

Institute for Public Policy and Business Research
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Kansas Industry in the Global Economy:
Issues of Competitiveness and Public Policy

by

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Paper prepared for the Conference on Competitiveness:
The Kansas Challenge
Wichita, Kansas; June 3-4, 1988

April, 1988

Report No. 153

The focus of this paper is on the issues which affect the international competitiveness of the Kansas industrial sector. We will first provide some indicators of the participation of Kansas industry in the global economy and analyze the main factors that affect this involvement. Second, we will analyze two dimensions of international competitiveness of Kansas industry, namely the basic elements underpinning general competitiveness and then the special difficulties for Kansas industry in accessing and competing in international markets. Some policy issues relating to Kansas' participation are developed.

KANSAS IN THE GLOBAL ECONOMY

There are four key features of the economic environment which currently impact Kansas industry:

- 1) the rapid internationalization of the world economy,
- 2) the accelerating pace of technological change,
- 3) a lagging U.S. productivity performance coupled with the rising competitiveness of other countries, and
- 4) the continuous structural change taking place in our economy.

Internationalization

Over the period 1970-84, U.S. exports quintupled while world trade grew seven fold, a growth rate that was faster than that which the U.S. economy experienced. While only 15-20% of U.S. industrial production is exported, 70% meets with competition from exports. In addition, the U.S. has lost market share in most industries, including the important high technology sectors.

The impact of these forces on the Kansas economy is illustrated in Tables 1 - 8 in the Appendix. Table 1 presents the percentage of total shipments in manufacturing industries represented by exports for both the US and Kansas. The right hand column shows the difference between these two percentages with Kansas exporting a higher percentage than US industry in half of the eighteen SIC codes shown but with the overall level being significantly lower. Table 2 extends Table 1 by providing Kansas export percentages for 1980, 1981, 1983 and 1984. The relative rank of Kansas, as an exporter, shows a generally declining trend over that period. Table 3 presents the 1984 manufacturing export shipment percentages for all 50 states plus the District of Columbia. With the average for the US at 11.9%, Kansas ranks 45th with only 8.6%. Table 4 presents Kansas' 1984 export shipments by dollar value and SIC code. The three largest exported manufacturing products fall within the categories of machinery (except electrical), food and kindred products, and transportation equipment, and these subsectors account for the bulk of Kansas export activity.

Employment related to exports is shown in Tables 5 to 8. Table 5 provides employment related to manufacturing exports for Kansas in the years 1980, 1981, 1983, and 1984. Employment levels maintained a stable level from 1980 to 1981 but declined drastically in 1983. Figures for 1984 showed an increase but do not return to their 1981 levels. Table 6 provides employment percentages related to manufactured exports for all 50 states and the District of Columbia for 1984. Kansas ranked 28th with 4.3%, being below the US average of 4.9%. Table 7 presents this same data by geographic region. In the West North Central region, Kansas ranked fourth out of the seven states in the region. Finally, Table 8 presents for the years 1980,

1981, 1983 and 1984, the level of employment related to manufactured exports by major economic sector in the state of Kansas. It is interesting to note the increasing presence of non-manufacturing industries in these export related employment statistics.

As with any data, it is important to review methodology which may bias the figures presented. In this instance, the method of collecting export figures may cause Kansas numbers to be understated. For example, if an aircraft is partly manufactured in Kansas and then transported to another state for final assembly prior to export, Kansas does not receive "credit" for any portion of these export dollars. The total dollar amount of the aircraft exported is apportioned to the state of final assembly. In addition, these export figures relate only to manufactured goods and do not therefore include exports of services.

One other measure of the internationalization of our economy is the level of foreign investment. Kansas ranked 33rd for 1984 in regard to the number of foreign firms (the number for Kansas was 4) investing in the state. It did, however, rank 16th in the number of foreign dollars invested in 1984 with a total of \$234.3 million (1).

In summary, Kansas exports are below the national average and are generally concentrated in only a few sectors. In addition, Kansas' proportion of total U.S. exports has been declining. While the statistical collection procedures for export data tend to overstate the gap between US and Kansas export participation, these basic conclusions of under-performance, over-concentration and declining share are nevertheless valid reflections of the Kansas situation.

Several inherent characteristics of the state and its economy would

appear to contribute to its lower export presence -- the geographic isolation of the state, the comparative lack of international exposure in both education and daily life, and the structure of the Kansas economy in its rural oriented industry mix and its small business dominance.

Technological Change

Technology has traditionally been one of the strongest competitive advantages of the U.S. in the international arena. However, both Japan and Germany have, in fact, passed the U.S. in private sector R & D expenditure as a percentage of GNP. The causes of this relative decline nationally include our under-investment in R & D, regulatory constraints (e.g. the lengthy approval process for new pharmaceutical products), an absent or weak linkage between research and commercialization, under-equipped and under-manned University research and an inadequate emphasis on manufacturing or process innovation.

This problem is exacerbated in Kansas. Our low R & D expenditure is partially explained by the predominance of small business in the state as well as inadequate private sector/university linkages. There is an under-representation in the industry mix of technology driven firms and an apparent lag in the implementation of modern management techniques including computer aided design and manufacturing and statistical quality control.

Productivity Performance

A comparison of average annual productivity growth (shown in Table A below) in each of six countries for the period 1960 - 84 ranks the U.S. last among six industrialized nations:

Table A

<u>Country</u>	<u>Average Annual Change (%)</u> <u>1960 - 1984</u>
U.S.	1.2%
U.K.	2.3
Germany	3.4
France	3.7
Korea	5.3
Japan	5.9

NOTE: Real hourly compensation in the US has been stagnant since 1973 and has actually declined since 1979.

However, there is reason to believe that this trend will not continue. The 1986 productivity performance figures released for the U.S. indicate a 3.5% growth in productivity which proved to be the highest in the world. The U.S. had not received the top ranking for productivity growth in 27 years (2).

The initial report of the MIT Commission on Industrial Productivity identified five principal causes of the decline in American productivity--causes which we should be cognizant of. These included a short-run focus, parochial attitudes that lead American businesses to pay insufficient attention to foreign competitors, an inability to cooperate, weaknesses in human resource management, and failures in applying technology to make simple, reliable, high-quality products (3). Further, the Hudson Institute observed that productivity within the service sectors has escaped public focus. They note that this segment has shown lagging productivity while escaping the kind of competition from abroad that has helped boost US manufacturing productivity (4).

Structural Change

The US economic structure continues to experience significant change as the number of service-based industries increases and manufacturing firms move to small, highly focused operations. What do these changes portend for the U.S. in general and Kansas, in particular?

A review of trends in both personal income and employment by industry sector provide a picture of the structural changes that have taken place from 1960 to 1980. The declining role of the agricultural industry in both the US and in Kansas is evident in the statistics presented in Table 9 in the Appendix. The agricultural sector has decreased from 3.56% and 9.01% of personal income in 1960 for the US and Kansas, respectively to only 1.45% and 3.21% in 1980. The smaller role of manufacturing in the US economy is also evident as is the increasing role played by service industries. Employment figures by industry sector portend the same trends as illustrated in Table 10. Evident is the decline in the percentage represented by farm employment for the US and Kansas. The percentage represented by manufacturing employment has continued to decline for the US while holding relatively stable for Kansas. Again, the increasing role played by service industries in both the US and Kansas economies is demonstrated in these employment percentages.

This shift to a service-based economy will change the way we work, according to a Hudson Institute study. "Service jobs tend to be located where and when the customer wants them, rather than centralized as in manufacturing. This will mean fewer people at each workplace. In addition, wages will become less equally distributed, since service jobs tend to have more high and low earners and fewer in the middle" (5). David Birch notes

that while we have maintained our manufacturing work force in absolute numbers, we have changed the mix of what we make. "We have, in essence, gone to our strength : innovation. We are making more and more of the kinds of things that require high levels of innovation -- such as instrumentation and fabricated metal products -- and have relinquished to others the production of items that have not changed a great deal in the past 20 years" (6).

Within this context, two trends warrant concern. First, the Kansas industry mix tends to be underrepresented with growth sectors (7). Second, non-metropolitan Kansas is not gaining its share of the fast growing business services sector (8).

INTERNATIONAL COMPETITIVENESS

The issues raised to this point address the challenges faced by Kansas business in the context of rapid internationalization, technological change, productivity lag and structural economic change. The specific challenges raised center on the state's lower participation and over concentration in exporting, minimal R & D expenditure due to the small business composition of our industry and weak university/industry linkages, traditionally lower productivity and the economic shift toward a service-based economy away from traditional agricultural and manufacturing industries.

Given these forces, we need to approach the international competitiveness of Kansas industry from a two dimensional perspective. Initially, competitiveness in the international marketplace requires, first and foremost, that Kansas industry be competitive in the domestic market. That is, we must focus first on those basic elements that underpin general

competitiveness. Secondly, Kansas industry faces some unique challenges in accessing and competing in international markets due to geographical location, general educational and cultural backgrounds, lack of awareness of the international opportunities and our particular industrial structure.

We do not deal here with the extremely important and multiple dimensions of national policy that affect the general competitiveness of US industry including industrial, exchange rate, tax, trade and education policy, because of their extensive treatment elsewhere (9).

Furthermore, we observe that public policy should not attempt to preserve the status quo for status quo's sake. Rather it should provide an economic environment that facilitates innovation and adaptation to change in a competitive market economy and is neutral with respect to the allocation of resources. In addition, public policy must be consistent with the realization that the prime responsibility for improving competitiveness rests with the private sector. Our economic system rewards firms that innovate, anticipate changes in demand and restructure resources to meet foreign competition. It penalizes firms which fail to adopt new production techniques, improve quality, reduce unit costs of production, pursue new markets and take account of the long-run implications of decisions.

General Competitiveness of Kansas Industry

So how then can Kansas industry become more competitive? In our view, general competitiveness can be attained with the creation and application of new technology, access to capital at competitive rates, access to a skilled and motivated labor force, existence of a supportive business climate with an appropriate underpinning infrastructure, and a focus on customer needs

and demands.

Technology

Technology and innovation can create whole new industries and renew existing ones in Kansas. Our industry's technological prowess can be enhanced with the existence of a solid foundation of science and technology that is relevant to commercial use, coupled with the availability of appropriate linkages to facilitate the commercialization of this technological knowledge. The public policy issues relevant to this determinant of competitiveness include appropriate incentives for R & D enhancement; focusing the role of universities in research, training of scientific and engineering personnel and technology transfer; and devising mechanisms for transferring new techniques of production and management to Kansas industry. (10)

Capital

The underlying need here is for the availability of different types of capital resources ranging from seed capital for research and development to export financing for foreign sales. The role of public policy should encompass the determination of the role of the state in developing capital sources, the structure of banking and financial services and tax policies that affect capital commitments e.g. incentives for venture/seed capital funds and the existence of tax "distortions" such as the sales tax on plant and equipment.

In a recent study that involved surveying 858 business firms in nine Kansas communities, the Institute for Public Policy and Business Research at

the University of Kansas found that a major barrier to firm expansion in Kansas is a lack of financing. Of the firms surveyed, 24% stated lack of affordable financing as a problem associated with expansion. In addition, the lack of financing also serves as a barrier for the export of goods and services. Of the firms that did not export their products, 20% gave lack of affordable financing as a reason. Of the firms that did export their products, 13% stated that a problem with exporting is a lack of financing (11).

Similarly, Gaumnitz found that "Kansas tends to be one of the least successful states in attracting venture capital...(while) research has shown that venture capital is the single most often cited reason for high entrepreneurial activity" (12). He concluded that experience in other states indicates a need for a high degree of cooperation among the state, entrepreneurs, and financial institutions in order to make an active venture capital market.

Human Resources

As firms are required to respond to the new competitive environment, their human resource requirements have and will continue to undergo change. Today, a better educated work force is necessary to handle the level of technology and to adapt to its rate of change. Global and domestic competitive pressures require an innovative and entrepreneurial business development and work environment to ensure survival. The change in work processes from repetitive, single product, assembly line to job batch, custom order type production demand an adaptive, flexible and multi-skilled labor force. Smaller scale production modes arising from and in conjunction

with these forces necessitate more flexible and team-oriented work place arrangements and new forms of employer-employee relationships. Finally, demographic shifts are decreasing the number of youthful entrants into the labor market requiring that more resources be devoted to the retraining and recruitment of older and nontraditional workers.

State policymakers have more influence over the level and nature of labor supply than labor demand. The level of demand for workers can be influenced by the degree and focus of the state's investment in the foundations for growth, but it has greater influence on the manner in which labor supply is brought into match with labor demand. Public policy, therefore, can play a critical role in human resource development through the establishment of training incentives, the availability of a responsive and accessible education system, and the creation of a transition program to move displaced workers from old to new industries. In addition, management and the government can work to create a cooperative labor-management environment.

The Institute for Public Policy and Business Research recently addressed these factors as they relate to Kansas' vocational/ technical educational system. The study noted that "the system's education and training focus must be directed to producing the highly skilled labor force that will help the state remain competitive and increase its capacity for economic growth. To do so, the Kansas education system must expose the work force to a strong educational background in general and technical disciplines and must provide industry with an efficient training system to adapt its workers to swift and radical changes in production technologies" (13).

Infrastructure

Infrastructure refers obviously to the very important physical infrastructure that supports economic activity, including roads and highways, airports, waste disposal and sewage. If the product cannot be brought to market at competitive prices, then long-run profitability is not feasible. It also has, however, another important dimension. This includes the social and cultural infrastructure which underpins the quality of life in a community and region, and the public education and post secondary systems which underpin human capital development. The governmental structure in a state at all levels can have a profound influence on the availability and effectiveness of public services and the environment within which business development occurs.

Customer Focus

The rapid rate of change, international competition and the growth of service-based industries demands a return by business to a customer orientation. This requires a refocusing on both product quality and service with a longer-term view of the consequences of protectionism versus change.

Peter Drucker provides a very pertinent summary of these general competitiveness issues. "It will not be competition based on wage differentials but on managerial competence -- productivity of knowledge work and of money, process technology, management of foreign-exchange risks, quality, design, innovation, service, and marketing. Increasingly, concentration rather than conglomeration or diversification will be needed, with growing emphasis on knowing one's technology, market and customers (14).

These imperatives must be placed in an international perspective. The customer for Kansas industry is no longer of the same culture and values, let alone standards and preferences. Kansas industry will not be successful in the international arena until it develops a better understanding of the world and its people. While we focus on programmatic responses to this dilemma in the short run, such as overseas offices and export finance support, there are more far reaching implications. These include, for example, changes in the state education system from bottom to top, ranging from a renewed focus on geography, history, languages and foreign culture studies to the development of an international emphasis in the business education of our future managers.

Special Difficulties for Kansas Industry

Earlier in this paper, we noted some inherent characteristics of the state that contributed to relatively lower levels of exporting by Kansas industry. These included the state's geographic location, the relative lack of international exposure, and the small business structure of Kansas industry. From a policy development perspective, these factors can be couched in terms of the following barriers:

- 1) general lack of knowledge about the opportunities;
- 2) financing difficulties and business organization;
- 3) cultural differences; and
- 4) bureaucratic hassles.

A growing labyrinth of federal and, more recently, state policies seek to respond to these factors hindering small business exporting. These focus in particular on:

- 1) developing an awareness of opportunity through information;
- 2) enhancing the capacity and desire of industry to pursue export opportunities;
- 3) utilizing educational resources to bridge differences in culture and business practices; and
- 4) providing mechanisms and support to facilitate international transactions.

The bottom line for Kansas is that special measures are needed to respond to difficulties that are either state-specific or exist to a greater degree within the state. A few programs are in place, more are needed. Furthermore, it is not a short-term issue, for some of the state's particular characteristics, like location, are permanent and others, like cultural awareness, need decades of emphasis in the educational system, to bear fruit.

Conclusion

The issue is NOT whether Kansas industry should compete in world markets. It has no choice but to do so and the rewards from doing so are worth the effort. Rather, the key questions are:

- 1) What fundamental changes are necessary to underpin our participation in the world economy over the long run on a competitive basis?

AND

- 2) Given the nature of Kansas industry, what mechanisms and policies are needed on a more immediate basis to transition Kansas industry to greater participation in the global economy?

FOOTNOTES

- 1) Schuster, Camille. From a presentation on the topic of "Ways for Kansas to attract additional foreign investments and increase exportation of products," at the Economic Outlook Conference, University of Kansas, October 9, 1987.
- 2) "Factories get more competitive," USA Today, August 3, 1987.
- 3) "Poor management cited in report," Lawrence Daily Journal-World, February 17, 1988.
- 4) "Efficiency of economy's service sector must be buttressed, study for U.S. says," Wall Street Journal, July 3, 1987.
- 5) "America's switch to a service-based economy promises broad changes in work," Wall Street Journal, August 4, 1987.
- 6) Birch, David. "Is manufacturing dead?" INC., June 1987.
- 7) Sexton, Richard and Robert Glass. "Instability in the Kansas Economy," Kansas Business Review, March - June 1983.
- 8) Redwood, Anthony. "Job Creation in Non-Metropolitan Communities: Issues for State Policy," Report No. 129, The Institute for Public Policy and Business Research, University of Kansas, September 1987.
- 9) Johnson, Chalmers. The Industrial Policy Debate, Institute for Contemporary Studies, 1984, pp. 3 - 26.
- 10) Redwood, Anthony with Kathleen Harnish and Carolyn Coleman. "Higher Education-Private Sector Linkages for Economic Development," Report No. 120, The Institute for Public Policy and Business Research, University of Kansas, November 1986.
- 11) Krider, Charles and Steven Maynard-Moody. "Business Retention and Expansion in Kansas Mid-Size Communities," Report No. 137, The Institute for Public Policy and Business Research, University of Kansas, February 1988.
- 12) Gaumnitz, Jack. "Venture Capital Financing in Kansas," Kansas Business Review, Winter 1986-1987.
- 13) Krider, Charles. "Vocational/Technical Education and Kansas Economic Development," Report No. 128, The Institute for Public Policy and Business Research, University of Kansas, November 1987.
- 14) Drucker, Peter. "Low wages no longer give competitive edge", Wall Street Journal, March 16, 1988.

A P P E N D I X

Table 1

Export Related Shipments as a Percentage of Total Shipments in Manufacturing Industries, 1984

SIC code	Industry	Percentage of Total Shipments in Kansas Industries that were Export Related	Percentage of Total Shipments in U.S. Industries that were Export Related	Point Difference Between Percentage of Exported Shipments from Kansas and U.S. Industries*
--	Manufacturing	8.6	11.9	-3.3
20	Food & Kindred Products			
23	Apparel & Other Textile Products	6.9	4.8	2.1
24	Lumber & Wood Products	0.9	3.0	-2.1
25	Furniture & Fixtures	1.1	8.3	-7.2
26	Paper & Allied Products	8.1	2.7	5.4
27	Printing & Publishing	11.1	10.6	0.5
28	Chemicals & Allied Products	3.1	4.2	-1.1
29	Petroleum & Coal Products	7.4	16.6	-9.2
30	Rubber & Misc. Plastics Products	6.4	7.8	-1.4
32	Stone, Clay & Glass Products	13.9	11.7	2.2
33	Primary Metal Industries	10.2	7.2	3
34	Fabricated Metal Products	5.7	19.5	-13.8
35	Machinery, Except Electrical	20.0	11.6	8.4
36	Electric & Electronic Equipment	8.2	21.5	-13.3
37	Transportation Equipment	25.2	18.2	7
38	Instruments & Related Products	14.3	12.8	1.5
39	Misc. Manufacturing Industries	7.3	15.4	-8.1
		11.0	7.4	3.6

*Positive numbers indicate that Kansas exports a higher percentage of shipments than the U.S. industry.
 Negative numbers indicate that Kansas exports a lower percentage of shipments than the U.S. industry.

Source: 1984 Annual Survey of Manufactures: Origin of Exports of Manufactured Products
 publication M83(AS)-5, issued August 1987
 U.S. Department of Commerce, Bureau of the Census, Washington, DC

Table 2

Export Related Shipments as a Percentage of Total Shipments in Manufacturing Industries
1980, 1981, 1983, 1984

SIC code	Industry	% of Total Shipments in KS Industries that were Export Related, 1984	% of Total Shipments in KS Industries that were Export Related, 1983	% of Total Shipments in KS Industries that were Export Related, 1981	% of Total Shipments in KS Industries that were Export Related, 1980
--	Manufacturing	8.6	7.6	10.1	10.2
20	Food & Kindred Products	6.9	8.5	7.1	9.1
23	Textile Mill Products	0.9	---	13.3	---
24	Apparel & Other Textile Products	1.1	0.7	5.9	10.6
25	Lumber & Wood Products	8.1	1.3	4.1	5.5
26	Furniture & Fixtures	11.1	1.8	1.5	1.4
27	Paper & Allied Products	3.1	8.0	8.8	8.7
28	Printing & Publishing	7.4	3.0	2.2	3.0
29	Chemicals & Allied Products	6.4	6.4	11.1	9.9
30	Petroleum & Coal Products	13.9	6.4	4.9	4.7
31	Rubber & Misc. Plastics Products	10.2	13.5	17.8	17.5
32	Leather & Leather Products	5.7	3.1	---	6.5
33	Stone, Clay & Glass Products	20.0	5.4	5.8	4.9
34	Primary Metal Industries	8.2	22.2	24.1	21.8
35	Fabricated Metal Products	25.2	6.2	5.8	5.4
36	Machinery, Except Electrical	14.3	16.2	15.4	17.6
37	Electric & Electronic Equipment	7.3	13.0	14.6	13.2
38	Transportation Equipment	11.0	5.5	19.9	17.3
39	Instruments & Related Products	4.1	10.1	20.6	7.4
	Misc. Manufacturing Industries	4.1	4.4	3.5	4.7
	Rank Against Other States	45th	46th	42nd	41st

Source: 1984 Annual Survey of Manufactures: Origin of Exports of Manufactured Products publication M83(AS)-5, issued August 1987
and 1983 Annual Survey of Manufactures: Origin of Exports of Manufactured Products publication M83(AS)-5, issued March 1986
and Annual Survey of Manufactures 1976: Origin of Exports of Manufacturing Establishments, M76(AS)-8, Supplement 3, issued August 1979
U.S. Department of Commerce, Bureau of the Census, Washington, DC

Table 3

States' Rank and Percentage of Manufacturing Shipments Related to Manufactured Exports, 1984
(By rank order)

Geographic Area	Manufacturing Shipments Related to Manufactured Exports as a Percentage of Total Manufacturing Shipments	State Ranking (compared with the 50 states and District of Columbia)
United States	11.9	
Alaska	27.2	
Washington	22.4	1
West Virginia	17.2	2
Vermont	16.2	3
Arizona	15.6	4
Connecticut	15.6	5
Massachusetts	15.0	6
Colorado	13.1	7
California	13.0	8
New Hampshire	12.9	9
Oregon	12.9	10
Michigan	12.8	11
Louisiana	12.7	12
Texas	12.6	12
Utah	12.6	14
Florida	12.5	14
Minnesota	12.4	17
Ohio	12.3	18
Indiana	12.2	19
Maine	12.2	19
Hawaii	12.1	19
New York	11.9	22
Delaware	11.7	23
South Carolina	11.7	24
Alabama	11.6	25
Pennsylvania	11.4	25
North Dakota	11.2	27
Rhode Island	11.1	28
Virginia	10.9	28
Kentucky	10.9	30
North Carolina	10.8	31
Idaho	10.7	31
Illinois	10.6	33
Arkansas	10.5	34
Nevada	10.3	35
New Jersey	10.3	36
Missouri	10.2	37
Tennessee	10.1	37
Mississippi	10.0	37
Maryland	9.9	37

Iowa	9.8	41
Oklahoma	9.3	42
Wisconsin	9.3	43
Nebraska	8.7	44
Kansas	8.6	45
New Mexico	8.4	46
Montana	8.4	47
Georgia	8.2	48
South Dakota	7.0	49
Wyoming	6.3	50
District of Columbia	4.2	51

Source: 1984 Annual Survey of Manufactures: Origin of Exports of Manufactured Products. Publication M84(AS)-5, issued August 1987.
U.S. Department of Commerce, Bureau of the Census, Washington, DC.

Table 4

Value of Exported Manufacturers' Shipments from Kansas, 1984
(in millions of dollars)

SIC code	Industry	Total Export Related Manufacturing Shipments	Industry's Expor as a Percent of Manufactured Exp
20	Food & kindred products	556.7	21.2%
23	Apparel & other textiles	8.2	0.3%
24	Lumber & wood products	2.7	0.1%
25	Furniture & fixtures	9.6	0.4%
26	Paper & allied products	75.5	2.9%
27	Printing & publishing	49.3	1.9%
28	Chemicals & allied products	130.6	5.0%
29	Petroleum & coal products	266.2	10.1%
30	Rubber & misc. plastics	141.6	5.4%
31	Leather & leather products	1.3	.0%
32	Stone, clay & glass products	38.9	1.5%
33	Primary metal industries	65.4	2.5%
34	Fabricated metal products	46.6	1.8%
35	Machinery, except electrical	601.1	22.9%
36	Electric & electronic equip.	94.1	3.6%
37	Transportation equipment	509.3	19.4%
38	Instruments & related produc	24.6	0.9%
39	Misc. manufacturing industri	6.5	0.2%
Total Kansas Manufacturing Exports		2,630.0	100.0%

Source: 1984 Annual Survey of Manufactures: Origin of Exports of
Manufactured Products. Publication M84(AS)-5, issued August 1987.
U.S. Department of Commerce, Bureau of the Census, Washington, DC.

Table 5

Employment Related to Manufactured Exports
 Kansas - 1980, 1981, 1983, 1984

	1984	1983	1981	1980
Manufacturing Employment Related to Manufactured Exports	16,900	14,200	23,300	23,000
Nonmanufacturing Employment Related to Manufactured Exports	21,500	18,400	23,900	23,500
Total Employment Related to Manufactured Exports	38,400	32,600	47,200	46,500
Total Employment Related to Manufactured Exports as a Percent of Civilian Employment - Kansas	3.3%	2.9%	4.3%	4.1%
Total Employment Related to Manufactured Exports as a Percent of Civilian Employment - United States	3.8%	3.7%	4.7%	4.8%
Kansas' Rank Against 50 States and DC	28th	35th	25th	30th

Source: 1984 Annual Survey of Manufactures: Origin of Exports of Manufactured Products, M84(AS)-5, Issued August 1987; and 1983 Annual Survey of Manufactures: Origin of Exports of Manufactured Products, M83(AS)-5, Issued March 1986; 1981 Annual Survey of Manufactures: Origin of Exports of Manufactured Products, M81(AS)-5, Issued May 1983.
 U.S. Department of Commerce, Bureau of the Census.

Table 6

States' Rank and Percentage of Employment Related to Manufactured Export
(By rank order)

Geographic Area	Employment Related to Manufactured Exports as a Percent of Total Private Sector Employment	State Ranking (compared with the 50 states and District of Columbia)
United States	4.9	
Connecticut	7.3	1
Washington	6.4	2
Ohio	6.3	3
Massachusetts	6.2	4
Indiana	6.1	5
Michigan	6.1	5
New Hampshire	5.8	7
Delaware	5.8	7
Oregon	5.7	9
Vermont	5.7	9
California	5.5	11
North Carolina	5.5	11
Minnesota	5.5	11
Rhode Island	5.4	14
Pennsylvania	5.2	15
Wisconsin	5.2	15
New York	5.1	17
New Jersey	5.1	17
Maine	5.1	17
Illinois	5.0	20
Tennessee	4.9	21
South Carolina	4.9	21
Missouri	4.7	23
Alabama	4.6	24
Texas	4.4	25
Iowa	4.4	25
West Virginia	4.4	25
Utah	4.3	28
Kansas	4.3	28
Arizona	4.3	28
Kentucky	4.2	31
Arkansas	4.2	31
Colorado	4.2	31
Mississippi	4.0	34
Georgia	4.0	34
Oklahoma	3.9	36
Nebraska	3.8	37
Idaho	3.7	38
Virginia	3.7	38
Louisiana	3.7	38
North Dakota	3.5	41
Florida	3.3	42

Alaska	3.2	43
Maryland	3.1	44
South Dakota	2.8	45
New Mexico	2.5	46
Montana	2.4	47
Wyoming	1.9	48
Hawaii	1.6	49
District of Columbia	1.6	49
Nevada	1.5	51

Source: 1984 Annual Survey of Manufactures: Origin of Exports of Manuf Products. Publication M84(AS)-5, issued August 1987.
U.S. Department of Commerce, Bureau of the Census, Washington, DC.

Table 7

States' Rank and Percentage of Employment Related to Manufactured Export
(By region)

Geographic Area	Employment Related to Manufactured Exports as a Percent of Total Private Sector Employment	State Ranking (compared with the 50 states and District of Columbia)
UNITED STATES	4.9	...
WEST NORTH CENTRAL		
Kansas	4.3	
Iowa	4.4	28
Minnesota	5.5	25
Missouri	4.7	11
Nebraska	3.8	23
North Dakota	3.5	37
South Dakota	2.8	41
		45
WEST SOUTH CENTRAL		
Arkansas	4.2	
Louisiana	3.7	31
Oklahoma	3.9	38
Texas	4.4	25
		36
EAST NORTH CENTRAL		
Illinois	5.0	
Indiana	6.1	20
Michigan	6.1	5
Ohio	6.3	5
Wisconsin	5.2	3
		15
NEW ENGLAND		
Connecticut	7.3	
Maine	5.1	1
Massachusetts	6.2	17
New Hampshire	5.8	4
Rhode Island	5.4	7
Vermont	5.7	14
		9
MIDDLE ATLANTIC		
New Jersey	5.1	
New York	5.1	17
Pennsylvania	5.2	17
		15
SOUTH ATLANTIC		
Delaware	5.8	
District of Columbia	1.6	7
Florida	3.3	49
Georgia	3.3	42
Maryland	4.0	34
North Carolina	3.1	44
South Carolina	5.5	11
	4.9	21

Virginia	3.7	38
West Virginia	4.4	25
EAST SOUTH CENTRAL		
Alabama	4.6	24
Kentucky	4.2	31
Mississippi	4.0	34
Tennessee	4.9	21
MOUNTAIN		
Arizona	4.3	28
Colorado	4.2	31
Idaho	3.7	38
Montana	2.4	47
Nevada	1.5	51
New Mexico	2.5	46
Utah	4.3	28
Wyoming	1.9	48
PACIFIC		
Alaska	3.2	43
Hawaii	1.6	49
Oregon	5.7	9
Washington	6.4	2
California	5.5	11

Source: 1984 Annual Survey of Manufactures: Origin of Exports of Manuf
Products. Publication M84(AS)-5, issued August 1987.
U.S. Department of Commerce, Bureau of the Census, Washington, DC.

Table 8

EMPLOYMENT RELATED TO MANUFACTURED EXPORTS BY MAJOR ECONOMIC SECTOR IN KANSAS

ECONOMIC SECTOR

	NUMBER OF EMPLOYEES BY SECTOR			
	1980	1981	1983	1984
Total Civilian Employment	1,143,000	1,092,000	1,120,000	1,158,500
Total Private Sector Employment	966,000	919,000	847,000	894,500
Total Employment Related to Manufactured Exports	46,500	47,200	32,300	38,400
In Manufacturing Industries	23,000	23,300	14,400	16,900
Direct Export Related *1	13,300	14,200	7,500	10,000
Supporting Exports *2	9,700	9,100	6,900	6,900
In Nonmanufacturing Industries	23,500	23,900	17,900	21,500
Trade	8,200	9,100	8,300	11,200
Business Services	5,400	5,100	2,300	1,500
Transportation, Communication and Utilities	2,800	2,400	1,700	2,000
Other (including Mining and Agriculture)	7,100	7,300	5,600	6,800

*1 - Employment is limited to paid employees in manufacturing plants producing the export product.

*2 - Manufacturing employment at establishments producing components, parts, supplies, etc., for use by plants producing for export.

Source: Annual Survey of Manufactures: Origin of Exports of Manufactured Products, annual. U.S. Department of Commerce, Bureau of the Census, Washington, DC.

Table 9
Percentage of Total Personal Income by Industry

	1960		1970		1980	
	US	KS	US	KS	US	KS
Farm	3.56%	9.01%	2.26%	7.21%	1.45%	3.21%
Mining	1.15	2.03	0.83	1.07	1.32	1.84
Construction	4.96	4.72	4.99	4.35	4.38	4.49
Manufacturing	24.51	14.85	21.75	13.85	19.09	16.04
Transportation	6.27	6.79	5.77	5.95	5.73	6.47
Trade	14.61	13.43	13.38	12.71	12.14	11.90
Finance, Insurance, and Real Estate	4.24	3.41	4.22	3.24	4.29	3.54
Services	10.83	8.17	12.28	9.61	13.04	10.46
Government	11.64	12.50	13.88	14.20	12.17	11.33
Other	18.25	25.11	20.65	27.81	26.38	30.72
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

SOURCE: U.S. State Personal Income: 1929-82 and Local Area Personal Income 1979-84 for Kansas and U.S.

Table 10
Percentage of Total Employment by Industry Sector

	1960		1970		1980		1985	
	US	KS	US	KS	US	KS	US	KS
Farm	8.30%	14.80%	4.40%	9.39%	3.39%	5.65%	NA	NA
Mfg	25.54	14.00	24.62	15.19	20.43	16.83	19.88	17.87
Service	11.22	8.45	14.68	11.64	19.13	14.73	22.45	19.16
Gov't	12.66	13.89	15.95	17.45	16.36	16.56	16.68	19.53
Trade	17.32	15.73	19.12	18.00	20.45	20.00	23.74	25.15
Const.	4.45	4.09	4.56	3.62	4.38	4.11	4.77	4.50
Mining	1.08	2.05	0.79	1.24	1.03	1.43	0.99	1.71
Other	19.44	26.98	15.87	23.46	15.94	20.69	11.49*	12.08*
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

*Including Farm.

SOURCE: U.S. Bureau of Labor Statistics, Employment and Earnings, May 1986 and March 1986.