

Approved: 2-1-93  
Date

## MINUTES OF THE HOUSE COMMITTEE ON EDUCATION.

The meeting was called to order by Chairperson Duane Goossen at 3:30 p.m. on January 26, 1993 in Room 519-S of the Capitol.

All members were present except: Representative Kline (excused)  
Representative McKechnie (absent)  
Representative Petty (excused)  
Representative Samuelson (excused)

Committee staff present: Ben Barrett, Legislative Research Department  
Dale Dennis, Deputy Commissioner, Department of Education  
Avis Swartzman, Revisor of Statutes  
Joyce Harralson, Committee Secretary

Conferees appearing before the committee: Charles E. Krider, Associate Dean of Business, Kansas University

Others attending: See attached list

Committee Rules were distributed to committee members. (Attachment #1).

Dr. Charles Krider addressed the committee regarding the Kansas labor market. (Attachment #2). He distributed a study he and Dan Roehler prepared for Kansas Inc. entitled, **The Kansas Labor Market: Challenges and Implications** (Attachment #3). The research was funded by Kansas Inc. and the Strategic Planning Advisory Committee as part of the process for developing an update of Kansas's economic development strategy. He discussed such topics as the changing labor market, the changing labor force, employment patterns and trends, earnings and income, and the implications for education in Kansas.

Dr. Krider stated that only 30% of the jobs will require a college degree. Frequently students are unable to find a job in which they may use their education, thus they go back to a community college to get a technical education.

Dr. Krider mentioned a "seamless system", one in which students could easily transfer from colleges to junior colleges or vocational technical schools and back again. Currently there is a problem with getting adequate credit transferred from institution to institution due to incompatibility with programs.

Dan Roehler addressed the committee to explain the various charts within the study document .

The floor was opened to questions by committee members.

The meeting was adjourned at 4:50 pm.

The next meeting is scheduled for 3:30 pm, January 27, 1993 in Room 519-S.

## GUEST LIST

COMMITTEE: House Education

DATE: 1-26-195

[illegible]

# COMMITTEE RULES

1. A substitute motion is in order, but no additional substitute motion shall be in order until the prior substitute motion is disposed.
2. Amendments to motions are not in order.
3. A motion requires a second to be in order.
4. A motion to take from the table shall be in order only when such item is on the agenda or is taken up by the chair. The motion requires a simple majority and is non-debatable.
5. No conferee shall be interrupted during presentation of their testimony, except with the permission of the chair.
6. Questioning of a conferee shall be limited to the subject matter of the agenda for the day.
7. Granting excused absences is reserved to the chair.
8. A request from any member that their own vote be recorded shall be granted.
9. All conferees are requested to submit enough copies of written testimony for all committee members and staff.
10. Smoking is prohibited in committee rooms.
11. Adjournment is reserved to the chair.
12. In any case where committee rules do not apply, House Rules shall govern. All powers, duties and responsibilities not addressed above are reserved to the chair.

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Attachment 1  
1-26-92

INSTITUTE FOR PUBLIC POLICY AND BUSINESS RESEARCH  
UNIVERSITY OF KANSAS

THE KANSAS LABOR MARKET:  
CHALLENGES AND IMPLICATIONS FOR EDUCATION IN KANSAS

Testimony by

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Director of Business Research

and

Dan Roehler  
Research Associate

prepared for

HOUSE AND SENATE COMMITTEES ON EDUCATION

Anthony Redwood  
Professor of Business and Executive Director

January 26, 1993

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## THE CHANGING LABOR MARKET

### The Demand for Labor

- The manner in which work is organized and performed is undergoing dramatic change. These changes impact directly upon the range of skills considered appropriate and necessary for the work place:

#### Traditional (Old Way)

Mass production, long production runs  
Unskilled/low skills  
Repetitive, simple tasks  
Hierarchical, centralized management  
Management controls daily operations  
Methods-time-movement studies  
Stable technology  
Inspect poor quality "out"  
Focus on production

#### High Performance (New Way)

Unit production, Just-in-time  
High skills  
Multiple, complex tasks  
Flat organization, decentralized management  
Participative management - team approach  
Continuous improvement of tasks/methods  
Rapidly changing technology  
Every employee responsible for quality  
Focus on customer

- Over the next 15 years the **fastest growing occupations** will be those that require workers with **higher education or with specialized training**. The slowest growing occupations will generally require lower education and skills. (*Table 1*)
- **Skill requirements within occupations are also increasing** due to technology and changes in the organization and management of work.
- In order to earn high wages, an increasing number of employees will require a high level of education or post secondary skill training. **High-wage jobs and high levels of education are directly tied** to one another. The 1991 mean income for full-time workers with 4 or more years of college was \$40,123; with 1 to 3 years college, \$29,640; high school graduates, \$24,277; and, 8 years of elementary school, \$19,961.
- The **largest increase in average earnings** during the 1980s occurred for workers with **1 to 3 years of college**, rising 40 percent faster than average earnings for high school graduates.

- **Kansas will not be able to effectively compete** in world markets based upon low wages to low skilled workers. Wage rates in Mexico and Third World countries prohibit such a strategy from being effective. Kansas must instead focus upon developing high performance organizations, with a **workforce capable of**:
  - being highly flexible to adapt to rapidly changing technology and techniques;
  - ability to be responsible for decentralized production techniques;
  - making on-the-job decisions independently, and as part of work teams;
  - accepting personal responsibility for improving product/service quality - this means questioning the way things are done, to improve the relevance of tasks, and to do these tasks more effectively in order to satisfy the customer
  - continually upgrading their skill levels in order to handle more complex tasks
  - handling increasingly integrated tasks through work teams

## **THE CHANGING LABOR FORCE**

### Supply of Labor

- **The growth of the labor force in Kansas** and four of the five surrounding states averaged only **half the U.S. growth rate** during the 1980s. Labor force growth in the five-state area excluding Colorado (which matched the U.S. rate) averaged 10.8%, compared with 19.2% nationwide. Kansas ranked 4th of the 6 states in labor force growth exceeding only Iowa and Nebraska.
- The Kansas labor force is projected to **grow at about half the rate in the 1990s** (0.9% per year) than was experienced in the 1980s.
- The composition of the **labor force is shifting toward more women, minorities and older workers**. In 1990, women represented 45.8% of all workers, up from 31.2% in 1960. Minorities accounted for 7.9%. The proportions of women and minorities in the labor force is expected to continue to grow during the 1990s.
- Virtually all (**95%**) of the **labor force growth** in Kansas during the 1980s was in **metropolitan areas**. This mirrored persistent trends toward employment concentration in Kansas: Non-metropolitan counties held 53% of Kansas jobs in 1970 and 43% in 1990.

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- The quality of the Kansas labor force, as measured by **educational levels** is **high** in comparison to other states. Kansas ranked 12th in the nation in 1989 for the proportion of high school graduates and 15th for college graduates. In this region only Colorado has a more educated workforce. *(Tables 14 and 15)*
- One of the State's educational **weaknesses** is the **educational attainment of minorities, particularly Hispanics**. 42 percent of adult Hispanics and 29 percent of adult Blacks have less than a high school education; for adult Whites, this figure is 18 percent. *(Table 16)*
- **Workforce productivity in Kansas manufacturing** (measured by value added per hour worked and value added per dollar of wages), **declined** from 4th and 3rd in the nation, respectively in 1985, to **30th** in 1990. Growth in relatively low value-added industries (food and kindred products, transportation equipment) may explain this; or, Kansas firms may be adopting competitive strategies (technology, total quality management) more slowly than those in other states. *(Tables 18 and 19)*

## EMPLOYMENT PATTERNS AND TRENDS

- Kansas' **occupation profile mirrors the U.S.** as a whole. The only areas of divergence are farm occupations (4.6% in Kansas, 2.5% U.S.) and Executive, Managerial and Administrative (Kansas = 11.3%, U.S. = 12.3%).
- Consistent with national trends, the **greatest growth during the 1980s** in Kansas occurred in **occupations that require higher levels of education or skill training**. Professional specialty and Executive, administrative and managerial occupations accounted for 69% of all job creation during the 1980s. The **occupations that declined** in the decade were primarily **lower skilled**. Over 36,000 jobs were lost in the farming, precision production, machine operator and laborer occupations. *(Table 29)*
- The industry mix of employment in Kansas is also changing as **employment declines in traditional production/extraction industries and increases in services** (particularly professional, business, and health services) and retail. Durable goods manufacturing, agriculture, mining and construction experienced large declines. *(Table 31)*

## EARNINGS AND INCOME

- **Per capita income in Kansas has lagged the U.S. average** since 1987 and in 1991 was at 97 percent of the U.S. average.

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- Per capita incomes in rural Kansas are 32% less than those in metropolitan areas.
- Manufacturing wages in Kansas have been consistently equal to the U.S. average since 1950. However, Kansas wage productivity was below the U.S. average in many categories of manufacturing in 1990.

## IMPLICATIONS FOR EDUCATION IN KANSAS

### Business-Education Cooperation

- In an era when competitive firms are adopting a customer-focused approach to doing business, the education sector must acknowledge the importance of the business sector as a primary consumer. **Coordination between the business and education sectors is essential** for developing curricula relevant to the needs of the work place. Business must be able to specify what it needs and expects from future workers in order to remain competitive.
- The state's retraining programs and Adult Basic Education programs should be **strengthened**. Modern quality-focused efforts, such as statistical process control require at least a basic understanding of arithmetic and algebra.

### Technical Training

- The state should **restructure post-secondary technical education**.
- There is a need to **de-emphasize traditional vocational education in Kansas high schools** and promote the development of a broader range of basic skills within technical and vocational programs. Current and future jobs require flexible and adaptable labor, with less occupation-specific training and more focus upon workers' capability to generalize learning from specific situations. Work teams, job rotation, job-sharing and just-in-time manufacturing are just a few of the forces contributing toward the need for workers to be able to perform a greater variety of tasks than ever before.
- **More emphasis should be placed upon tech-prep programs in Kansas high schools.**

### Appropriate Post-Secondary Training for Success

- Renewed efforts should be directed toward **increasing the proportion of students who receive post-secondary technical degrees and continuing education certificates.**

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## APPENDIX - TABLES REFERENCED IN HIGHLIGHTS

**Table 1**  
**Projected Employment Growth by Occupation**  
**U.S., 1990-2005 (000's)**

	<u>1990</u>	<u>2005</u>	<u>%Change</u>
Total, All Occupations	122,573	147,191	20.1
<u>High Growth</u>			
Technicians and Related Support	4,204	5,754	36.9
Profess. Specialty	15,800	20,907	32.3
Service	19,204	24,806	29.2
Executive, Admin.& Managerial	12,451	15,866	27.4
Marketing/Sales	14,088	17,489	24.1
<u>Low Growth</u>			
Administrative Support including Clerical	21,951	24,835	13.1
Precision Production, Craft and Repair	14,124	15,909	12.6
Agriculture, Forestry, and Fishing	3,506	3,665	4.5
Operators, Fabricators, and Laborers	17,245	17,961	4.2

Source: U.S. Bureau of Labor, *Monthly Labor Review*, Nov. 1991.

**Table 2**  
**Mean Earnings by Education, Full time Workers**  
**U.S., 1980 and 1991**

	<u>Mean Earnings</u>		<u>Percent</u>
	<u>1980</u>	<u>1991</u>	<u>Change</u>
0-7 Years Elementary	\$10,403	\$16,782	61.3%
8 Years Elementary	12,089	19,961	65.1
1-3 Years High School	11,877	20,165	70.0
High School Graduate	14,558	24,277	66.7
1-3 Years College	15,274	29,640	94.1
4 Years of College	22,404	40,123	79.1
5 or more Years College	29,906	52,478	75.5

Source: U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 462, 1992.

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**Table 12**  
**Median Annual Earnings by Occupation and Education**  
**U.S., 1987**

<u>Occupation</u>	<u>Total All Levels</u>	<u>Less Than High School</u>	<u>High School</u>	<u>1-3 Yrs. College</u>	<u>4 Yrs.+ College</u>
Executive, Admin., Managerial	\$30,264	\$22,306	\$23,286	\$27,255	\$37,252
Professional Specialty	30,116	19,177	23,233	27,458	31,311
Technicians and Related Support	24,489	16,207	21,358	23,830	28,004
Marketing and Sales	22,220	13,746	17,654	22,546	32,747
Administrative Support incl. Clerical	17,120	15,535	16,554	17,491	20,823
Services	13,443	10,764	13,093	16,937	21,381
Precision Production Craft and Repair	24,856	20,465	25,410	27,042	30,938
Operators, Fabricators and Laborers	18,132	15,365	19,303	21,627	22,114
Agriculture, Forestry, Fishing & Related	11,781	10,571	12,730	16,331	17,130

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Outlook 1990-2005*, November 1991.

**Table 14**  
**Percent of High School Graduates or Higher**  
**Adults 25 and Older**  
**Kansas and Comparison States, 1980 and 1989**

	<u>1980</u>		<u>1989</u>	
	<u>Percent</u>	<u>Rank in US</u>	<u>Percent</u>	<u>Rank in US</u>
Colorado	78.6	5	83.2	10
Iowa	71.5	18	83.4	9
Missouri	63.5	37	75.9	35
Nebraska	73.4	12	82.2	12
Oklahoma	66.0	35	75.4	36
Kansas	73.3	13	82.2	12
U.S.	66.5		76.9	

Source: *Statistical Abstract of the United States*, 1986 and Bureau of the Census, *Educational Attainment in the United States*, March 1991 and 1990.

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**Table 15**  
**Percent College Graduates or Higher**  
**Kansas and Comparison States, 1980 and 1989**

	<u>1980</u>		<u>1989</u>	
	Percent	Rank in US	Percent	Rank in US
Colorado	23.0	1	27.7	5
Iowa	13.9	38	17.1	39
Missouri	13.9	37	21.6	20
Nebraska	15.5	26	19.7	28
Oklahoma	15.1	28	17.1	39
Kansas	17.0	22	22.3	15
U.S.	16.2		21.1	

Source: *Statistical Abstract of the United States, 1986* and Bureau of the Census, *Educational Attainment in the United States, March 1991 and 1990*.

**Table 16**  
**Educational Attainment by Race**  
**Percent of Population 25 and Older, Kansas 1990**

<u>Highest Level Completed</u>	<u>White</u>	<u>Black</u>	<u>American Indian</u>	<u>Asian</u>	<u>Hispanic</u>	<u>Other</u>
Less than 8th Grade	7.3%	8.6%	7.8%	14.7%	23.7%	28.3%
9th to 12th, no diploma	10.3	20.4	16.8	11.7	18.1	20.2
H.S. Diploma	33.2	30.7	33.6	16.2	27.0	26.8
Some College, No Degree	22.0	22.9	23.6	13.2	16.5	14.6
Associate Degree	5.4	5.7	7.4	4.3	4.5	3.8
Bachelor Degree	14.6	7.4	6.7	19.7	6.6	4.7
Graduate/Prof Degree	7.1	4.2	4.1	20.2	3.5	1.6
High School Graduate or higher	82.4	71.0	75.4	73.7	58.1	51.5

Source: U.S. Census Bureau, 1990 Census of Population, *Summary Tape File 3A*, Tables P58 and P59.

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**Table 18**  
**Value Added per Hour Worked in Manufacturing**  
**Kansas and Comparison States, 1985 and 1990**

	<u>Value Added</u>		<u>Rank in U.S.</u>	
	<u>1985</u>	<u>1990</u>	<u>1985</u>	<u>1990</u>
Colorado	\$49.06	\$63.98	6	7
Iowa	53.05	61.74	1	10
Missouri	42.88	57.75	23	17
Nebraska	42.88	53.29	22	27
Oklahoma	44.46	55.69	17	21
Kansas	50.33	50.28	4	30

Source: U.S. Bureau of the Census, *Annual Survey of Manufacturers*.

Note: Rankings do not include the District of Columbia.

**Table 19**  
**Value Added per Dollar of Wages in Manufacturing**  
**Kansas and Comparison States, 1985 and 1990**

	<u>Value Added</u>		<u>Rank in U.S.</u>	
	<u>1985</u>	<u>1990</u>	<u>1985</u>	<u>1990</u>
Colorado	\$4.62	\$5.49	16	9
Iowa	4.94	5.36	4	12
Missouri	4.16	5.21	28	19
Nebraska	4.62	5.25	15	18
Oklahoma	4.23	4.96	26	25
Kansas	4.97	4.43	3	30

Source: U.S. Bureau of the Census, *Annual Survey of Manufacturers*.

Note: Rankings do not include the District of Columbia.

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**Table 29**  
**Job Creation by Occupation**  
**Kansas and U.S., 1980-1990**

<u>Occupation</u>	<u>Net Job Creation</u>		<u>Share of Job Creation</u>	
	<u>Kansas</u>	<u>U.S.</u>	<u>Kansas</u>	<u>U.S.</u>
Executive, Administrative, & Managerial	27,593	4,094,365	29.5%	22.7%
Professional Specialty	36,666	4,287,569	39.2	23.8
Technical and Related Support	10,186	1,275,284	10.9	7.1
Sales	23,797	3,874,529	25.5	21.5
Administrative Support, including Clerical	12,053	1,975,079	12.9	11.0
Private Household	-1,124	-68,198	-1.2	-0.4
Protective Services	5,022	517,537	5.4	2.9
Service (except Protective and Household)	17,494	2,217,153	18.7	12.3
Farming, Forestry and Fishing	-12,693	27,752	-13.6	0.2
Precision Production, Craft and Repair	-13,763	503,788	-14.7	2.8
Machine Operators, Assemblers & Inspectors	-9,419	-1,180,791	-10.1	-6.5
Transportation and Material Moving	-574	339,589	-0.6	1.9
Handlers, Equipment Cleaners, Helpers & Laborers	-1,765	178,191	-1.9	1.0
Total, All Occupations	93,473	18,041,847	100.0%	100.0%

Source: U.S. Census Bureau, Census of Population, *Summary Tape File 3A*, Table P66 (1980) and P78 (1990).

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# **Kansas Inc.**

## **Strategic Planning Program**

### **The Kansas Labor Market: Challenges and Implications**

80

Institute for Public Policy and Business Research  
University of Kansas

*December, 1992*

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Attachment 3-1  
1/26/93

INSTITUTE FOR PUBLIC POLICY AND BUSINESS RESEARCH  
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THE KANSAS LABOR MARKET: CHALLENGES AND IMPLICATIONS

Prepared by

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Director of Business Research

and

Dan Roehler  
Research Associate

prepared for

KANSAS INC. STRATEGIC PLANNING COMMITTEE

Anthony Redwood  
Director

December, 1992  
Monograph #204

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1/26/93

## ACKNOWLEDGMENTS

This research was funded by Kansas Inc. and the Strategic Planning Advisory Committee as part of the process for developing an update of Kansas's economic development strategy. The authors acknowledge the support and assistance of Dr. Charles Warren, President, Kansas, Inc. and Henry Schwaller, Senior Research Analyst for Kansas, Inc.

Venkata Bendapudi, Kenneth Louis, James Hamilton, and Nathan Olson were instrumental in gathering data, preparing data tables and assisting with the analysis of the data. Special thanks are due to Shakura Jackson for preparation of the final report and substantially improving the quality of its presentation.

The views and conclusions in this report are those of the authors and do not necessarily reflect those of Kansas, Inc. or the University of Kansas.



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## EXECUTIVE SUMMARY

### *The Kansas Labor Market: Challenges and Implications*

The purpose of this study is to examine the strengths and weaknesses of the Kansas labor force in the context of the demographic, technological, management and global changes that are affecting the U.S. economy. The most significant results of these changes are:

- The education and skill requirements of jobs are increasing and job opportunities for Kansans without education or skills are declining. Such workers will have limited prospects for high paying jobs and will find fewer employment opportunities than in the past.
- Employers and employees have a common interest in enhancing the education and skill levels of the Kansas workforce. Employees would benefit by having higher wages and employers would benefit by being able to pursue high performance organizations with greater prospects for being competitive in global markets.

The major human capital challenges for Kansas are (1) to develop a high skilled work force that will be capable of earning high wages and (2) to facilitate the transition to high skilled jobs in Kansas companies in order to enhance competitiveness. The main conclusion of this study is that a high wage/high skill strategy is feasible for Kansas and that the state is as well positioned as other states in this region to pursue such a strategy.

The major findings of the study are:

### The Changing Labor Market

- Over the next 15 years the fastest growing occupations will be those that require workers with higher education or with specialized training.
- The slowest growing occupations will generally require lower education and skills than the high growth occupations. The occupational category with the lowest projected growth over the 15 year period is Operators, Fabricators and Laborers.
- Skill requirements within occupations are also increasing due to technology and changes in the organization and management of work.
- The labor market position of low skilled workers is deteriorating as is shown by a slow growth in earnings during the 1980s.
- An increasing number of employees will require a high level of education or post secondary skill training in order to earn high wages.
- Employers require high skilled employees in order to become high performance organizations that focus on increasing productivity and quality. Kansas businesses cannot compete in global markets based on low wages to low skilled employees.

## The Labor Force

- The Kansas labor force will grow at a slower rate in the 1990's than in recent decades and the composition will change to include more women, minorities and older workers.
- The annual labor force growth rate in Kansas will be 0.9% in the 1990s, down from 1.7% per year in the 1980s.
- Almost all of the labor force growth in the 1980s was in metropolitan areas. The labor force increased by 106,490 in that decade and 101,449 of that increase was in the nine metropolitan counties; this was 95 percent of the increase.
- Labor force growth in the five regional comparison states was generally below the U.S. average in the 1980s. Only Colorado with a 19.1 percent increase had labor force growth comparable to the U.S. Kansas ranked 4th of the 6 states in labor force growth exceeding only Iowa and Nebraska.
- The percentage of employment in Kansas accounted for by women increased from 31.2 percent in 1960 to 45.8 percent in 1990. White males represented less than 50 percent of the Kansas labor force for the first time in 1990.
- The quality of the Kansas labor force, as measured by educational levels is high in comparison to other states. In this region only Colorado has a more educated workforce.
- One of the State's educational weaknesses is the educational attainment of minorities, particularly Hispanics. 58 percent of adult Hispanics and 71 percent of adult Blacks have completed high school; the percentage for adult Whites is 82 percent.
- Workforce productivity in Kansas, as measured by value added per hour of work, has declined from 4th in the U.S. in 1985 to 30th in 1990.
- Rural communities continue to have lower labor force participation rates, which reflects a weakness in job creation.

## Employment Patterns and Trends

- Employment growth in Kansas during the 1980's was concentrated in the Northeast (Johnson County) and Southcentral (Sedgwick County) regions of the state. Two regions - Northwest and Southeast - had declines in employment.
- In 1990 39 percent of all jobs in the state were in the Northeast region and an additional 26 percent was in the Southcentral region.

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- In 1970 there were 63,000 more jobs in the rural counties of Kansas than in the urban counties; by 1990 this had reversed and there were 190,000 more jobs in the urban counties.
- In the 1990s the nine urban counties had an increase in employment of 25.5 percent in contrast to a 2.7 percent increase in the 96 rural counties. 91 percent of the new jobs in Kansas during the 1980s were in the nine urban counties.
- The occupational structure of jobs in Kansas is shifting toward more skilled jobs and away from lower skilled jobs in manufacturing.
- The occupational structure of the Kansas labor force is remarkably similar to the U.S. labor force. The only occupation in which Kansas is clearly over-represented is farming but the difference is not great. In Kansas 4.6 percent of all jobs are in farming while for the U.S. the percentage is 2.5. The effect is that Kansas has 16,200 more jobs in farming than would exist if the state were at the U.S. average.
- The only occupation in which Kansas is noticeably under-represented is in Executive, Administrative, and Managerial. Kansas has 11.3 of employment in this occupation and the U.S. has 12.3 percent. This undoubtedly reflects the small number of companies headquartered in Kansas.
- The occupational structure of the Kansas workforce is changing in a manner consistent with national trends - the greatest growth is in occupations that require higher levels of education or skill training.
- The occupations that had the greatest growth in Kansas during the 1980s were: (1) professional specialties, (2) executive, administrative, and managerial, (3) sales, and (4) services.
- The occupations that declined in the decade were primarily lower skilled. These were: (1) farming, forestry and fishing, (2) Precision Production, Craft and Repair, (3) Machine Operators, Assemblers and Inspectors (4) Transportation and Material Moving, (5) Handlers, Equipment Cleaners, Helpers & Laborers.
- The industry mix of employment in Kansas is also changing as employment declines in traditional production/extraction industries and increases in services and retail.
- Employment in Kansas during the 1980s declined in the industries that have been particularly important to the state in past years - agriculture, mining, construction, and durable goods manufacturing.
- The growth industries in Kansas are in services, particularly those that are knowledge based. The fastest growing industries are professional services, including health and education. Professional services accounted for 65 percent of all new jobs in Kansas. Business services and finance also had substantial growth. Employment in retail trade increased by 20,767, or 22 percent of all new jobs.

- In the 1980s employment in non durable goods manufacturing increased in Kansas by 2,100, or 2.7 percent, while in the U.S. there was a decline of 4.5 percent. Durable goods manufacturing employment fell by 10 percent in Kansas and 7.9 percent in the U.S.
- Manufacturing jobs exist in all part of the state but there were declines in the 1980s in all regions except the Southwest. In the Northwest manufacturing jobs are becoming rare and experienced a drastic drop of 26 percent in the 1980s. On average, though, the non metropolitan areas of Kansas had a decline of 5.0 percent, which was virtually the same as the 5.5 percent increase in metropolitan areas.

### Earnings and Income

- Per capita income in Kansas has lagged behind the U.S. average since 1987 and in 1991 was at 97 percent of the U.S. average.
- The relatively low per capita income suggests that Kansas has not yet been successful in focusing on high wage/high skill jobs.
- Of the states in this region, only Colorado exceeds the U.S. average on per capita personal income. In 1991 Colorado's per capita income was 2 percent higher than the U.S. level, ranking Colorado fourteenth in the nation. Kansas ranked 21st.
- Per capita income is not equally distributed in all regions of Kansas. The regions with urban centers have higher incomes than rural regions. In 1990 the Northeast, Southcentral and Southwest had per capita incomes above the state average of \$18,104. The Northeast was 8 percent above the state average while the Southwest and Southcentral were 2 percent and 1 percent above respectively. The Southeast, with a per capita income of \$14,816, was almost \$5,000 below the state average.
- In 1990 the rural areas of Kansas had per capita income levels 75 percent of the state average. The non-metropolitan per capita income in 1990 was \$13,493, or \$6,247 below the urban average. Such a significant difference cannot be accounted for by the lower cost of living in rural areas.
- Over the last decade rural incomes grew more slowly than urban incomes and the rural ratio to state average fell from 79 percent to 75 percent.
- Manufacturing wages in Kansas have been consistently equal to the U.S. average since 1950. In 1990 the average manufacturing wage in Kansas was \$10.94 and \$10.84 in the U.S.
- Wage productivity in Kansas was below the U.S. average in nearly all manufacturing categories in 1990. Only Printing and Publishing had significantly higher wage productivity than the U.S. average.

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## INTRODUCTION

"Kansans without basic skills face a bleak future" asserted the 1991 report entitled *Adult Basic Skills and the Kansas Workforce*.<sup>1</sup> Furthermore, the report concluded that Kansas faces an important strategic decision: either focus on a high skill/high wage strategy *or* rely on a pool of low-skilled labor, competing with developing nations and, in turn, embracing a lower standard of living. That is still a critical choice for Kansas. It may seem inconceivable that Kansas, a state with an historically strong educational system, faces such a dilemma. But it does: Kansas employers report a gap between the skill level of new and current employees and the skills required to perform their jobs.<sup>2</sup> Unless the state is able to target high skill/high wage jobs there is every likelihood that changes occurring in the labor market will lead to relatively lower earnings and incomes for Kansans. Ultimately the wealth of the state is dependent on the skills and productivity of Kansas' workers and their ability to compete effectively in the global marketplace.

This report was prepared for Kansas, Inc. as part of its research program to support the 1992-93 strategic planning process that will result in an update of Kansas' economic development strategy. The main questions to be addressed are:

1. What are the strengths of the Kansas labor force that could be considered in the state's economic development strategy?
2. What are the weaknesses of the Kansas labor force that could be addressed in a state economic development strategy? and,
3. Does Kansas have a labor force of sufficient quality to succeed with a high wage/high skill strategy for economic development?

The main conclusion of the report is that a high wage/high skill strategy is feasible for Kansas and that the state is as well positioned as other states in this region to pursue such a strategy. A high wage/high skill strategy would mean that:

- The quality of jobs as well as the number of jobs would be considered,
- Improvement in earnings and per capita income would be sought,
- Education and job training would be major priorities, and
- Development of high performance work organizations would be encouraged.

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<sup>1</sup>Charles E. Krider, Ron Ash, Henry Schwaller, IV, and M. Elizabeth Stella, *Adult Basic Skills and the Kansas Workforce* (Report No. 187B), Institute for Public Policy and Business Research, University of Kansas: Lawrence, Kansas, 1991.

<sup>2</sup>Charles E. Krider, M. Elizabeth Stella, Genna M. Ott, and Ron Ash, *Work Force Training: The Challenge for Kansas* (Report No. 168), Institute for Public Policy and Business Research, University of Kansas: Lawrence, Kansas, 1989.

This report examines the relationship between the Kansas labor force and the economic environment within which its level of competitiveness is determined. This examination is structured as follows:

### **I. The Changing Labor Market**

What are the labor market trends in the United States that are also having an impact in Kansas?

### **II. The Labor Force**

How has the composition of the Kansas labor force changed and what is the quality of that labor force compared to the U.S. and other states in the region?

### **III. Employment Patterns and Trends**

What has been the pattern of employment growth in Kansas, particularly by occupation and industry?

### **IV. Earnings and Income**

What are the trends in earnings and income for Kansas in comparison to other states. In what occupations and industries are earnings increasing or decreasing?

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## I. THE CHANGING LABOR MARKET

Fundamental changes are occurring in the U. S. labor market including: (1) a shift to occupations that require higher levels of education and skill training, and (2) an increase in the skill requirements within most occupations, particularly those in manufacturing. Both changes are increasing the need for an educated and skilled workforce. Those individuals without education or skills face reduced job choices and lower incomes.

### Changes in Occupations

*(In this section, data is presented for the U.S. as a whole. Since the occupation profile of the Kansas labor force mirrors the national trends, these projections are considered equally valid for Kansas (See Section III, Table 28).*

Over the next 15 years, the fastest growing occupations will be those that requiring workers with higher education or with specialized training. Those occupations require lower skill levels are expected to have slower growth rates. The fastest growth occupation group is projected to be Technicians and Related Support (see Table 1), which is expected to increase at nearly double the rate of overall employment growth (36.9 percent, compared with 20.1 percent). Professional Specialty, another high skill group of occupations, will increase by 32.3 percent. The high growth occupations generally require post secondary education or specialized skill training. Table A1 in the Appendix lists the 30 detailed occupation groups that are projected to have the greatest growth through 2005, most of which are expected to grow by 50 percent or more from current levels. Almost without exception, they require a specialized education or skill. This suggests that in most occupations, workers will need either a college education or technical training through a community college or a postsecondary technical school.

**Table 1**  
**Projected Employment Growth by Occupation**  
**U.S., 1990-2005 (000's)**

	<u>1990</u>	<u>2005</u>	<u>%Change</u>
Total, All Occupations	122,573	147,191	20.1
<u>High Growth</u>			
Technicians and Related Support	4,204	5,754	36.9
Profess. Specialty	15,800	20,907	32.3
Service	19,204	24,806	29.2
Executive, Admin.& Managerial	12,451	15,866	27.4
Marketing/Sales	14,088	17,489	24.1
<u>Low Growth</u>			
Administrative Support including Clerical	21,951	24,835	13.1
Precision Production, Craft and Repair	14,124	15,909	12.6
Agriculture, Forestry, and Fishing	3,506	3,665	4.5
Operators, Fabricators, and Laborers	17,245	17,961	4.2

Source: U.S. Bureau of Labor, *Monthly Labor Review*, Nov. 1991.

The occupations that will have below average growth through 2005 are identified in Table 1 as "Low Growth." These occupations generally require lower education and skills than the high growth occupations. The occupational category with the lowest projected growth is Operators, Fabricators and Laborers which will show an increase of only 4.2% over the 15 year period. These occupations have traditionally been important sources of jobs for unskilled high school graduates and those who did not complete high school. There is every indication that there will not be many new jobs available for this portion of the workforce. Continued downward pressure on wages can be expected unless there is a corresponding declines in the supply of workers entering these occupations. Table A2 shows 28 detailed occupations that will have the largest percentage declines in employment through 2005. Table A3 shows the occupations with the largest absolute declines in employment.

The importance of higher skilled occupations in the future is underlined by the occupational mix within high-growth industries. Of the thirty fastest growing occupations, 15 are in occupations related to Health care and another 5 are in occupations related to Information management (Table A1). Combined, these 20 occupations will account for approximately 15 percent of net job creation. Within these industries, very high rates of growth are projected for skilled occupations (Systems analysts 79%; Radiologic technologists and technicians, 70%; Operations research analysts, 73%; Medical secretaries, 68%; Computer programmers, 56%, etc.) while less skilled occupations, in the Information related industries at least, are expected to show rapid rates of decline (Communications equipment installers, -38%; Statistical clerks, -36%; Telephone operators, -32%). Despite the high growth nature of the industry, the changing nature of the work means that more skilled workers will be in higher demand.

### Changes in Skill Requirements

The second major trend is for the skill requirements within occupations to increase. This trend toward increased skill requirements is caused by several factors. First, firms have increased the application of technology across a wide array of occupations. It is now clear that the introduction of technology increases the skills required of employees in most situations. In the clerical area, for example, secretaries and typists require additional skills as the result of the use of computers. They must master the use of software programs, learn to use computer data bases, and must master the use of computer networks for sending and retrieving information. The application of advanced technology in manufacturing also requires high skills from those who operate and maintain such equipment.

Changes in how work is organized is another reason for the increase in education and skill requirements within occupations, particularly in high performance organizations. Many business organizations are becoming flatter, with fewer levels of management, in order to be more efficient and competitive in global markets. The paradigm shift is from organizing work according to principles of mass production to one of high performance. Under a mass production form of organization, work was divided into small components that could be

performed by low skilled workers. Their contribution to the organization consisted only of providing labor in performing repetitive tasks. Workers' tasks were determined and monitored by a supervisor or possibly an engineer. This method of production is effective if technology is stable, if there are long production runs and if quality standards are not strict. The mass production approach to work can effectively utilize low skilled workers and could pay them high wages. However, mass production is diminishing as the preferred way of organizing work, primarily because of the increase in global competition and the increased emphasis on quality.

Mass production is being replaced in the United States by high performance work places. This is occurring initially in industries that are most closely tied to global markets, where technology is rapidly changing, where long production runs are not feasible due to rapid product changes or the reliance on niche markets, and where product quality is an important aspect of competition. Production processes in these organizations, aided by technology, are streamlined, fewer steps, and therefore are faster, more responsive to changing customer needs and less expensive. For Kansas businesses to be competitive, they will increasingly need to become high performance organizations.

A recent report<sup>3</sup> from the U.S. Department of Labor identified the following characteristics of a high performance organization:

- Flexible and decentralized production techniques;
- Employee empowerment, by giving employees decision making responsibility, career paths, and wage progression tied to skill;
- A strong emphasis on "excellence," on continually improving work performance, and on the kind of management for quality that reduces error and rework, increases customer satisfaction and cuts cost;
- Continual training to upgrade skills and employees' ability to function effectively in a problem-oriented environment; and,
- Increasing integration of tasks through work teams and the identification of workers with their products and services.

As this list makes clear, the critical requirement for high performance organizations is a high skilled workforce. Workers must be flexible, assume decision making authority, engage in problem solving, work as part of team, be responsible for quality, and must be capable of learning and improving skills. The challenge for Kansas is to provide such a workforce. A major question to be addressed in the following sections is how well positioned Kansas is for providing a High Skill/High Wage workforce of the type needed by high performance organizations.

The effects of these changes in the demand for labor are unambiguous: employees will require high skills in order to earn high wages and employers will need high skilled employees

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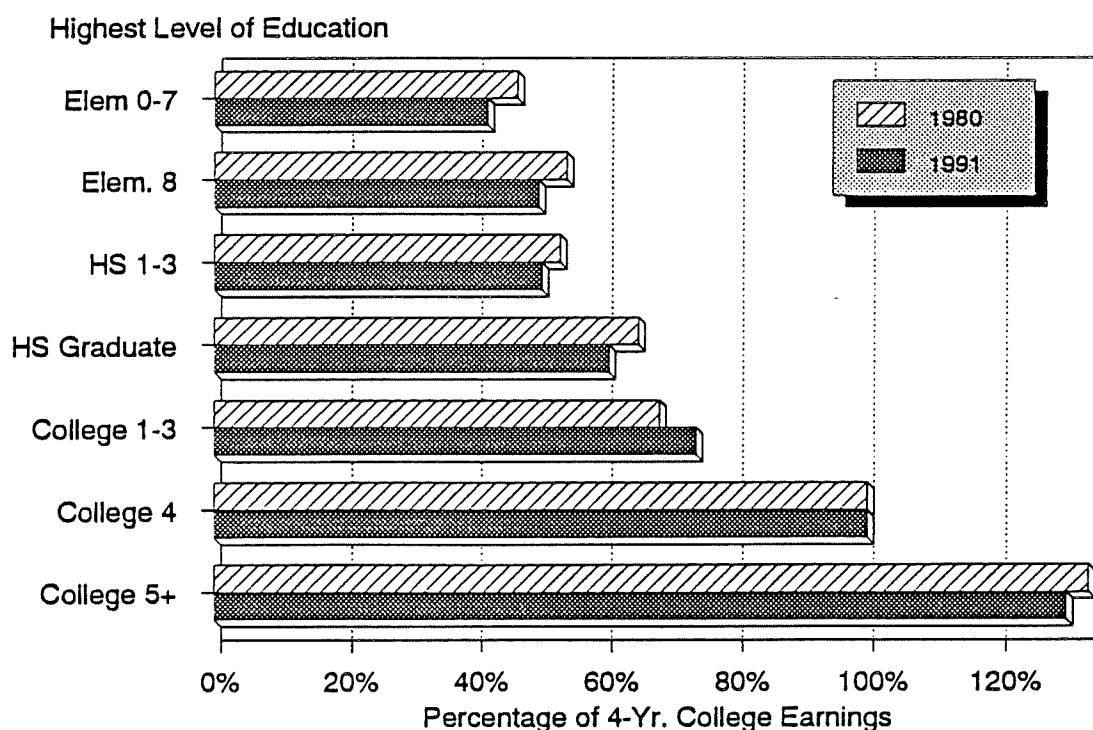
<sup>3</sup>*Learning for Living: a Blueprint for High Performance*, The Secretary's Commission on Achieving Necessary Skills, U.S. Department of Labor, April, 1992.

in order to implement a high performance strategy for competitiveness. This point is very important and will be discussed for both employees and employers.

**Employees.** The changes now occurring in the labor market are eliminating high wage jobs for employees without skills. In particular, high wage manufacturing jobs for high school graduates or dropouts are declining as a result of (1) the introduction of improved technology, (2) changes in the organization of work, and (3) increased global competition and the movement of low skill jobs to countries with low wages. The deterioration in the labor market position of low skilled workers is shown by changes in earnings for high school graduates in the 1980's. As a consequence of these changes the demand for low skilled workers is decreasing and the demand for workers with higher levels of education or skills is increasing.

The deterioration in the labor market position of low skilled workers is shown by changes in earnings in the 1980's. Full time workers with 8 or less years of schooling had smaller increases in earnings than did those who attended or completed high school; the highest increase in earnings was for those workers who attended or completed college.

**Figure 1**  
**Average Earnings by Level of Education**  
**Ratio to 4-yr. College Graduate Earnings**  
**U.S., 1980 and 1991**



Source: U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 462, 1992.

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In 1980, a high school graduate earned 65 percent of a college graduate's earnings; by 1991 this ratio had fallen to 60 percent. The largest increase in earnings during the 1980s was 94.1 percent for workers with 1-3 years of college. This group includes those who receive technical educations from community colleges or post secondary technical schools.

**Table 2**  
**Mean Earnings by Education, Full time Workers**  
**U.S., 1980 and 1991**

	<u>Mean Earnings</u>		<u>Percent Change</u>
	<u>1980</u>	<u>1991</u>	
0-7 Years Elementary	\$10,403	\$16,782	61.3 %
8 Years Elementary	12,089	19,961	65.1
1-3 Years High School	11,877	20,165	70.0
High School Graduate	14,558	24,277	66.7
1-3 Years College	15,274	29,640	94.1
4 Years of College	22,404	40,123	79.1
5 or more Years College	29,906	52,478	75.5

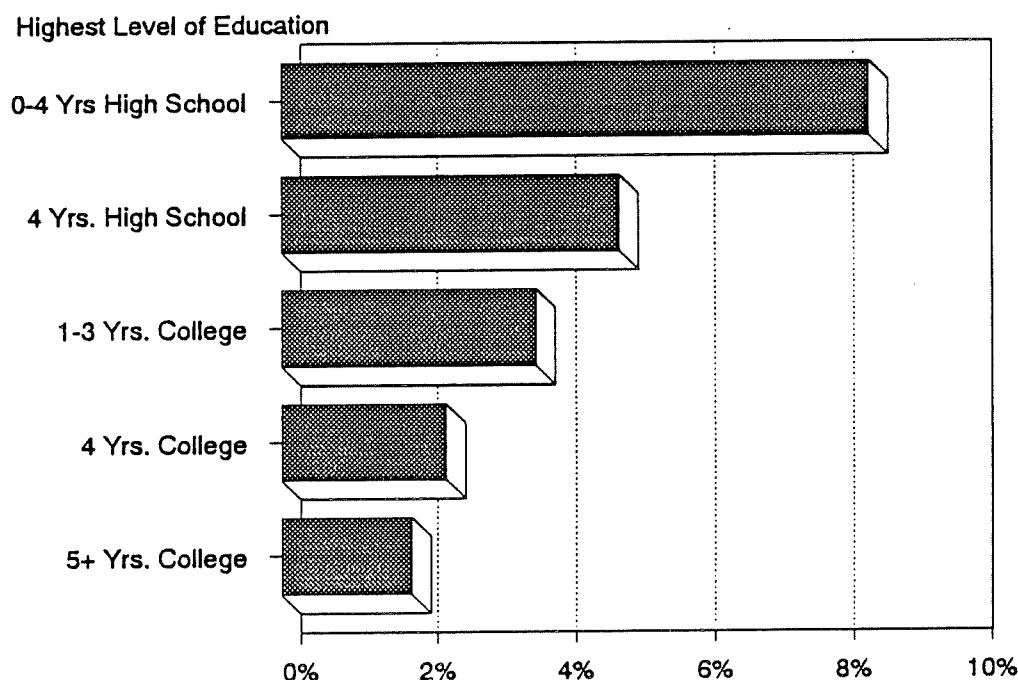
Source: U.S. Bureau of the Census, *Current Population Reports*, Series P-20,  
No. 462, 1992.

The economic position of low skilled workers will likely deteriorate further in the 1990s as competition from low wage countries, such as Mexico, increases. The relaxation of international trade barriers, such as in the North America Free Trade Agreement (N.A.F.T.A.) will serve to accelerate the shifting of low-skilled jobs to countries which have a comparative advantage in the price of labor through lower wage rates. Therefore, an emphasis on jobs with high skills is the strategy that has the best prospects for increasing the earnings of Kansas employees in the 1990s.

Workers with higher skill levels not only earn more, but also have less difficulty finding work. Figure 2 and Table 3 show unemployment levels by level of education in the U.S. for 1990. Workers without high school educations were 3½ times more likely to be unemployed than a college graduate was, while high school graduates were twice as likely to be unemployed than college graduates.

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**Figure 2**  
**Unemployment Rates by Level of Education**  
**U.S., 1990**



Source: U.S. Bureau of Labor Statistics, *Occupational Outlook Quarterly*, Summer 1992.

**Table 3**  
**Unemployment Rates, by Level of Education**  
**U.S., 1990**

<u>Highest Level of Education</u>	<u>Unemployment Rate</u>
Less than 4 yrs. high school	8.5%
4 yrs. high school	4.9
1-3 yrs. college	3.7
4 yrs. college	2.4
5 or more yrs. college	1.9

Source: U.S. Bureau of Labor Statistics, *Occupational Outlook Quarterly*, Summer 1992.

**Employers.** Kansas employers increasingly must be competitive in global markets in order to survive. This will require, in many instances, that firms pursue a high performance approach to organizing work that focuses on improving productivity and quality. The availability of a highly skilled, flexible workforce that can initiate and adjust to change will enable Kansas firms to adopt a high performance strategy for competitiveness.

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It is estimated that approximately 10 per cent of businesses in the United States have a high performance approach to organizing work. Ideally, Kansas firms would become high performance and increase their demand for high skilled workers at the same time that more high skilled workers become available. Such coordination may not be possible. However, a highly skilled workforce would provide Kansas firms with the option of becoming high performance organizations and may indeed encourage them to do so. Such firms would, for example, be better positioned to introduce improved technology or to succeed in international competition.

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## II. THE LABOR FORCE

The Kansas labor force will grow at a slower rate in the 1990's than in recent decades and the composition will change to include more women, minorities and older workers. Employers seeking more skilled workers will increasingly have to rely on retraining workers already in the labor force rather than new entrants and will also need to hire more women and minorities. The quality of the Kansas labor force, as measured by education and value added, is high in comparison to other states. Rural communities continue to have lower labor force participation rates, which reflects a weakness in job creation.

### Slow Labor Force Growth

The labor force in the U.S. and Kansas will have slower growth in the 1990s than in recent decades. In the 1970s, the growth rates of both the U.S. and Kansas labor force peaked, reaching 29.1% and 28% respectively, as the baby boom generation sought employment in large numbers (Table 4). During the 1980s, growth rates slowed to 16.8% nationwide and to 18% in Kansas. Through the 1990s, labor force growth will slow further, with labor force growth only half that of the 1970s (13% nationwide, 10% in Kansas).

Table 4  
U.S. Labor Force Growth, 1950-2000

<u>Year</u>	<u>Number</u>	<u>Change</u>	<u>Percent Change</u>
1950	62.2	9.5	
1960	69.6	7.4	11.9
1970	82.8	13.2	19.0
1980	106.9	24.1	29.1
1990	124.6	18.0	16.8
2000	140.5	15.9	12.8

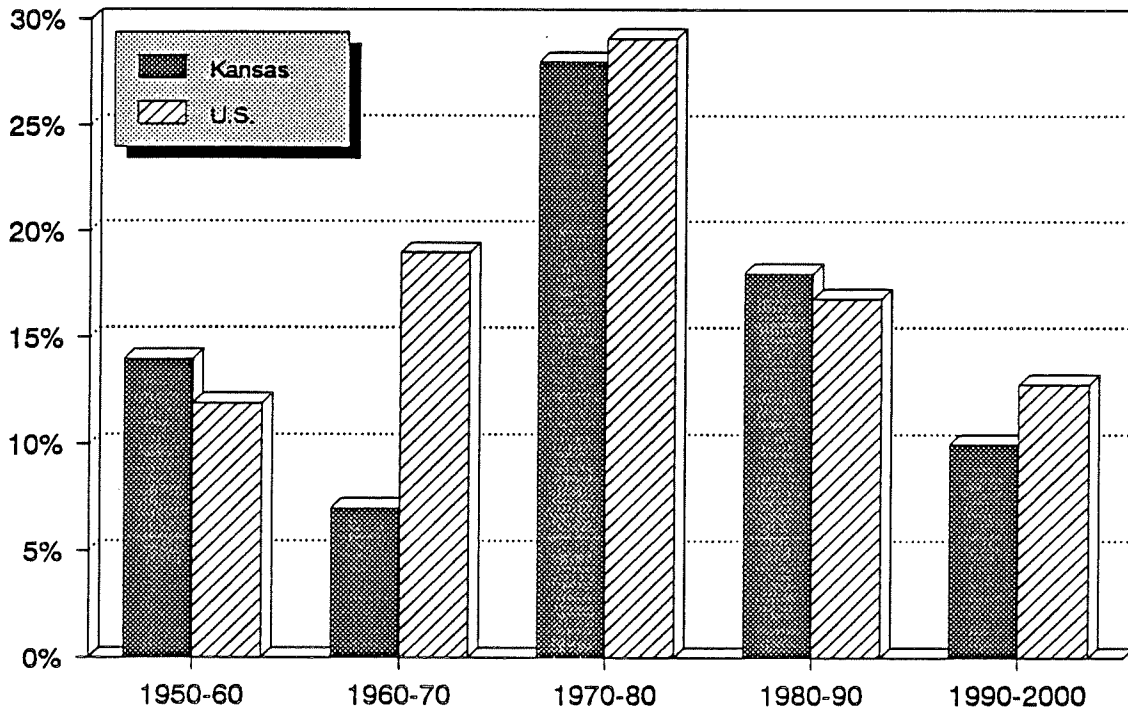
All numbers are in millions except for percentages.

Source: Bureau of Labor Statistics, *Handbook of Labor Statistics*, 1985, Table 4, and Hudson Institute.

Relative to the nation as a whole, Kansas' labor force growth was slightly higher than the U.S. rate during the 1980s, but was lower than the national rate during the 1970s and well below the U.S. rate in the 1960s. Just as recent labor force growth is not projected to be sustained, Kansas' labor force growth performance relative to the U.S. is also not expected to continue through the 1990s (10% versus 13% for the U.S.). The annual labor force growth in Kansas will be 0.9% in the 1990s, down from 1.7% per year in the 1980s. At the end of the decade Kansas will have 1% of the U.S. labor force, down from 1.1% in 1990 and 1.2% in 1960.

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**Figure 3**  
**Labor Force Growth**  
**Kansas and U.S., 1950-2000**



Source: U.S. Department of Labor and Kansas Department of Human Resources

**Table 5**  
**Kansas Labor Force Growth, 1950-2000**

<u>Year</u>	<u>Number</u>	<u>Change</u>	<u>Percent Change</u>	<u>Percent of U.S.</u>
1950	724			
1960	828	104	14%	1.2%
1970	885	57	7	1.3
1980	1131	246	28	1.1
1990	1338	207	18	1.1
2000	1470	132	10	1.0

All numbers are in thousands except for percentages.

Source: Kansas Department of Human Resources and U.S. Department of Labor.

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The relatively small increase of 132,000 in the labor force during the 1990s suggests that conditions will be favorable for a low unemployment rate and that labor shortages could be an issue if economic growth is vigorous. With fewer new employee entrants, firms will likely rely on retraining existing workers to fill new job openings.

A striking feature of the Kansas economy is that almost all of the labor force growth in the 1980s was in metropolitan areas (Table 6). The labor force increased by 106,490 in that decade and 101,449 of that increase was in the nine metropolitan counties; this was 95 percent of the increase. In contrast, the 96 non metropolitan counties had an increase of 5,041, which was only 5 per cent of the state's increase. This disparity in labor force growth reflects the concentration of new jobs with the metropolitan counties of Kansas. The inability of rural counties to create new jobs indicates that population growth will also continue to be concentrated in the metropolitan areas of the state.

**Table 6**  
**Labor Force Growth**  
**Kansas Regions, Metropolitan and Non-Metropolitan Counties,**  
**1980-1990**

	<u>1980</u>	<u>1990</u>	<u>Change</u>	<u>% Change</u>
Kansas Total	1,123,496	1,229,986	106,490	9.5%
Metropolitan	591,470	692,919	101,449	17.2
Non-Metropolitan	532,026	537,067	5,041	0.9
Northeast	418,340	495,270	76,930	18.4
Southeast	96,332	92,695	-3,637	-3.8
North Central	160,914	165,035	4,121	2.6
South Central	298,236	322,893	24,657	8.3
Northwest	54,354	51,570	-2,784	-5.1
Southwest	95,320	102,523	7,203	7.6

"Metropolitan" counties include Butler, Douglas, Harvey, Johnson, Leavenworth, Miami, Sedgwick, Shawnee, and Wyandotte.

Source: U.S. Bureau of the Census, 1980 Census of Population and Housing, 1983 *City and County Data Book*; 1990 Census of Population and Housing, *Summary Tape File 3a*.

The disparity of labor force growth in Kansas is also shown in the in-state regional comparisons in Table 6. Labor force growth was almost entirely concentrated in the Northeast and Southcentral regions which had labor force increases of 18.4 percent and 8.3 percent respectively. The Southeast had a decline of 3,637 (3.8%) in its labor force and the Northwest had a decline of 2,784, or 5.1 percent.

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## Regional Comparisons

Labor force growth in the five comparison states for Kansas was generally below the U.S. average in the 1980s (Table 7). Only Colorado (with a 19.1 percent increase) had labor force growth comparable to the U.S. Kansas ranked 4th of the 6 states in labor force growth exceeding only Iowa and Nebraska.

**Table 7**  
**Civilian Labor Force Growth for Comparison States**  
**(000s)**

	<u>1980</u>	<u>1990</u>	<u>Change</u>	<u>Percent Change</u>
Kansas	1,198	1,300	102	8.5
Colorado	1,474	1,756	282	19.1
Iowa	1,449	1,496	47	3.2
Missouri	2,295	2,634	339	14.8
Nebraska	776	839	63	8.1
Oklahoma	1,325	1,540	215	16.2
U.S.	104,719	124,787	20,068	19.2

Source: U.S. Bureau of Labor Statistics, *Geographic Profile of Employment & Unemployment*, 1980, 1990.

## Changing Composition

The Kansas labor force is becoming more diverse and more similar to the U.S. labor force in terms of the percentage of women and minorities.

**Women.** The most important change in the labor force in recent decades is the substantial increase in women. As recently as 1960, less than one-third of employees were women in both Kansas and the U.S. By 1990 women were 45.8 of civilian employment in Kansas; and this was the same percentage as for the U.S. The trend of more women in the workforce will continue in the 1990s and by the year 2000, 47.5% of those employed in Kansas will be women. The major implication for business is that women will become increasingly important in jobs not traditionally held by women. In addition, issues of particular importance to women - child care, leaves, pay equity - will continue to be of importance.

**Table 8**  
**Women in the Labor Force as a Percentage of Total Employed Civilians**  
**Kansas and U.S., 1960-1990**

<u>Year</u>	<u>Kansas</u>	<u>U.S.</u>
1960	31.2	32.8
1970	36.9	37.8
1980	42.1	42.6
1990	45.8	45.8

Source: U.S. Bureau of the Census, *Census of the Population* 1960, 1970, 1980, 1990.

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**Minorities.** The proportion of minorities in the Kansas labor force did not change from 1970 to 1980 but did increase in the period 1980-1990. In that decade 7.9 percent of the jobs in Kansas were held by minorities, an increase from 3.8 percent in 1960. The proportion of minorities in the labor force would be slightly higher because of the higher unemployment rate for minorities. It is projected that the proportion of minorities in the labor force will further increase by year 2000. As with women, an implication of these projections is that an increasing proportion of high skill jobs in Kansas will need to be filled by minorities.

**Table 9**  
**Minorities in the Labor Force as a Percentage of Total Employed Civilians**  
**Kansas and the U.S., 1960-1990**

<u>Year</u>	<u>Kansas</u>	<u>U.S.</u>
1960	3.8	10.3
1970	5.2	10.7
1980	5.0	11.2
1990	7.9	13.4

Source: U.S. Census of Population, *Census of the Population* 1960, 1970, 1980, 1990.

**Distribution of Labor Force.** Table 10 shows the distribution of the Kansas work force by gender and ethnic group from 1960 to 1990. The proportion of the labor force comprised of white males has declined in each decade and the proportion of women and minorities has stayed the same or increased. In 1960 white males were 66.4 percent of the labor force but in 1990 this percentage fell to 49.8. In that year a majority of the Kansas labor force was comprised of women and minorities. Kansas increasingly has a diverse work force, though still less diverse than the U.S.

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**Table 10**  
**Composition of the Kansas Civilian Labor Force**  
**by Race, Sex, and Hispanic Origin, 1960-1990**

	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>
Males	68.8%	62.8%	57.9%	54.3%
White	66.4	60.4	54.3	49.8
Black	--	2.1	2.2	2.3
Hispanic	NA	NA	1.4	1.9
Asian	--	--	0.3	0.6
Other	2.4	0.3	1.1	1.6
Females	31.2	37.2	42.1	45.7
White	29.6	35.2	39.0	41.7
Black	--	1.7	2.1	2.4
Hispanic	NA	NA	0.9	1.4
Asian	--	--	0.3	0.5
Other	1.6	0.2	0.7	1.1
Total	100%	100%	100%	100%

"Hispanic" may be of any race. The four racial categories include Hispanics.  
Source: U.S. Department of Commerce, Bureau of the Census, 1990 Census:  
*Summary Tape File 3a; Detailed Population Characteristics, General Social and  
Economic Characteristics*, 1960, 1970 and 1980.

### Quality of the Kansas Workforce

There is mixed evidence on the quality of the Kansas workforce in comparison to other states. The Kansas workforce is clearly above average in terms of education but is slightly below average on productivity. The high levels of education suggest that Kansas workers value education, have learned how to learn, and are relatively well positioned for retraining that will be required in the 1990s and beyond.

**Education and Earnings.** The education level required for new jobs is increasing, as is shown in Table 11. These estimates by the Hudson Institute indicate that the proportion of new jobs that will require less than a high school degree will decline to 14 per cent from a current 18 per cent. Similarly, 35 percent of the new jobs will require a high school degree, down from 40 percent for current jobs. In contrast, 52 per cent of new jobs require at least some college, which includes technical training at a community college. It is clear that the education content of jobs is increasing.

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**Table 11**  
**Required Schooling for Current and New Jobs**

<u>Category</u>	<u>Current Jobs</u>	<u>New Jobs</u>
	Percent of Jobs	
8 Years or Less	6	4
1-3 Years of High School	12	10
4 Years of High School	40	35
1-2 Years of College	20	22
4 Years of College or More	22	30
	Years of School Required	
Median Years of School	12.8	13.5

Source: Bureau of Labor Statistics, Hudson Institute.

The relationship between education and earnings is shown in Table 12. Education is a clear prerequisite for high wages. Within each occupational grouping those with higher levels of education earn a higher wage. This conclusion applies to lower skilled occupations as well as to higher skilled occupations. Workers ultimately are paid according to the value of their marginal productivity and clearly education increases the productivity of workers in virtually all occupations. If education is taken as a measure of skills then high skills and high wages are clearly related at all levels of occupations (see Table 12).

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**Table 12**  
**Median Annual Earnings by Occupation and Education**  
**U.S., 1987**

<u>Occupation</u>	<u>Total</u> <u>All Levels</u>	<u>Less Than</u> <u>High School</u>	<u>High</u> <u>School</u>	<u>1-3</u> <u>Yrs. College</u>	<u>4 Yrs. +</u> <u>College</u>
Executive, Admin. Managerial	\$30,264	\$22,306	\$23,286	\$27,255	\$37,252
Professional Specialty	30,116	19,177	23,233	27,458	31,311
Technicians and Related Support	24,489	16,207	21,358	23,830	28,004
Marketing and Sales	22,220	13,746	17,654	22,546	32,747
Administrative Support including Clerical	17,120	15,535	16,554	17,491	20,823
Services	13,443	10,764	13,093	16,937	21,381
Precision Production Craft and Repair	24,856	20,465	25,410	27,042	30,938
Operators, Fabricators and Laborers	18,132	15,365	19,303	21,627	22,114
Agriculture, Forestry Fishing & Related	11,781	10,571	12,730	16,331	17,130

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Outlook 1990-2005*, November 1991.

**Education in Kansas.** The educational attainment of Kansans exceeds the U.S. average as shown in Table 13. In Kansas 81.3 percent of all adults over 25 years old had a high school education or higher in 1990; the percentage for the U.S. was 75.2. Kansas has fewer high school dropouts and more college graduates. One area in which Kansas lags the U.S. is in Associate degrees, which may reflect the state's relative weakness in post secondary technical training.

Of considerable importance is that Kansas has substantially fewer high school dropouts than the U.S.

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**Table 13**  
**Educational Attainment, Population 25 Years and Older**  
**Kansas and U.S., 1990**

	<u>Kansas</u>	<u>U.S.</u>
Less than 8th Grade	7.7%	10.4%
9th to 12, no diploma	11.0	14.4
H.S. Graduate	32.8	30.0
Some College, No Degree	21.9	18.7
Associate Degree	5.4	6.2
Bachelor Degree	14.1	13.1
Graduate/Prof Degree	7.0	7.2
High School Graduate/higher	81.3	75.2

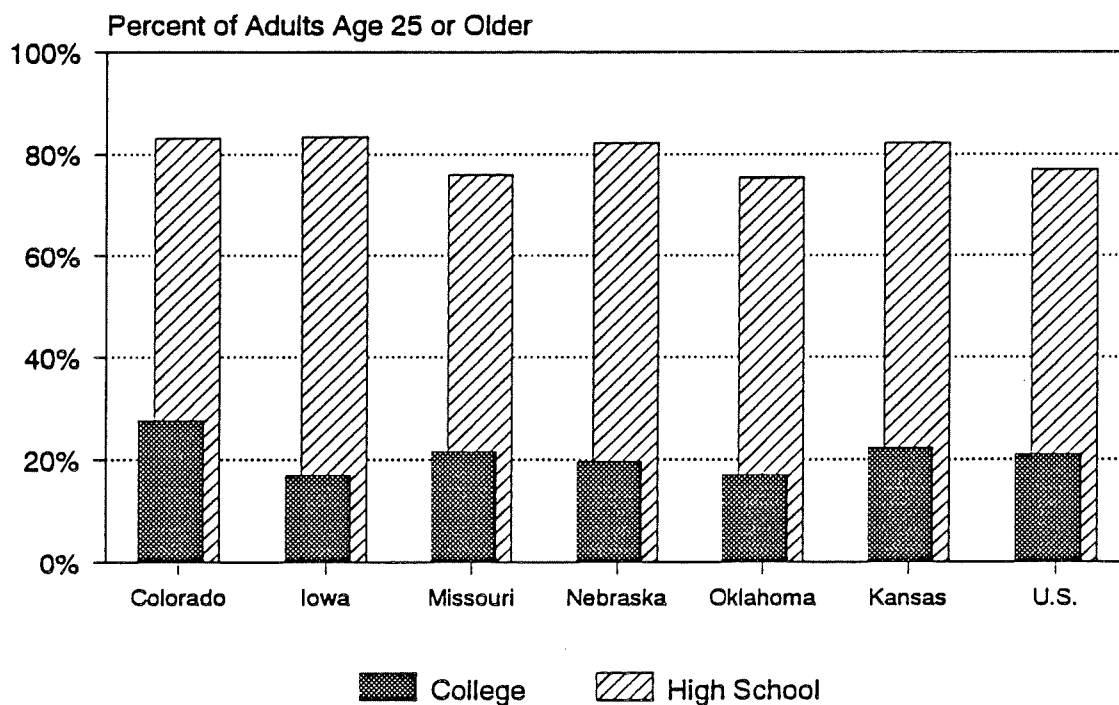
Source: U.S. Bureau of the Census, Census of the Population, *Summary Tape File 3*

However, educational attainment in Kansas is not substantially different than it is in comparison states in this region, as shown in Figure 4 and Table 14. In 1989, Kansas had slightly fewer adults with a high school education or above than did Iowa and Colorado, about the same percent as Nebraska, and was ahead of Missouri and Oklahoma. Kansas ranked 12th out of 50 states on this measure, a slight improvement from its rank of 13th in 1980. For college graduates Kansas was second in the region to Colorado with 22.7 percent (Table 15) and 15th in the nation. Overall, Colorado is the only state in this region with a higher level of education attainment.

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Figure 4

# High School and College Graduates Kansas, Neighboring States & U.S., 1989



Source: U.S. Bureau of the Census, Census of the Population, *Summary Tape File 3*

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**Table 14**  
**Percent of High School Graduates or Higher**  
**Adults 25 and Older**  
**Kansas and Comparison States, 1980 and 1989**

	<u>1980</u>		<u>1989</u>	
	Percent	Rank in US	Percent	Rank in US
Colorado	78.6	5	83.2	10
Iowa	71.5	18	83.4	9
Missouri	63.5	37	75.9	35
Nebraska	73.4	12	82.2	12
Oklahoma	66.0	35	75.4	36
Kansas	73.3	13	82.2	12
U.S.	66.5		76.9	

Source: *Statistical Abstract of the United States*, 1986 and Bureau of the Census, *Educational Attainment in the United States*, March 1991 and 1990.

**Table 15**  
**Percent College Graduates or Higher**  
**Kansas and Comparison States, 1980 and 1989**

	<u>1980</u>		<u>1989</u>	
	Percent	Rank in US	Percent	Rank in US
Colorado	23.0	1	27.7	5
Iowa	13.9	38	17.1	39
Missouri	13.9	37	21.6	20
Nebraska	15.5	26	19.7	28
Oklahoma	15.1	28	17.1	39
Kansas	17.0	22	22.3	15
U.S.	16.2		21.1	

Source: *Statistical Abstract of the United States*, 1986 and Bureau of the Census, *Educational Attainment in the United States*, March 1991 and 1990.

**Minority Education.** One of the State's educational weaknesses is the educational attainment of minorities. Minorities typically have attained fewer years of education than whites. Table 16 shows that the percentage of adult whites with a high school education or above is 82.4 percent. The percentage is 71.0 for blacks, 75.4 for American Indians, 73.7 for Asians and 58.1 for Hispanics. With the exception of Asians, the minority groups also lag whites in the percent who attain college degrees. Since the minority population is growing more rapidly than the white population in Kansas this suggests that the education of minorities will be a significant issue. A higher proportion of skilled jobs will need to be filled by minorities. The lack of education preparation for minorities could be a major restraint on Kansas ability to achieve a High Skill/High Wage strategy.

**Table 16**  
**Educational Attainment by Race**  
**Percent of Population 25 and Older, Kansas 1990**

	American					
<u>Highest Level Completed</u>	<u>White</u>	<u>Black</u>	<u>Indian</u>	<u>Asian</u>	<u>Hispanic</u>	<u>Other</u>
Less than 8th Grade	7.3 %	8.6 %	7.8 %	14.7 %	23.7 %	28.3 %
9th to 12th,no diploma	10.3	20.4	16.8	11.7	18.1	20.2
H.S. Diploma	33.2	30.7	33.6	16.2	27.0	26.8
Some College, No Degree	22.0	22.9	23.6	13.2	16.5	14.6
Associate Degree	5.4	5.7	7.4	4.3	4.5	3.8
Bachelor Degree	14.6	7.4	6.7	19.7	6.6	4.7
Graduate/Prof Degree	7.1	4.2	4.1	20.2	3.5	1.6
High School Graduate or higher	82.4	71.0	75.4	73.7	58.1	51.5

Source: U.S. Census Bureau, 1990 Census of Population, *Summary Tape File 3A*, Tables P58 and P59.

**Table 17**  
**Percent High School Graduates or Higher**  
**By Race, Population 25 and Older**  
**Kansas, 1990**

	<u>% High School or higher</u>
White	82.4%
Black	71.0
Hispanic	58.1
Asian	73.7
American Indian	75.4
Other	51.5

Source: U.S. Census Bureau, 1990 Census of Population, *Summary Tape File 3A*, Table P58 and P59.

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**Other Issues.** While the education statistics are favorable overall for Kansas there are still several problem areas for the Kansas workforce. These include:

- **Adult basic education.** Approximately 9 percent of adult Kansans are illiterate and others lack basic skills in reading and math that are often necessary for employment. One-third of all Kansas employers report that their employees had a moderate to severe "basic skills gap". See the 1991 IPPBR report on "Adult Basic Skills and the Kansas Workforce" (Report no. 187B).
- **Workforce Preparation.** Kansas employers view a high proportion of new entrants and experienced employees as lacking important skills required for their jobs. See the 1989 IPPBR report on "Workforce Training: The Challenge for Kansas" (Report no. 168). The transition of high school graduates to employment or technical training is expected to be a continuing issue for Kansas as well as for other states well into the future.

**Workforce Productivity in Kansas.** The productivity of the Kansas workforce has been stable in recent years but the state's ranking has fallen from number 4 in the U.S in 1985 to 30th in 1990. This decline may have been caused partly by an increase in manufacturing jobs in low value added industries.

Productivity is measured by the value added per hour of work or per dollar paid in wages. Value added for a firm is the revenue received for its product minus what it buys from other firms. The value added data reported below is the best measure of worker productivity available but it also reflects the efficiency of management and the level of technology and capital investment.

The value added per hour worked in Kansas manufacturing in 1990 was \$50.28 and that was virtually unchanged from 1985 (Table 18). However, other states experienced an increase in value added per hour worked and Kansas' ranking fell from 4th in the U.S. to 30th. This is a remarkable decline in such a short period of time and this suggests that productivity in Kansas manufacturing is not keeping pace with productivity improvements in the rest of the U.S. All other states in the region experienced increases in value added per hour worked but Missouri was the only state to increase its ranking.

We do not have a good explanation for the decline in Kansas' ranking on value added per hour worked. The quality of the work force has not changed dramatically in a five year period to account for such a decline. One possible explanation is that the state has experienced a shift in employment from high value added industries to low value added industries. An alternative explanation is that Kansas has an over-representation of slow growth manufacturing firms that have not experienced the same growth in output as firms in other states. It may also be that Kansas firms have been slow in adopting competitive strategies, such as adapting new technology or total quality management, to increase productivity.

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**Table 18**  
**Value Added per Hour Worked in Manufacturing**  
**Kansas and Comparison States, 1985 and 1990**

	<u>Value Added</u>		<u>Rank in U.S.</u>	
	<u>1985</u>	<u>1990</u>	<u>1985</u>	<u>1990</u>
Colorado	\$49.06	\$63.98	6	7
Iowa	53.05	61.74	1	10
Missouri	42.88	57.75	23	17
Nebraska	42.88	53.29	22	27
Oklahoma	44.46	55.69	17	21
Kansas	50.33	50.28	4	30

Source: U.S. Bureau of the Census, *Annual Survey of Manufacturers*.

Note: Rankings do not include the District of Columbia.

The second measure of productivity is value added per dollar of wages in manufacturing. On this measure, Kansas had a decline from \$4.97 in 1985 to \$4.43 in 1990, which suggests that wages increased more rapidly than output per employee. This did not happen in any other state in the region; Kansas' ranking fell from 3rd to 30th.

**Table 19**  
**Value Added per Dollar of Wages in Manufacturing**  
**Kansas and Comparison States, 1985 and 1990**

	<u>Value Added</u>		<u>Rank in U.S.</u>	
	<u>1985</u>	<u>1990</u>	<u>1985</u>	<u>1990</u>
Colorado	\$4.62	\$5.49	16	9
Iowa	4.94	5.36	4	12
Missouri	4.16	5.21	28	19
Nebraska	4.62	5.25	15	18
Oklahoma	4.23	4.96	26	25
Kansas	4.97	4.43	3	30

Source: U.S. Bureau of the Census, *Annual Survey of Manufacturers*.

Note: Rankings do not include the District of Columbia.

If productivity in Kansas manufacturing has declined relative to other states, as these data suggest, that would suggest a major problem for the state. Growth in productivity is essential to maintaining a competitive manufacturing sector. It would not be possible to pursue a high wage strategy in manufacturing if the state has low value added industries.

To further explore the decline in Kansas' ranking on value added, we examined value added per hour worked in several major manufacturing industries. The results are shown in Table 20. One finding is that Kansas now has a food processing industry that is lower in value added than in the surrounding states.

**Table 20**  
**Value Added per Hour by Industry**  
**Kansas and Comparison States, 1990**

<u>Industry</u>	<u>KS</u>	<u>CO</u>	<u>IA</u>	<u>MO</u>	<u>NE</u>	<u>OK</u>
Food and Kindred Prod.	\$49.21	\$71.41	\$71.75	\$88.86	\$66.24	\$51.41
Apparel, Textiles				19.49	31.61	16.91
Lumber, Wood Prod.		20.71	26.16	20.66	17.15	19.59
Furniture, Fixtures		25.46	30.88	30.56	37.44	20.59
Paper	67.83	34.69	45.91	53.75		81.99
Printing, Publishing		61.13	60.52	61.38	42.02	62.13
Chemicals	161.75	86.73	267.27	182.12	149.97	123.86
Petroleum, Coal	143.22					68.89
Rubber		33.65	40.75	33.25	25.40	62.51
Leather				16.96		
Stone, Clay, Glass	43.76	40.13	39.11	42.14	34.15	42.52
Primary Metals		30.62	49.58	43.92	61.37	40.92
Fabricated Metals	32.24	38.27	37.61	44.06	42.33	42.19
Industrial Machinery	42.48	57.45	70.15	36.88	46.29	64.07
Electronics	44.55	51.52	68.76	44.00	54.82	72.13
Transport. Equip.	33.97		38.10	79.81	39.57	62.67
Instruments		102.83	104.83	61.59		102.27
Misc. Manufacturing		61.57	36.02	28.62	22.27	55.79

Source: U.S. Bureau of the Census, *Annual Survey of Manufacturers*.

As this table shows, not all manufacturing products are equal in terms of value added. Kansas, apparently, is showing more growth in low value industries than are other states in the region. If that is an accurate conclusion, then low wages would follow and we would also expect to see weakness in personal income levels. In industries which have relatively low value-added labor components, firms within Kansas can remain competitive only by reducing their share of labor costs, perhaps by introducing capital equipment which will make present processes more efficient. Only when labor is increasing in productivity (each hour of labor used results in even higher values of output), are firms able to maintain or increase wages and still remain competitive.

**Participation Rates.** The labor force participation rate is the percentage of the population 16 and over that is in the labor force (i.e., either working or actively seeking work). The participation rates for Kansas in both 1980 and 1990 were higher than for the U.S. (Table 21); this was also the case for all demographic groups including men and women, blacks and whites, and teenagers and adults.

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**Table 21**  
**Civilian Labor Force Participation Rates by Sex**  
**Kansas, Comparison States and the U.S., 1980 and 1990**

	<u>Total</u>		<u>Men</u>		<u>Women</u>	
	<u>1980</u>	<u>1990</u>	<u>1980</u>	<u>1990</u>	<u>1980</u>	<u>1990</u>
Kansas	62.4 %	65.4 %	74.9 %	73.6 %	50.8 %	57.8 %
Colorado	65.6	68.8	76.8	75.7	54.8	62.1
Iowa	62.5	65.9	76.2	74.7	50.0	57.8
Missouri	60.5	64.0	73.1	72.7	49.2	56.3
Nebraska	63.0	67.2	75.9	75.1	51.1	60.0
Oklahoma	58.9	61.3	71.6	70.0	47.1	53.3
U.S.	61.0	64.4	73.3	72.8	49.8	56.6

Source: 1980 Census, Detailed Population Characteristics, *General Social and Economic Characteristics*; 1990 Census, *Summary Tape File 3A*.

In comparison to other states in the region, participation rates in Kansas are in the middle. Colorado, Iowa and Nebraska have a higher proportion of their population in the labor force than does Kansas. The relatively low participation rates in rural counties indicates that there is a greater potential labor supply in rural areas of Kansas that would be suggested by the unemployment rate alone. The rural unemployment rate of 4.6 in 1980 was below the urban rate of 4.9, as shown in Table 22; the same pattern continued in 1990. However, unemployment rates are misleading as a measure of potential labor supply. The participation rate in rural counties was 3 percentage points below the rate in urban counties for 1980 and by 1990 the difference continued but narrowed to 1.7 percentage points. In 1990, 77.5% of the rural population was in the labor force, which was below the 79.2% rate for urban counties.

The low participation rates in rural communities likely reflect slow job growth. If jobs are not available then individuals who want to work may drop out of the labor force rather than remain unemployed. This suggests that there is a greater potential supply of workers in rural areas if additional jobs are generated.

**Table 22**  
**Civilian Labor Force Participation and Unemployment Rates**  
**Persons Age 16 to 64 Years, Metropolitan and Non-Metropolitan Areas of Kansas, 1990**

	<u>Participation Rates</u>		<u>Unemployment Rates</u>	
	<u>All</u> <u>Counties</u>	<u>Excl. Counties</u> <u>With Military</u> <u>Bases*</u>	<u>All</u> <u>Counties</u>	<u>Excl. Counties</u> <u>With Military</u> <u>Bases*</u>
Non Metro Counties	75.1 %	77.5 %	4.6 %	4.3 %
Metro Counties	78.1	79.2	4.9	4.8
Kansas Total	76.8	78.5	4.8	4.6
U.S.	76.1	NA	6.4	NA

\* Excluded Counties: Geary, Leavenworth and Riley

NA= Not applicable.

Sources: U.S. Bureau of the Census, 1990 Census of Population and Housing, *Summary Tape Files 3a, 3c*.

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**Table 23**  
**Civilian Labor Force Participation Rates by Sex, 1990**  
**Persons Aged 16 to 64 Years, Metropolitan and Non-Metropolitan Urban and Rural Areas of Kansas**

	<u>All counties</u>		<u>Excluding Certain Counties with Military Bases*</u>	
<u>Participation Rates</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Non Metro Counties	80.9%	69.2%	85.2%	69.7%
Metro Counties	84.0	72.2	86.2	72.5
Kansas Total	82.6	70.9	85.7	71.3
U.S.	84.5	68.1	NA	NA
<u>Unemployment Rates</u>				
Non Metro Counties	4.5	4.7	4.3	4.3
Metro Counties	5.2	4.6	5.2	4.5
Kansas	4.9	4.6	4.8	4.4
U.S.	6.5	6.2	NA	NA

\*Geary, Leavenworth and Riley counties.

NA= Not applicable.

Sources: U.S. Bureau of the Census, 1990 Census of Population and Housing, *Summary Tape Files 3a, 3c*.

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### III. EMPLOYMENT PATTERNS AND TRENDS

In this section the demand for labor is examined in terms of overall growth, the occupational mix of employment and the composition of employment by industry. The main theme is that substantial changes are occurring in the demand for Kansas workers both by occupation and industry.

Overall employment in Kansas has shown steady growth in recent years and that is likely to continue. Employment has increased at a slightly lower rate than for the U.S. but at a rate comparable to other states in this region. However, the apparent stability in overall employment is misleading. First, the geographic distribution of employment is changing. The distribution of employment among Kansas counties, already concentrated in metropolitan areas became more concentrated in the latter half of the 1980s. Second, the occupational structure is changing as employees shift to more skilled jobs. The most rapidly growing occupations in Kansas are in Technical Support, Managers, and Professionals. Third, traditional industries (durable goods manufacturing, farming, and mining) are declining as sources of employment while new growth industries (retail, finance, business services and professional services) are becoming more important.

#### Employment Growth

The growth in employment measures the demand for labor. We first examine employment growth in Kansas compared to the U.S. and other states in this region. Then the geographic distribution of employment within Kansas is considered both in terms of regions and the urban-rural mix.

**Trends in Employment Growth.** In recent years Kansas employment growth has generally lagged growth in the U.S. but this was not the experience in the 1970s. In that decade, employment increased by 27.8 percent in Kansas and by 26.2 percent in the U.S. From 1981 to 1985, Kansas employment grew at a lower rate than for the U.S. in four of the five years. From 1986 through 1991, Kansas under-performed the U.S. in three years and outperformed the U.S. in three years, including 1990 and 1991.

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**Table 24**  
**Employment Growth**  
**Kansas and U.S., 1960-1991**

<u>Year</u>	<u>Kansas</u>			<u>U.S.</u>		
	<u>(000s)</u>	<u>Change</u>	<u>%Change</u>	<u>(000,000s)</u>	<u>Change</u>	<u>%Change</u>
1960	827.9			65.8		
1970	885.0	57.1	10.7%*	78.7	12.9	19.6%*
1980	1,131.0	246.0	27.8*	99.3	20.6	26.2*
1981	1,140.0	9.0	0.8	100.4	1.1	1.1
1982	1,111.0	-29.0	-2.5	99.5	-0.9	-0.1
1983	1,114.0	3.0	0.3	100.8	1.3	1.3
1984	1,133.0	19.0	1.7	105.0	4.2	4.2
1985	1,176.0	43.0	3.8	107.2	2.2	2.1
1986	1,169.0	-7.0	-0.6	109.6	2.4	2.2
1987	1,205.0	36.0	3.1	112.4	2.8	2.6
1988	1,221.0	16.0	1.3	115.0	2.6	2.3
1989	1,233.0	12.0	1.0	117.3	2.3	2.0
1990	1,243.0	10.0	0.8	117.9	0.6	0.5
1991	1,238.0	-5.0	-0.4	116.9	-1.0	-0.8

\* Ten-year growth rate.

Source: U.S. Department of Commerce, Bureau of Labor Statistics

**Growth by Region.** Employment growth in Kansas during the 1980s was concentrated in the Northeast (Johnson County) and Southcentral (Sedgwick County) regions of the state. In the 1970s employment grew by 29 percent and there was substantial growth in all regions of the state; even the region with the lowest growth (Northcentral) had a 16 percent increase in employment. But in the 1980s, the employment growth rate fell to 14 percent and two regions - Northwest and Southeast - had declines in employment. In 1990, 39 percent of all jobs in the state were in the Northeast region and an additional 26 percent was in the Southcentral region.

**Table 25**  
**Percent Change in Employment Growth**  
**Kansas Regions and Kansas, 1970-1990**

<u>Region</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>1970-80</u>	<u>1980-90</u>	<u>1970-90</u>
Northeast	322,493	444,808	578,621	38%	30%	79%
Southeast	91,159	111,545	108,628	22	-3	19
Northcentral	166,861	194,271	205,323	16	6	23
Southcentral	262,852	347,407	386,228	32	11	47
Northwest	56,877	67,901	66,712	19	-2	17
Southwest	96,708	120,811	127,052	25	5	31
Kansas	996,950	1,286,742	1,472,564	29	14	48

Source: Bureau of Economic Analysis, *Regional Economic Information System, Tables, CA25*, September 1991.

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Five counties, accounting for 43 percent of Kansas' population generated 94 percent of the job creation from 1985 to 1990, while the other 100 counties shared the other 6 percent<sup>4</sup> (See Table A5 in the Appendix). Map 1 shows the employment changes for all counties in Kansas from 1980 to 1990, while Map 2 shows the corresponding percentage changes. Johnson County had the largest increase with a gain of 101,746 followed by Sedgwick (36,511), Shawnee (14,876), and Douglas (10,589). Sixty-one counties lost jobs during this 10 year period.

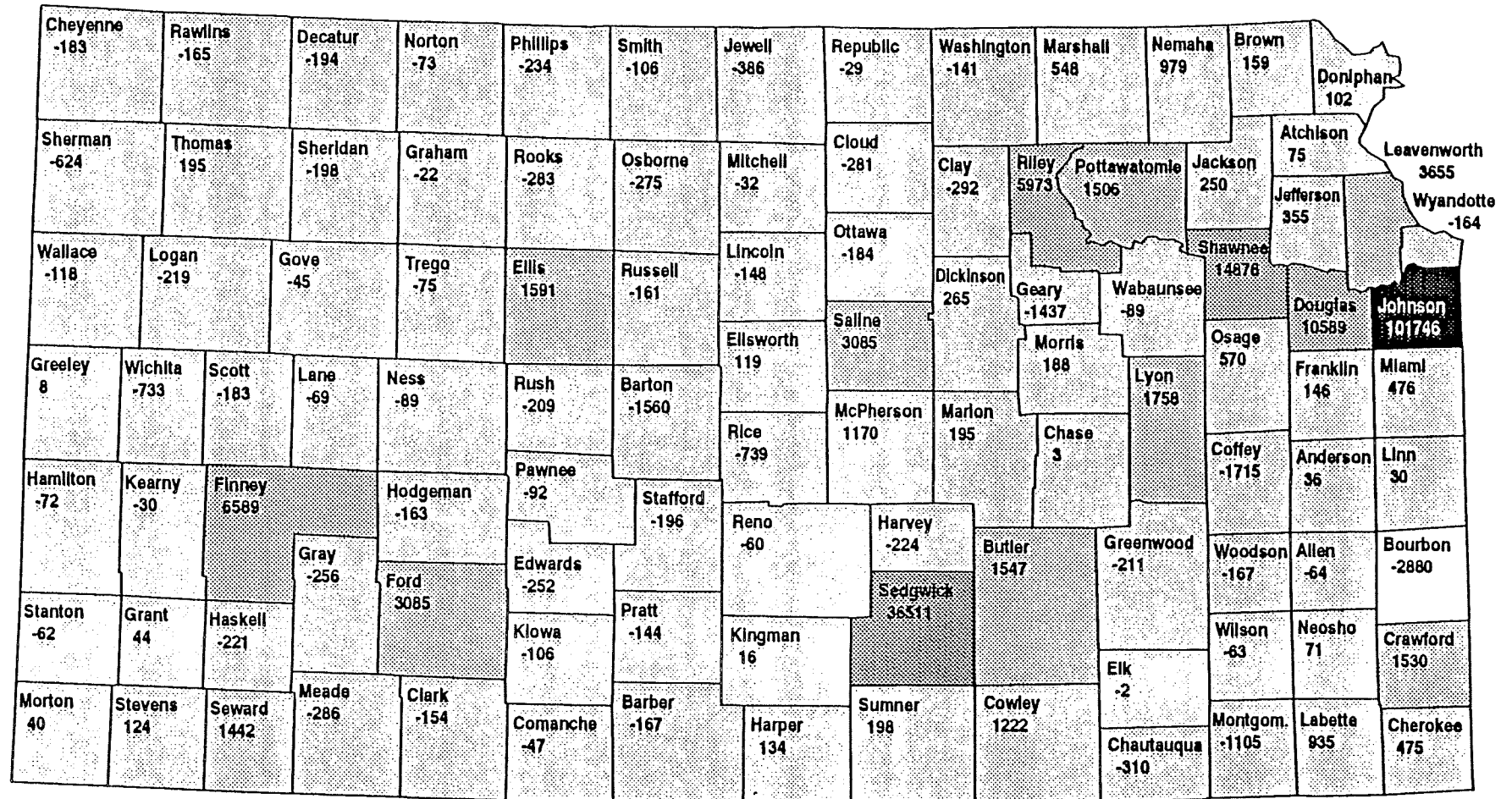
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<sup>4</sup> Johnson, Sedgwick, Shawnee, Douglas and Leavenworth Counties

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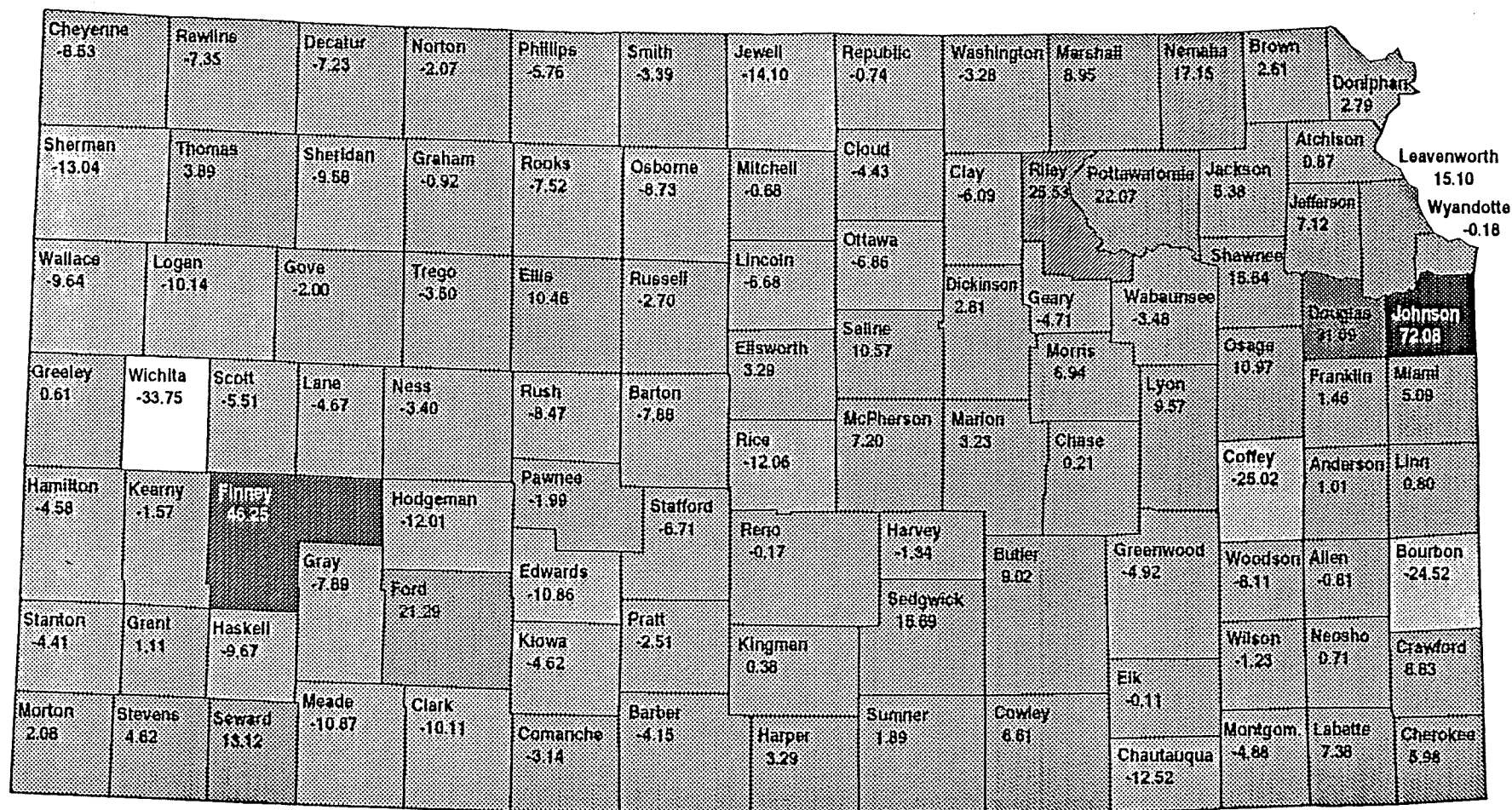
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**Map 1**  
**Change in Employment, Kansas Counties, 1980-1990**



Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, Table CA25, September 1991.

**Map 2**  
**Percentage Change in Employment, Kansas Counties, 1980-1990**



Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, Table CA25, September 1991.

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**Urban/Rural Growth.** The increasing concentration of employment within the urban areas of Kansas is shown in Table 26. In 1970 there were 63,000 more jobs in the rural counties of Kansas than in the urban counties; by 1990 this had reversed and there were 190,000 more jobs in the urban counties. In the 1990s the urban counties had an increase in employment of 25.5 percent in contrast to a 2.7 percent increase in the rural counties. Ninety-one percent of the new jobs in Kansas during the 1980s were in the nine urban counties.

**Table 26**  
**Employment Growth for Urban and Rural Counties, 1970-1990**

	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>Percent Change</u>	
				<u>1970-80</u>	<u>1980-90</u>
Urban	457,916	662,473	831,485	39.2%	25.5%
Rural	521,034	624,269	641,079	19.8	2.7
Kansas	996,950	1,286,742	1,472,564	29.1	14.4
U.S. (thousands)	89,752	112,257	137,153	25.1	22.2

Source: Bureau of Economic Analysis, *Regional Economic Information System, Tables*, CA25, September 1991.  
Note: In this section 'urban' and 'rural' are considered to be equivalent terms to 'metropolitan' and 'non-metropolitan.'

### **Employment Growth in Comparison States.**

During the 1980s the only state in the region to exceed the U.S. average increase in employment was Colorado. Employment increased by 22.2 percent in the U.S. and by 24.5 in Colorado. Kansas, with an employment increase of 14.4 percent, trailed Colorado and Missouri but led Nebraska, Iowa, and Oklahoma. The economic trends that led to below U.S. average employment growth in Kansas during the 1990s also affected most other states in this region.

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**Table 27**  
**Employment Growth in Kansas and Comparison States**  
**1970-1990**

	1970	1980	1990	Percent Change	
				1970-80	1980-90
Kansas	996,950	1,286,742	1,472,564	29.1 %	14.4 %
Colorado	1,000,535	1,614,053	2,009,417	61.3	24.5
Iowa	1,270,813	1,519,021	1,626,006	19.5	7.0
Missouri	2,164,479	2,510,662	2,993,984	16.0	19.2
Nebraska	706,963	868,075	974,889	22.8	12.3
Oklahoma	1,094,693	1,512,867	1,611,353	38.2	6.5
U.S.(thousands)	89,752	112,256	137,153	25.1	22.2

Source: Bureau of Economic Analysis, *Regional Economic Information System, Tables*, SA 25, September 1991.

### Change in Occupational Structure

Detailed information on employment by occupation in Kansas is not available. The broad occupational categories include a wide variety of jobs that are not all similar in skill requirements or pay. This is particularly true of the service occupations. But there is sufficient information to conclude that the occupational structure of jobs in Kansas is shifting toward more skilled jobs and away from lower skilled jobs in manufacturing. One reason for the change is that low skilled assembly jobs may be performed in low wage countries and Kansas has little chance to succeed against such competition. Telephones, for example, may be assembled by low skilled workers in Kansas but also in Mexico or Malaysia.

**Occupations in Kansas.** The occupational structure of the Kansas labor force is remarkably similar to the U.S. labor force (Table 28). The only occupation in which Kansas is clearly over-represented is farming but the difference is not great. In Kansas 4.6 percent of all jobs are in farming while for the U.S. the percentage is 2.5. The effect is that Kansas has 16,200 more jobs in farming than would exist if the state were at the U.S. average. The only other occupation in which Kansas has a notable over-representation is in Services. 11.8 percent of Kansas jobs are in Services in comparison to 11.1 percent in the U.S.

The only occupation in which Kansas is noticeably under-represented is in Executive, Administrative, and Managerial. Kansas has 11.3 percent of employment in this occupation and the U.S. has 12.3 percent. This undoubtedly reflects the small number of companies headquartered in Kansas. Kansas also has slightly fewer persons employed in Technical and Related Support than the U.S. but the difference is only 0.3 percentage points.

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**Table 28**  
**Employment Shares by Occupation, Population 16 and Older**  
**Kansas and the U.S., 1980 and 1990**

<u>Occupation</u>	<u>Percent of Total Employment</u>			
	<u>Kansas</u>		<u>U.S.</u>	
	<u>1980</u>	<u>1990</u>	<u>1980</u>	<u>1990</u>
Executive, Administrative, & Managerial	9.8%	11.3%	10.4%	12.3%
Professional Specialty	11.9	14.1	12.3	14.1
Technical and Related Support	2.7	3.4	3.1	3.7
Sales	10.2	11.4	10.0	11.8
Administrative Support, including Clerical	16.4	16.1	17.3	16.3
Private Household	0.5	0.4	0.6	0.5
Protective Services	1.0	1.4	1.5	1.7
Service (except Protective & Household)	11.1	11.8	10.8	11.1
Farming, Forestry and Fishing	6.2	4.6	2.9	2.5
Precision Production, Craft and Repair	13.7	11.5	12.9	11.3
Machine Operators	7.7	6.3	9.3	6.8
Transportation and Material Moving	4.5	4.1	4.5	4.1
Handlers, Equipment Cleaners, Helpers and Laborers	4.4	3.9	4.5	3.9
Total	100.0	100.0	100.0	100.0

Source: U.S. Census Bureau, Census of Population, *Summary Tape File 3A*, Table P66 (1980) and P78 (1990).

Overall, the distribution of employment by occupation suggests that the Kansas labor force possess the ability and skills to hold an array of jobs that closely mirrors the U.S.

**Net Job Creation by Occupation.** The occupational structure of the Kansas workforce is changing in a manner consistent with national trends. As was discussed in Section I (Table 1), the greatest growth to the year 2005 is expected to occur in occupations that generally require higher levels of education or skill training. Table 29 shows that over the 1980-1990 period, this pattern was already evident; the occupations that had the greatest growth in Kansas were: (1) professional specialties, (2) executive, administrative, and managerial, (3) sales, and (4) services. Occupations that declined in the decade were primarily lower skilled. These were: (1) farming, forestry and fishing, (2) precision production, craft and repair, (3) machine operators, assemblers and inspectors (4) transportation and material moving, (5) handlers, equipment cleaners, helpers & laborers.

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**Table 29**  
**Job Creation by Occupation**  
**Kansas and U.S., 1980-1990**

<u>Occupation</u>	<u>Net Job Creation</u>		<u>Share of Job Creation</u>	
	<u>Kansas</u>	<u>U.S.</u>	<u>Kansas</u>	<u>U.S.</u>
Executive, Administrative, & Managerial	27,593	4,094,365	29.5 %	22.7 %
Professional Specialty	36,666	4,287,569	39.2	23.8
Technical and Related Support	10,186	1,275,284	10.9	7.1
Sales	23,797	3,874,529	25.5	21.5
Administrative Support, including Clerical	12,053	1,975,079	12.9	11.0
Private Household	-1,124	-68,198	-1.2	-0.4
Protective Services	5,022	517,537	5.4	2.9
Service (except Protective and Household)	17,494	2,217,153	18.7	12.3
Farming, Forestry and Fishing	-12,693	27,752	-13.6	0.2
Precision Production, Craft and Repair	-13,763	503,788	-14.7	2.8
Machine Operators, Assemblers & Inspectors	-9,419	-1,180,791	-10.1	-6.5
Transportation and Material Moving	-574	339,589	-0.6	1.9
Handlers, Equipment Cleaners, Helpers & Laborers	-1,765	178,191	-1.9	1.0
Total, All Occupations	93,473	18,041,847	100.0 %	100.0 %

Source: U.S. Census Bureau, Census of Population, *Summary Tape File 3A*, Table P66 (1980) and P78 (1990).

The shift in demand is away from the traditional blue collar occupations that have been the source of jobs for high school graduates (or dropouts) without specific skill training. Jobs for machine operators, assemblers and inspectors fell by 10.1 percent and there was also a decline for laborers. Even precision production jobs fell by over 13 percent. Kansans who previously would have been employed in such occupations will need training to qualify for employment in the more rapidly growing occupations.

One implication of the employment trends by occupation is that wage increases will likely be smaller in occupations with stable or declining employment than in occupations with increasing employment. We are likely to see an increasing disparity in incomes between those who are well prepared for employment by education or skill training and those who are not.

Projected changes in Occupations. Table 30 shows the projected growth in employment by occupation in the U.S. from 1990 to 2005. The same trends are expected to continue as employment shifts from production based jobs to jobs in the professions and services. Jobs in service occupations will increase by 29.2 percent and they will account for 22.8 percent of all new jobs. The growth in professional occupations will be 32.3 percent, which will be 20.7 percent of all new jobs. Substantially smaller increases are projected for agriculture, production and operator jobs.

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**Table 30**  
**Projected Employment Growth by Major Occupations**  
**U.S. (Thousands)**

<u>Occupation</u>	<u>Employment</u>		<u>Percent Change</u> <u>by Occupation</u>	<u>Share of Net</u> <u>Job Growth</u>
	<u>1990</u>	<u>2005</u>		
Executive, Administrative, Managerial	12,451	15,866	27.4 %	13.9 %
Professional	15,800	20,907	32.3	20.7
Technicians, Related	4,204	5,754	36.9	6.3
Marketing and Sales	14,088	17,489	24.1	13.8
Administrative Support	21,951	24,835	13.1	11.7
Service Occupations	19,204	24,806	29.2	22.8
Agricultural, Forestry, Fishing	3,506	3,665	4.5	0.6
Precision Production, Craft, and Repair	14,124	15,909	12.6	7.3
Operators, Fabricators and Laborers	17,245	17,961	4.2	2.9
Total	122,573	147,191	20.1	100

Source: U.S. Bureau of Labor Statistics, *Monthly Labor Review*, November 1991.

### Employment Growth by Industry

The mix of employment in Kansas is also changing as employment declines in traditional production/extraction industries and increases in services and retail. The focus of this section is on the industries that have generated the largest number of new jobs. There will be employment opportunities in other industries but the high growth industries tell us the direction in which the economy is changing.

**Industry Share of New Jobs.** The major change in industry employment in Kansas during the 1980s was a decline in the industries that have been particularly important to the state - agriculture, mining, construction, and durable goods manufacturing. These declines are due to trends that go beyond Kansas and are not under the state's control. Fewer employees are required in the industries that manufacture goods, extract petroleum products, or produce agricultural products.

The growth industries in Kansas are in services, particularly those that are knowledge based. The fastest growing industry is Professional and Related Services but Health and Education also had substantial growth. These professional services accounted for 65 percent of all new jobs in Kansas. Business services and finance also had substantial growth. Finally, retail trade, which is obviously not knowledge based, had an increase of 20,767 or 22 percent of all new jobs.

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**Table 31**  
**Job Creation by Industry**  
**Kansas, U.S. and Surrounding States, 1980-1990**

<u>Industry</u>	<u>U.S.</u>	<u>Kansas</u>	<u>Colorado</u>	<u>Iowa</u>	<u>Missouri</u>	<u>Nebraska</u>	<u>Oklahoma</u>
Agriculture, Forestry & Fisheries	201,783	-8,142	3,825	-26,778	-10,011	-12,705	1,120
Mining	-304,755	-4,972	-16,194	-663	-3,890	341	-21,852
Construction	1,475,165	-2,665	-12,214	-2,858	17,915	-2,475	-16,894
Manufacturing,							
Nondurable Goods	-382,309	2,100	7,647	594	-12,331	2,451	-6,689
Durable Goods	-1,070,367	-13,089	7,471	-30,252	-9,680	-3,153	-13,899
Transportation	834,042	337	14,830	3,656	10,070	-3,293	6,694
Communications & Other							
Public Utilities	283,565	4,503	9,843	-3,683	10,032	-1,031	-1,686
Wholesale Trade	853,794	-1,090	9,239	-4,469	3,868	1,765	320
Retail Trade	3,768,972	20,767	49,816	15,920	64,452	17,221	25,253
Finance, Insurance & Real Estate	2,086,811	14,128	22,982	15,247	34,553	8,123	9,394
Business & Repair Services	1,495,785	10,075	29,121	11,698	21,769	10,160	10,655
Personal Services	592,932	649	13,668	-2,263	2,682	989	2,521
Entertainment & Recreational Services	629,390	5,133	10,185	4,703	8,886	2,703	8,016
Prof. & Related Services: Health	2,432,219	15,486	32,788	15,773	47,063	7,912	25,725
Prof. & Related Services: Education	1,256,290	13,070	19,716	7,854	15,381	4,837	14,662
Prof. & Related Services: Others	3,497,919	33,086	62,415	34,699	61,674	21,070	31,397
Public Administration	390,611	4,097	6,126	-3,574	965	1,265	6,544
Total	18,041,847	93,473	271,264	35,604	263,398	56,180	81,281

Source: U.S. Census Bureau, Census of Population, *Summary Tape File 3A*, Table P65 (1980) and P77 (1990).

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**Table 32**  
**Industry Shares of Net Job Creation**  
**Kansas, U.S. and Surrounding States, 1980-1990**

<u>Industry</u>	<u>Percent of new Jobs Created</u>						
	<u>U.S.</u>	<u>Kansas</u>	<u>Colorado</u>	<u>Iowa</u>	<u>Missouri</u>	<u>Nebraska</u>	<u>Oklahoma</u>
Agriculture, Forestry and Fisheries	1.1%	-8.7%	1.4%	-75.2%	-3.8%	-22.6%	1.4%
Mining	-1.7	-5.3	-6.0	-1.9	-1.5	0.6	-26.9
Construction	8.2	-2.9	-4.5	-8.0	6.8	-4.4	-20.8
Manufacturing,							
Nondurable Goods	-2.1	2.3	2.8	1.7	-4.7	4.4	-8.2
Durable Goods	-5.9	-14.0	2.8	-85.0	-3.7	-5.6	-17.1
Transportation	4.6	0.4	5.5	10.3	3.8	-5.9	8.2
Communications/Other Public Utilities	1.6	4.8	3.6	-10.3	3.8	-1.8	-2.1
Wholesale Trade	4.7	-1.2	3.4	-12.6	1.5	3.1	0.4
Retail Trade	20.9	22.2	18.4	44.7	24.5	30.7	31.1
Finance, Insurance & Real Estate	11.6	15.1	8.5	42.8	13.1	14.5	11.6
Business & Repair Services	8.3	10.8	10.7	32.9	8.3	18.1	13.1
Personal Services	3.3	0.7	5.0	-6.4	1.0	1.8	3.1
Entertainment & Recreational Services	3.5	5.5	3.8	13.2	3.4	4.8	9.9
Professional & Related Services: Health	13.5	16.6	12.1	44.3	17.9	14.1	31.7
Professional & Related Services: Education	7.0	14.0	7.3	22.1	5.8	8.6	18.0
Professional & Related Services: Others	19.4	35.4	23.0	97.5	23.4	37.5	38.6
Public Administration	2.2	4.4	2.3	-10.0	0.4	2.3	8.1
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: U.S. Census Bureau, Census of Population, *Summary Tape File 3A*, Table P65 (1980) and P77 (1990).

Other states in the region have experienced changes in industry employment similar to Kansas. In Iowa the declines in agriculture and manufacturing were more severe than in Kansas. Missouri had declines in these industries similar to Kansas. Oklahoma had a slight increase in agricultural employment but a more severe decline in mining. The major conclusion is that the Plains states can not rely on traditional industries for employment growth and will increasingly come to resemble the U.S., as knowledge based industries become increasingly important for employment.

**Manufacturing Employment.** Manufacturing employment is particularly important to a state's economy since it is a key part of the economic base. Almost all manufacturing jobs in Kansas are export related. In the 1980s employment in non durable goods manufacturing increased in Kansas by 2,100 or 2.7 percent. In the U.S. employment fell by 383,309 or 4.5 percent. This favorable relative performance for Kansas was not repeated for durable goods. Durable goods manufacturing employment fell by 10 percent in Kansas and 7.9 percent in the U.S. The Kansas decline was undoubtedly related to the aircraft industry in Wichita.

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**Table 33**  
**Manufacturing Employment in Kansas and U.S.**

	<u>1980</u>	<u>1990</u>	<u>Change</u>	<u>%Change</u>
Kansas				
Non Durable	76,459	78,559	2,100	2.7 %
Durable	131,015	117,559	-13,089	-10.0
Total	207,474	196,485	-10,989	-5.2
U.S. (Thousands)				
Non Durable	8,436.543	8,053,234	-383,309	-4.5
Durable	13,479,211	12,408,844	-1,070,367	-7.9
Total	21,915,754	20,462,078	-1,453,676	-6.6

Source: U.S. Census Bureau, Census of Population, 1980, 1990, *Summary Tape File 3A*, Table P65 (1980) and P77 (1990).

Table 34 shows the distribution of manufacturing jobs in Kansas for the six regions. Obviously manufacturing jobs exist in all parts of the state but there have been declines in all regions except the Southwest. In the Northwest, manufacturing jobs are becoming rare and experienced a drastic drop of 26 percent in the 1980s. On average though, the non metropolitan areas of Kansas had a decline of 5.0 percent, which was virtually the same as the 5.5 percent in metropolitan areas.

**Table 34**  
**Change in Manufacturing Employment by Kansas Region**  
**Population 16 and Older, 1980 and 1990**

	<u>1980</u>	<u>1990</u>	<u>Net Change</u>	<u>% Change</u>
Northeast	69,953	65,520	-4,433	-6.3 %
Southeast	20,194	18,836	-1,358	-6.3
Northcentral	21,625	20,803	-822	-3.9
Southcentral	83,094	76,826	-6,268	-7.5
Northwest	3,624	2,653	-971	-26.8
Southwest	8,984	11,847	2,863	31.9
Metropolitan	126,420	119,443	-6,977	-5.5
Non-Metropolitan	81,054	77,042	-4,012	-5.0
Kansas Total	207,474	196,485	-10,989	-5.3
U.S. Total	21,914,754	20,462,078	-1,452,676	-6.6

Source: U.S. Census Bureau, Census of Population, 1980, 1990, *Summary Tape File 3A*, Table P65 (1980) and P77 (1990).

The recent declines in manufacturing employment in Kansas are a concern and suggest that the competitiveness of Kansas manufacturing must be a priority. Manufacturing jobs in rural areas are particularly important since agricultural and mining jobs are likely to decline.

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## IV. EARNINGS AND INCOME

The most fundamental measure of a state's economic performance is the earnings and incomes of its citizens. The earnings of workers are determined by their skills and abilities, the amount and quality of capital available to them, and the quality of management. Highly skilled and productive workers will be able to add substantial value to goods and service and thus earn high wages. In addition, earnings are directly affected by the mix of high wage/low wage industries in the state. If the state is successful in developing, retaining or attracting high value added industries then Kansans will have access to high incomes.

In this section we examine per capita income trends in Kansas and other states in the region and earnings in manufacturing.

### Trends in Per Capita Income

A key benchmark for Kansas is per capita income. This is the bottom line with respect to the productivity of the State's workforce and the ability of the state to compete in high value added industries.

**Kansas vs. U.S.** Per capita income in Kansas has lagged behind the U.S. average since 1987. In 1950, 1960 and 1970 Kansas was 93 percent to 98 percent of the U.S. average but in 1980 parity was reached and maintained until 1987. Since that year Kansas has been at 96 to 98 percent of the U.S. per capita income. In 1991 Kansas was at 97 percent of the U.S. average.

The below U.S. average per capita income reflects several weaknesses in the Kansas economy. First, Kansas workers may be less productive than workers in other states due to a lack of academic preparation or a lack of technical skill training. However, this is not a likely explanation given the high level of educational attainment by the Kansas workforce.

Second, there may have been a shift in employment from high wage industries to low wage industries. In particular, high paying manufacturing jobs may have been replaced in Kansas with low paying jobs in manufacturing and other industries. The drastic decline in manufacturing value added per hour supports this thesis. If Kansas creates additional jobs in such low wage industries as retail, some personal services, and tourism, per capita income can be expected to continue to decline relative to the U.S.

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**Table 35**  
**Per Capita Income, Kansas and the U.S., 1950-1990**

<u>Year</u>	<u>Kansas</u>	<u>U.S.</u>	<u>Kansas/U.S. Ratio</u>
1950	1,463	1,498	.98
1960	2,159	2,254	.96
1970	3,770	4,051	.93
1980	9,941	9,919	1.00
1985	13,930	13,942	1.00
1986	14,631	14,654	1.00
1987	15,147	15,494	.98
1988	15,993	16,600	.96
1989	16,962	17,738	.96
1990	18,104	18,696	.96
1991	18,511	19,082	.97

Sources: U.S. Department of Commerce, Bureau of Economic Analysis, *State Personal Income: 1982-87* (for data 1950-1980), and Bureau of Economic Analysis, *Regional Economic Information System*, Table CA5 (for data 1985-1990).

The major implication of both the manufacturing value added decline and the relative decline in per capita income is that the quality of jobs needs to be emphasized to a greater extent if Kansas is to keep pace with the U.S. Opportunities to create high wage jobs need to be given greater support than opportunities to create jobs in low wage industries or occupations.

One other implication is that support be given to Kansas businesses that are shifting to high performance organizations based on the application of current technology, a high skilled work force, a lean management structure, and a focus on high value added products or services. A key question is whether the state can facilitate changes in Kansas companies that will lead to high wage jobs.

**Kansas vs. Comparison States.** Of the states in this region, only Colorado exceeds the U.S. average on per capita personal income. In 1991, Colorado was at 1.02 of the U.S. per capita income and ranked number 14. Kansas was at .97 and ranked 21st. Oklahoma was the lowest in the region with per capita income at .83 the U.S. average for a ranking of 40th.

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**Table 36**  
**Per Capita Personal Income for States in Region**

	<u>1991</u>	<u>Ratio to U.S.</u>	<u>Rank</u>	<u>Percent Change From 1990</u>
Colorado	19,440	1.02	14	3.1
Iowa	17,505	.92	28	1.2
Missouri	17,842	.94	25	2.1
Nebraska	17,852	.94	24	2.1
Oklahoma	15,827	.83	40	2.4
Kansas	18,511	.97	21	2.2
U.S.	19,082	1.00	--	2.1

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Information System*, Table SA5.

The regional data suggest that Colorado, with its highly educated workforce, has had the greatest success in this region in diversifying its economy from agriculture and extraction industries to high value added industries with high wages.

**Per Capita Income for Kansas Regions.** Per capita income is not equally distributed in all regions of Kansas. The regions with urban centers have higher incomes than rural regions. In 1990, the Northeast, Southcentral, and Southwest had per capita incomes above the state average of \$18,104. The Northeast was 8 percent above the state average while the Southwest and Southcentral were 2 percent and 1 percent above, respectively. The Southeast, with a per capita income of \$14,816, was almost \$5,000 below the state average.

**Table 37**  
**Per Capita Income in Kansas by Region and Category**  
**1980-1990**

	<u>1980</u>	<u>1990</u>	<u>%Change</u>	<u>Ratio to Kansas</u>	
				<u>1980</u>	<u>1990</u>
Northcentral	\$8,381	\$15,266	82.2%	0.84	0.84
Northeast	10,448	19,516	86.8	1.05	1.08
Northwest	9,241	17,687	91.4	0.93	0.98
Southcentral	10,597	18,199	71.7	1.07	1.01
Southeast	8,484	14,816	74.6	0.85	0.82
Southwest	9,848	18,466	87.5	0.99	1.02
Metropolitan	11,012	19,740	79.3	1.11	1.09
Non Metropolitan	7,504	13,493	79.8	0.75	0.75
Kansas	9,942	18,104	82.1	1.00	1.00
U.S.	9,919	18,685	88.4	1.00	1.03

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Information System*, Table SA2.

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Perhaps the most significant comparison in Table 37 is the difference between metropolitan and non-metropolitan areas. In 1990, the rural areas of Kansas had a per capita income level that was 75 percent of the state average. The non metro per capita income in 1990 was \$13,493, or \$6,247. Such a significant difference cannot be accounted for by the lower cost of living in rural areas. Over the last decade rural incomes grew more slowly than urban incomes and the rural ratio to state average fell from 79 percent to 75 percent.

The relatively low per capita incomes in rural areas is undoubtedly due in part to low wage jobs. This suggests that most counties in Kansas have not yet been able to focus on high wage/high skill jobs as changes in the economy require.

There are several implications of the income trends. First, there is no sign that the relative decline in rural incomes has stopped or reversed. Second, there is a strong financial incentive for the continued migration of population from rural to urban areas of the state. Such a move is associated with a \$6,000 increase in per capita income.

### Earnings in Manufacturing

Manufacturing wages in Kansas have been consistently equal to the U.S. average since 1950. In 1990, the average manufacturing wage in Kansas was \$10.94 and \$10.84 in the U.S. (Table 38). The Kansas average is undoubtedly as high as it is because of jobs in aircraft manufacturing in the Wichita area.

**Table 38**  
**Average Annual Manufacturing Pay,**  
**Kansas and the U.S., 1950-1990**

<u>Year</u>	<u>Kansas</u>	<u>U.S.</u>	<u>Kansas/U.S. Ratio</u>
1950	\$1.43	1.47	0.97
1960	2.36	2.26	1.04
1970	3.25	3.36	0.97
1980	7.34	7.27	1.01
1985	9.50	9.53	1.00
1990	10.94	10.84	1.01

Source: U.S. Department of Labor, Bureau of Labor  
Statistics, *Employment and Earnings*

Table 39 illustrates how great an effect aircraft (Wichita) and automotive assembly (Wyandotte County) manufacturing have on the Kansas average level of earnings in manufacturing. The transportation equipment category, accounting for nearly one quarter of Kansas manufacturing, averages \$15.02 per hour in wages. Without this category, the Kansas average earnings in manufacturing would be \$7.70, about two-thirds the current Kansas and U.S. levels.

Wage productivity, the value added contribution in manufacturing for each dollar of wages paid, represents the marginal benefit to employers of using labor. It is noteworthy that for each of Kansas' top three manufacturing categories (transportation equipment, food and kindred products, and industrial machinery and equipment, which combined account for over half of Kansas' manufacturing), wage productivity is below the U.S. average. In the transportation equipment industry, wage productivity was almost half the U.S. average in 1990. Only the printing and publishing industry has significantly greater wage productivity than the U.S. average (Table 39).

**Table 39**  
**Average Hourly Manufacturing Wages and Wage Productivity**  
**Kansas and the U.S., 1990**

<u>Manufacturing Category</u>	<u>Kansas</u>			<u>U.S.</u>		
	<u>Share of</u> <u>Production</u> <u>Workers</u>	<u>Average</u> <u>Hourly</u> <u>Rate</u>	<u>\$ Value</u> <u>Added per</u> <u>\$ Wages</u>	<u>Share of</u> <u>Production</u> <u>Workers</u>	<u>Average</u> <u>Hourly</u> <u>Rate</u>	<u>\$ Value</u> <u>Added per</u> <u>\$ Wages</u>
Transportation equipment	24.2%	\$ 15.02	\$ 2.26	9.5%	\$ 15.72	\$ 4.06
Food and kindred products	15.3	9.15	5.38	8.7	9.82	6.71
• Meat products	9.3	8.29	3.31	2.6	7.65	3.69
• All other food and kindred	6.0	10.51	7.97	6.1	10.78	7.65
Industrial machinery and equipment	12.5	10.90	3.90	9.7	12.27	4.45
Printing and publishing	9.4	10.11	7.77	6.7	10.91	5.92
Electronic and other electric equipment	5.0	9.18	4.86	7.8	10.78	5.25
Fabricated metal products	4.3	9.50	3.51	8.7	11.28	3.28
All other categories of manufacturing	29.3	5.98	5.86	48.9	10.41	5.01
Total - All manufacturing	100.0	11.34	4.43	100.0	11.19	4.88

Source: U.S. Department of Commerce, Bureau of the Census, *1990 Annual Survey of Manufactures*, M90(AS)-3, April 1992.

Note: Due to variations in the method of data collection and analysis, average hourly wage rates from this source will differ from those shown in Tables 38 and 40, which use Department of Labor data.

There are no great differences in manufacturing wages for states in the region. Only Iowa has higher average manufacturing wages at 3 percent above Kansas. The other states are virtually the same as Kansas except for Nebraska which is at 88% of the Kansas average (See Table 40).

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**Table 40**  
**Average Hourly Manufacturing Pay for States in Region, 1980 and 1990**

<u>State</u>	<u>1980</u>	<u>1990</u>	<u>Percent Change</u>	<u>Ratio to Kansas</u>
Colorado	\$ 7.59	\$ 10.94	44.1%	1.00
Iowa	8.67	11.27	30.0	1.03
Kansas	7.34	10.94	49.0	1.00
Missouri	7.26	10.74	47.9	0.98
Nebraska	7.36	9.67	31.4	0.88
Oklahoma	7.36	10.71	45.5	0.98
U.S.	7.27	10.84	49.1	0.99

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*

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## V. IMPLICATIONS

### The Changing Labor Market

- Higher education or post secondary technical skill training are becoming prerequisites for good jobs that pay high wages.
- High wage jobs for low skilled workers are disappearing. Kansans without higher education or skill training will be limited to fewer and fewer low wage job opportunities.
- A high priority for the state should be to ensure that all students leave high school well prepared for college or post secondary technical training.
- The economic position of low skilled Kansas workers will continue to deteriorate as they increasingly compete with workers from low wage countries.
- The pursuit of low skill/low wage jobs for Kansas will cause per capita income to lag in the state. The wealth of the state is ultimately dependent on the productivity of its workforce.
- To be competitive in changing markets Kansas businesses require a highly skilled, flexible workforce.
- Employers seeking more skilled workers will increasingly have to rely on retraining workers already in the labor force rather than new entrants and will also need to hire more women and minorities.
- Without an appropriate level of well-trained and highly skilled workers, the development of high growth industries within Kansas will be severely constrained. In the absence of a satisfactory local labor force, employers with vacancies in high-growth occupations may need to rely more heavily upon external recruitment of staff as a human resource strategy. The costs of carrying out such a strategy will also serve to reduce the competitiveness of these firms.

### The Labor Force

- The slow growth of the labor force in the 1990s suggests that businesses will need to retrain existing workers as job requirements change. Adult worker retaining will need to be a higher priority for educational institutions.
- Unemployment should not be a major issue in the 1990s in Kansas.
- Kansas has a workforce with above average levels of education. This is a major advantage for the state and suggests that a high skill/high wage strategy is feasible and may be more successfully pursued in Kansas than in many other states.

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- The educational attainment level of minorities needs to be raised. It is clear that minorities will be an increasing proportion of the Kansas workforce and that they will need to be part of any high skill/high wage strategy. An immediate priority should be to reduce the dropout rate of minorities, particularly Hispanics.
- Approximately 19 percent of adult Kansans do not have a high school degree and will have their employment opportunities limited as companies increase their skill expectations. Adult basic education will need to be a priority. Basic education skills are not only needed in employment but also are a prerequisite for technical skill training.
- Productivity growth in Kansas manufacturing has not kept pace with the rest of the U.S. since 1985. The evidence is consistent with a finding that Kansas has experienced a shift to low value added (and low wage) manufacturing industries.
- If productivity, as measured by value added, continues its recent poor performance in Kansas we can expect to see a relative decline in per capita income.

### **Employment Patterns and Trends**

- If employment growth continues to be concentrated in the 9 urban counties we can expect population growth to also be concentrated in those counties. There will be continued migration of population from rural areas to urban areas.
- The state will need to target economic development programs and resources to rural areas or accept a continuing slow employment growth (or even decline) in those areas of the state. Higher skilled occupations with the most significant growth potential are becoming increasingly concentrated within metropolitan areas.
- The shift from low skill occupations to high skill/high education occupations indicates a strong need for adult education and retraining. Current workers who are not retrained as employment shifts to new occupations/industries will be left behind in terms of job opportunities and wages.
- The state's education and training system will need to adjust for the changes in occupational growth. Training efforts will need to reflect the shift from traditional area such as agriculture and machine operators, toward the need to train technicians and professionals. Health care will be a strong growth industry, while manufacturing growth will be more limited, and will be constrained to a larger degree than at present, by the level of skills within the local labor force.
- The decline in rural manufacturing outside of the Southwest region suggests a need to strengthen the productivity of rural manufacturing through technology transfer, workforce training (i.e., to upgrade machine operators to technicians), and management training.

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## Earnings and Income

- Kansas' below average per capita income suggests that the state has a workforce that is below average in terms of productivity, or that the state has a disproportionate number of low wage jobs where employees do not have an opportunity to add high value.
- One means of focusing upon the state's ability to generate high wage added jobs would be to use as a benchmark, Kansas per capita income as a percentage of the U.S. average.
- The relative decline in per capita income in rural Kansas communities suggests that major parts of the state are not creating sufficient high wage jobs to replace those lost in agriculture, mining and transportation.
- Migration of population from rural to urban areas will continue in part because of the significantly higher incomes available in urban areas.
- There is evidence that Kansas is increasingly being divided into two economies - an urban economy based on high wage/high skill jobs in emerging occupations and a rural economy without such jobs.
- Without improvements in the level of wage productivity, employment and/or wage levels in Kansas are at risk in virtually all classes of manufacturing except Printing and Publishing.

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## VI. CONCLUSIONS

The major conclusion of this study is that the labor market is changing in fundamental ways and that Kansas must adopt to these changes through a coordinated economic development strategy that focuses on high skill/high wage jobs. The quality of the Kansas work force is sufficient for such a strategy to be competitive with other states.

The major change is that high wage jobs are increasingly limited to workers who add high value to products or services; high wage jobs for low skilled workers are rapidly disappearing as a result of technological changes and increased global competition. The implication of these changes is that not all Kansans will benefit from an improving economy.

Furthermore, firms increasingly require high skilled employees to be competitive. Firms that change to become high performance firms will need high skilled employees as well as access to technology and management assistance. Kansas firms will not be competitive in global markets based on paying low wage to low skilled employees.

Finally, there is every indication that Kansas' rural communities are not adapting well to economic changes. The disparity in per capita income and the slow growth of employment suggests that indicate a difficulty in developing high wage jobs in high growth occupations and industries.

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## VI. APPENDIX A

### Supplemental Data Tables

**Table A1**  
**30 Fastest Growing Occupations, U.S., 1990-2005**  
**(Occupations Ranked by Percentage Change in Employment)**

<u>Occupation</u>	<u>Employment (000s)</u>		<u>Change in Employment</u>	
	<u>1990</u>	<u>2005</u>	<u>Net</u>	<u>Percent</u>
<i>Net Employment Gain of 100,000 or More:</i>				
Home Health Aides	287	550	263	91.7%
Systems Analysts and Computer Scientists	463	829	366	78.9
Medical Assistants	165	287	122	73.9
Human Services Workers	145	249	104	71.2
Radiologic Technologists and Technicians	149	252	103	69.5
Medical Secretaries	232	390	158	68.3
Correction Officers	230	372	142	61.4
Computer Programmers	565	882	317	56.1
Child Care Workers	725	1078	432	48.8
Marketing, Advertising, and Public Relations Managers	427	630	203	47.4
Legal Secretaries	281	413	146	47.4
Receptionists and Information Clerks	900	1322	422	46.9
Registered Nurses	1727	2494	767	44.4
Nursing Aides, Orderlies, and Attendants	1274	1826	552	43.4
Licensed Practical Nurses	644	913	269	41.9
Cooks, Restaurants	615	872	257	41.8
<i>Net Employment Gain of Less than 100,000:</i>				
Paralegals	90	167	77	85.2
Personal and Home Care Aides	103	183	80	76.7
Physical Therapists	88	155	77	76.0
Operations Research Analysts	57	100	43	73.2
Physical and Corrective Therapy Assistants	45	74	29	64.0
Psychologists	125	204	79	63.6
Travel Agents	132	214	82	62.3
Data Processing Equipment Repairers	84	134	50	60.0
Flight Attendants	101	159	58	58.5
Occupational Therapists	36	56	20	55.2
Surgical Technologists	38	59	21	55.2
Medical Records Technicians	52	80	28	54.3
Management Analysts	151	230	79	52.3
Respiratory Therapists	60	91	31	52.1

Source: U.S. Bureau of Labor Statistics, *Monthly Labor Review*, November 1991.

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**Table A2**  
**28 Fastest Declining Occupations, U.S., 1990-2005**  
**(Occupations Ranked by Percentage Change in Employment)**

<u>Occupation</u>	<u>Employment (000s)</u>		<u>Change in Employment</u>	
	<u>1990</u>	<u>2005</u>	<u>Net</u>	<u>Percent</u>
<i>Net Employment Loss of 15,000 or More:</i>				
Telephone Installers, Repairers	47	21	-26	-55%
Communications Equipment Installers & Repairers	125	77	-48	-38
Statistical Clerks	85	54	-31	-36
Assemblers, Precision	352	236	-116	-33
Telephone Operators	325	221	-104	-32
Telephone and Cable TV Line Installers, Repairers	133	92	-41	-30
Private Household Workers	782	555	-227	-29
Farmers	1,074	850	-224	-21
Typists, Word Processors	972	869	-103	-11
Bookkeeping, Accounting & Auditing Clerks	2,276	2,143	-133	-6
Bank Tellers	517	492	-25	-5
Food Workers, Precision	301	286	-15	-5
<i>Net Employment Loss of Less than 15,000:</i>				
Watchmakers	7	5	-2	-33
Meter Readers, Utilities	50	37	-13	-25
Communication Equipment Operators	20	15	-5	-23
Mining, Quarrying and Tunneling	24	20	-4	-19
Farm Workers	837	828	-9	-11
Procurement Clerks	56	51	-5	-8
Stenographers	132	125	-7	-5
Proof Readers, Copy Markers	29	28	-1	-5
Shipfitters	13	12	-1	-4
Compositors and Typesetters	14	14	-	-2
Timber Cutting, Logging	108	106	-2	-2
Oil and Gas Extraction	80	78	-2	-2
Barbers	77	76	-1	-1
Coin and Vending Machine Servicers and Repairers	26	26	-	-1
Home Appliance and Power Tool Repairers	71	70	-1	-1
Inspectors, Testers, Graders, Precision	668	659	-9	-1

Source: U.S. Bureau of Labor Statistics, *Monthly Labor Review*, November 1991.

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**Table A3**  
**Occupations with the Largest Job Declines U.S., 1990-2005**  
**(Ranked by Projected Net Loss in Employment)**

<u>Occupation</u>	<u>Employment (000s)</u>		<u>Net Job</u>	<u>Percent</u>
	<u>1990</u>	<u>2005</u>	<u>Loss</u>	<u>Change</u>
Farmers	1,074	850	-224	-20.9%
Bookkeeping, Accounting & Auditing Clerks	2,276	2,143	-133	-5.8
Child Care Workers, Private Household	314	190	-124	-39.5
Sewing Machine Operators, Garment	585	469	-116	-19.8
Electrical and Electronic Assemblers	232	128	-105	-45.1
Typists and Word Processors	972	869	-103	-10.6
Cleaners and Servants, Private Household	411	310	-101	-24.5
Farm Workers	837	745	-92	-11.0
Electrical and Electronic Equipment				
Assemblers, Precision	171	90	-81	-47.5
Textile Drawout and Winding				
Machine Operators and Tenders	199	138	-61	-30.6
Switchboard Operators	246	189	-57	-23.2
Machine Forming Operators and				
Tenders, Metal & Plastic	174	131	-43	-24.5
Machine Tool Cutting Operators				
and Tenders, Metal & Plastic	145	104	-42	-28.6
Telephone and Cable TV Line				
Installers and Repairers	133	92	-40	-30.4
Central Office and PBX				
Installers and Repairers	80	46	-34	-42.5
Central Office Operators	53	22	-31	-59.2
Statistical Clerks	85	54	-31	-36.1
Packaging and Filing Machine				
Operators and Tenders	324	297	-27	-8.3
Station Installers and Repairers, Telephone	47	21	-26	-55.0
Bank Tellers	517	492	-25	-4.8
Lathe and Turning Machine Tool Setters and				
Set-Up Operators, Metal & Plastic	80	61	-20	-24.4
Grinders and Polishers, Hand	84	65	-19	-22.5
Electromechanical Equipment				
Assemblers, Precision	49	31	-18	-36.5
Grinding Machine Setters and Set-Up				
Operators, Metal and Plastic	72	54	-18	-25.1
Service Station Attendants	246	229	-17	-7.1
Directory Assistance Operators	26	11	-16	-59.4
Butchers and Meatcutters	234	220	-14	-5.9
Chemical Equipment Controllers,				
Operators and Tenders	75	61	-14	-19.1
Drilling & Boring Machine Tool Setters				
and Set-Up Operators, Metal and Plastic	52	39	-13	-25.6
Meter Readers, Utilities	50	37	-12	-24.8

Source: U.S. Bureau of Labor Statistics, *Monthly Labor Review*, November 1991.

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**Table A4**  
**Median Real Weekly Wages by Industry, U.S.**  
**Full-time Workers, 1979-1989**  
**(adjusted for Inflation with \$ 1982-84)**

	<u>1979</u>	<u>1989</u>	<u>% Change</u>
Manufacturing	\$430.30	\$415.43	-3.5%
Automobiles	566.01	541.93	-4.3
Chemicals	514.51	532.39	+3.5
Machinery	484.04	487.30	+0.7
Paper	468.27	476.40	+3.9
Electrical Equip	408.29	429.95	+5.3
Printing	409.97	415.43	+1.3
Fabricated Metal	412.58	399.95	-3.1
Food	420.18	362.62	-13.7
Rubber/Plastics	397.35	358.42	-9.8
Textiles	315.72	299.95	-5.0
Apparel	242.11	220.91	-8.8
Medical	287.79	312.97	8.7
Hospitals	365.89	417.51	14.1
Hospitality(eat)	245.62	221.25	-9.9
Agriculture	277.63	248.99	-10.3
Mining	603.67	565.26	-6.3
Construction	498.91	429.18	-14.0
All Workers	409.13	398.88	-2.5

Source: U.S. Bureau of Labor Statistics, *Employment and Earnings*.

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**Table A5**  
**Employment in High-Wage, Medium Wage and Low-Wage Occupations**  
**(Median Weekly Earnings of Full-Time Wage & Salary Workers)**  
**Kansas and U.S., 1990**

	US Emp		Kansas	
	<u>Earnings</u>	<u>(000s)</u>	<u>% Emplmt</u>	<u>%</u>
<i>High-earnings occupations:</i>				
Lawyers & judges	\$1,052	417	0.49	6,633 0.54
Health diagnosing occupations	824	316	0.37	8,708 0.71
Engineers, architects & surveyors	809	1,866	2.19	15,643 1.28
Managers: marketing, advertising, public relations	797	468	0.55	5,824 0.48
Teachers: postsecondary	747	540	0.63	10,061 0.82
Purchasing managers	738	109	0.13	1,328 0.11
Mathematical & computer scientists	734	808	0.95	6,187 0.51
Administrators: education & related fields	724	474	0.56	6,513 0.53
Financial managers	688	455	0.53	4,823 0.39
Transportation occupations (except motor vehicles)	686	159	0.19	3,022 0.25
Personnel & labor relations managers	684	117	0.14	2,394 0.20
Natural scientists	661	357	0.42	3,631 0.30
Managers: medicine & health	636	158	0.19	2,565 0.21
Administrators & officials: public administration	634	484	0.57	5,154 0.42
Supervisors: protective services	615	171	0.20	1,221 0.10
Administrators: protective services	606	54	0.06	616 0.05
Social scientists & urban planners	603	241	0.28	3,352 0.27
Health assessment & treating occupations	600	1,662	1.95	27,398 2.24
Technicians (except health, engineering & science)	599	1,141	1.34	13,588 1.11
Sales representatives: commodities (except retail)	596	1,326	1.56	14,598 1.19
Counselors: educational & vocational	595	183	0.22	2,155 0.18
Firefighting & fire prevention	590	207	0.24	2,189 0.18
Supervisors: construction trades	590	486	0.57	6,628 0.54
Supervisors: mechanics & repairers	586	238	0.28	3,147 0.26
Extractive occupations	582	142	0.17	3,192 0.26
Supervisors: precision production occupations	546	1,306	1.53	13,239 1.08
Plant & system operators	546	263	0.31	4,008 0.33
Management-related occupations	545	3,282	3.86	39,139 3.20
<b>Total, high-earnings occupations</b>	<b>17,430</b>	<b>20.49</b>	<b>216,956</b>	<b>17.71</b>
<i>Medium-earnings occupations:</i>				
Teachers (except postsecondary)	522	3,175	3.73	50,635 4.13
Sales representatives: finance & business services	514	1,558	1.83	23,285 1.90
Mail & message distributing	514	796	0.94	9,539 0.78
Engineering & related technologists & technicians	509	895	1.05	8,548 0.70
Police & detectives	507	809	0.95	7,910 0.65
Precision inspectors, testers & related workers	500	110	0.13	1,833 0.15
Writers, artists, entertainers & athletes	499	1,072	1.26	17,518 1.43
Supervisors: administrative support	497	745	0.88	8,485 0.69
Precision metalworking occupations	497	823	0.97	14,866 1.21
Librarians, archivists & curators	493	148	0.17	2,633 0.21
Science technicians	475	203	0.24	1,943 0.16
Mechanics & repairers (except supervisors)	469	3,571	4.20	41,394 3.38
Construction trades (except supervisors)	457	3,167	3.72	36,890 3.01
Supervisors & proprietors: sales occupations	437	2,407	2.83	30,924 2.52
Social, recreation & religious workers	423	908	1.07	12,659 1.03
Managers: properties & real estate	419	254	0.30	3,076 0.25
Material moving equipment operators	415	996	1.17	12,052 0.98

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# Employment in High-Wage, medium-Wage and Low-Wage Occupations, Kansas and U.S., 1990 (continued)

	US Emp	Kansas			
	<u>Earnings</u>	<u>(000s)</u>	<u>% Emplmt</u>	<u>%</u>	
Motor vehicle operators	402	2,792	3.28	35,490	2.90
Health technologists & technicians	\$398	978	1.15	15,346	1.25
Adjusters & investigators	384	978	1.15	10,239	0.84
Computer equipment operators	374	688	0.81	7,170	0.59
Production inspectors, testers, samplers & weighers	363	797	0.94	6,689	0.55
Farm managers	363	61	0.07	6,034	0.49
Material recording, scheduling & distributing clerks	358	1,576	1.85	22,146	1.81
Precision woodworking occupations	356	54	0.06	891	0.07
Fabricators, assemblers & hand-working occupations	352	1,704	2.00	26,393	2.15
Construction laborers	347	666	0.78	10,662	0.87
Secretaries, stenographers & typists	342	3,689	4.34	46,302	3.78
Financial records processing	338	1,663	1.95	26,596	2.17
<b>Total, medium-earnings occupations</b>		<b>37,283</b>	<b>43.82</b>	<b>498,148</b>	<b>40.67</b>
<i>Low-earnings occupations:</i>					
Records processing (except financial)	323	633	0.74	8,824	0.72
Communications equipment operators	319	179	0.21	2,236	0.18
Miscellaneous administrative support occupations	319	2,388	2.81	38,408	3.14
Production helpers	314	74	0.09	346	0.03
Forestry & logging occupations	314	74	0.09	285	0.02
Precision workers: assorted materials	313	448	0.53	4,346	0.35
Machine operators & tenders (except precision)	313	4,849	5.70	45,682	3.73
Laborers (except construction)	309	1,112	1.31	12,584	1.03
Precision food production occupations	308	336	0.39	8,776	0.72
Guards	304	550	0.65	4,806	0.39
Precision textile, apparel, furnishings machine workers	296	118	0.14	2,398	0.20
Duplicating, mail & other office machine operators	290	55	0.06	1,188	0.10
Information clerks	288	995	1.17	13,858	1.13
Freight, stock & material handlers	288	1,053	1.24	17,391	1.42
Helpers: construction & extractive occupations	277	117	0.14	461	0.04
Cleaning & building service occupations	272	2,036	2.39	34,448	2.81
Related agricultural occupations	271	637	0.75	8,112	0.66
Health service occupations	263	1,470	1.73	25,415	2.08
Sales workers: retail & personal services	258	2,885	3.39	66,039	5.39
Hand packers & packagers	258	255	0.30	3,726	0.30
Personal service occupations	252	808	0.95	28,922	2.36
Vehicle washers & equipment cleaners	249	176	0.21	1,883	0.15
Garage & service station related occupations	235	147	0.17	2,981	0.24
Farm occupations (except managerial)	233	628	0.74	12,838	1.05
Food preparation & service occupations	220	2,645	3.11	59,100	4.83
Cleaners & servants	190	142	0.17	2,168	0.18
Child care workers: private household	132	139	0.16	1,986	0.16
<b>Total, low-earnings occupations</b>		<b>29,949</b>	<b>29.32</b>	<b>409,207</b>	<b>33.41</b>
<b>Total employed wage &amp; salary workers</b>		<b>85,082</b>		<b>1,224,774</b>	

Source: Bureau of Labor Statistics, *Employment and Earnings*, January 1991; Kansas employment figures from Bureau of the Census, 1990 Census of Population and Housing

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**Table A6**  
**Number of Persons, 16 years and Over, Employed in Manufacturing**  
**Kansas, Regions, Neighboring States and U.S., 1980 and 1990**

<u>Area</u>	<u>1980</u>	<u>1990</u>	<u>Total Change</u>	<u>Percent Change</u>
U.S. Total	21,914,754	20,462,078	-1,452,676	-6.6 %
<u>Kansas:</u>				
Total	207,474	196,485	-10,989	-5.3
Metro	126,420	119,443	-6,977	-5.8
Nonmetro	81,054	77,042	-4,012	-5.0
NE Region	69,953	65,520	-4,433	-6.3
SE Region	20,194	18,836	-1,358	-6.7
NC Region	21,625	20,803	-822	-3.8
SC Region	83,094	76,826	-6,268	-7.5
NW Region	3,624	2,653	-971	-26.8
SW Region	8,984	11,847	2,863	31.9
<u>Other States:</u>				
Colorado	192,305	207,423	15,118	7.9
Iowa	264,119	234,461	-29,658	-11.2
Missouri	461,662	439,651	-22,011	-4.8
Nebraska	99,046	98,344	-702	-0.7
Oklahoma	214,779	194,191	-20,588	-9.6

Source: U.S. Census Bureau, 1980 & 1990 Census of Population, *Summary Tape File 3A*: Table P65, 1980; Table P77, 1990.

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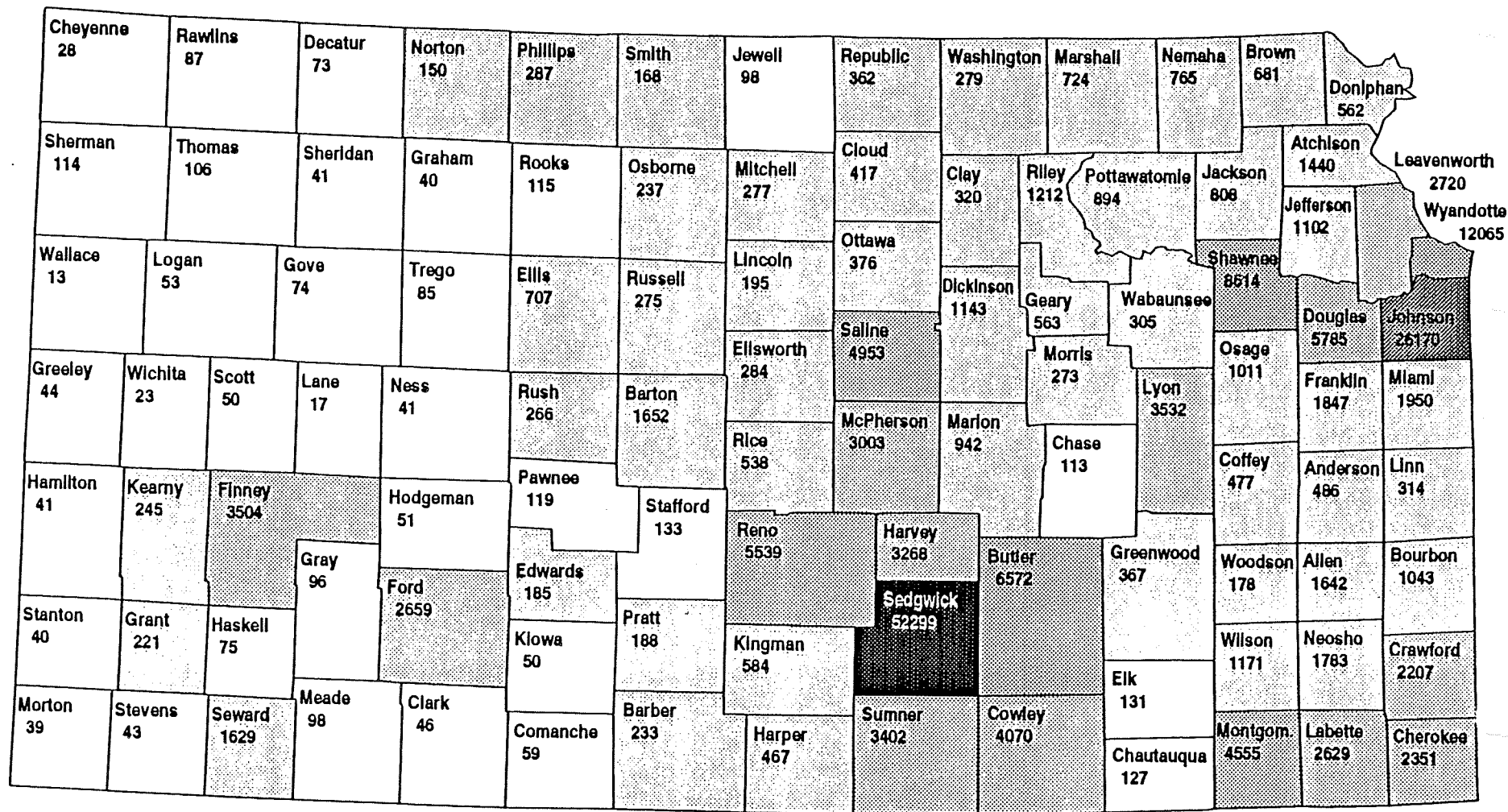


Table A7  
Number of Persons, 16 years and Over, Employed in Manufacturing  
Kansas Counties, 1980 and 1990

County	1980	1990	Chg.	%Chg.	County	1980	1990	Chg.	%Chg.	County	1980	1990	Chg.	%Chg.
Allen	1,592	1,642	50	3.1%	Greeley	26	44	18	69.2%	Osborne	257	237	-20	-7.8%
Anderson	519	486	33	-6.4	Greenwood	386	367	-19	-4.9	Ottawa	305	376	71	23.3
Atchison	1,992	1,440	-552	-27.7	Hamilton	19	41	22	115.8	Pawnee	177	119	-58	-32.8
Barber	199	233	34	17.1	Harper	423	467	44	10.4	Phillips	373	287	-86	-23.1
Barton	1,966	1,652	-314	-16.0	Harvey	3,799	3,268	-531	-14.0	Pottawatomie	685	894	209	30.5
Bourbon	889	1,043	154	17.3	Haskell	56	75	19	33.9	Pratt	307	188	-119	-38.8
Brown	643	681	38	5.9	Hodgeman	33	51	18	54.5	Rawlins	45	87	42	93.3
Butler	5,990	6,572	582	9.8	Jackson	842	808	-34	-4.0	Reno	7,570	5,539	-2,031	-261.8
Chase	183	113	-70	-38.3	Jefferson	1,236	1,102	-134	-10.8	Republic	184	362	178	96.7
Chautauqua	145	127	-18	12.4	Jewell	185	98	-87	-47.0	Rice	706	538	-168	-23.8
Cherokee	2,494	2,351	-143	-5.7	Johnson	23,770	26,170	2,400	10.1	Riley	1,135	1,212	77	6.8
Cheyenne	26	28	2	7.7	Kearny	80	245	165	206.3	Rooks	201	115	-86	-42.8
Clark	35	46	11	31.4	Kingman	843	584	-259	-30.7	Rush	265	266	1	0.4
Clay	709	320	-38	-54.9	Kiowa	74	50	-24	-32.4	Russell	324	275	-49	-15.1
Cloud	457	417	-4	-8.8	Labette	2,439	2,629	190	7.8	Saline	4,713	4,953	240	5.1
Coffey	238	477	23	100.4	Lane	25	17	-8	-32.0	Scott	134	50	-84	-62.7
Comanche	66	59	-7	-10.6	Leavenworth	3,182	2,720	-462	-14.5	Sedgwick	56,258	52,299	-3,959	-7.0
Cowley	4,301	4,070	-231	-5.4	Lincoln	128	195	67	52.3	Seward	1,432	1,629	197	13.8
Crawford	2,857	2,207	-650	-22.8	Linn	306	314	8	2.6	Shawnee	10,240	8,614	-1,626	-15.9
Decatur	63	73	10	15.9	Logan	24	53	29	120.8	Sheridan	31	41	10	32.3
Dickinson	1,016	1,143	127	12.5	Lyon	3,550	3,532	-18	-0.5	Sherman	140	114	-26	-18.6
Doniphan	727	562	-165	-22.7	McPherson	3,327	3,003	-324	-9.7	Smith	148	168	20	13.5
Douglas	4,972	5,785	813	16.4	Marion	1,096	942	-154	-14.1	Stafford	143	133	-10	-7.0
Edwards	312	185	-127	-40.7	Marshall	544	724	180	33.1	Stanton	47	40	-7	-14.9
Elk	177	131	-46	-26.0	Meade	98	98	0	0.0	Stevens	103	43	-60	-58.3
Ellis	1,448	707	-741	-51.2	Miami	1,500	1,950	450	30.0	Sumner	3,202	3,402	200	6.2
Ellsworth	502	284	-218	-43.4	Mitchell	297	277	-20	-6.7	Thomas	194	106	-88	-45.4
Finney	1,272	3,504	2,232	175.5	Montgomery	5,615	4,555	-1,060	-18.9	Trego	87	85	-2	-2.3
Ford	1,578	2,659	1,081	68.5	Morris	336	273	-63	-18.8	Wabaunsee	363	305	-58	-16.0
Franklin	2,437	1,847	-590	-24.2	Morton	73	39	-34	-46.6	Wallace	7	13	6	85.7
Geary	917	563	-354	-38.6	Nemaha	648	76	117	18.1	Washington	287	279	-8	-2.8
Gove	74	74	0	0.0	Neosho	1,717	1,783	66	3.8	Wichita	19	23	4	21.1
Graham	43	40	-3	-7.0	Ness	52	41	-11	-21.2	Wilson	1,345	1,171	-174	-12.9
Grant	310	221	-89	-28.7	Norton	139	150	11	7.9	Woodson	183	178	-5	-2.7
Gray	83	96	13	15.7	Osage	1,055	1,011	-44	-4.2	Wyandotte	16,709	12,065	-4,644	-27.8

Source: U.S. Census Bureau, 1980 & 1990 Census of Population, *Summary Tape File 3A*: Table P65, 1980; Table P77, 1990.

**Map 3**  
**Number of Employees in Manufacturing, 1990**



Source: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population, *Summary Tape File 3*

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Table A8  
Total Employment, Net Change and Percentage Change  
Kansas Counties, 1980 to 1990

County	1980	1990	Chg.	%Chg.	County	1980	1990	Chg.	Chg.	County	1980	1990	Chg.	Chg.
<b>KANSAS</b>														
(000's)	1,287	1,473	186	14.4%										
<b>METRO</b>														
	662,473	831,485	169,012	25.5%	Edwards	2,320	2,068	(252)	-10.9	Nemaha	5,708	6,687	979	17.2
Butler	17,143	18,690	1,547	9.0	Elk	1,803	1,801	(2)	-0.1	Neosho	10,005	10,076	71	0.7
Douglas	34,058	44,647	10,589	31.1	Ellis	15,204	16,795	1,591	10.5	Ness	2,619	2,530	(89)	-3.4
Harvey	16,655	16,431	(224)	-1.3	Ellsworth	3,619	3,738	119	3.3	Norton	3,524	3,451	(73)	-2.1
Johnson	141,148	242,894	101,746	72.1	Finney	14,246	20,835	6,589	46.3	Osage	5,195	5,765	570	11.0
Leavenworth	24,209	27,864	3,655	15.1	Ford	14,491	17,576	3,085	21.3	Osborne	3,151	2,876	(275)	-8.7
Miami	9,345	9,821	476	5.1	Franklin	10,017	10,163	146	1.5	Ottawa	2,682	2,498	(184)	-6.9
Sedgwick	232,771	269,282	36,511	15.7	Geary	30,481	29,044	(1,437)	-4.7	Pawnee	4,624	4,532	(92)	-2.0
Shawnee	95,088	109,964	14,876	15.6	Gove	2,253	2,208	(45)	-2.0	Phillips	4,059	3,825	(234)	-5.8
Wyandotte	92,056	91,892	(164)	-0.2	Graham	2,388	2,366	(22)	-0.9	Pottawatomie	6,823	8,329	1,506	22.1
					Grant	3,952	3,996	44	1.1	Pratt	5,745	5,601	(144)	-2.5
<b>NON-METRO</b>					Gray	3,244	2,988	(256)	-7.9	Rawlins	2,245	2,080	(165)	-7.3
	624,269	641,079	16,810	2.7%	Greeley	1,315	1,323	8	0.6	Reno	35,013	34,953	(60)	-0.2
Allen	7,864	7,800	(64)	-0.8	Greenwood	4,290	4,079	(211)	-4.9	Republic	3,911	3,882	(29)	-0.7
Anderson	3,574	3,610	36	1.0	Hamilton	1,572	1,500	(72)	-4.6	Rice	6,126	5,387	(739)	-12.1
Atchison	8,611	8,686	75	0.9	Harper	4,071	4,205	134	3.3	Riley	23,394	29,367	5,973	25.5
Barber	4,020	3,853	(167)	-4.2	Haskell	2,285	2,064	(221)	-9.7	Rooks	3,765	3,482	(283)	-7.5
Barton	19,796	18,236	(1,560)	-7.9	Hodgeman	1,357	1,194	(163)	-12.0	Rush	2,467	2,258	(209)	-8.5
Bourbon	11,745	8,865	(2,880)	-24.5	Jackson	4,647	4,897	250	5.4	Russell	5,965	5,804	(161)	-2.7
Brown	6,081	6,240	159	2.6	Jefferson	4,984	5,339	355	7.1	Saline	29,194	32,279	3,085	10.6
Chase	1,437	1,440	3	0.2	Jewell	2,738	2,352	(386)	-14.1	Scott	3,322	3,139	(183)	-5.5
Chautauqua	2,476	2,166	(310)	-12.5	Kearny	1,915	1,885	(30)	-1.6	Seward	10,993	12,435	1,442	13.1
Cherokee	7,945	8,420	475	6.0	Kingman	4,213	4,229	16	0.4	Sheridan	2,067	1,869	(198)	-9.6
Cheyenne	2,145	1,962	(183)	-8.5	Kiowa	2,294	2,188	(106)	-4.6	Sherman	4,787	4,163	(624)	-13.0
Clark	1,523	1,369	(154)	-10.1	Labette	12,672	13,607	935	7.4	Smith	3,124	3,018	(106)	-3.4
Clay	4,798	4,506	(292)	-6.1	Lane	1,477	1,408	(69)	-4.7	Stafford	2,920	2,724	(196)	-6.7
Cloud	6,345	6,064	(281)	-4.4	Lincoln	2,214	2,066	(148)	-6.7	Stanton	1,405	1,343	(62)	-4.4
Coffey	6,855	5,140	(1,715)	-25.0	Linn	3,751	3,781	30	0.8	Stevens	2,685	2,809	124	4.6
Comanche	1,495	1,448	(47)	-3.1	Logan	2,159	1,940	(219)	-10.1	Sumner	10,491	10,689	198	1.9
Cowley	18,481	19,703	1,222	6.6	Lyon	18,379	20,137	1,758	9.6	Thomas	5,017	5,212	195	3.9
Crawford	17,318	18,848	1,530	8.8	McPherson	16,260	17,430	1,170	7.2	Trego	2,140	2,065	(75)	-3.5
Decatur	2,684	2,490	(194)	-7.2	Marion	6,045	6,240	195	3.2	Wabaunsee	2,558	2,469	(89)	-3.5
Dickinson	9,430	9,695	265	2.8	Marshal	6,126	6,674	548	8.9	Wallace	1,224	1,106	(118)	-9.6
Doniphan	3,660	3,762	102	2.8	Meade	2,632	2,346	(286)	-10.9	Washington	4,300	4,159	(141)	-3.3
					Mitchell	4,701	4,669	(32)	-0.7	Wichita	2,172	1,439	(733)	-33.7
					Montgomery	22,623	21,518	(1,105)	-4.9	Wilson	5,133	5,070	(63)	-1.2
					Morris	2,710	2,898	188	6.9	Woodson	2,060	1,893	(167)	-8.1
					Morton	1,925	1,965	40	2.1					

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Information System*, Table CA25.