27</sup> All impacts are for 2010 but in 2011 dollars.

<sup>28</sup> Estimated direct, or initial, spending is listed in Table A.2.

<sup>29</sup> Output or total impacts include salary and wages, proprietor income, and state and local taxes

<sup>30</sup> Proprietor income, includes earnings for self-employed individuals such as attorneys, accountants and consultants.

<sup>31</sup> Impact of \$7,347,976,087 divided by \$2,267,214,548 in state and local financial support.

Type of tax	Taxes	Percent of Total
Property	\$147,917,053	30.5%
Individual Income	\$133,968,494	27.6%
Sales	\$130,177,343	26.8%
Corporate Income	\$16,639,065	3.4%
Other	\$56,334,028	11.7%
<b>Total state and local tax collections</b>	<b>\$485,035,983</b>	<b>100.0%</b>

Source: Implan Multiplier System

Table 3.2.1<sup>32</sup> lists the years required to recover taxpayer support for various occupations. As indicated, Kansas taxpayers recover their financial support for university graduates in 3.5 years for accounting graduates, 2.6 years for electrical engineers, 3.2 years for architects and 6.1 years for computer systems analysts.

Bachelor's degree		
Occupation	Per graduate tax collections 2010	Years for payback
Aerospace engineer	\$15,863	2.2
Electrical engineer	\$13,070	2.6
Architect/engineer	\$10,794	3.2
Accountant	\$9,877	3.5
Computer systems analyst	\$5,678	6.1
Kindergarten teacher	\$2,141	16.1
Primary & secondary education teacher	\$1,787	19.3
Associate's degree		
Occupation	Per graduate tax collections 2010	Years for payback
Dental hygienist	\$8,631	1.6
Biological technician	\$6,936	2.0
Registered nurse	\$5,210	2.7
Welder	\$4,451	3.1

Source: Goss & Associates calculations based on KBOR System data.

For associate degree recipients, the recovery period was 1.6 years for dental hygienists, 2.0 years for biological technicians, 2.7 years for registered nurses, and 3.1 years for welders. The longest payback period among those examined was 19.3 years for secondary education teachers. Of course, these estimates assume that the cost of a bachelor's degree is the same for a teacher as that for an engineer. Thus, these payback periods are likely on the high side for teachers and on the low side for engineers since it costs more per year to educate an engineer than a teacher.

<sup>32</sup> Kansas taxpayer cost per graduate of KBOR System universities was \$34,466 in 2008. For community colleges, the cost per year for graduates was \$14,000. It is assumed that the costs per graduate are the same across academic disciplines. Tax collections per graduate are based on the average Kansas pay for a KBOR System graduate for the selective occupation versus tax collections expected for a Kansas high school graduate. Tax collection estimates come from the IMPLAN system.

## Impacts by Industry

Table 3.3<sup>33</sup> lists impacts by industry. As indicated, the top industries to experience spillover sales or output impacts, outside of educational institutions, were the real estate industry with almost \$549 million, food services with more than \$440 million, and research services<sup>34</sup> with more than \$369 million in total impacts. For 2010, 388 of Kansas's 394 industries experienced impacts from the KBOR System institutions. The impact on research services is especially noteworthy given this industry's importance to the growth of high wage jobs in the state.

**Table 3.3: Impacts of KBOR System by Industry (Top 20 Industries)**

Industry	Output	Salary and Wages	Proprietor Income	Jobs	Salaries & Wages Per Job
Educational institutions	\$2,239,798,006	\$1,977,510,271	\$0	42,298	\$46,752
Real estate establishments	\$548,558,636	\$105,210,028	\$48,726,835	4,392	\$23,953
Food services & drinking places	\$440,395,467	\$121,326,061	\$14,482,572	7,800	\$15,554
Research services	\$369,344,189	\$147,697,649	\$59,232,526	2,484	\$59,470
Retail Stores – Misc.	\$299,254,037	\$105,210,028	\$47,504,944	8,312	\$12,657
Amusement & recreation	\$202,601,505	\$31,768,310	\$2,495,527	1,733	\$18,336
Retail Stores – grocery	\$159,532,025	\$52,467,427	\$13,703,418	2,503	\$20,964
Offices of physicians & dentists	\$159,357,514	\$74,377,736	\$17,364,093	1,201	\$61,925
Construction repairs & maintenance	\$137,511,573	\$64,675,037	\$4,720,141	1,214	\$53,273
Wholesale trade businesses	\$131,399,565	\$47,424,721	\$4,408,956	720	\$65,854
New construction	\$119,028,796	\$28,747,609	\$7,997,118	750	\$38,337
Retail Stores – Clothing	\$114,638,423	\$33,036,113	\$3,256,924	1,781	\$18,549
Telecommunications	\$113,744,171	\$19,648,639	\$31,503	197	\$99,884
Private hospitals	\$112,480,313	\$51,890,829	\$1,421,125	965	\$53,796
Insurance carriers	\$107,348,803	\$21,459,780	\$2,585,701	353	\$60,875
Banks & credit intermediation	\$99,064,436	\$25,526,338	\$714,950	476	\$53,589
Hotels & motels	\$93,793,497	\$25,155,972	\$4,790,112	1,262	\$19,931
Transport by air	\$71,158,006	\$12,391,219	\$2,861,297	283	\$43,720
Retail Stores - Gasoline stations	\$59,546,605	\$14,078,755	\$3,651,147	681	\$20,670
Electric power generation,	\$58,013,592	\$11,051,556	\$1,684,981	96	\$115,158
All other	\$1,711,406,927	\$406,789,416	\$73,949,069	15,826	\$25,704
<b>Total</b>	<b>\$7,347,976,087</b>	<b>\$3,377,443,495</b>	<b>\$315,582,940</b>	<b>95,327</b>	<b>\$35,430</b>

Source: Implan Multiplier System

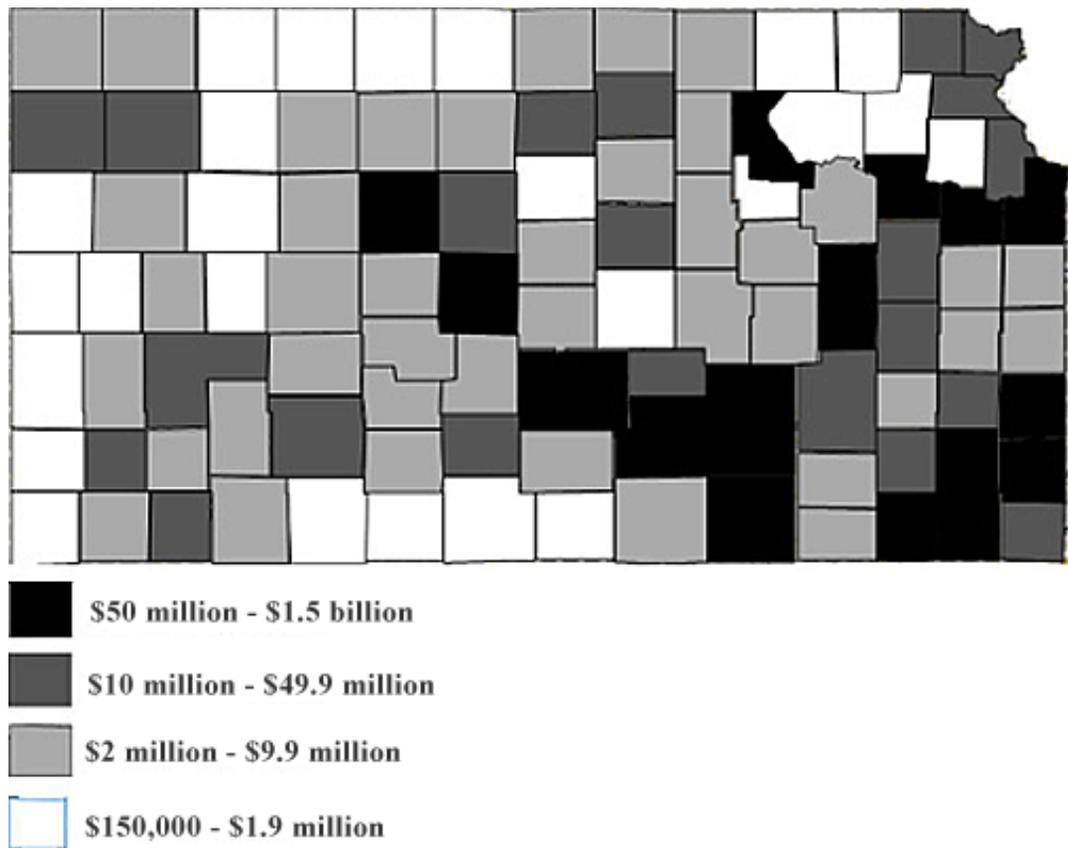
<sup>33</sup> Salaries & wages per job are equal to total wages and salaries per year divided by jobs supported.

<sup>34</sup> The scientific research and development services industry is linked to higher education institutions in the state. Industries other than scientific research and development services that experience impact are the result of “spillover impacts.”

### Impacts by Kansas County

Figure 3.1<sup>35</sup> shows total output or business volume impacts by county. Tables 3.4 – 3.7 list impacts by county. As presented, Douglas County received the largest impact at almost \$1.5 billion and Riley experienced the second largest impact at more than \$1.3 billion. At the other end of the spectrum, Comanche, Greeley, Hamilton, Harper, Morton, Nemaha, Norton, Phillips, Stanton and Wichita counties experienced the smallest impacts at less than \$200,000 in sales or business volume for 2010.

**Figure 3.1 Sales or business volume impacts by county**



<sup>35</sup> Map provided by Zonum Solutions. <http://www.zonums.com/>

Allen	\$49,141,592	Greeley	\$172,124	Osborne	\$7,977,116
Anderson	\$5,455,312	Greenwood	\$10,672,224	Ottawa	\$6,317,921
Atchison	\$31,528,290	Hamilton	\$172,124	Pawnee	\$4,510,729
Barber	\$976,914	Harper	\$172,124	Phillips	\$172,124
Barton	\$140,180,234	Harvey	\$10,706,590	Pottawatomie	\$1,342,265
Bourbon	\$58,064,381	Haskell	\$5,494,584	Pratt	\$32,671,869
Brown	\$19,371,809	Hodgeman	\$2,598,847	Rawlins	\$2,043,507
Butler	\$157,269,411	Jackson	\$344,248	Reno	\$131,906,744
Chase	\$4,579,457	Jefferson	\$258,186	Republic	\$3,602,254
Chautauqua	\$2,676,376	Jewell	\$3,159,393	Rice	\$7,995,245
Cherokee	\$21,462,718	Johnson	\$600,220,433	Riley	\$1,370,005,756
Cheyenne	\$2,169,664	Kearny	\$2,214,253	Rooks	\$8,967,229
Clark	\$1,802,307	Kingman	\$2,272,013	Rush	\$7,915,742
Clay	\$6,834,945	Kiowa	\$2,397,961	Russell	\$16,423,128
Cloud	\$46,249,740	Labette	\$66,886,809	Saline	\$11,396,752
Coffey	\$15,532,683	Lane	\$1,025,419	Scott	\$2,405,779
Comanche	\$172,124	Leavenworth	\$23,129,816	Sedgwick	\$769,089,758
Cowley	\$81,840,067	Lincoln	\$1,156,918	Seward	\$39,919,706
Crawford	\$220,894,756	Linn	\$6,437,185	Shawnee	\$258,491,539
Decatur	\$1,587,837	Logan	\$2,139,199	Sheridan	\$1,379,571
Dickinson	\$2,413,092	Lyon	\$191,890,265	Sherman	\$15,066,709
Doniphan	\$44,342,535	Marion	\$3,175,226	Smith	\$1,159,648
Douglas	\$1,477,219,959	Marshall	\$776,664	Stafford	\$4,303,109
Edwards	\$3,115,942	McPherson	\$1,631,519	Stanton	\$172,124
Elk	\$2,774,351	Meade	\$7,320,941	Stevens	\$4,474,254
Ellis	\$275,764,866	Miami	\$6,299,888	Sumner	\$7,035,096
Ellsworth	\$4,814,438	Mitchell	\$24,460,435	Thomas	\$38,109,264
Finney	\$47,970,233	Montgomery	\$82,958,689	Trego	\$5,324,955
Ford	\$38,138,000	Morris	\$8,510,394	Wabaunsee	\$9,953,776
Franklin	\$5,501,532	Morton	\$172,124	Wallace	\$560,497
Geary	\$1,911,398	Nemaha	\$172,124	Washington	\$4,436,339
Gove	\$1,401,885	Neosho	\$63,123,865	Wichita	\$172,124
Graham	\$4,469,091	Ness	\$6,563,645	Wilson	\$12,875,989
Grant	\$10,061,969	Norton	\$172,124	Woodson	\$2,094,433
Gray	\$7,817,701	Osage	\$22,343,221	Wyandotte	\$600,993,850
<b>Total impact</b>					<b>\$7,347,976,087</b>
Source: Implan Multiplier System					

**Table 3.5: Wages & Salaries Impact of KBOR System**

Allen	\$17,034,238	Greeley	\$111,542	Osborne	\$1,848,781
Anderson	\$1,287,477	Greenwood	\$2,448,659	Ottawa	\$1,479,476
Atchison	\$7,090,811	Hamilton	\$111,542	Pawnee	\$1,077,231
Barber	\$290,673	Harper	\$111,542	Phillips	\$111,542
Barton	\$47,795,978	Harvey	\$2,558,832	Pottawatomie	\$426,916
Bourbon	\$18,313,060	Haskell	\$1,296,218	Pratt	\$13,691,438
Brown	\$4,483,878	Hodgeman	\$651,683	Rawlins	\$528,076
Butler	\$61,353,991	Jackson	\$223,085	Reno	\$52,303,443
Chase	\$1,092,528	Jefferson	\$167,314	Republic	\$875,022
Chautauqua	\$668,940	Jewell	\$776,450	Rice	\$1,852,816
Cherokee	\$4,923,643	Johnson	\$236,060,921	Riley	\$748,833,850
Cheyenne	\$519,540	Kearny	\$566,080	Rooks	\$2,069,161
Clark	\$474,389	Kingman	\$578,936	Rush	\$1,835,120
Clay	\$1,594,556	Kiowa	\$606,970	Russell	\$3,728,698
Cloud	\$17,553,205	Labette	\$21,357,364	Saline	\$5,900,474
Coffey	\$3,530,502	Lane	\$301,469	Scott	\$608,710
Comanche	\$111,542	Leavenworth	\$5,294,706	Sedgwick	\$314,746,968
Cowley	\$27,882,546	Lincoln	\$330,738	Seward	\$16,515,951
Crawford	\$103,942,967	Linn	\$1,506,022	Shawnee	\$121,861,606
Decatur	\$426,652	Logan	\$549,375	Sheridan	\$380,296
Dickinson	\$720,184	Lyon	\$99,018,117	Sherman	\$7,586,900
Doniphan	\$19,184,572	Marion	\$779,974	Smith	\$331,346
Douglas	\$762,545,474	Marshall	\$279,055	Stafford	\$1,031,019
Edwards	\$766,779	McPherson	\$500,452	Stanton	\$111,542
Elk	\$690,747	Meade	\$1,702,729	Stevens	\$1,069,112
Ellis	\$114,497,296	Miami	\$1,534,047	Sumner	\$1,639,106
Ellsworth	\$1,144,831	Mitchell	\$11,109,723	Thomas	\$17,280,617
Finney	\$21,783,381	Montgomery	\$35,944,961	Trego	\$1,258,462
Ford	\$16,177,413	Morris	\$2,004,093	Wabaunsee	\$2,288,747
Franklin	\$1,389,303	Morton	\$111,542	Wallace	\$197,987
Geary	\$535,286	Nemaha	\$111,542	Washington	\$1,024,058
Gove	\$385,263	Neosho	\$20,614,800	Wichita	\$111,542
Graham	\$1,067,963	Ness	\$1,534,170	Wilson	\$2,939,174
Grant	\$2,364,090	Norton	\$111,542	Woodson	\$539,411
Gray	\$1,813,298	Osage	\$5,046,394	Wyandotte	\$327,909,308
<b>Total impact</b>					<b>\$3,377,443,495</b>

Source: Implan Multiplier System

Allen	\$3,564,568	Greeley	\$2,671	Osborne	\$849,942
Anderson	\$576,188	Greenwood	\$1,142,510	Ottawa	\$669,828
Atchison	\$3,406,541	Hamilton	\$2,671	Pawnee	\$473,649
Barber	\$90,035	Harper	\$2,671	Phillips	\$2,671
Barton	\$9,347,903	Harvey	\$1,123,821	Pottawatomie	\$117,686
Bourbon	\$5,048,247	Haskell	\$580,451	Pratt	\$1,620,914
Brown	\$2,065,275	Hodgeman	\$266,104	Rawlins	\$205,819
Butler	\$11,821,019	Jackson	\$5,342	Reno	\$5,457,580
Chase	\$481,109	Jefferson	\$4,007	Republic	\$375,029
Chautauqua	\$274,520	Jewell	\$326,954	Rice	\$851,910
Cherokee	\$2,297,858	Johnson	\$31,156,072	Riley	\$32,489,373
Cheyenne	\$227,521	Kearny	\$224,355	Rooks	\$957,424
Clark	\$179,636	Kingman	\$230,625	Rush	\$843,280
Clay	\$725,954	Kiowa	\$244,297	Russell	\$1,766,799
Cloud	\$1,727,693	Labette	\$5,460,337	Saline	\$329,152
Coffey	\$1,670,137	Lane	\$95,301	Scott	\$245,146
Comanche	\$2,671	Leavenworth	\$2,478,830	Sedgwick	\$44,071,541
Cowley	\$5,724,042	Lincoln	\$109,576	Seward	\$2,722,946
Crawford	\$4,872,898	Linn	\$682,775	Shawnee	\$10,295,606
Decatur	\$156,354	Logan	\$216,207	Sheridan	\$133,746
Dickinson	\$221,919	Lyon	\$3,568,914	Sherman	\$768,241
Doniphan	\$2,160,548	Marion	\$328,673	Smith	\$109,872
Douglas	\$41,897,254	Marshall	\$61,091	Stafford	\$451,110
Edwards	\$322,237	McPherson	\$147,084	Stanton	\$2,671
Elk	\$285,156	Meade	\$778,711	Stevens	\$469,689
Ellis	\$14,796,414	Miami	\$655,060	Sumner	\$747,681
Ellsworth	\$506,618	Mitchell	\$1,284,897	Thomas	\$1,843,426
Finney	\$1,934,203	Montgomery	\$3,705,013	Trego	\$562,037
Ford	\$1,762,334	Morris	\$899,825	Wabaunsee	\$1,064,519
Franklin	\$561,188	Morton	\$2,671	Wallace	\$44,831
Geary	\$183,471	Nemaha	\$2,671	Washington	\$473,580
Gove	\$136,168	Neosho	\$4,937,333	Wichita	\$2,671
Graham	\$469,128	Ness	\$696,503	Wilson	\$1,381,740
Grant	\$1,065,054	Norton	\$2,671	Woodson	\$211,347
Gray	\$832,637	Osage	\$2,409,455	Wyandotte	\$17,738,837
<b>Total impact</b>					<b>\$315,582,940</b>
Source: Implan Multiplier System					

Allen	768	Greeley	3	Osborne	74
Anderson	51	Greenwood	99	Ottawa	59
Atchison	290	Hamilton	3	Pawnee	42
Barber	10	Harper	3	Phillips	3
Barton	1,801	Harvey	100	Pottawatomie	14
Bourbon	804	Haskell	51	Pratt	521
Brown	180	Hodgeman	25	Rawlins	20
Butler	2,677	Jackson	5	Reno	1,862
Chase	43	Jefferson	4	Republic	34
Chautauqua	26	Jewell	30	Rice	74
Cherokee	198	Johnson	6,907	Riley	17,588
Cheyenne	20	Kearny	21	Rooks	83
Clark	17	Kingman	22	Rush	73
Clay	64	Kiowa	23	Russell	151
Cloud	870	Labette	845	Saline	184
Coffey	143	Lane	10	Scott	23
Comanche	3	Leavenworth	214	Sedgwick	8,798
Cowley	1,220	Lincoln	12	Seward	619
Crawford	3,336	Linn	60	Shawnee	3,383
Decatur	16	Logan	21	Sheridan	14
Dickinson	25	Lyon	3,066	Sherman	246
Doniphan	840	Marion	30	Smith	12
Douglas	19,163	Marshall	9	Stafford	40
Edwards	30	McPherson	17	Stanton	3
Elk	26	Meade	68	Stevens	42
Ellis	4,010	Miami	59	Sumner	65
Ellsworth	45	Mitchell	390	Thomas	688
Finney	696	Montgomery	1,288	Trego	50
Ford	578	Morris	79	Wabaunsee	92
Franklin	53	Morton	3	Wallace	6
Geary	19	Nemaha	3	Washington	41
Gove	14	Neosho	885	Wichita	3
Graham	42	Ness	61	Wilson	119
Grant	94	Norton	3	Woodson	20
Gray	73	Osage	206	Wyandotte	7,416
<b>Total impact</b>					<b>95,327</b>
Source: Implan Multiplier System					

## Impacts by Legislative District

Table 3.8 lists impacts by Kansas Senate District. In descending order, the five Senate Districts experiencing the highest impact were 21, 22, 19, 3, and 2.

Table 3.9 presents 2010 impacts by Kansas House District. In descending order, the five House Districts experiencing the highest impact were 64, 106, 66, 67 and 53.

**Table 3.8: Impacts of KBOR System by Senate District**

District	Output	Sal & Wages	Prop. Income	Jobs (FTE)
1	\$96,929,147	\$31,409,262	\$7,755,391	1,328
2	\$492,406,653	\$254,181,825	\$13,965,751	6,388
3	\$504,229,747	\$256,996,491	\$15,209,173	6,498
4	\$150,248,463	\$81,977,327	\$4,434,709	1,854
5	\$161,813,370	\$84,624,680	\$5,674,124	1,961
6	\$150,248,463	\$81,977,327	\$4,434,709	1,854
7	\$85,745,776	\$33,722,989	\$4,450,867	987
8	\$85,745,776	\$33,722,989	\$4,450,867	987
9	\$85,745,776	\$33,722,989	\$4,450,867	987
10	\$235,994,239	\$115,700,316	\$8,885,577	2,841
11	\$85,745,776	\$33,722,989	\$4,450,867	987
12	\$15,065,551	\$3,611,436	\$1,578,993	141
13	\$289,690,495	\$124,717,848	\$11,070,075	4,240
14	\$182,221,378	\$62,406,465	\$13,399,105	2,474
15	\$124,286,849	\$42,948,631	\$8,973,594	1,726
16	\$162,605,523	\$62,578,320	\$12,392,274	2,727
17	\$226,586,596	\$107,015,457	\$7,275,323	3,387
18	\$96,117,623	\$42,909,282	\$4,496,387	1,220
19	\$589,742,110	\$297,325,557	\$18,602,347	7,618
20	\$86,163,846	\$40,620,535	\$3,431,869	1,220
21	\$748,654,641	\$396,242,589	\$19,774,182	9,828
22	\$686,914,276	\$374,952,211	\$16,428,158	8,813
23	\$88,895,720	\$34,490,012	\$4,778,397	1,016
24	\$18,921,219	\$7,740,043	\$1,109,940	255
25	\$96,136,220	\$39,343,371	\$5,508,943	1,100
26	\$96,136,220	\$39,343,371	\$5,508,943	1,100
27	\$96,136,220	\$39,343,371	\$5,508,943	1,100
28	\$96,136,220	\$39,343,371	\$5,508,943	1,100
29	\$96,136,220	\$39,343,371	\$5,508,943	1,100
30	\$96,136,220	\$39,343,371	\$5,508,943	1,100
31	\$106,842,809	\$41,902,202	\$6,632,764	1,200
32	\$185,011,383	\$68,865,023	\$11,980,666	2,386
33	\$117,073,327	\$41,324,083	\$7,728,331	1,560
34	\$131,906,744	\$52,303,443	\$5,457,580	1,862
35	\$92,737,594	\$29,478,952	\$7,014,348	1,115
36	\$342,562,332	\$135,579,645	\$20,557,105	4,796
37	\$85,745,776	\$33,722,989	\$4,450,867	987
38	\$96,844,794	\$37,094,695	\$6,476,672	1,372
39	\$67,984,373	\$26,765,400	\$3,991,539	887
40	\$93,730,623	\$35,029,267	\$6,765,864	1,321
<b>Total</b>	<b>\$7,347,976,087</b>	<b>\$3,377,443,495</b>	<b>\$315,582,940</b>	<b>95,327</b>

**Table 3.9: Impacts of KBOR System by Kansas House Districts.**

District	Output	Sal & Wages	Prop. Income	Jobs	District	Output	Sal & Wages	Prop. Income	Jobs (FTE)
1	\$10,731,359	\$2,461,821	\$1,148,929	99	64	\$350,895,356	\$189,250,708	\$8,995,512	4,476
2	\$113,395,134	\$46,266,007	\$5,297,352	1,613	65	\$4,273,624	\$1,030,559	\$446,575	40
3	\$73,631,585	\$34,647,656	\$1,624,299	1,112	66	\$342,501,439	\$187,208,463	\$8,122,343	4,397
4	\$35,469,376	\$10,662,552	\$3,206,899	462	67	\$342,501,439	\$187,208,463	\$8,122,343	4,397
5	\$7,252,983	\$1,758,088	\$755,921	68	68	\$9,113,667	\$2,184,140	\$955,305	86
6	\$3,149,944	\$767,024	\$327,530	30	69	\$3,798,917	\$1,966,825	\$109,717	61
7	\$33,443,405	\$10,678,682	\$2,730,168	423	70	\$39,208,565	\$14,143,301	\$3,173,986	608
8	\$170,198,855	\$65,941,137	\$9,291,800	2,420	71	\$3,798,917	\$1,966,825	\$109,717	61
9	\$62,058,189	\$20,060,259	\$4,933,701	888	72	\$5,353,295	\$1,279,416	\$561,911	50
10	\$212,406,806	\$109,282,393	\$6,125,619	2,751	73	\$815,760	\$250,226	\$73,542	8
11	\$41,479,344	\$17,972,480	\$1,852,506	644	74	\$6,169,054	\$1,529,642	\$635,452	59
12	\$45,591,884	\$18,997,697	\$2,274,923	683	75	\$31,453,882	\$12,270,798	\$2,364,204	535
13	\$19,259,318	\$4,433,209	\$2,058,668	178	76	\$109,047,586	\$52,498,639	\$3,190,780	1,654
14	\$27,282,747	\$10,730,042	\$1,416,185	314	77	\$31,453,882	\$12,270,798	\$2,364,204	535
15	\$27,282,747	\$10,730,042	\$1,416,185	314	78	\$72,373,916	\$26,212,071	\$5,226,225	1,146
16	\$27,282,747	\$10,730,042	\$1,416,185	314	79	\$44,603,254	\$14,822,112	\$3,248,508	645
17	\$27,282,747	\$10,730,042	\$1,416,185	314	80	\$2,431,094	\$602,140	\$250,563	23
18	\$27,282,747	\$10,730,042	\$1,416,185	314	81	\$37,303,657	\$14,853,049	\$2,252,479	422
19	\$27,282,747	\$10,730,042	\$1,416,185	314	82	\$34,958,625	\$14,306,680	\$2,003,252	400
20	\$27,282,747	\$10,730,042	\$1,416,185	314	83	\$34,958,625	\$14,306,680	\$2,003,252	400
21	\$27,282,747	\$10,730,042	\$1,416,185	314	84	\$34,958,625	\$14,306,680	\$2,003,252	400
22	\$27,282,747	\$10,730,042	\$1,416,185	314	85	\$34,958,625	\$14,306,680	\$2,003,252	400
23	\$27,282,747	\$10,730,042	\$1,416,185	314	86	\$34,958,625	\$14,306,680	\$2,003,252	400
24	\$27,282,747	\$10,730,042	\$1,416,185	314	87	\$34,958,625	\$14,306,680	\$2,003,252	400
25	\$27,282,747	\$10,730,042	\$1,416,185	314	88	\$34,958,625	\$14,306,680	\$2,003,252	400
26	\$27,282,747	\$10,730,042	\$1,416,185	314	89	\$34,958,625	\$14,306,680	\$2,003,252	400
27	\$27,282,747	\$10,730,042	\$1,416,185	314	90	\$34,958,625	\$14,306,680	\$2,003,252	400
28	\$27,282,747	\$10,730,042	\$1,416,185	314	91	\$34,958,625	\$14,306,680	\$2,003,252	400
29	\$27,282,747	\$10,730,042	\$1,416,185	314	92	\$34,958,625	\$14,306,680	\$2,003,252	400
30	\$27,282,747	\$10,730,042	\$1,416,185	314	93	\$36,094,632	\$14,596,149	\$2,118,564	411
31	\$75,124,231	\$40,988,664	\$2,217,355	927	94	\$34,958,625	\$14,306,680	\$2,003,252	400
32	\$75,124,231	\$40,988,664	\$2,217,355	927	95	\$34,958,625	\$14,306,680	\$2,003,252	400
33	\$75,124,231	\$40,988,664	\$2,217,355	927	96	\$34,958,625	\$14,306,680	\$2,003,252	400
34	\$75,124,231	\$40,988,664	\$2,217,355	927	97	\$34,958,625	\$14,306,680	\$2,003,252	400
35	\$75,124,231	\$40,988,664	\$2,217,355	927	98	\$34,958,625	\$14,306,680	\$2,003,252	400
36	\$75,124,231	\$40,988,664	\$2,217,355	927	99	\$66,412,508	\$26,577,479	\$4,367,456	935
37	\$75,124,231	\$40,988,664	\$2,217,355	927	100	\$34,958,625	\$14,306,680	\$2,003,252	400
38	\$238,314,170	\$119,665,110	\$7,401,507	3,052	101	\$26,381,349	\$10,460,689	\$1,091,516	372
39	\$108,189,432	\$53,042,382	\$4,253,247	1,294	102	\$26,381,349	\$10,460,689	\$1,091,516	372
40	\$16,291,884	\$3,687,280	\$1,755,221	150	103	\$34,958,625	\$14,306,680	\$2,003,252	400
41	\$5,782,454	\$1,323,676	\$619,708	53	104	\$26,381,349	\$10,460,689	\$1,091,516	372
42	\$5,782,454	\$1,323,676	\$619,708	53	105	\$34,958,625	\$14,306,680	\$2,003,252	400
43	\$27,282,747	\$10,730,042	\$1,416,185	314	106	\$347,714,442	\$188,511,575	\$8,657,014	4,447
44	\$211,031,423	\$108,935,088	\$5,985,322	2,738	107	\$54,327,853	\$19,543,466	\$2,562,577	946
45	\$211,031,423	\$108,935,088	\$5,985,322	2,738	108	\$9,216,628	\$3,291,701	\$671,815	113
46	\$211,031,423	\$108,935,088	\$5,985,322	2,738	109	\$32,381,731	\$13,092,541	\$2,096,752	466
47	\$10,767,616	\$2,530,917	\$1,139,520	100	110	\$171,249,907	\$64,895,287	\$10,972,373	2,314
48	\$27,282,747	\$10,730,042	\$1,416,185	314	111	\$137,882,433	\$57,248,648	\$7,398,207	2,005
49	\$27,282,747	\$10,730,042	\$1,416,185	314	112	\$70,090,117	\$23,897,989	\$4,673,952	901
50	\$29,065,530	\$13,763,263	\$1,149,298	381	113	\$104,466,711	\$36,211,493	\$6,617,378	1,347
51	\$32,039,208	\$14,303,094	\$1,498,796	407	114	\$67,169,663	\$26,105,150	\$3,561,484	970
52	\$28,721,282	\$13,540,178	\$1,143,956	376	115	\$29,653,616	\$9,382,887	\$2,378,429	351
53	\$239,752,705	\$122,475,246	\$7,129,278	3,113	116	\$17,481,734	\$6,746,896	\$1,041,096	240
54	\$28,721,282	\$13,540,178	\$1,143,956	376	117	\$25,684,083	\$9,601,900	\$1,657,033	323
55	\$28,721,282	\$13,540,178	\$1,143,956	376	118	\$21,821,643	\$5,406,303	\$2,248,746	207
56	\$28,721,282	\$13,540,178	\$1,143,956	376	119	\$12,712,667	\$5,392,471	\$587,445	193
57	\$28,721,282	\$13,540,178	\$1,143,956	376	120	\$6,145,256	\$1,697,353	\$595,036	61
58	\$28,721,282	\$13,540,178	\$1,143,956	376	121	\$59,024,635	\$26,315,776	\$3,214,541	989
59	\$234,750,027	\$114,328,788	\$8,535,074	2,956	122	\$23,701,650	\$9,307,111	\$1,409,802	307
60	\$95,945,133	\$49,509,059	\$1,784,457	1,533	123	\$15,990,078	\$7,261,127	\$644,734	232
61	\$4,660,191	\$1,189,832	\$472,525	45	124	\$37,587,616	\$12,562,371	\$3,191,784	476
62	\$19,543,933	\$4,595,421	\$2,067,946	182	125	\$19,959,853	\$8,257,976	\$1,361,473	310
63	\$54,851,965	\$21,548,176	\$3,296,062	936	Total	\$7,347,976,087	\$3,377,443,495	\$315,582,940	95,327

Source: Implan Multiplier System

# Impacts by Institution<sup>36</sup>



Allen County Community College is a small, two-year, public school. This postsecondary institution originated in 1923 and is the only postsecondary institution in Iola, Kansas.

**Table 3.11: Allen County Community College Impacts**

Student Enrollment (Fall 2010)	2,898
Operating Budget	\$15,085,834
Output Impact	\$44,173,795
Wages and Salaries Impact	\$15,928,504
Proprietorship Impact	\$3,025,289
Employment Impact	722
Volunteerism	\$3,187,800

Source: Kansas Board of Regents Databook, Author Calculations



Barton County Community College was formed July 15, 1965 to provide students in the county an opportunity to obtain an education at a low cost within commuting distance.

**Table 3.12: Barton County Community College Impacts**

Student Enrollment (Fall 2010)	5,173
Operating Budget	\$25,961,427
Output Impact	\$91,715,391
Wages and Salaries Impact	\$37,008,653
Proprietorship Impact	\$4,086,801
Employment Impact	1,358
Volunteerism	\$5,690,300

Source: Kansas Board of Regents Databook, Author Calculations



Butler Community College is an accredited two-year community college founded in 1927 with its main campus in El Dorado and branch campuses located throughout the area.

**Table 3.13: Butler Community College Impacts**

Student Enrollment (Fall 2010)	10,101
Operating Budget	\$62,788,769
Output Impact	\$151,260,720
Wages and Salaries Impact	\$60,016,574
Proprietorship Impact	\$11,168,745
Employment Impact	2,622
Volunteerism	\$11,111,100

Source: Kansas Board of Regents, Author Calculations

<sup>36</sup> Tripp Umbach estimates that on average a college student contributes approximately \$1,100 annually in volunteer services. [http://econimpact.psu.edu/downloads/giving\\_back\\_full.pdf](http://econimpact.psu.edu/downloads/giving_back_full.pdf).



Located in north central Kansas, Cloud County Community College is a two-year community college serving 11 counties with a variety of academic programs, activities and athletics.

**Table 3.14: Cloud County Community College Impacts**

Student Enrollment (Fall 2010)	2,733
Operating Budget	\$17,960,793
Output Impact	\$43,812,373
Wages and Salaries Impact	\$17,010,695
Proprietorship Impact	\$1,463,105
Employment Impact	847
Volunteerism	\$3,006,300

Source: Kansas Board of Regents, Author Calculations



Coffeyville Community College is an accredited community college with its main campus located in Montgomery County. It offers both transfer degree programs and technical programs.

**Table 3.15: Coffeyville Community College Impacts**

Student Enrollment (Fall 2010)	2,037
Operating Budget	\$22,288,703
Output Impact	\$44,602,349
Wages and Salaries Impact	\$19,986,216
Proprietorship Impact	\$1,657,110
Employment Impact	721
Volunteerism	\$2,240,700

Source: Kansas Board of Regents, Author Calculations



Colby Community College, in Thomas County, offers academic transfer and vocational programs. It also operates an agricultural center and offers classes at 24 sites in the 14-county service area.

**Table 3.16 Colby Community College Impacts**

Student Enrollment (Fall 2010)	1,396
Operating Budget	\$13,046,407
Output Impact	\$36,083,822
Wages and Salaries Impact	\$16,829,793
Proprietorship Impact	\$1,623,544
Employment Impact	669
Volunteerism	\$1,535,600

Source: Kansas Board of Regents, Author Calculations



**COWLEY  
COLLEGE**

Cowley College is a community college and vocation/technical college in Cowley County. Cowley College prepares students to transfer to a four-year program or to enter the workforce with a two-year degree.

**Table 3.17: Cowley College Impacts**

Student Enrollment (Fall 2010)	4,485
Operating Budget	\$20,657,001
Output Impact	\$74,323,393
Wages and Salaries Impact	\$26,209,482
Proprietorship Impact	\$4,908,069
Employment Impact	1152
Volunteerism	\$4,933,500

Source: Kansas Board of Regents, Author Calculations



Dodge City Community College is an accredited community and technical college in Ford County in southwest Kansas which offers more than 30 associate degree and vocational programs.

**Table 3.18: Dodge City Community College Impacts**

Student Enrollment (Fall 2010)	1,807
Operating Budget	\$20,678,756
Output Impact	\$38,138,000
Wages and Salaries Impact	\$16,177,413
Proprietorship Impact	\$1,762,334
Employment Impact	578
Volunteerism	\$1,987,700

Source: Kansas Board of Regents, Author Calculations



**EMPORIA STATE  
UNIVERSITY**

With its main campus located in Emporia, Emporia State University was established in 1863 as the state's first school for training teachers. In the fall semester of 2010, the student body came from 100 Kansas counties, 45 States, and 55 countries.

**Table 3.19: Emporia State University Impacts**

Student Enrollment (Fall 2010)	6,262
Operating Budget	\$78,211,384
Output Impact	\$174,049,606
Wages and Salaries Impact	\$90,284,445
Proprietorship Impact	\$3,235,883
Employment Impact	2,768
Volunteerism	\$6,888,200

Source: Kansas Board of Regents, Author Calculations



**FLINT HILLS  
TECHNICAL  
COLLEGE**

Founded in 1963, Flint Hills Technical College is a two-year accredited, associate degree granting, public institution of higher education in Lyon County in east-central Kansas.

**Table 3.20: Flint Hills Technical College Impacts**

Student Enrollment (Fall 2010)	677
Operating Budget	\$5,672,547
Output Impact	\$17,840,659
Wages and Salaries Impact	\$8,733,672
Proprietorship Impact	\$333,031
Employment Impact	298
Volunteerism	\$744,700

Source: Kansas Board of Regents, Author Calculations



**FORT HAYS STATE  
UNIVERSITY**  
*Forward thinking. World ready.*

Located halfway between Denver and Kansas City in Ellis County, FHSU offers certificate and degree programs at the associate's, bachelor's and master's levels through 28 departments.

**Table 3.21: Fort Hays State University Impacts**

Student Enrollment (Fall 2010)	11,883
Operating Budget	\$85,608,180
Output Impact	\$256,372,573
Wages and Salaries Impact	\$110,180,951
Proprietorship Impact	\$12,691,283
Employment Impact	3,833
Volunteerism	\$13,071,300

Source: Kansas Board of Regents, Author Calculations



**Fort Scott Community College**

Founded in 1919, FSCC is the oldest continuous community college in the state of Kansas. Its original and main campus is in Bourbon County with three other Kansas locations as well.

**Table 3.22: Fort Scott Community College Impacts**

Student Enrollment (Fall 2010)	2,057
Operating Budget	\$15,032,648
Output Impact	\$36,508,424
Wages and Salaries Impact	\$13,515,126
Proprietorship Impact	\$2,708,240
Employment Impact	607
Volunteerism	\$2,262,700

Source: Kansas Board of Regents, Author Calculations



Garden City Community College is an accredited community college in Finney County offering credit and transfer programs, career and technical learning and training, and business and workforce training.

**Table 3.23: Garden City Community College Impacts**

Student Enrollment (Fall 2010)	2,009
Operating Budget	\$23,778,214
Output Impact	\$47,970,233
Wages and Salaries Impact	\$21,783,381
Proprietorship Impact	\$1,934,203
Employment Impact	696
Volunteerism	\$2,209,900
Source: Kansas Board of Regents, Author Calculations	



Highland Community College (HCC's) main campus is in Highland, Doniphan County. The college offers transfer as well as associate and technical degree programs. HCC began as Highland University in 1858, making it the first college in Kansas.

**Table 3.24: Highland Community College Impacts**

Student Enrollment (Fall 2010)	3,703
Operating Budget	\$17,905,675
Output Impact	\$44,342,535
Wages and Salaries Impact	\$19,184,572
Proprietorship Impact	\$2,160,548
Employment Impact	840
Volunteerism	\$4,073,300
Source: Kansas Board of Regents, Author Calculations	



Hutchinson Community College (HCC), located in Reno County, has evolved over the past 80 years from a traditional junior college at its establishment, to a full-service two-year community college/vocational school.

**Table 3.25: Hutchinson Community College Impacts**

Student Enrollment (Fall 2010)	5,630
Operating Budget	\$53,388,919
Output Impact	\$119,217,754
Wages and Salaries Impact	\$49,479,122
Proprietorship Impact	\$4,080,126
Employment Impact	1,746
Volunteerism	\$6,193,000
Source: Kansas Board of Regents, Author Calculations	



Independence Community College is located south of Independence, Kansas – the county seat of Montgomery County – and offers transfer, career and technical, community and college preparatory programs.

**Table 3.26: Independence Community College Impacts**

Student Enrollment (Fall 2010)	1,164
Operating Budget	\$11,220,451
Output Impact	\$28,188,273
Wages and Salaries Impact	\$13,695,532
Proprietorship Impact	\$944,108
Employment Impact	474
Volunteerism	\$1,280,400
Source: Kansas Board of Regents, Author Calculations	



Johnson County Community College (JCCC) offers undergraduate credit courses that form the first two years of most college curricula, as well as more than 50 career degree and certificate programs.

**Table 3.27: Johnson County Community College Impacts**

Student Enrollment (Fall 2010)	20,869
Operating Budget	\$162,149,404
Output Impact	\$540,807,275
Wages and Salaries Impact	\$222,836,716
Proprietorship Impact	\$24,706,475
Employment Impact	6,363
Volunteerism	\$22,955,900
Source: Kansas Board of Regents, Author Calculations	



Kansas City Kansas Community College (KCKCC) in Wyandotte County provides transfer, career, general, continuing, and developmental education programs to the community.

**Table 3.28: Kansas City Kansas Community College Impacts**

Student Enrollment (Fall 2010)	7,556
Operating Budget	\$58,913,359
Output Impact	\$160,977,866
Wages and Salaries Impact	\$77,060,405
Proprietorship Impact	\$3,532,757
Employment Impact	2,040
Volunteerism	\$8,311,600
Source: Kansas Board of Regents, Author Calculations	



Kansas State University's main campus is in Riley County in Manhattan. KSU offers programs in diverse areas and includes the College of Veterinary Medicine at Kansas State University.

**Table 3.29: Kansas State University Impacts**

Student Enrollment (Fall 2010)	23,588
Operating Budget	\$680,134,756
Output Impact	\$1,355,165,896
Wages and Salaries Impact	\$741,941,293
Proprietorship Impact	\$32,143,286
Employment Impact	17,376
Volunteerism	\$25,946,800
Source: Kansas Board of Regents, Author Calculations	



Labette Community College in Labette County is a comprehensive community college offering a variety of degrees, programs and services for Southeast Kansas and the four-state region.

**Table 3.30: Labette Community College Impacts**

Student Enrollment (Fall 2010)	1,699
Operating Budget	\$11,023,238
Output Impact	\$31,954,620
Wages and Salaries Impact	\$13,582,143
Proprietorship Impact	\$1,668,272
Employment Impact	526
Volunteerism	\$1,868,900
Source: Kansas Board of Regents, Author Calculations	



Manhattan Area Technical College (MATC) is a two-year accredited technical and continuing education institution in Riley County, serving an area of Kansas that includes ten counties.

**Table 3.31: Manhattan Area Technical College Impacts**

Student Enrollment (Fall 2010)	672
Operating Budget	\$4,701,410
Output Impact	\$14,839,860
Wages and Salaries Impact	\$6,892,557
Proprietorship Impact	\$346,087
Employment Impact	211
Volunteerism	\$739,200
Source: Kansas Board of Regents, Author Calculations	



Neosho County Community College (NCCC) has a residential campus in Chanute and a campus serving Ottawa. NCCC offers associate degrees and transfer and certificate programs.

**Table 3.32: Neosho County Community College Impacts**

Student Enrollment (Fall 2010)	2,316
Operating Budget	\$14,592,420
Output Impact	\$40,459,537
Wages and Salaries Impact	\$15,570,164
Proprietorship Impact	\$2,477,006
Employment Impact	678
Volunteerism	\$2,547,600
Source: Kansas Board of Regents, Author Calculations	



North Central Kansas Technical College (NCKTC) offers 24 programs on two campuses in North Central Kansas. Beloit in Mitchell County is the main location, and Hays is the site of a branch campus and technology facility.

**Table 3.33: North Central Kansas Technical College Impacts**

Student Enrollment (Fall 2010)	772
Operating Budget	\$8,190,992
Output Impact	\$19,934,489
Wages and Salaries Impact	\$10,102,336
Proprietorship Impact	\$793,583
Employment Impact	349
Volunteerism	\$849,200
Source: Kansas Board of Regents, Author Calculations	



Northwest Technical College is located in the community of Goodland in Sherman County and is an accredited campus of more than 20 buildings, 14 programs and more than 40 on-line and evening classes.

**Table 3.34: Northwest Kansas Technical College Impacts**

Student Enrollment (Fall 2010)	384
Operating Budget	\$6,219,294
Output Impact	\$12,160,903
Wages and Salaries Impact	\$6,940,124
Proprietorship Impact	\$452,801
Employment Impact	219
Volunteerism	\$422,400
Source: Kansas Board of Regents, Author Calculations	



Pittsburg State University is located in Pittsburg in the Southeast Kansas County of Crawford. Students choose from more than 100 programs within the colleges of arts and sciences, business, education, and technology.

**Table 3.35: Pittsburg State University Impacts**

Student Enrollment (Fall 2010)	7,130
Operating Budget	\$84,429,470
Output Impact	\$200,531,665
Wages and Salaries Impact	\$99,410,542
Proprietorship Impact	\$2,662,382
Employment Impact	3,150
Volunteerism	\$7,843,000
Source: Kansas Board of Regents, Author Calculations	



Pratt Community College (PCC) offers 67 technical and transfer programs of study. Students take approximately 70% of their credit hours on the Pratt County campus, 11% through eLearning and 19% at off-site locations.

**Table 3.36: Pratt Community College Impacts**

Student Enrollment (Fall 2010)	1,664
Operating Budget	\$11,971,979
Output Impact	\$31,954,700
Wages and Salaries Impact	\$13,531,810
Proprietorship Impact	\$1,543,062
Employment Impact	514
Volunteerism	\$1,830,400
Source: Kansas Board of Regents, Author Calculations	



Salina Area Technical College in Saline County meets the employment needs of the region by providing learners with 15 technical programs as well as continuing education courses.

**Table 3.37: Salina Area Technical College Impacts**

Student Enrollment (Fall 2010)	416
Operating Budget	\$4,176,623
Output Impact	\$11,396,752
Wages and Salaries Impact	\$5,900,474
Proprietorship Impact	\$329,152
Employment Impact	184
Volunteerism	\$457,600
Source: Kansas Board of Regents, Author Calculations	



Seward County Community College Area Technical School offers transfer, general, and continuing education courses/programs and career, technical, and developmental education.

**Table 3.38: Seward County Community College Area Technical School Impacts**

Student Enrollment (Fall 2010)	1,874
Operating Budget	\$17,717,364
Output Impact	\$39,919,706
Wages and Salaries Impact	\$16,515,951
Proprietorship Impact	\$2,722,946
Employment Impact	619
Volunteerism	\$2,061,400

Source: Kansas Board of Regents, Author Calculations



The University of Kansas (KU) is a comprehensive educational and research institution with its main campus located in Douglas County. KU includes the KU Medical Center in Kansas City.

**Table 3.39: University of Kansas Impacts**

Student Enrollment (Fall 2010)	29,422
Operating Budget	\$863,440,178
Output Impact	\$1,864,728,248
Wages and Salaries Impact	\$1,001,707,193
Proprietorship Impact	\$50,403,360
Employment Impact	24,058
Volunteerism	\$32,364,200

Source: Kansas Board of Regents, Author Calculations



Located in the center of Topeka, in Shawnee County, Washburn University offers more than 200 programs leading to certification, associate's, bachelor's, master's and doctorate degrees. Washburn University also administers Washburn Institute of Technology.

**Table 3.40: Washburn University Impacts**

Student Enrollment (Fall 2010)	8,068 (includes Washburn Institute of Technology)
Operating Budget	\$95,935,359
Output Impact	\$252,185,147
Wages and Salaries Impact	\$117,531,968
Proprietorship Impact	\$10,231,443
Employment Impact	3,289
Volunteerism	\$8,874,800

Source: Kansas Board of Regents, Author Calculations



Wichita Area Technical College (WATC), in Sedgwick County, works with employers to determine their current and future needs and offers degree and certificate programs to train individuals for high-wage, high-demand jobs.

**Table 3.41: Wichita Area Technical College Impacts**

Student Enrollment (Fall 2010)	2,127
Operating Budget	\$19,166,920
Output Impact	\$64,617,996
Wages and Salaries Impact	\$31,182,812
Proprietorship Impact	\$2,155,381
Employment Impact	847
Volunteerism	\$2,339,700

Source: Kansas Board of Regents, Author Calculations



Established in 1895 as Fairmount College, Wichita State University is a four-year institution with six academic colleges and a graduate school in an urban setting within Sedgwick County.

**Table 3.42: Wichita State University Impacts**

Student Enrollment (Fall 2010)	14,806
Operating Budget	\$220,016,640
Output Impact	\$535,508,595
Wages and Salaries Impact	\$245,956,264
Proprietorship Impact	\$23,574,359
Employment Impact	6,405
Volunteerism	\$16,286,600

Source: Kansas Board of Regents, Author Calculations

# A

## Appendix A: The Importance of Higher Education Spending on the Economy

KBOR revenues from outside the state, such as federal research dollars, are more powerful than revenues of firms that deal in intra-state commerce in terms of job and income creation since a high proportion of these revenues are “new” to the area and are not offset by reduced spending in other area industries. Economic impacts identified in this study are short-run in nature and represent annual, recurring events. Indicators are discussed for long-run, more intangible impacts on the regional economy such as workforce development and knowledge enhancement, but assignment of dollar values is outside the scope of this study.

In terms of long-term but less measurable impacts, the presence of research programs increases the attractiveness of the community and encourages the startup and/or relocation of other businesses in the state. By contributing to an area’s attractiveness via access to art, entertainment and education, higher education institutions influence community growth in non-education related industries. Moreover, by making the nation more aware of Kansas, the KBOR System, via its research, teaching and service programs, contributes to the overall growth of state and local economic activity.

Table A.1 provides an overview of the influences of the educational and research spending on community and economic development.

Table A.1: Impact of KBOR System on Kansas		
Issue	Measurement	Community Impact
Direct payments	Wages paid to employees	Increases sense of collective identity; builds social capital; learning opportunities; creates “quality jobs.”; encourages the in-migration of educated workers
Purchase inputs/equipment	Payments to medical and scientific equipment vendors	Encourages the startup and/or relocation of businesses to Kansas to supply products & services
Research funds from outside the state	Community and state recognition; grants and contracts to institutions	Creates recognition of state’s high tech/scientific sector; builds community pride; personal interaction of diverse individuals
Philanthropic and government support	Donated services	Faculty/staff/researchers/ students provide valuable “free” services to the community
“Brain gain”	Wage gain from educated high human capital individuals	Spending assists in bringing to the state highly educated, highly paid individuals
Source: Goss and Associates, 2010		

Broadly speaking, the multiplier effect of Kansas public higher education spending is a combination of direct, indirect, and induced impacts on local economies. The direct impact is the economic activity generated by public higher education’s purchases. Direct expenditures include a wide range of goods and services ranging from staff salaries to football helmets. These purchases generate further expenditures, or indirect

impacts, within the economy. As suppliers and local vendors spend income received from Kansas' public institutions of higher education, businesses derive further benefit upstream and downstream. Moreover, wages are paid to employees as a result of the direct and indirect expenditures. The wage income then exerts an increase in expenditures via the local consumption of goods and services locally. These effects are called induced impacts. The sum of the direct, indirect, and induced impacts is the total economic impact.

The first step in the impact analysis was to calculate the direct dollar impact of the KBOR System on the state and surrounding communities for the expenditures of the 32 institutions across the state of Kansas. The data collected included KBOR operating budgets, capital spending budgets, and student and visitor spending. Table A.2<sup>37</sup> lists direct spending in 2009 dollars.

Operating spending	\$2,130,035,104
Capital spending	\$221,192,189
Research—from federal & private sources	\$332,579,060
Foundation support	\$41,037,971
Room and board	\$730,604,390
Healthcare	\$28,100,169
Other	\$196,701,182
Books	\$112,400,675
Transportation	\$84,300,507
Entertainment	\$182,651,097
Apparel & services	\$188,271,131
Vacation	\$132,070,794
Other discretionary	\$621,013,731
Visitor	\$263,066,246
<b>Total direct</b>	<b>\$5,264,024,246</b>
Source: Goss & Associates	

## Types of Economic Impacts

Figure A.1 depicts examples of the flow of funds into and out of the 32 institutions. As indicated, the total impact is the sum of direct (green arrows), indirect (blue arrows) and induced (pink arrows) impacts minus leakages (black arrows). Leakages represent education spending outside of the area. Input-Output multiplier systems are used to estimate each of the impacts in Figure A.1 by industry.

## Direct Economic Impacts

Spending by institutions has direct economic effects on their local economies through expenditures for goods and services and employee salaries. The most obvious direct expenditures are payment of wages to KBOR System employees. In addition, expenditures by business visitors to the institutions produce direct impacts on the region, affecting primarily the wholesale and retail trade industries. Direct economic impacts are color coded green in Figure A.1.

## Indirect Economic Impacts

Institutional spending also produces indirect economic effects on the area economy. Federal research funds, for example, generate indirect effects by increasing: (a) the number of firms drawn to a community; (b) the volume of deposits in local financial institutions and; (c) economic development. Examples of indirect economic impacts are color coded blue on Figure A.1.

<sup>37</sup> Adjustments were made to budget numbers provided by the institutions. For example to avoid double counting, institutional spending for food services was excluded since it is included in student spending.

## Induced Economic Impacts

Induced impacts in the state occur as the initial spending feeds back to industries in the region when workers in the area purchase additional output from local firms in a second round of spending. That is, institutional spending increases overall income and population, which produces another round of increased spending adding to sales, earnings and jobs for the area. Examples of induced economic impacts are color coded red in Figure A.1.

**Figure A.1 Schematic of KBOR System Impacts**

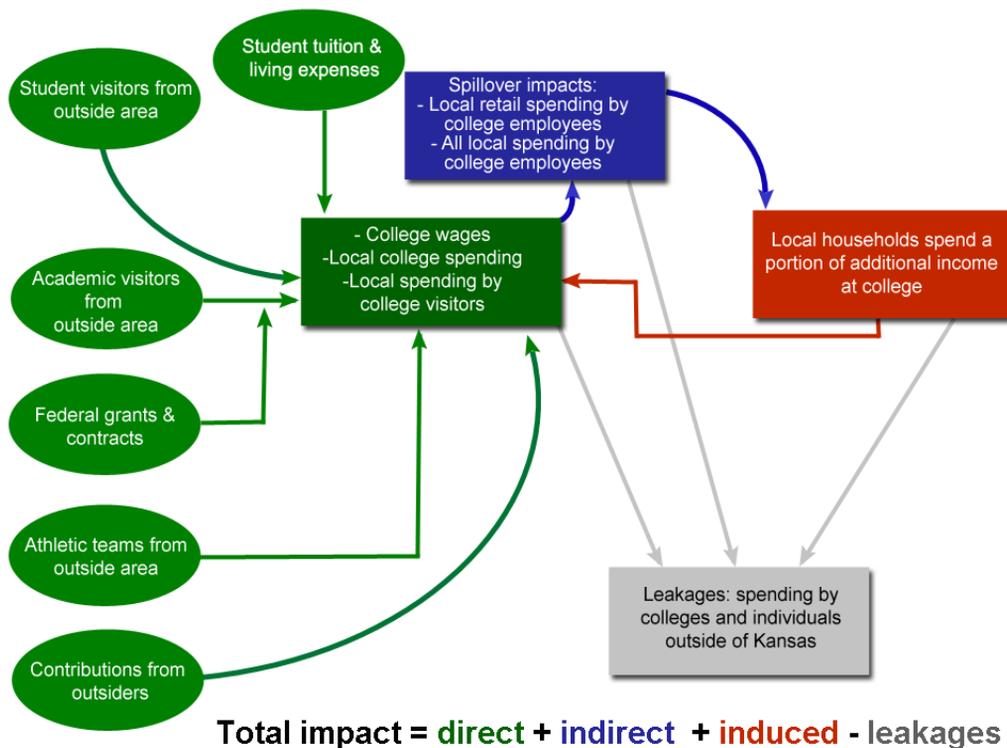


Table A.3 lists estimated impacts for each additional \$1,000,000 in direct spending. It is assumed that the additional revenue is not produced by reduced spending at other establishments in the area. In terms of spillover, or indirect plus induced impacts, data indicate that for Kansas, each \$1,000,000 of higher education funding generates another \$617,089 in revenue or sales across other industries. Additionally, each \$1,000,000 in research revenue produces \$743,283 in salaries and wages, \$69,451 in self-employment income and 21.0 jobs each year.

Impact Type	Direct Effect	Indirect Effect	Induced Effect	Total Effect
Output	\$1,000,000	\$144,068	\$473,022	\$1,617,089
Salary, wages	\$575,566	\$39,034	\$128,683	\$743,283
Self-employment income	\$42,143	\$8,244	\$19,064	\$69,451
Average year-round jobs	15.8	1.0	4.1	21.0

Source: Implan Multiplier System

# B Appendix B: The Multiplier Effect

When employees of the individual institutions spend their salaries within the community, this spending filters through the local economy, causing increased overall spending greater than the initial spending. The impact of this re-spending is known as the multiplier effect. Economic impacts that take place outside the local economy, for example employee spending in Omaha or Tulsa, are called leakages and reduce the multiplier and overall impacts. They are excluded when estimating regional economic impacts.

While the direct effects of institutional spending can be measured by a straightforward methodology, the indirect and induced effects of spending must be estimated using regional multipliers. Community characteristics that affect leakages, and consequently the multiplier include:

**Location.** Distance to suppliers affects the willingness to purchase locally. For example, if Kansas firms are unable to provide supplies at competitive prices, and there are alternative suppliers in Tulsa that are more price-competitive, then the Kansas institution will be more likely to spend outside the community. This results in greater leakages, lower multipliers and smaller impacts.

**Population size.** A larger population provides more opportunities for companies and workers to purchase locally. Larger population areas are associated with fewer leakages and larger multipliers. Thus, in general, education and research dollars flowing into Wichita will have larger impacts than the same level of dollars flowing into more rural areas of Kansas.

**Clustering.** A community will gain more if the inputs required by local industries for production match local resources and are purchased locally. Thus, over time, as new firms are created to match the requirements of the institutions, leakages will be fewer, resulting in larger multipliers and impacts. This issue is at the heart of economic development, amplifying the impacts of the clustering of education-related firms.

As Kansas institutions gain more and more federal and private research investment and jobs, educators and training institutions become more proficient and focused on meeting the needs of the industry. Furthermore, suppliers unique to the education and research programs are more likely to locate in close proximity to these organizations. This not only expands income and jobs in the location of the institution, it increases the size of multipliers related to the research and education programs.

# C

## Appendix C: Sample of Community Service Provided by KBOR System Institutions

### Allen Community College

- The library is available for the use of the students, faculty, and staff of Allen. Community library users have the same privileges as students do.
- Student Senate hosted a candidate forum during the last election cycle.
- The college's theatre department is committed to providing a quality theatre program for students and audiences in southeast Kansas.

### Cowley College

- Has assembled a list of presenters with expertise in a wide range of topics that are available to speak to school groups, businesses, civic organizations or other interested parties at no charge.

### Coffeyville Community College

- CCC Relay For Life Team raised \$3,500 in 2007, \$10,000 in 2008, and \$7,500 in 2009 to fight cancer.
- CCC Eta Gamma PTK Chapter helps with Habitat for Humanity – providing refreshments for workers, assisting with construction and landscaping.
- Football team sends members once or twice a week to serve as mentors for the non-profit Boys and Girls Club and conducted one day football clinics for the Coffeyville Recreation Community, the Chanute Kansas Recreation Commission and the Boys and Girls Club of Coffeyville .
- Theatre department participates in the Reading Is Fundamental program at Community Elementary and wrote the script for the Brown Mansion Tours.

- Following the flood of 2007, CCC employees volunteered in a variety of ways, and the college dorms and classrooms on campus were used for emergency personnel.

### Emporia State University

- The Jones Institute for Educational Excellence sponsors not only a distinguished lecture series and conferences and workshops, but five outreach program available to the Emporia community.
- Kansas Future Teacher Academy is a program which provides select students with the opportunity to learn more about the challenges and rewards of teaching and has become recognized as an established and highly respected training opportunity for students throughout the state of Kansas.
- Kansas Migrant & ELL Academy provides research-based professional development for educators who would benefit from additional training to ensure success for Kansas' diverse K-12 migrant and English language learning population.
- Community Counseling Services (CCS) provides affordable counseling for individuals, couples, families, and groups in a professional, quiet, and confidential setting for residents of Emporia and surrounding communities. Services are provided by advanced graduate students in training under the supervision of experienced faculty with counseling, research, and supervisory expertise.
- Community Hornets is a program dedicated to meeting the volunteer needs of the Emporia community as well as connecting Emporia State University students to the surrounding community through service projects. Currently, ESU is

recognized on the President's Higher Education Community Service Honor Roll, which recognizes institutions of higher education for their commitment to and achievement in community service. Community Hornets is committed to the further growth and development of ESU student's involvement with community service and continued recognition on the President's Higher Education Honor Roll.

## Flint Hills Technical College

- The Business and Industry Training Center is a division of FHTC dedicated to providing opportunities for professional, personal and workforce development. The center specializes in providing on-time and on-demand training to meet regional community needs. (Community Connections program, customized training, professional continuing education, small business and entrepreneur program, workforce development program).

## Fort Hays State University

- Center for Civic Leadership
- Kansas Small Business Development Center
- Moss-Thorns Gallery of Art
- Music and theatre productions
- Kansas Youth Leadership Academy

## Fort Scott Community College

- Fort Scott Community College provides basic employment and post-employment skills training for business and industry groups in Bourbon, Crawford, Linn and Miami counties. Such training may be general or job-specific, and can be customized to meet the needs of a business. Classes are offered on our campus, at an extension center (in Uniontown, Pittsburg, Pleasanton, Mound City, LaCygne, Louisburg, Osawatomie and Paola), or at area businesses.
- Adult and Family Literacy Program is helping adults defeat illiteracy in Bourbon County.

- Tri-State HEP (high school equivalency program) is a program for migrant and seasonal farmworker students who are unable to graduate from high school because of frequent family moves. The program goals include completion of G.E.D. and placement in post-secondary education, career or the military.

## Kansas State University

- After School Child Care at Grade Schools
- KSDE Food Program
- Speech and Hearing Center
- Youth Leadership & Community Involvement Initiative
- Army Youth & Teen Center Technical Assistance
- Community Youth Development & Training

## Labette Community College

- The Labette Community College Speaker's Bureau arranges for available faculty, staff and students to speak at community events at no charge. In addition to a wide variety of educational topics, hobbies/special interests, and healthcare issues, the speaker's bureau encourages community members to make requests for topics and tries to accommodate all requests.
- The Workforce Education and Community Services Department offers a variety of credit and non-credit courses, seminars, and workshops designed to fit the interests and/or needs of community members.

## Northwest Kansas Technical College

- 2nd Annual Rural School and Community Conference
- Established relationship with the 3/50 project
- Annual President's Breakfast w/City Leadership
- New Business Program aimed at Rural Entrepreneurialism
- Establishment of iPad Consortium with Community Leadership

## Pittsburg State University

- Provides cultural activities for the region such as leadership and venue for most performances of the SEK Symphony; sponsors PALS (Performing Arts and Lecture Series) each year; brings cultural events and lectures to the community; hosts performances at the City of Pittsburg's Memorial Auditorium; and serves as host for High School Activities Association-sponsored music contests.
- Faculty and staff serve on local boards.
- PSU hosts a union online library catalog and management system for the "PSU Library Consortium" which allows registered patrons at any partner libraries sites to generally borrow material. As a designated U.S. Government Document Repository, the PSU library collects more than 60% of the information published by the United States Government and is a resource for the citizens of the four-state region.
- Through PSU's Small Business Development Center, several workshops were held to provide assistance for small business owners for either startup or expansion.
- In cooperation with Fort Scott Community College, PSU hosted the Citizens Bank Bowl, which was designated as the National Junior College Athletic Association's National Championship game on the campus of Pittsburg State University in December 2010. PSU's Department of Health, Human Performance and Recreation hosted and assisted in staffing Special Olympics held at Carnie Smith Stadium in April 2010.

## Pratt Community College

- Kansas Regents Network and Learning Center at Pratt public service programs
- Youth programs
- Cultural programs
- Jayhawk West sporting events
- Community use of facilities (190 groups)/facili-

ties use by outside organizations (20,000 local and visitors)

## University of Kansas

- The KU Cancer Center and Midwest Cancer Alliance brings cancer treatments to Kansans in their communities (<http://www2.ku.edu/~kuworks/2011/hayspitcancer.shtml>)
- Telemedicine and medical outreach enables patients throughout the state to benefit from the expertise of KU Medical Center doctors (<http://www2.kumc.edu/telemedicine/>)
- Provides training of Kansas' law enforcement officers and firefighters through KU Continuing Education (<http://www2.ku.edu/~kuworks/2011/hutchinsonpolicetraining.shtml> and <http://www.continuinged.ku.edu/fire/>)
- The JayDoc Clinics for uninsured residents in Kansas City and Wichita (<http://www2.ku.edu/~kuworks/2009/patients.shtml>)
- Support for local pharmacists through clerkships/externships in pharmacies around the state (<http://www2.ku.edu/~kuworks/2009/pharmacies.shtml>)

## Washburn Institute of Technology

- Hosts an Annual Blood Drive
- Adopts families through the Christmas Bureau
- Provides support to students and staff through Care Closet
- Hosts an Annual Holiday Craft Fair
- Participated in the March of Dimes Signature Chef event
- Participated in the annual Sumptuous Settings for Meals on Wheels for Shawnee and Jefferson County

## Washburn University

- The Mulvane Art Museum, located on the campus of Washburn University, offers free access

to exhibitions of regional, national and international artists; art education classes and resources to area teachers, children and adults.

## Wichita Area Technical College

- WATC has worked and/or partnered with several companies and organizations throughout Kansas – including Bombardier Learjet, Cessna Aircraft, Greenwood County Economic Development, Spirit AeroSystems, Sumner County Economic Development Commission, and Wichita Clinic - to provide customized training.

## Wichita State University

- Speech-Language Hearing Clinic
- Dental Hygiene Clinic
- School of Nursing – Health Screenings and services provided by nursing students
- Physician Assistants – West High School Health Science Program; high school sports physicals; minority recruitment and retention grant
- Upward Bound

# D Appendix D: Biography of Principal Investigator

## Ernie Goss, Ph.D.



Ernie Goss is currently the MacAllister Chair and Professor of Economics at Creighton University in Omaha, Nebraska and Director of the Goss Institute in Denver, Colorado. He received his Ph.D. in economics from the University of Tennessee. He was a visiting scholar

with the Congressional Budget Office for 2003-04. In the fall of 2005, the Nebraska Attorney General appointed Goss to head a task force examining gasoline pricing in the state. He is also a past faculty research fellow with the National Aeronautics and Space Administration (NASA).

He recently testified before the U.S. Congress regarding the closure of GM and Chrysler dealerships and he continues to consult with dealerships on the financial impact of shuttering the GM dealerships and provided input to the U.S. Congress on the ethanol blender's tax credit.

He has published more than eighty research studies focusing primarily on economic forecasting and on the statistical analysis of business and economic data. His book, "Changing Attitudes toward Economic Reform during the Yeltsin Era," was published by Praeger Press in 2003 and "Governing Fortune: Casino Gambling in America," was published by the University of Michigan Press in 2007 ([www.erniegoss.com](http://www.erniegoss.com) and [www.outlook-economic.com](http://www.outlook-economic.com)).

He is editor of Economic Trends, an economics newsletter published monthly and distributed digitally to 6,000 subscribers. He is the past president of the Omaha Association of Business Economics, and the National Purchasing Management Association-Nebraska. He also serves on the Board of Directors of Mosaic, Inc.

To gauge regional economic conditions, Goss conducts a monthly survey of bank CEOs in rural areas of 11 states and a monthly survey of supply managers in 12 states. Results from the two surveys are carried in more than 100 newspapers, 50-100 radio stations and scores of other media outlets each month. Recent citations appeared in the Wall Street Journal, Business Week, Forbes, and The Economist, as well as regional newspapers such as the Denver Post, the Kansas City Star, and the Minneapolis Pioneer Press.