

Profile and Comparison of Kansas K-12 Employment Levels

Executive Summary

As taxpayers and legislators seek policy solutions that effectively utilize available resources and keep spending and taxes at levels that promote growth in the private sector economy, it's essential to have a clear understanding of related facts and trends. K-12 spending consumes roughly 53% of general fund spending in Kansas and personnel accounts for the vast majority of most districts' total costs, so this analysis of public school employment is intended to help frame those policy discussions.

Whether based on U.S. Census data, Department of Education data from the National Center of Education Statistics (NCES) or from the Kansas Department of Education (KSDE), K-12 employment in Kansas' schools exhibit several noteworthy trends.

For several decades, Kansas has had among the highest and fastest growing public school employment-to-student ratios compared to the nation and the region.

- Kansas has the 8th highest employee-to-student ratio in the country according to the most recent national statistics for the school year that began in 2007, with 16.15 employees for every 100 students.¹
- In 1972, Kansas was 7% above the employee-to-student national average but by 2007 Kansas was 19% above the national average.

At least as evidenced by employment patterns, Kansas schools have often placed greater emphasis on non-teaching positions than on teachers.

- 2010 employment levels are slightly below peak levels reached in 2008 but there are still 4.9% more teachers currently employed than in 2000, whereas all other employment is 7.8% higher. Student enrollment increased 1.9% over the same period.
- Kansas exceeds the national averages of teachers-to-student and non-teacher instructional employees-to-student ratios by 17% and 18%, respectively, but is 23% above the national average for all other employees.

These above-average employment-to-student ratios cost Kansas taxpayers several hundred million dollars.

- Based on the overall average pay and benefits as reported by U.S. Census, the 2007 cost of additional employees above the national average was \$530.3 million.

¹ Throughout this analysis, 'year' refers to the start of the school year; e.g., 2007 refers to the year beginning in the Fall of 2007 and concluding in the Spring of 2008. This labeling method is used for consistency with U.S. Census and U.S. Department of Education / NCES data. Also, unless otherwise noted, 'students' refers to student headcount data.



Kansas Compared to Other States

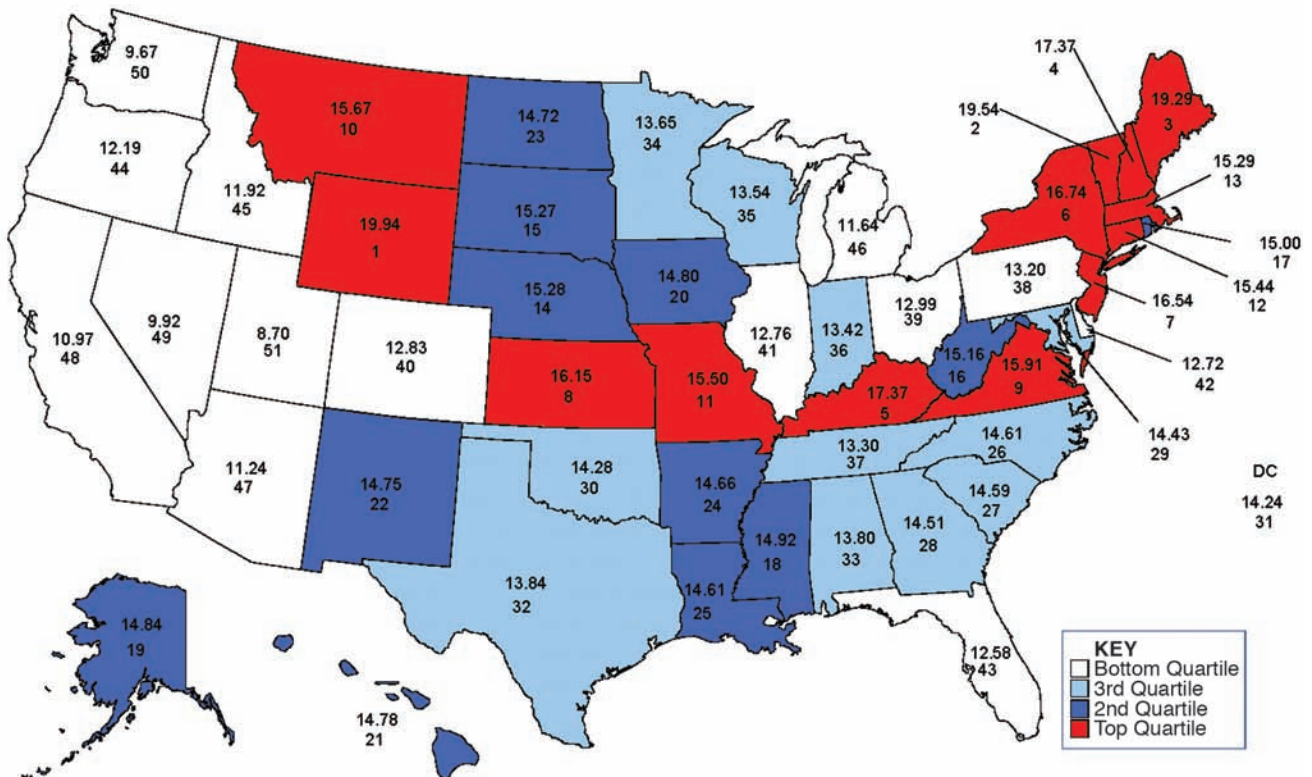
The perennial public school funding debates in Kansas can benefit from some historical perspective. For several decades, Kansas has had among the highest and fastest growing public school employment-to-student ratios when compared to the nation and the region. The growth of non-teacher personnel—not teachers—has driven this historical pattern.

Map 1 shows that Kansas ranked as the eighth highest state in terms of public school employees per student in 2007 (the latest year of most complete national data). That ranking carried an estimated price tag of \$530 million when compared to the 2007 average level among all the states (see Table 1).

Table 1 provides a high-level breakdown and comparison of Kansas public school employment levels per 100 students. (Throughout the report, employment levels refer to the number of full-time-equivalent employees, or FTEs. Data definitions appear in the Appendix.) The data in Table 1 (which relies on the U.S. Census Bureau’s once-every-five-years Census of Governments) indicate that Kansas has FTE levels almost 20 percent higher than the national average and about 10 percent higher than the regional averages (which Map 1 helps delineate). The 2007 data show FTEs per 100 students about 55 percent higher than Kansas had in 1977.

The cost calculations in Table 1 rely on the full payroll cost (cash plus benefits) shown for each FTE component; the dollar figures are listed at the

Map 1: Total K-12 Full-Time-Equivalent Employees per 100 Students (and State Rank), 2007



Note: The top number in each state represents the number of full-time-equivalent employees per 100 students. The bottom number represents the state’s rank. The color-coding illustrates the ranks by quartile, with red representing the highest-ranking quartile.

Source: U.S. Census Bureau; National Center for Education Statistics; Center for Applied Economics, KU School of Business

Table 1: Public School Employment Levels and Estimated Costs of the Kansas Differences

| | Public School FTEs per 100 Students | | | Estimated Dollar Cost of Kansas Difference (Millions) | | |
|---------------------|-------------------------------------|--------------|----------|---|--------------|---------|
| | Total | Instruction* | Other | Total | Instruction* | Other |
| Kansas 2007 | 16.1 | 11.0 | 5.1 | n/a | n/a | n/a |
| United States | 13.6 | 9.4 | 4.2 | \$530.3 | \$382.9 | \$135.8 |
| Plains States | 15.0 | 10.4 | 4.6 | 244.2 | 153.1 | 76.8 |
| KS + Contiguous | 14.6 | 9.9 | 4.7 | 309.0 | 256.0 | 58.9 |
| Kansas 1997 | 14.3 | 10.1 | 4.2 | 375.0 | 223.7 | 125.0 |
| Kansas 1987 | 12.8 | 8.9 | 3.9 | 686.5 | 488.2 | 180.4 |
| Kansas 1977 | 10.5 | 7.4 | 3.1 | 1,156.4 | 844.0 | 290.7 |
| Addendum | | | | | | |
| 2007 KS Avg. Pay | \$35,288 | \$40,195 | \$24,688 | | | |
| 2007 Pay + Benefits | \$43,757 | \$49,842 | \$30,613 | | | |

Note: Cost components do not add to total because of differences in estimated average payroll.

Plains States: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota.

KS + Contiguous: Colorado, Kansas, Missouri, Nebraska, Oklahoma.

* Includes teachers and non-teachers. See Appendix for definitions.

Source: U.S. Census Bureau; National Center for Education Statistics; Center for Applied Economics, KU School of Business

bottom of the table. For example, the \$530.3 figure calculated as the cost difference between the FTE levels of the United States and Kansas resulted from the following procedure: $(16.1 - 13.6) \times \$43,757 \times (\text{Enrollment} \div 100)$. The dollars are in millions. According to the National Center for Education Statistics, Kansas had a 2007 student enrollment of 468,295.

To get a better picture of annual trends, Table 2 shows FTE data from the Kansas Department of Education. Like the data from the U.S. Census Bureau, Table 2 shows a significant increase in Kansas public school FTEs between 2002 and 2007. While employment levels declined somewhat over the last two years, employment has still grown considerably faster than student enrollment over the last ten years.

Table 2: Comparative Trends of Kansas FTE Employment and Enrollment

| Year | FTE Employees | | | FTE Students | Cumulative Change Since 2000 | | | |
|------|---------------|-----------|--------|--------------|------------------------------|-----------------|-----------------|--------------|
| | Teachers | All Other | Total | | Teachers | Other Employees | Total Employees | FTE Students |
| 2000 | 32,742 | 31,409 | 64,150 | 446,970 | | | | |
| 2001 | 33,084 | 32,071 | 65,155 | 445,377 | 1.0% | 2.1% | 1.6% | -0.4% |
| 2002 | 32,658 | 31,334 | 63,992 | 444,541 | -0.3% | -0.2% | -0.2% | -0.5% |
| 2003 | 32,609 | 31,322 | 63,931 | 443,302 | -0.4% | -0.3% | -0.3% | -0.8% |
| 2004 | 32,825 | 31,182 | 64,007 | 441,686 | 0.3% | -0.7% | -0.2% | -1.2% |
| 2005 | 33,479 | 31,915 | 65,394 | 442,556 | 2.3% | 1.6% | 1.9% | -1.0% |
| 2006 | 34,351 | 33,628 | 67,979 | 444,879 | 4.9% | 7.1% | 6.0% | -0.5% |
| 2007 | 34,958 | 34,575 | 69,533 | 446,874 | 6.8% | 10.1% | 8.4% | 0.0% |
| 2008 | 35,438 | 34,971 | 70,409 | 447,615 | 8.2% | 11.3% | 9.8% | 0.1% |
| 2009 | 34,985 | 34,862 | 69,847 | 453,324 | 6.9% | 11.0% | 8.9% | 1.4% |
| 2010 | 34,332 | 33,855 | 68,187 | 455,400 | 4.9% | 7.8% | 6.3% | 1.9% |

Source: Kansas Dept. of Education; 2010-11 employment data unaudited

Kansas' trend of growing non-teacher employment at a greater pace than teachers has occurred for decades. Chart 1, based on Census of Government years, illustrates the relative growth rates of key components of the total Kansas public school total FTE count (not the FTE-to-enrollment ratio).

It clearly reveals that teacher FTEs have been the slowest growing component. Non-teacher instructional FTEs (as defined in the Appendix) have exhibited the strongest growth. All Other FTEs (non-instructional FTEs) have exhibited the second strongest growth.

Chart 1: Relative Growth Rates of Enrollment and Types of Full-Time-Equivalent Employment

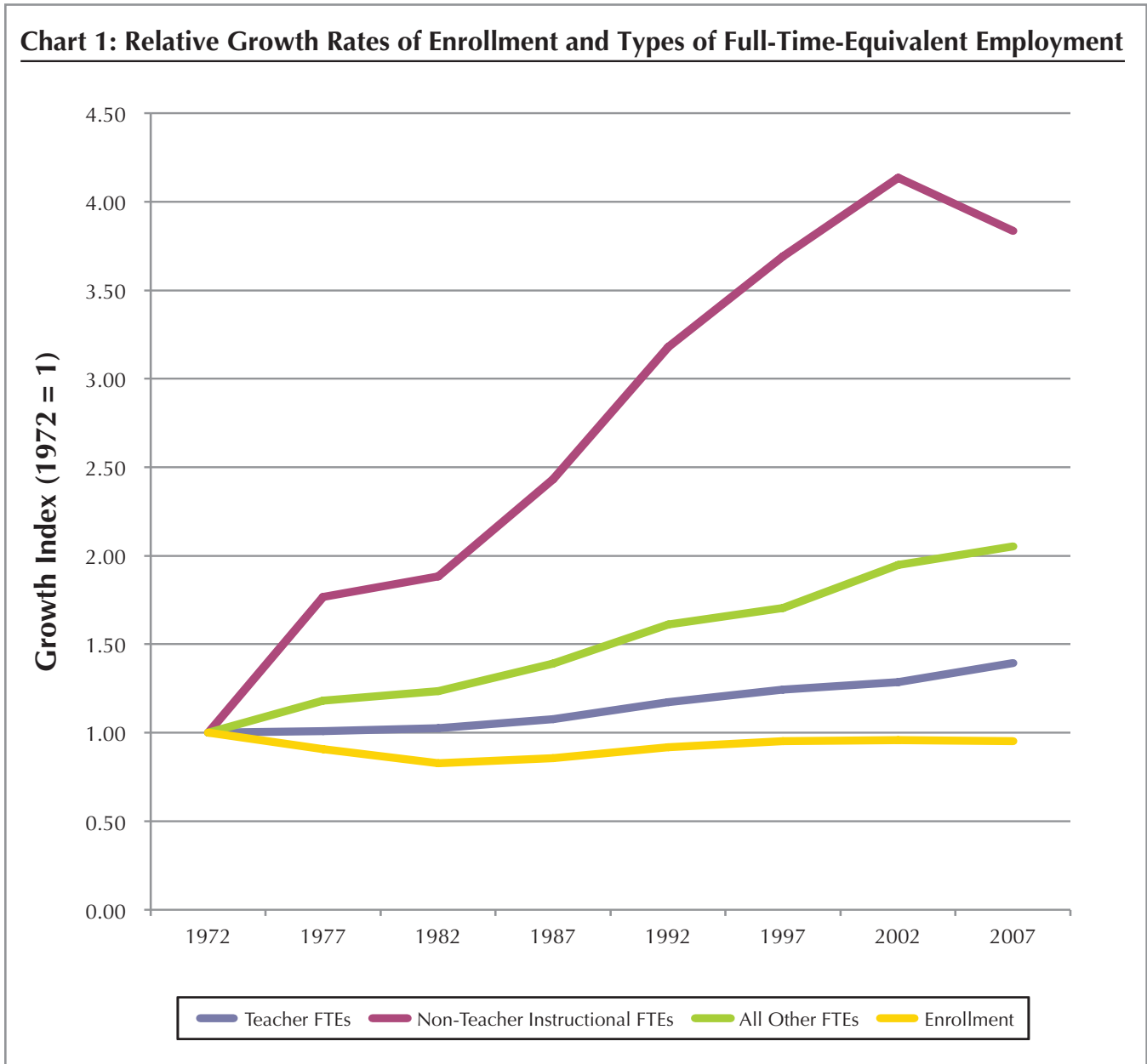


Table 3: Magnitude and Growth Rate, Full-Time-Equivalent Personnel per 100 Students

| | 1972 | 1977 | 1982 | 1987 | 1992 | 1997 | 2002 | 2007 | Avg. Annual Growth 1972-2007 |
|--|------|-------|-------|-------|-------|-------|-------|-------|---------------------------------|
| Total FTEs per 100 Students | | | | | | | | | |
| Kansas | 8.39 | 10.50 | 11.91 | 12.80 | 13.74 | 14.32 | 15.49 | 16.15 | 1.78% |
| United States | 7.84 | 9.07 | 10.07 | 11.19 | 11.34 | 11.97 | 13.05 | 13.56 | 1.49% |
| Plains | 8.25 | 9.67 | 10.57 | 11.28 | 12.02 | 12.96 | 14.51 | 14.95 | 1.62% |
| KS + Contiguous | 7.82 | 9.53 | 10.66 | 11.72 | 11.85 | 12.85 | 13.90 | 14.64 | 1.71% |
| Teacher FTEs per 100 Students | | | | | | | | | |
| Kansas | 5.16 | 5.74 | 6.40 | 6.49 | 6.59 | 6.73 | 6.93 | 7.55 | 1.04% |
| United States | 4.61 | 5.07 | 5.39 | 5.70 | 5.74 | 5.95 | 6.30 | 6.45 | 0.91% |
| Plains | 4.86 | 5.52 | 6.00 | 6.24 | 6.22 | 6.53 | 6.98 | 7.22 | 1.08% |
| KS + Contiguous | 4.64 | 5.40 | 5.88 | 6.08 | 6.20 | 6.39 | 6.79 | 7.06 | 1.14% |
| Non-Teacher Instructional FTEs per 100 Students | | | | | | | | | |
| Kansas | 0.87 | 1.69 | 1.97 | 2.46 | 3.00 | 3.35 | 3.74 | 3.49 | 3.84% |
| United States | 0.75 | 1.29 | 1.60 | 2.02 | 2.15 | 2.43 | 2.78 | 2.95 | 3.78% |
| Plains | 0.90 | 1.34 | 1.42 | 1.75 | 2.37 | 2.75 | 3.24 | 3.16 | 3.44% |
| KS + Contiguous | 0.81 | 1.27 | 1.51 | 2.08 | 2.18 | 2.65 | 2.75 | 2.88 | 3.50% |
| All Other FTEs per 100 Students | | | | | | | | | |
| Kansas | 2.37 | 3.08 | 3.54 | 3.85 | 4.16 | 4.24 | 4.82 | 5.11 | 2.10% |
| United States | 2.49 | 2.71 | 3.08 | 3.48 | 3.45 | 3.59 | 3.97 | 4.16 | 1.40% |
| Plains | 2.49 | 2.80 | 3.14 | 3.29 | 3.43 | 3.69 | 4.30 | 4.57 | 1.66% |
| KS + Contiguous | 2.38 | 2.85 | 3.27 | 3.56 | 3.47 | 3.81 | 4.36 | 4.70 | 1.86% |

Source: U.S. Census Bureau; National Center for Education Statistics; Center for Applied Economics, KU School of Business

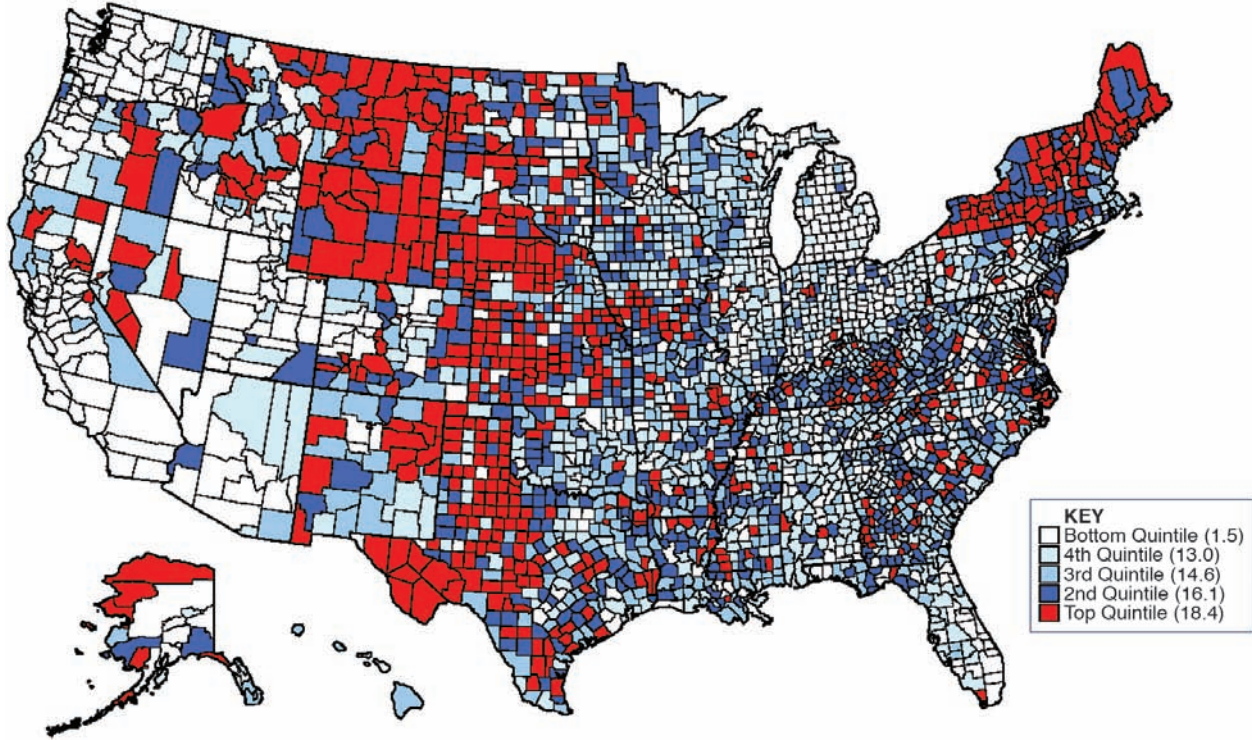
Table 3 compares the magnitude of the FTEs per 100 students in each category described in Chart 2, and reports the average annual growth rates from 1972 to 2007. Over a 35-year time span, small differences in growth rates compound to substantial differences in magnitude.

Among the comparison regions, Kansas had the highest annual average growth rate in each category except teachers. In 1972, per 100 students, Kansas ranked 7th highest among the states in terms of teachers, 21st highest in terms of non-teacher instructional personnel, and 32nd highest in all other personnel. In 2007, Kansas ranked 11th highest in terms of teachers, 18th highest in terms of non-teacher instructional personnel and 6th highest in terms of non-

instructional personnel. In sum, Kansas decreased its rank in terms of teachers per student and substantially increased its rank in terms of non-teachers per student.

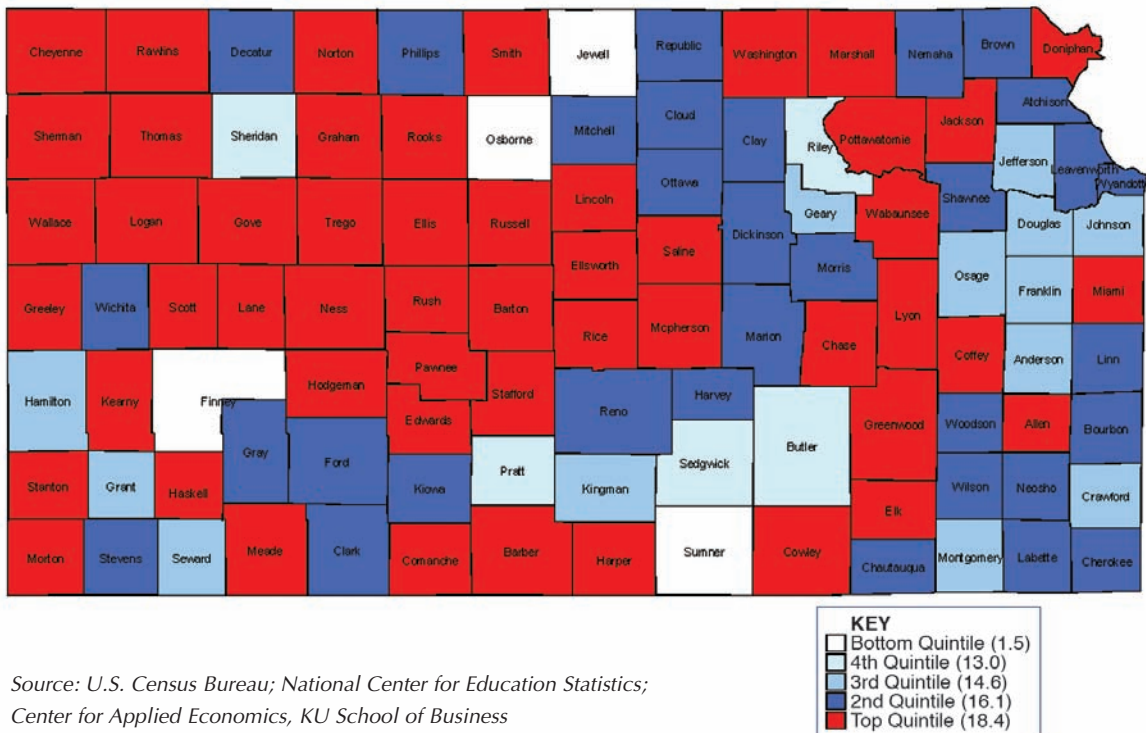
In terms of total FTEs per 100 students, Kansas ranked 14th in 1972 and ranked 8th in 2007. This growth had two basic drivers, according to the evidence represented in Chart 2 and Table 2: Kansas started from a higher base level of FTEs and has grown these levels at a rate, on average, that is faster than the comparison regions—with teacher FTEs being a key exception.

Map 2: Total K-12 Full-Time-Equivalent Employees per 100 Students by County, 2007



Source: U.S. Census Bureau; National Center for Education Statistics; Center for Applied Economics, KU School of Business

Map 3: Kansas Close-Up of Map 2



Source: U.S. Census Bureau; National Center for Education Statistics; Center for Applied Economics, KU School of Business

Map 2 and Map 3 provide a greater refinement to the geography associated with FTE levels. Map 2 illustrates on a county basis the level (color-coded by quintiles) of total public school FTEs per 100 students. The key for each map indicates in parentheses the level of FTEs per 100 students that mark the quintile break-points. For example, the top quintile begins at 18.4 FTEs per 100 students; the second quintile begins at 16.1 FTEs per 100 students. The data conform to the method that the U.S. Census Bureau uses to match school districts to counties. Because many school districts cross over county lines, the county-level data should be taken as illustrative but not perfectly precise.

The goal of the county-level analysis is to provide better geographic texture to public school employment levels. One immediately apparent pattern emerges from the greater geographic texture: rural counties tend to have higher levels of FTEs per student. A less obvious pattern is that counties experiencing a net out-migration of population tend to have higher levels of FTEs and counties experiencing net in-migration of population tend to have lower levels of FTEs.²

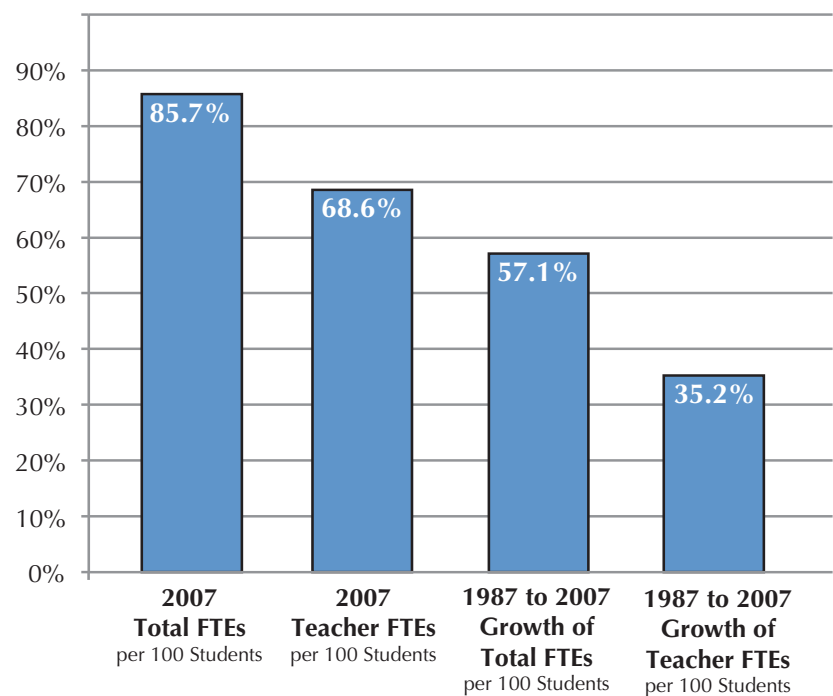
Net population out-migration and rural character have a strong association with the Great Plains. Map 2 and Map 3 show that Kansas fits into this greater pattern. However, as revealed by the data presented above, Kansas has tended to have higher public school FTE levels than most of the Plains states.

Chart 2 provides a summary of the 2007 data for Kansas counties. It uses the 50th percentile among all U.S. counties as a benchmark for comparison. For example, 86 percent of Kansas counties rank above the 50th percentile among all U.S. counties with regard to

total FTEs per 100 students. Almost 70 percent of Kansas counties rank above the 50th percentile in terms of teacher FTEs per 100 students. (A further refinement of the total FTE count shows that: Almost 50 percent of Kansas counties rank above the 80th percentile and almost 25 percent rank above the 90th percentile.)

Chart 2 also reports ranks of growth rates. The most reliable county-level data for teacher FTEs and enrollment begins in 1986, so the county analysis uses the 1987-2007 period to compare growth in FTEs per 100 students. Chart 2 shows that 57 percent of Kansas counties rank above the 50th percentile in terms of growth of total FTEs per 100 students; and 35 percent ranked above the 50th percentile in terms of the growth of teacher FTEs per 100 students. The more modest county levels and growth rates of teacher FTEs reinforces the other data in the report that indicates non-teacher FTEs, not teacher FTEs, represent a key difference in Kansas compared to other states and counties.

Chart 2: Percent of Kansas Counties Above 50th Percentile Compared to All U.S. Counties, Select Measures



² For county-level patterns of migration, see Arthur P. Hall, et al., “The County-to-County Migration of Taxpayers and Their Incomes, 1995-2006,” Technical Report 09-0306, Center for Applied Economics, University of Kansas School of Business, March 2009.

Appendix: Data Sources and Definitions

This report relies on raw data from (1) the U.S. Census Bureau’s Census of Governments, which takes place every five years (years ending in a 2 or 7), and (2) the National Center for Education Statistics.

The Census of Governments is an official census. The census of public sector employment uses the Census Bureau’s own survey methodology to identify the employment levels (including full-time-equivalent calculations) and payroll levels as of March in the census year. The methodology is consistent and comparable across census years. For public education (elementary and secondary schools), the Census Bureau classifies employment and payroll into the following two broad categories:

Census of Governments Definitions

School Instructional Employees:

- Classroom Teachers
- Principals
- Supervisors of Instruction
- Superintendents
- Teacher Aides
- Substitute Teachers
- School Librarians
- Library Aides
- Guidance and Psychological Personnel

School Non-Instructional Employees (Other):

- Administrative and Clerical Employees
- Operations and Maintenance Employees
- Cafeteria Employees
- Bus Transportation Employees
- Health and Recreation Employees
- Paid Student Employees
- Unallocable Elementary and Secondary Education Employees

Source: http://ftp2.census.gov/govs/class06/ch_12.pdf (p. 12-9)

The Census of Governments makes no effort to breakout the individual components of its two broad categories. The National Center for Education Statistics, however, does make an effort to classify different components of elementary and secondary school employment. It also maintains data on student enrollment. The NCES data collection program relies on a partnership with state education agencies; unlike the Census Bureau, it does not have its own collection methodology, although it does have guidelines that strive to promote and maintain data consistency among the data reported by state agencies. The NCES has annual data for states that begins in 1970. It has county-level data that begins in 1986.

A side-by-side comparison of Census of Governments data and NCES data reveals a considerable amount of variation between the two data sets. Because the Census Bureau has maintained a standard data collection methodology over its Census of Governments program, this report relies on Census data when possible. When a breakdown of data is desirable, the report relies on NCES data. Accordingly, this report uses the following definitions:

- Total Full-Time-Equivalent (FTE) Employees—Raw data from Census of Governments
- Teacher FTEs—Raw data from the National Center for Education Statistics
- Non-Teacher Instructional FTEs—Census Instructional FTEs less NCES Teacher FTEs
- Non-Instructional FTEs—Raw data from Census of Governments
- Enrollment—Raw data from the National Center for Education Statistics (Headcount)

There is a known data issue with regard to Kansas. The NCES reports a sharp drop in the total number of full-time-equivalent public education employees from 2005 to 2006 (and carrying over to 2007, the Census of Government year). According to NCES data, supplied by the Kansas Department of Education, “All Staff” data drops by about 11,000. Teacher FTEs increased during the same time period, implying a drop of about 13,500 non-teaching FTEs.

The Kansas Department of Education (KSDE) provided several possible explanations for why the sharp drop shows up in the NCES data but not the Census data:

Beginning with the 2005-06 school year, KSDE implemented a student level collection system. In addition, the US Department of Education no longer required data to be submitted to NCES (the NCES Common Core of Data program used to gather data for this report) but rather in a new format referred to as EDEN (Education Data Exchange Network). When KSDE started reporting to the US Department of Education through EDEN, it changed the source for several data pieces that were submitted prior to 2005-06.

For years prior to 2005-06, a lot of the data submitted to NCES Common Core of Data program was collected on the Principal’s Building Report or Superintendent’s Organization Report (S066). Beginning with 2005-06 and thereafter for EDEN reporting, the federal and state offices were in a “transitional” period. Some members of KSDE staff in charge of the staff/teacher data at that time, recall that a change in staff categories may have taken place for data being reported beginning with the 2006-07 school year.

A Comparison of Data Sources

The main data sources often disagree with regard to student headcount and FTEs. The table below reports, for Census of Government years, the relevant data provided by the Kansas Department of Education (KSDE), the U.S. Census Bureau, and the National Center for Education Statistics (NCES). Attempts to resolve the discrepancies yielded no success. Each data source uses different methodologies and definitions.

The differences in some years between KSDE, Census, and NCES are large enough to make a qualitative difference in the results reported herein; however, the comparison exercise must rely on the data collections of the national agencies.

In 2007, data from KSDE indicates that Kansas had 14.7 FTEs per 100 students. If the U.S. Census Bureau FTE count and the NCES student count remain the same for all states except Kansas, the 14.7 FTEs per 100 students would give Kansas a rank of 23rd rather than 8th, as reported on Map 1.

| School Year | KSDE Student Headcount | NCES Student Headcount | KSDE Total FTEs | Census Total FTEs | NCES Total FTEs |
|-------------|------------------------|------------------------|-----------------|-------------------|-----------------|
| 1972 | 493,745 | 491,765 | n/a | 41,266 | 43,558 |
| 1977 | 443,341 | 446,592 | n/a | 46,903 | 45,593 |
| 1982 | 407,074 | 407,074 | n/a | 48,469 | 44,757 |
| 1987 | 421,112 | 421,112 | n/a | 53,883 | 47,569 |
| 1992 | 451,536 | 451,536 | 51,627 | 62,055 | 54,185 |
| 1997 | 468,744 | 468,687 | 52,985 | 67,096 | 59,604 |
| 2002 | 467,326 | 470,957 | 63,992 | 72,931 | 63,907 |
| 2007 | 471,566 | 468,295 | 69,533 | 75,610 | 54,184 |

About The Author

Arthur P. Hall is the founding Executive Director of the Center for Applied Economics at the University of Kansas School of Business. Before joining the KU School of Business, Hall was Chief Economist in the Public Affairs group of Wichita, KS-based Koch Industries, Inc. In that capacity, he worked with business leaders to help define how public policy initiatives would influence the structure of the markets in which the company participates. Koch sponsored Hall's directorship of Kansas Governor Sebelius' Budget Efficiency Savings Teams from April 2003 until his departure from the firm in February 2004.

Before joining Koch Industries in May 1997, Hall was Senior Economist at the Washington, D.C.-based Tax Foundation, where he produced quantitative and qualitative research pertaining to the economics of taxation, and acted as an economic advisor to The National Commission on Economic Growth and Tax Reform. Before that, he worked as a financial economist at the U.S. General Accounting Office. Hall has taught university economics at both the undergraduate and MBA level. He received his Ph.D. in economics from the University of Georgia and his B.A. in economics from Emory University.



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