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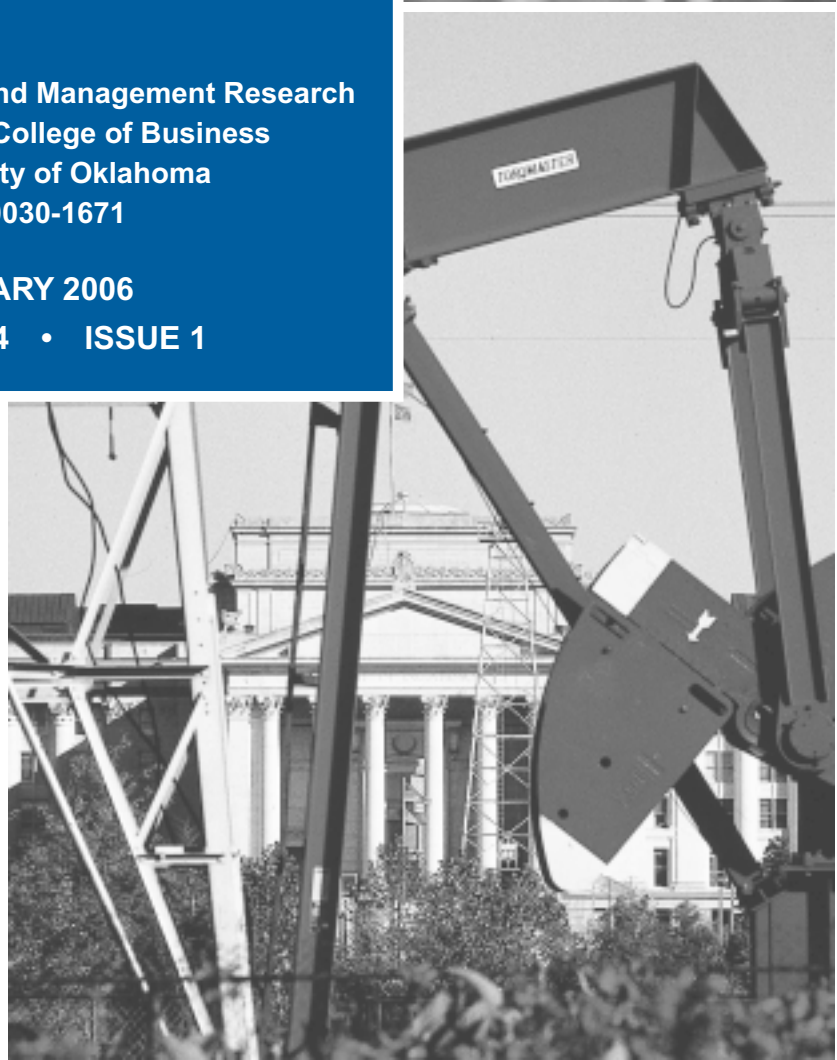

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OVERVIEW

Created by the Oklahoma Territorial Legislature in 1890, the University of Oklahoma is a doctoral degree-granting research university serving the educational, cultural, economic and health care needs of the state, region and nation. The Norman campus serves as home to all of the university's academic programs except health-related fields. Both the Norman and Health Sciences Center colleges offer programs at the Schusterman Center, the site of OU-Tulsa. The OU Health Sciences Center, which is located in Oklahoma City, is one of only four comprehensive academic health centers in the nation with seven professional colleges. OU enrolls more than 30,000 students, has more than 2,000 full-time faculty members, and has 19 colleges offering 153 majors at the baccalaureate level, 133 majors at the master's level, 75 majors at the doctoral level, 20 majors at the first professional level, and 18 graduate certificates. The university's annual operating budget is more than $1 billion. The University of Oklahoma is an equal opportunity institution. (10/05)

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Quarterly

Business Highlights

by Robert C. Dauffenbach

World Energy Outlook

In 1970, Alvin Toffler wrote a book entitled *Future Shock*, and defined future shock as "personal perception of too much change in too short a time." Future shock is what many of us have been experiencing from the assault that gasoline prices and heating bills have been making on our pocketbooks of late. To be sure, the sources of future shock are manifold and intertwined: globalization, terrorist threats, war, recession, technological change, outsourcing, loss of manufacturing jobs, potential for large corporate bankruptcies, and structural realignment of the economy. But energy production and use has dominated the news lately and it behooves us to pay particular attention to the energy outlook in coming years.

There is one principal source of information on the energy outlook, the Energy Information Agency (EIA), a division of the US Department of Energy. Their website, "eia.doe.gov" is a gold mine of information about current and historic prices and quantities of all forms of energy, as well as congressional testimony, presentations, forecasts, and various analytical offerings. This organization produces two important publications annually, the *Annual Energy Outlook* and the *International Energy Outlook*. Obviously these two publications are closely linked in that energy markets are with every passing day increasingly world markets.

What we seek to do in this issue of the *Oklahoma Business Bulletin* is to review some key features of the energy outlook as manifest in EIA forecasts. The objective is, through analysis, tables and graphics, to give the reader a sense of the gravity of the world energy situation, to identify major assumptions implicit in the forecasts and, thereby, where the forecasts may go wrong, and to underscore why petroleum, principally oil, will be the primary "choke-hold" on the world's energy future.

As is typical, we will of course comment on the state of the national and Oklahoma economies with focus on the Price College Indicators and forecasts for employment growth in the year ahead.

Energy Forecast Elements

To begin our review of the EIA forecasts, let's consider, as the EIA does, a world divided into three types of countries: mature market economies (US, Western Europe, Japan, Australia, New Zealand, and Mexico), transitional economies (the former Soviet Union and Eastern Europe), and emerging economies (China, India, SE Asia, South Korea, Central and South America, the Middle East, and Africa).

The EIA utilizes a large-scale econometric model that incorporates a variety of economic factors and accounts for a number of interactive effects, including price effects, in producing their forecasts of world energy demands to year 2025. It is not at issue here to question the efficacy and pitfalls of such large-scale models. We all know that prediction of the future is a task wrought with peril. Nevertheless, it is important to forecast in hope of isolating significant behavioral features of the economic terrain that will impact all of us.

In review of forecasting results, greater insight can be obtained by noting that the essential elements can be cast as of two types, the population and Gross Domestic Product (GDP) base approaches. For example, if we knew for certain the future population of each of these types of countries and the future per capita usage of primary energy for each type of country, we could exactly compute total primary energy usage for each country type and the world. On the other hand, if we knew for certain the future course of real GDP growth for each of these types of countries and the future ratio of primary energy use per billion dollars of real GDP, we could exactly predict future primary energy use.

Consideration of these two approaches vastly understates the inherent complexity of the econometric

modeling conducted by the EIA, but these two approaches further our ability to comprehend the essential elements inherent in forecasting. Table I presents EIA's results for these two approaches. Table I.A shows the population projections for each of the three types of countries and the total. Table I.B displays the projected per capita energy usage. Note that the last column shows the average annual percentage rate (AAPR) of growth implied by the EIA's forecasts. Taking the mature economies as an example, note that the AAPR for population growth is 0.4 percent and the AAPR for per capita primary energy usage is 0.6 percent, which sums to 1.0 percent. Table I.E shows the AAPR for total primary energy usage and it is 1.0 percent. That is,

$$R_{energy} = R_{pop} + R_{energy/pc}$$

Thus, the total rate of growth in primary energy usage (R_{energy}) is decomposed into two parts, the AAPR for population growth (R_{pop}) and the AAPR for per capita usage of energy ($R_{energy/pc}$). This pattern holds for all country divisions. For emerging nations, the AAPR for population growth is 1.2 percent and the per capita usage AAPR is 1.9 percent, summing to 3.1 percent and matching the AAPR for primary energy growth of 3.1 percent reported in Table I.E.

Similarly the AAPR for primary energy usage can be divided into that part attributable to real GDP growth (R_{GDP}) and that part attributable to changes in the ratio of primary energy use to real GDP ($R_{energy/GDP}$). Because production in the world economy is increasing more associated with brain power and computer chips, the ratio of energy consumption to the value of real output has been declining in recent years and is expected to continue on a downward slide. The rates of decline vary from -1.5 percent for mature economies to -2.7 percent for transitional economies of the former Soviet Union and Eastern Europe, but are everywhere sizably negative, thereby offsetting what are at face rather large projected growth rates for the world economy. Again we see the decomposition operating in the expected manner. Taking the mature economies example once more, we see that real GDP growth is projected to average 2.5 percent per year while the energy to real GDP ratio is expect to contract by 1.5 percent per year, yielding a combined 1.0 percent rate of growth.

Key Growth Features

The two approaches and consequent decomposition of projected energy use growth rates enable insight into many key features of expected energy growth in future years. In comparison with 2002, the population of the world is expected to expand by 1.58 billion, that is, by one-fourth, with 95 percent of this population growth occurring in emerging nations. Among these emerging nations, China is expected to grow by only 0.5 percent, but, of course, from a large base. Growth is projected also to be low for South Korea. These weak growth rates are more than made up for by growth in remaining regions of emerging nations, yielding an overall growth rate of 1.2 percent. By 2025, more than four out of five inhabitants of the world will reside in emerging nations. Among the mature economies, Japan and Western Europe's expected population growth is essentially nil while North America is expected to grow by 0.9 percent per year. The transitional economies are anticipated to decline in population at a 0.2 percent rate.

Table I.B on per capita energy use is fascinating in the variation it shows in energy usage throughout the world. This table shows that emerging nations consume per capita only 13 percent of the primary energy that mature nations consume. The EIA expects this ratio to rise to only 18 percent by year 2025. Per capita usage for more detailed countries and regions shows even greater disparity, as reported in Table II. Among mature countries, usage in the US is about twice that of Western Europe and Canada's usage exceeds the US by over 60 million Btu per person.[1] China's usage per person is only 10 percent of the US's and, furthermore, despite its very rapid industrialization, China's utilization is anticipated by the EIA to grow to only 20 percent of the US rate by 2025.

The per capita projections are a potential source of considerable error in the forecasts, especially if the industrially developing regions of the emerging nations were to proceed as has been South Korea's experience. As revealed in Table II, South Korea almost doubled its per capita use of energy between the years 1990 and 2002. If other rapidly industrializing emerging nations track the South Korean experience, the forecasts could be underprojecting by a considerable margin.

Table I.C, showing projected growth of real GDP, provides some astonishing figures. Real world GDP is expected in 2020 to be almost 2.4 times the year 2002 level at 112 trillion dollars. The share of world GDP in mature economies is expected to fall from 57 percent in 1990 to 40 percent by 2025. Emerging nations will surpass the mature economies by 2015 in aggregate real GDP. Growth rates are lowest for the mature economies and highest for the emerging nations. In the detailed tables that EIA provides, China is forecast to grow at about 6.0 percent average annualized real rates, doubling their real output about every 12 years. Its current rate of real growth is even higher.

Table I

Energy Forecasts and Growth-Rate Decomposition

Table I.A World Population by Region, Reference Case, 1990-2025 (in Millions)

	History		Projections				AAPR*
Region/Country	**1990**	**2002**	**2010**	**2015**	**2020**	**2025**	**2002-2025**
Mature Market Economies	884	966	1,006	1,028	1,047	1,065	0.4%
Transitional Economies	412	408	402	398	393	387	-0.2%
Emerging Economies	3,965	4,891	5,418	5,765	6,092	6,392	1.2%
Total World	5,261	6,266	6,825	7,191	7,533	7,844	1.0%

Table I.B World Total Primary Energy Consumption per Capita by Region, Reference Case, 1990-2025 (Million Btu)

	History		Projections				AAPR*
Region/Country	**1990**	**2002**	**2010**	**2015**	**2020**	**2025**	**2002-2025**
Mature Market Economies	208	221	233	241	247	255	0.6%
Transitional Economies	185	131	157	172	185	201	1.8%
Emerging Economies	22	30	38	41	44	46	1.9%
Total World	66	66	74	77	79	82	1.0%

Table I.C Gross Domestic Product (GDP) by Region, Reference Case, 1990-2025 (Billion 2000 Dollars)

	History		Projections				AAPR*
Region/Country	**1990**	**2002**	**2010**	**2015**	**2020**	**2025**	**2002-2025**
Mature Market Economies	18,982	25,317	31,302	35,519	40,148	45,157	2.5%
Transitional Economies	4,220	3,460	5,354	6,535	7,880	9,409	4.3%
Emerging Economies	9,871	18,449	28,793	36,892	46,555	58,185	5.0%
Total World	33,073	47,227	65,449	78,947	94,582	112,752	3.8%

Table I.D Primary Energy Consumption per $1 Billion Real GDP by Region, Reference Case, 1990-2025 (Trillion Btu)

	History		Projections				AAPR*
Region/Country	**1990**	**2002**	**2010**	**2015**	**2020**	**2025**	**2002-2025**
Mature Market Economies	9.7	8.4	7.5	7.0	6.4	6.0	-1.5%
Transitional Economies	18.1	15.5	11.8	10.5	9.2	8.3	-2.7%
Emerging Economies	9.0	7.8	7.1	6.4	5.7	5.1	-1.9%
Total World	10.5	8.7	7.7	7.0	6.3	5.7	-1.8%

Table I.E Primary Energy Consumption by Region, Reference Case, 1990-2025 (Quadrillion Btu)

	History		Projections				AAPR*
Region/Country	**1990**	**2002**	**2010**	**2015**	**2020**	**2025**	**2002-2025**
Mature Market Economies	183.6	213.5	234.7	247.3	258.7	271.8	1.0%
Transitional Economies	76.2	53.6	63.0	68.4	72.8	77.7	1.6%
Emerging Economies	88.4	144.3	205.8	237.8	266.6	295.1	3.1%
Total World	348.2	411.5	503.5	553.5	598.1	644.6	2.0%

Source: United States: Energy Information Administration, Annual Energy Outlook 2005, Washington, DC, February 2005.
*AAPR = Average annual percentage rate.

Table II

World Total Primary Energy Consumption per Capita by Region, Reference Case, 1990-2025
(Million Btu)

Region/Country	History 1990	History 2002	Projections 2010	Projections 2015	Projections 2020	Projections 2025	AAPR* 2002-2025
Mature Market Economies							
North America	277	278	294	301	308	314	0.5%
United States	334	339	357	363	371	377	0.5%
Canada	396	423	473	497	509	522	0.9%
Mexico	61	64	71	76	80	84	1.2%
Western Europe	159	172	177	182	185	192	0.5%
Mature Market Asia	158	188	199	206	214	223	0.7%
Japan	148	173	179	186	191	201	0.6%
Australia/New Zealand	225	271	300	304	311	314	0.6%
Total Mature Market	208	221	233	241	247	255	0.6%
Transitional Economies							
Former Soviet Union	210	147	176	193	206	224	1.8%
Russia	264	191	227	252	277	306	2.0%
Other FSU	155	103	127	139	145	156	1.8%
Eastern Europe	125	93	112	123	133	145	2.0%
Total Transitional	185	131	157	172	185	201	1.8%
Emerging Economies							
Emerging Asia	18	26	37	40	44	47	2.5%
China	23	33	54	61	68	76	3.6%
India	9	13	17	18	20	21	2.1%
South Korea	88	175	216	236	254	270	1.9%
Other Asia	17	24	28	30	32	34	1.5%
Middle East	68	86	98	101	102	104	0.8%
Africa	15	15	17	18	18	18	0.8%
Central and South America	41	49	56	60	62	65	1.3%
Brazil	39	48	53	57	63	70	1.6%
Other Central/South America	42	48	58	61	62	62	1.1%
Total Emerging	22	30	38	41	44	46	1.9%
Total World	66	66	74	77	79	82	1.0%

Source: United States: Energy Information Administration, Annual Energy Outlook 2005, Washington, DC, February 2005.
*AAPR = Average annual percentage rate.

India is expected to achieve a 5.3 percent growth rate. Transitional economies are expected to achieve growth rates comparable to India.

The forecasts for declining ratios of primary energy consumption to real output are sources for some optimism about the future. From 1990 to 2002, every country division has experienced significant declines in this ratio. Very dramatic additional declines are anticipated with the mature nations falling to about 71 percent of its 2002 ratio and the transitional economies falling to about 53 percent.

As economies world wide transition from goods to services and from muscle power to brain power to a greater technological orientation, such trends can be expected. Whether they can be expected to continue to decline at such substantial rates is at issue. Again, with rapidly-industrializing South Korea as an example, its energy use per billion dollars in real GDP actually expanded between 1990 and 2002 from 11.3 trillion Btu to 12.9 trillion Btu. If a nation such as China were to follow such a course, the implications would be staggering.

The EIA forecasts are seen as grounded in population growth rates averaging 1.0 percent and per capita usage at 1.0 percent for the world economy to 2025, yielding a combined 2.0 percent growth rate for primary energy consumption. From a real GDP perspective, a 3.8 percent growth rate in world output is anticipated, combined with a decline of 1.8 percent in the GDP-to-energy ratio, yielding, as well, the 2.0 percent combined growth rate. Figure A provides some history and the forecast for total primary energy use. Also included in the graphic are the high and low reference scenarios. The low scenario implies a 43 percent increase in total primary energy; the mid, a 57 percent increase; the high, a 72 percent increase by 2025.

A series of graphics is provided to illustrate other interesting features of the forecasts. Figure B shows that the great bulk of the anticipated increase in primary energy demands will be for hydrocarbons (oil, natural gas, and coal). Very little gain will occur in nuclear and renewables. Figure C displays the country-type composition of demand, which is dominated by emerging nations. Indeed, 65 percent of the increased demand is forecast to occur in emerging nations. Figure D shows that emerging Asia will account for the bulk (72 percent) of emerging nation demand for primary energy. Thus, emerging Asia will account for about almost one-half (47 percent) of the world-wide increase in primary energy demand under the mid scenario.

Perhaps the key feature of the EIA's forecast is how much of the increased demand for energy is associated with emerging nations. Many of these emerging nations formerly lived under a very failed economic system, Communism. A failed economic system uses little energy. The people and business organizations of these regions are now rapidly entering the world economy. Indeed, they are proving to be formidable competitors in world markets. They are expanding their industrial infrastructure, utilizing advanced technology, and will sometime soon as consumers be seeking their share of western-style good life with its attendant labor-saving home appliances, computers, televisions, air conditioning, automobiles, and travel, and correspondingly higher energy demands.

Figure A

Projected Growth of World Total Energy Consumption
Three Scenarios--2003 to 2025

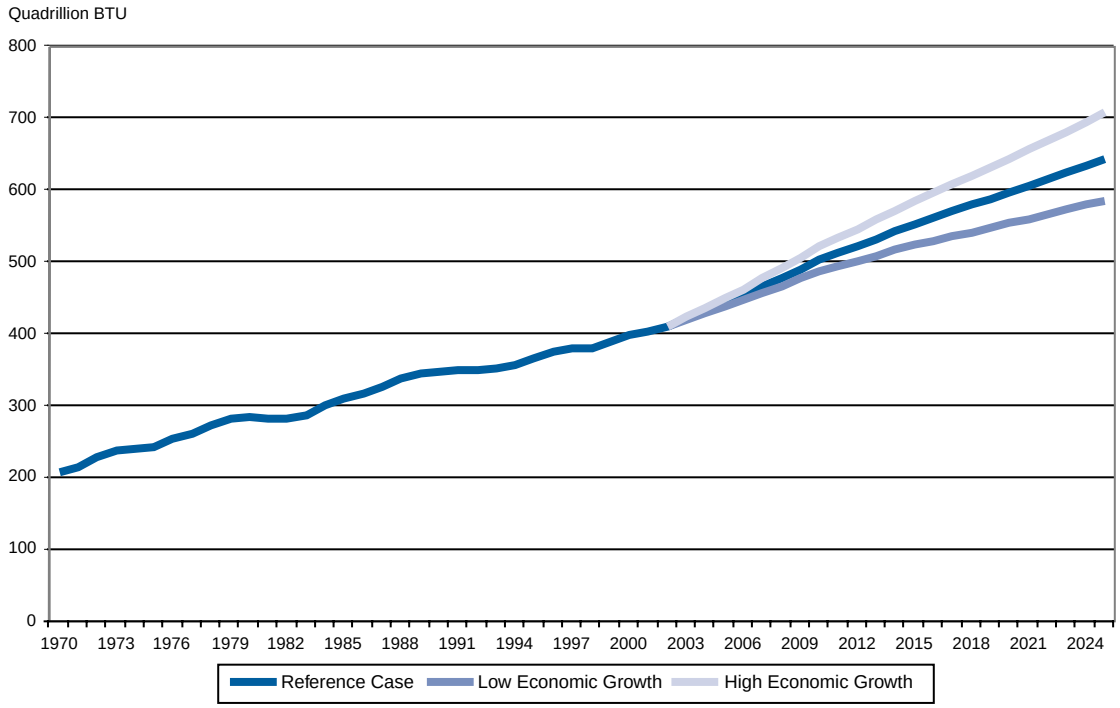


Figure B

Reference Case Projected Composition of Primary Energy History and 2003-2025 Projection

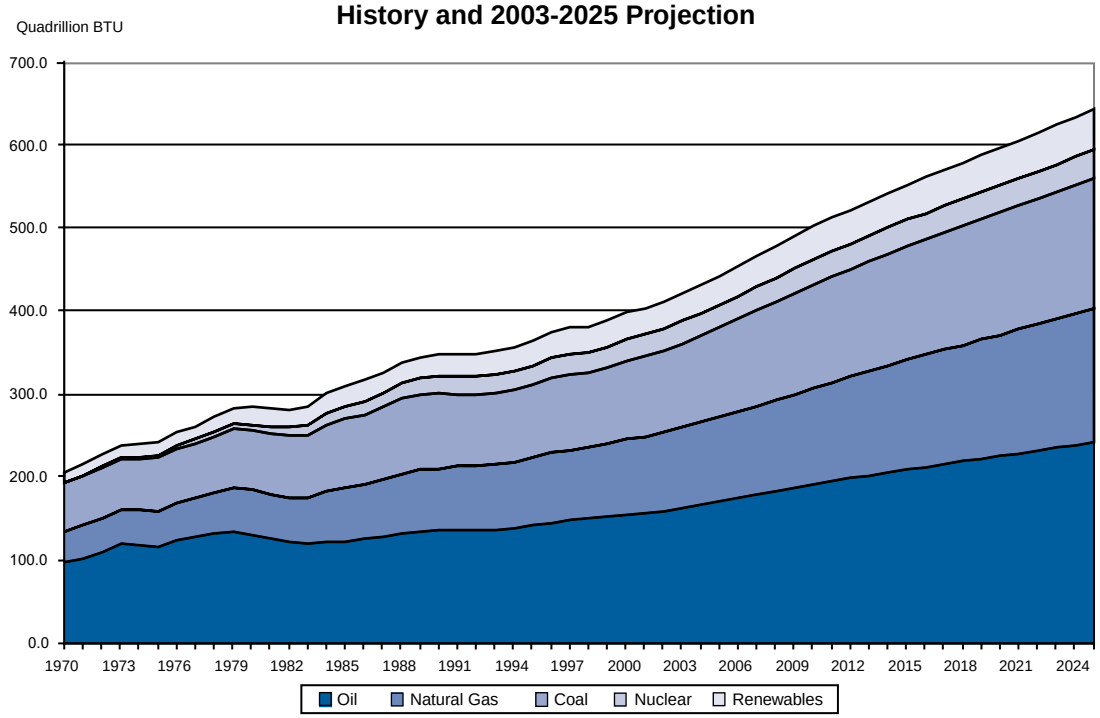


Figure C

Projected Composition of Energy Use by Country Type History and 2003-2025 Projection

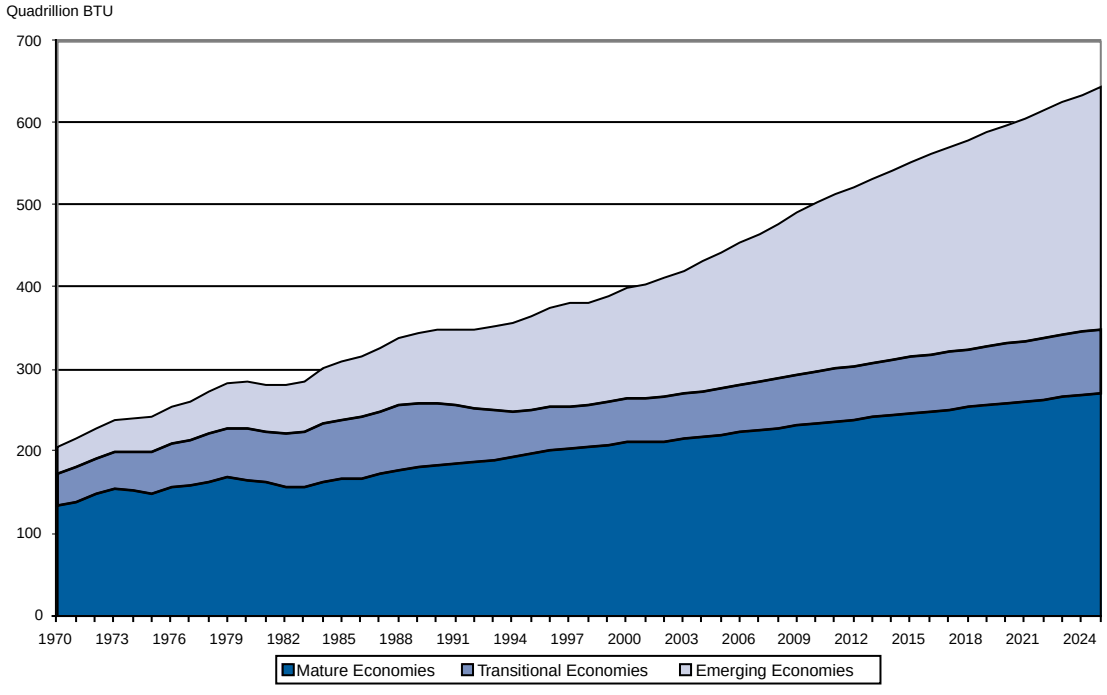
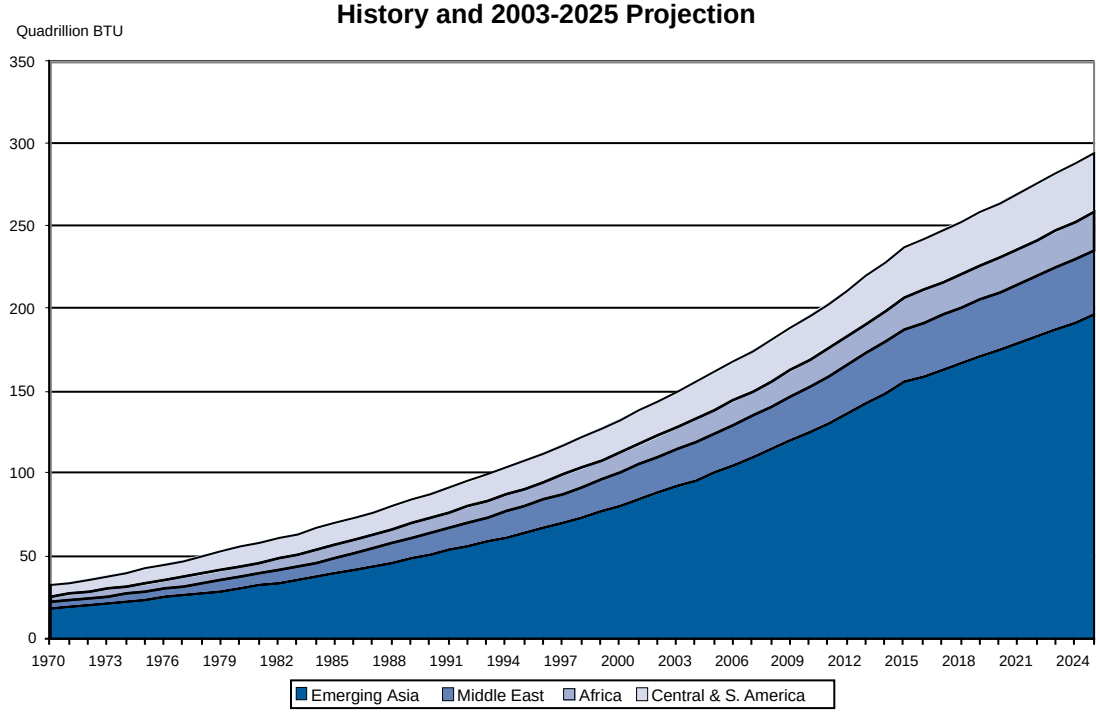


Figure D

Emerging Economies Projected Energy Consumption
History and 2003-2025 Projection



Personally, I find most surprising how little per capita energy use is expected to rise in emerging nations. But, I haven't made a study of the EIA's model and will, in consequence, withhold judgment. Nevertheless, we need to ask ourselves some very fundamental questions, such as, "If the forecasts are in fact a fair representation of future energy demands, where are the supplies going to come from?" This is particularly the case with oil, where increasing attention is being paid to the notion of "peak oil." There exists a growing body of researchers who believe that the world is soon to experience its peak level of production of oil.[2] There are those, as well, who believe that the Saudi's are not telling the truth about their oil reserves. Indeed, they are dramatically overstating them.[3] If we are having problems today with petroleum supplies and high prices, what is the future likely to bring? It seems to me to be past time for the US to focus on alternative energy in a Manhattan-style project.

The Economy in 2006

We now turn to a brief examination of the state of the national and state economy in 2006. Figure E shows the Price College Indicator (PCI) for national employment and clearly illustrates why we call this series a leading indicator. The blue line represents standard deviations from the trend rate of growth nationally. Since 1973, the year-over-year growth rate in nonagricultural employment has been 1.8 percent with a standard deviation of 1.8 percent, too. Thus, the blue line shows cyclical deviations from the long-term trend of employment growth. The role of the PCI is to foreshadow changes in direction in employment growth. The shaded blue line charts the PCI. Note that the PCI does a rather good job in foreshadowing changes in the direction of cyclical employment. It peaks out prior to the peak in cycle employment and bottoms out well prior to the trough in the employment growth rate. A value of zero indicates that the economy should be growing at its secular trend rate of 1.8 percent. The average lead time for the indicator is nine months.

Every recession of the US economy is well predicted by the leading indicator: the recessions of 1974-75, 1980, 1981-82, 1990-91, and 2001. Furthermore, the indicator well predicts cyclical peaks in employment growth. So, what is the indicator telling us now about

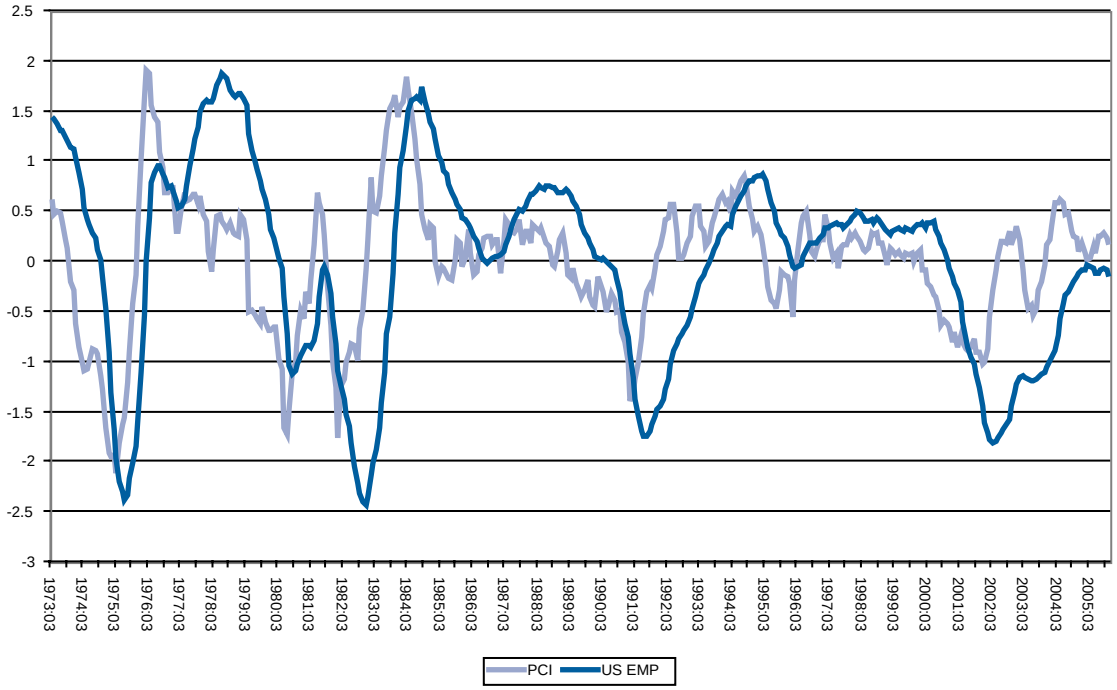
the economy? It is saying that employment growth at the national level should be above trend in coming months and that there are no signs that the economy is heading toward recession. That is the good news. The not-so-good news is that the economy has only begun to approach its trend rate of growth. Indeed, employment growth has been a problem nationally since the last recession, as the blue line well illustrates. Recessions have generally been marked by sustained periods of positive cyclical performance. This has not been true for the 2001 recession. One of the major reasons why we have not experienced recent strong cyclical gains is that manufacturing employment has not recovered from the 2001 recession. About 2.3 million jobs have been lost in manufacturing.

Manufacturing jobs have withered in Oklahoma as well, where we have lost 35,000 such jobs since 2000. The recent announcement of the closing of the Oklahoma City GM plant will cost the state 2,600 direct jobs and will ultimately impact the state's economy with about 13,000 in total direct, indirect, and induced jobs. The plant is soon to close, but the full effects on the OKC region and the state will not be felt for at least one year. GM workers have supplemental unemployment benefits which will allow spending to continue to occur at a fairly high level for about one and one-half years. However, the jobs associated with indirect employment, that is, with supplier industries to the GM facility, will be lost immediately and these workers do not receive supplemental payments.

The Price College Indicators are used to forecast employment growth for the nation, the state, and the two major metropolitan areas. Table III on the next page provides the forecast results for 2006 and 2007, end of year (December) values. Nonagricultural employment nationally is expected to rise by 1.6 percent in 2006, slightly below trend. For 2007, a slightly above trend rate of growth is expected. Obviously, a large loss of jobs from the GM plant closing will impinge on the State's employment growth rate, forecast as 1.3 percent for 2006 and 1.6 percent for 2007. Oklahoma City, which has been a bright spot in employment growth will be impacted somewhat in 2006, but, as noted, the full effects of the plant closing will not occur until 2007.

Figure E

Price College Indicator for National Employment



Tulsa, suffering as it has in past years with the loss of a number of corporate headquarters, has now begun to generate new net jobs in sizable quantity. The forecast results show that this region should now perform at close to the national experience.

Table III

Employment Forecasts for 2006 and 2007 (in Millions)

Year	US	Growth Rate	State	Growth Rate
2005	134,450		1,506	
2005	136,559	1.6%	1,525	1.3%
2007	139.227	2.0%	1,550	1.6%

Year	OKC	Growth Rate	Tulsa	Growth Rate
2005	556.6		406.3	
2005	563.7	1.3%	412.7	1.6%
2007	568.9	0.9%	420.8	2.0%

As noted in past issues of the *Oklahoma Business Bulletin*, the Price College Indicators series was "thrown for a loop" when the new NAICS system of industrial classification was implemented. We lost a large number of variables that had been identified as important components of the PCI for the nation, the state, and the two major metro areas. We have recovered to a large degree, but research continues on how to make an already good information product even better. Future issues will continue to report our progress.

Notes

[1]To put a figure like a 60 million Btu differential into context, consider that 1,000 cubic feet of natural gas containing 1,031,000 Btu sells for about $14 on the spot market in December 2005. Thus, a 60 million Btu per capita differential between the US and Canada works out to be 58.2 MCF, times $14, equals $815 per every man, woman, and child.

[2]See the Matt Savinar website "lifeaftertheoilcrash.net." I haven't investigated the credentials of contributors to this website. There may well be extensive hyperbole in these discussions. Still there is considerable "food for thought" in what is presented.

[3]See, Matthew R. Simmons, *Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy*, John Wiley & Sons, Inc., 2005.

Robert C. Dauffenbach is Director of the Center for Economic and Management Research and Associate Dean for Research and Graduate Programs.

Oklahoma: If We Aren't High-Tech, Where Are Our Competitive Advantages?

Tim C. Ireland, Mark C. Snead, and Steven R. Miller

Economic entities are, by their innate nature, very dynamic and ever-changing creatures. Nations, regions, sectors, etc. all develop and evolve, sometimes quickly and sometimes slowly, in response to a myriad of internal and external factors. The previous decade appears to be a period of time where changes to the U.S. economy may have been more rampant than in previous time periods. The 1990s, which were initially impacted by such things as national recession and global military excursions, rebounded to record rapid productivity growth, low unemployment, and strong economic performance for the majority of the decade. Since then, turbulent international and national conditions have contributed to a much weaker economic scorecard. Through this period much has been said about a possible paradigm shift within the national economy that may have contributed significantly to both the strong and weak performances that have been witnessed. This shift into a high-tech society was hailed initially as one of the major components of the platform for a "New Economy". If this is in fact true and high-tech is going to be mandatory for any future economic success, then all regions including Oklahoma would like to be onboard as this high-tech ship sails into the oncoming economic seas.

The question of Oklahoma's position within this burgeoning, high-tech New Economy was addressed very thoroughly by Professors Warner and Dauffenbach in a recent issue of the *Oklahoma Business Bulletin*.[1] Their clear analysis and extensive review of a number of studies seems to suggest that Oklahoma may have been left behind in the high-tech rush, a conclusion that is very believable given Oklahoma's historic economic story. Seemingly supporting this position would be the fact that even though Oklahoma's percentage employment increase exceeded that of the U.S. (24.6% vs. 20.4%) during the 1990-2000 time period, its relative per capita income fell from 83.1% to 81.8% of the U.S. average. Natural curiosity drives the questions of why and how could Oklahoma lose economic ground relative to the U.S. when it actually generated employment gains that exceeded those of the nation? Was it due to missing out on the sailing of this high-tech ship or are there additional factors that are in play? In conjunction with this, one has to wonder just what are Oklahoma's competitive advantages and are they being utilized to their fullest extent? Additionally, are their other ways to improve Oklahoma's relative economic position besides the high-tech industries?

These are all pertinent questions than can probably never be fully answered in any paper. However, this manuscript will attempt to address at least some of these issues by examining Oklahoma nonfarm employment data via the new North American Industry Classification System (NAICS).[2] The NAICS two-digit sectoral classifications will be analyzed for the 1990-2003 period with the help of shift-share analysis, a tool that regional economists have used for years to decipher growth differences. This technique will help provide sectoral information on where within the Oklahoma economy competitive advantages do or do not exist and whether they are being utilized. Prior to the presentation of this analysis, the NAICS classifications and the shift-share procedure will both be briefly discussed.

NAICS

The North American Industry Classification System (NAICS) has now replaced the Standard Industrial Classification (SIC) system as the structure used for the collection, aggregation, presentation, and analysis of U.S. economic data. The conversion to NAICS from the SIC system represents a profound change for the nation's statistical programs by providing a new classification framework that ensures that economic statistics reflect the changing structure of the economy. The SIC system was developed in the 1930s at a time when manufacturing dominated U.S. economic activity, and in recent years had become increasingly unable to adapt to rapid changes in

the structure of the national economy. Emerging developments in information services, new forms of health care services, the growth of services relative to production industries, and high tech manufacturing are examples of industrial changes that are not captured fully under the old SIC system.

The NAICS accounting framework for reporting employment and income as implemented by the Bureau of Labor Statistics is shown in Table 1. Developed in coordination with Canada and Mexico, NAICS sought to make a substantial structural improvement by reorganizing the system according to a more consistent production-oriented framework, by grouping businesses into industries based on the activity in which they are primarily engaged. This brings the classification system more in line with economic principles whereby establishments using similar raw material inputs, similar capital equipment, and similar labor are classified in the same industry. In other words, the NAICS approach has a focus on *how* goods and services are produced, whereas the SIC system focused on *what* was produced. NAICS also allows greater coding flexibility by using a six digit hierarchical coding system, rather than the four digit structure of the SIC, and by classifying all economic activity into twenty broad industry sectors, up from the 10 major divisions of the SIC system. Services are assigned a more prominent role in NAICS, as five sectors are mainly goods-producing sectors and fifteen are services-producing sectors.

While the broad structure and hierarchy of the SIC system remains intact, including recognizable basic sector groupings such as manufacturing, retail trade, wholesale trade, services, and construction, every sector of the economy has been redefined and more than 350 new industries created. A new information sector combines communications, publishing, motion picture and sound recording, and online services, reflecting the increasing role of information-based companies in the economy. Manufacturing is restructured to recognize several new high-tech industries, and new sub-sectors include computers and electronics and reproduction of software. Retail trade is redefined, as eating and drinking places are transferred to a new accommodation and food services sector. The difference between retail trade and wholesale trade is now based on how each store conducts business. For example, many computer stores are reclassified from wholesale to retail. At the most disaggregated level, NAICS allows for the identification of 1,170 industries compared to the 1,004 found in the SIC system.

Many of the new sectors reflect parts of the former SIC divisions, such as the utilities and transportation sectors, broken out from the SIC division of transportation, communications, and utilities. Similarly, the service industries division under the SIC system has been subdivided to form several new sectors with detailed industry coverage: professional, scientific, and technical services; management, support, waste management, and remediation services; education services; health care and social assistance; arts, entertainment, and recreation; and other services (except public administration).

Table 1

NAICS 1997 Classifications

Goods-Producing

- Natural Resources and Mining
  - Sector 11 Agriculture, forestry, fishing and hunting
  - Sector 21 Mining
- Construction
  - Sector 23 Construction
- Manufacturing
  - Sector 31-33 Manufacturing

Service-Providing

- Trade, Transportation, and Utilities
  - Sector 42 Wholesale trade
  - Sector 44-45 Retail trade
  - Sector 48-49 Transportation and warehousing
  - Sector 22 Utilities
- Information
  - Sector 51 Information
- Financial Activities
  - Sector 52 Finance and insurance
  - Sector 53 Real estate and rental and leasing
- Professional and Business Services
  - Sector 54 Professional, scientific, and technical services
  - Sector 55 Management of companies and enterprises
  - Sector 56 Administrative and support and waste management and remediation services
- Education and Health Services
  - Sector 61 Education services
  - Sector 62 Health care and social assistance
    Leisure and Hospitality
  - Sector 71 Arts, entertainment, and recreation
  - Sector 72 Accommodation and food services
- Other Services
  - Sector 81 Other services, except public administration
- Public Administration
  - Sector 92 Public administration
- Unclassified
  - Sector 99 Unclassified

Source: *Bureau of Labor Statistics.*

Other NAICS sectors represent combinations of pieces from more than one SIC division. The new information sector includes major components from transportation, communications, and utilities (broadcasting and telecommunications), manufacturing (publishing), and services industries (software publishing, data processing, information services, motion picture and sound recording). The new accommodation and food services sector combines hotels and other lodging places from the services industries and eating and drinking places from retail trade.

While improving upon the conceptual structure of the SIC system, a difficult challenge in dealing with the transition to NAICS is the break in the data series and the brevity of some historical series under the new accounting system. Historical data on jobs by NAICS sector are now available only back to 1990, providing one of the longer historical data series, as wage data by sector are available only back to quarter one of 2001. Another issue facing users of economic data is the dynamic and evolutionary nature of the NAICS classification system itself. Currently, most statistical agencies use the 1997 version of NAICS, while the recently released NAICS 2002 includes substantial revisions within the construction and wholesale trade sectors, and a number of revisions for the retail trade and information sectors. The Census Bureau plans the first full implementation of NAICS 2002 in the 2002 Economic Census, while preliminary work on NAICS 2007 is also currently underway.

Shift-Share Analysis

Shift-share analysis entails an economic tool that despite its very simple and basic nature has allowed regional economists to examine a variety of interesting questions over time. The technique gained notoriety initially in the 1960s through the efforts of such individuals as Dunn, Perloff, and Ashby.[3] It survived a variety of criticisms after its introduction and continues to be a regional technique of choice in today's economic world.[4] The technique, as it was originally formulated, decomposed a change in employment (or other economic measure) over time into three components. These components represented the separate influences of the change that could be ascribed to national growth, industry-mix, and the competitive effect. The first component measured how much of the change would be explainable due to simply growing at the average rate of the national economy. The industry-mix component looked at the portion of the change that was due to the industry nationally growing at a rate that was different from the overall nation's average, while the competitive effect component measured differences in industry growth rates for the region vis-à-vis the nation.

In response to criticisms concerning the third or competitive effect component, Esteban-Marquillas reformulated the shift-share decomposition of change.[5] In his new formulation, Esteban-Marquillas decomposed employment change into national growth, industry-mix, competitive, and allocation effects.[6] This four component model was created in conjunction with the concept of homothetic employment, which is the employment that an industry would have in a region if the region and nation had identical industry shares. This new improved version of shift-share reportedly provided a better measure of competitive effects (advantage) and additionally provided information on whether a region was specialized (via the allocation component) in industries where competitive advantages or disadvantages existed. The Esteban-Marquillas model seemingly countered a criticism of the earlier model and provided complementary information on specialization, the extent to which regional employment in an industry exceeds the homothetic expectation.

It is this newer four component shift-share model that we have used in our analysis of sectoral changes in Oklahoma employment. Close attention will be paid to the latter two components involving competitive advantage and degree of specialization. Of particular interest will be whether a positive or negative value is associated with each of these components. The determination of the existence of a competitive advantage within an industry is a very straightforward issue. If the competitive component is positive you have a competitive advantage and if it is negative you have a competitive disadvantage. The interpretation of specialization via the allocation component, however, depends on what you find in terms of competitive advantage. Specifically, there are four possible cases that will be indicated from these particular values. A positive value for both the competitive and the allocation components will indicate a competitive advantage during this time along with specialization in that industry. A positive value for the competitive component coupled with a negative value for the allocation component suggests a competitive advantage without specialization in that industry. The reverse combination of a negative value for the competitive component and a positive value for the allocation effect implies a competitive disadvantage without specialization. Finally, a negative value for both components indicates a competitive disadvantage with specialization in that sector.[7]

Results

Shift-share analysis was used to examine Oklahoma nonfarm employment activity during the 1990-2003 period. Total nonfarm employment for the state was decomposed into the major two-digit NAICS industries displayed in Table 1 along with the subcategories of durable manufacturing and nondurable manufacturing and the government entities of total government, state and local government, and federal government.[8] Since the first few years of the new millennium have registered considerably weaker economic numbers than what was seen for the majority of this period of time, the 2000-2003 period was also examined with this tool to see if any major differences transpired during these recessionary and/or slowdown years of this 13-year period. Next, the summary results of the shift-share analysis are examined for the various entities over the two time-periods.

1990-2003 Oklahoma Employment

Table 2 presents a summary of the shift-share groupings of the NAICS industries as to their competitive advantage and specialization characterizations. Additionally, the table also provides for each Oklahoma industry both the nominal and percentage employment change recorded over the 1990-2003 period, the 2003 percentage compositional share of the Oklahoma nonfarm economy, and 2003 U.S. average wage and salary data. These values provide complementary information as to the importance of the industry size-wise within the Oklahoma economy, and the wage and salary significance of the industry nationally. The industries recording a competitive advantage are presented first followed by those registering a competitive disadvantage.

The first group presented within Table 2 involves those industries that posted values from the shift-share analysis suggesting a competitive advantage and specialization within the industry. Those industries include mining, utilities, retail trade, health care and social assistance, other services, and the subcategory of federal government. Mining, utilities, and the federal government sector each recorded employment declines during the 1990-2003 period; and while reporting above average wage and salary numbers nationally, they represent relatively small portions of the overall Oklahoma employment total. 2003 wages range from $53,259 for the federal government to $70,775 for utilities .74 percent to 3.08 percent for the federal government sector. The other three industries in this group, retail trade, health care and social assistance, and other services, all produced employment gains during this time. This latter group plays a larger role in the employment totals but are below average in wage and salary numbers nationally. For this latter set of industries, state employment shares range from 5.10 percent for other services to 11.67 percent for retail trade while average wages run from $24,555 for retail trade to $35,873 for health care and social assistance.

The second group pertains to those industries recording a competitive advantage without specialization in the industry according to the homothetic expectation of the shift-share model. This group includes the following NAICS industries: construction; manufacturing (including both durables and nondurables); wholesale trade; information; finance and insurance; administrative, support, and waste services; and accommodation and food services. With the exception of manufacturing and its two subcategories, these industries witnessed fairly solid employment gains during the 1990-2003 period. Employment shares in 2003 for this group ranged from a low of 2.21 percent for information to 9.86 percent for manufacturing. National average wages for 2003 varied considerably within this collection of industries. Accommodation and food services ($15,261) along with administrative, support, and waste services ($25,525) recorded wages that were well below the average national wage for all industries of $38,664. The other members of this group ranged in average wages from $40,777 for construction to $65,197 for finance and insurance.

Those industries reporting a competitive disadvantage with specialization within the industry include: transportation and warehousing; real estate, rental, and leasing; arts, entertainment, and recreation; total government; and the subcategory of state and local government. All of the industries except arts, entertainment, and recreation registered gains during the period of analysis with particularly large increases occurring in the government categories. Accordingly, the state employment shares for the government sectors were quite sizeable with values of 20.12 percent and 17.05 percent for total government and state and local government, respectively. In contrast, the other three industries generated shares ranging from .91 percent for arts, entertainment, and recreation to 2.93 percent for transportation and warehousing. Average 2003 wages for this group run from a low of $29,696 for arts, entertainment, and recreation to a high of $39,130 for the transporation and warehousing category.

The final group in Table 2 discloses those industries that report a competitive disadvantage and are not specialized within the industry for the 1990-2003 period.

TABLE 2

NAICS SHIFT-SHARE GROUPINGS FOR OKLAHOMA EMPLOYMENT 1990-2003

Group: Competitive Advantage & Specialized (+, +)

NAICS #	Industry	Employment Change (000s)	Percent Change	Okla. 2003 Share (%)	U.S. 2003 Average Wage
21	Mining[11]	-9.6	-24.9	1.99	54,622
22	Utilities	-0.8	-6.7	0.74	70,775
44-45	Retail Trade	24.2	16.7	11.67	24,555
62	HC & SA	55.9	54.4	10.93	35,873
81	Other Service	22.0	42.4	5.10	29,756
	Fed Government	-6.1	-12.0	3.08	53,259

Group: Competitive Advantage & Not Specialized (+, —)

NAICS #	Industry	Employment Change (000s)	Percent Change	Okla. 2003 Share (%)	U.S. 2003 Average Wage
23	Construction	21.6	52.5	4.34	40,777
31-33	Manufacturing	-13.7	-8.7	9.86	46,053
	Durable	-9.0	-8.9	6.38	48,366
	Nondurable	-4.6	-8.4	3.48	42,319
42	Wholesale Trade	4.2	8.3	3.76	52,020
51	Information	9.1	39.8	2.21	58,180
52	FIN & INS	12.0	24.6	4.19	65,197
56	AD & S &WS	45.5	107.9	6.04	25,525
72	ACC & FSER	31.1	38.0	7.78	15,261

Group: Competitive Disadvantage & Specialized (—, —)

NAICS #	Industry	Employment Change (000s)	Percent Change	Okla. 2003 Share (%)	U.S. 2003 Average Wage
48-49	TRAN & W	1.3	3.2	2.93	39,130
53	REST, R & L	3.3	17.4	1.55	36,230
71	A, E, & REC	-.6	-4.2	0.91	29,696
92	Government	30.1	11.5	20.12	40,808
	ST & LOC	36.2	17.1	17.05	37,870

Group: Competitive Disadvantage & Not Specialized (—, +)

NAICS #	Industry	Employment Change (000s)	Percent Change	Okla. 2003 Share (%)	U.S. 2003 Average Wage
54	PR, SC &T	14.8	35.6	3.89	63,741
55	MGT COMP	-1.9	-13.7	0.82	72,434
61	EDUC SERV[12]	6.1	57.4	1.16	28,982

This relatively small group includes the following NAICS industries: professional, scientific, and technical services; management of companies; and educational services. Management of companies recorded an employment decline during this period while the other two industries reported fairly large absolute and percentage gains. All three industries are relatively small in terms of employment shares with the management of companies reporting a .82 percent share as the low and professional, scientific, and technical services registering the high at 3.89 percent. In terms of wages, educational services ($28,982) were significantly below the levels of the other two industries for 2003. Professional, scientific, and technical services listed wages of $63,741 while management of companies at $72,434 reported the nation's highest industry average.

2000-2003 Oklahoma Employment

The last few years of the 13-year period of analysis in this study were considerably different than the earlier years in terms of economic performance. For the full 1990-2003 period, Oklahoma nonfarm employment grew by 254.8 thousand jobs or 21.3 percent to a level of 1,450.6 thousand workers. In contrast, the 2000-2003 years saw a decline of 38.8 thousand jobs or 2.6 percent in Oklahoma. As might be expected since the economic performance was dramatically different for these latter years, only 11 of the 23 studied industries kept their shift-share groupings for both of these periods of analysis. Table 3 reports the same shift-share groupings as the previous table but applies solely to the 2000-2003 period. The number of industries reporting a competitive advantage in this latter period is roughly half the size of the number displayed for the full period of analysis.

The industries reporting a competitive advantage with specialization within the industry during the 2000-2003 period include mining, utilities, and other services. All three industries reported gains in employment during these years ranging from 400 jobs for utilities to 4,000 jobs for other services. These gains occurred in stark contrast to the general decline witnessed for Oklahoma nonfarm employment. The relatively higher paying mining and utilities industries' employment gains also partially countered their employment losses recorded over the full period of analysis.

Those sectors with competitive advantages but not specialized were also considerably smaller in number than what was displayed for the larger timeframe. Construction, wholesale trade, and information all continued membership in this group over the 2000-2003 period and were joined by one addition, professional, scientific, and technical services. This latter industry, which is definitely a higher paying sector, not only switched into the competitive advantage category but also registered a sizeable employment gain of 4,700 workers or 9.1 percent over this three-year period. This movement suggests some interesting possibilities for the future state employment scene. Construction recorded a modest gain of 1,100 workers over this period while wholesale trade and information lost 2,500 and 3,600 workers, respectively.

The shift-share group registering a competitive disadvantage with specialization within the industry in the 2000-2003 period included three holdover industries from the longer period of analysis and four newcomers. The holdovers included the real estate, rental, and leasing sector which lost 700 jobs during this period and the total government and state and local government sectors which added 4,200 and 7,400 jobs, respectively. The newcomers included retail trade, health care and social assistance, and federal government, all of which reported competitive advantages with specialization for the full 1990-2003 period; and the administrative, support, and waste management sector which reported a competitive advantage without specialization previously. Of these four industries, only the health care and social assistance industry with an increase of 10,500 jobs recorded a gain during this three-year period. For the other three sectors, the employment losses ranged from 3,200 for federal government to 11,900 for administrative, support, and waste management.

The competitive disadvantage group without specialization, a relatively small group of three industries in the 1990-2003 period of analysis, includes two holdovers and seven new additions for the concluding 2000-2003 years. The management of companies industry with a loss of 1,600 jobs and educational services with a gain of 1,800 jobs both maintained membership in this final group with the following inclusions: manufacturing including both durables and nondurables; transportation and warehousing; finance and insurance; arts, entertainment, and recreation; and accommodation and food services. Of these additions, manufacturing and its subcomponents, finance and insurance, and accommodation and food services all lost their competitive advantage readings from the longer period of analysis. The finance and insurance industry gained 2,300 jobs during this time while accommodation and food services' jobs rose by 400. Manufacturing employment losses of 34,500 workers fueled much of the state decline during this time, and registered compositional drops of 25,100 and 9,400 jobs for durables and nondurables, respectively. The other two new additions to this group, transportation and warehousing;

TABLE 3

NAICS SHIFT-SHARE GROUPINGS FOR OKLAHOMA EMPLOYMENT 2000-2003

Group: Competitive Advantage & Specialized (+, +)

NAICS #	Industry	Employment Change (000s)	Percent Change	Okla. 2003 Share (%)	U.S. 2003 Average Wage
21	Mining	1.8	6.8	1.99	54,622
22	Utilities	0.4	4.3	0.74	70,775
81	Other Services	4.0	5.7	5.10	29,756

Group: Competitive Advantage & Not Specialized (+, —)

NAICS #	Industry	Employment Change (000s)	Percent Change	U.S. 2003 Okla. 2003 Share (%)	Average Wage
23	Construction	1.1	1.7	4.34	40,777
42	Wholesale Trade	-2.5	-4.3	3.76	52,020
51	Information	-3.6	-10.2	2.21	58,180
54	PR,SC & T	4.7	9.1	3.89	63,741

Group: Competitive Disadvantage & Specialized (—, —)

NAICS #	Industry	Employment Change (000s)	Percent Change	Okla. 2003 Share (%)	U.S. 2003 Average Wage
44-45	Retail Trade	-10.0	-5.6	11.67	24,555
53	Rest,R & L	-0.7	-3.1	1.55	36,230
56	AD & S & WS	-11.9	-12.0	6.04	25,525
62	HC & SA	10.5	7.1	10.93	35,873
92	Government	4.2	1.5	20.12	37,870
	State & Local	7.4	3.1	17.05	35,616
	Federal Govt	-3.2	-6.6	3.08	53,259

Group: Competitive Disadvantage & Not Specialized (—, +)

NAICS #	Industry	Employment Change (000s)	Percent Change	Okla. 2003 Share (%)	U.S. 2003 Average Wage
31-33	Manufacturing	-34.5	-19.4	9.86	46053
	Durable	-25.1	-21.4	6.38	48366
	Nondurable	-9.4	-15.6	3.48	42319
48-49	TRAN & W	-4.9	-10.3	2.93	39130
52	FIN & INS	2.3	3.9	4.19	65197
55	MGT COMP	-1.6	-11.8	0.82	72434
61	EDUC SERV	1.8	11.8	1.16	28982
71	A,E, & REC	-0.4	-2.7	0.91	29696
72	ACC& FSER	0.4	0.4	7.78	15261

and arts, entertainment, and recreation both recorded competitive disadvantages with specialization for the longer period, and witnessed declines of 4,900 and 400 jobs, respectively.

Summary And Conclusions

The major intent of this manuscript was to try and shed some light on a series of questions that were posed in the introduction concerning the relative economic positioning of Oklahoma in the drive towards the "New Economy", its current competitive advantages and their utilization vis-à-vis the nation, and the possibility of non-high-tech ways to improve that economic position. Shift-share analysis, a regional economic technique that examines temporal employment changes, was used in conjunction with the new NAICS industrial data to address these issues.

As to the question concerning Oklahoma's relative per capita income decline during the decade of the 90s (while registering a larger percentage employment increase than the nation), a simple (and obvious) answer is apparent. The top-five industries responsible for fueling the majority of Oklahoma's 1990-2003 employment growth of 254.8 thousand jobs were (not surprisingly) lower-paying sectors on average. This top-five list and their increases in thousands as reported in Table 2 include: health care and social assistance (55.9); administrative, support, and waste management (45.5); state and local government (36.2); accommodation and food services (31.1); and retail trade (24.2). These five industries contributed 75.7 percent of the employment increase during these 13 years and range in wages nationally from $15,261 to $35,873.[9] While most of these industries recorded competitive advantages for the full period of analysis, all displayed competitive disadvantages over the last three years and in the aggregate maintain greater proportional employment shares of the Oklahoma economy in 2003 than their national counterparts do in relation to the U.S. economy. In other words, they play a greater proportionate role, are lower paying, and were not growing as fast as their national counterparts most recently.

One of the primary assets of the shift-share technique is its ability to translate employment changes over time into information pertaining to competitive advantages or disadvantages for a region as well as whether the region is specialized or not within a given industry. Our analysis for the 1990-2003 period produced several interesting findings in this regard. First of all, only six Oklahoma industries listed competitive advantages for not only the full 13-year period of analysis but also the shorter three-year period at the start of the new millennium. Of these six industries, mining, utilities, and other services also indicated specialization within the industry. The other three, construction, wholesale trade, and information were not specialized. The professional, scientific, and technical services sector, while reporting a competitive disadvantage over the full 13-year period, did generate a competitive advantage (without specialization) over the final three years of study. Seven other industries registered competitive advantages over the entire period but evidently lost those advantages over the final three years. Those industries include: retail trade; administrative, support, and waste management; health care and social assistance; federal government; manufacturing (including durables and nondurables); finance and insurance; and accommodation and food services.

The final question to be addressed in this study pertains to the possible non-high-tech directions that might help improve the relative economic position of the Oklahoma economy. Of course, gains in high-tech employment are always desirable; however, if these gains are very difficult for the state to attain, what does the shift-share analysis tell us about other possibilities in this context? To respond to this query, one first must know where the high-tech industries are located within the industrial classification system. According to a study by Daniel Hecker for the U.S. Department of Labor's Bureau of Labor Statistics, under the old SIC system 29 three-digit industries composed the high-tech classification.[10] Of these 29 industries, 25 resided in manufacturing and four were located in services. While translations from SIC to NAICS classifications are sometimes difficult to perfectly trace, it appears that the manufacturing high-tech industries probably still reside in manufacturing (with some new creations that were noted previously). Three of the four service-based high-tech industries (SIC 871, 873, and 874) appear to now dwell primarily within professional, scientific, and technical services while the final high-tech industry (SIC 737) inhabits both information and professional, scientific, and technical services for the most part. In both of these latter two NAICS sectors, the service-based high-tech industries in Oklahoma appear to contribute less than fifty percent of the total sector employment.

So, given that we will take any high-tech employment gains we can acquire, what does our analysis tell us about Oklahoma's best bets for possible non-high-tech additions to the economy? To begin with, three of the industries reporting competitive advantages (mining, construction, and federal government) during our period of analysis are essentially guided by various exogenous forces and are, therefore, probably beyond the grasp of

local public policy. After removing those three from consideration, we are still left with some reasonable possibilities. These industries all displayed competitive advantages during some part of our analysis period and were above average in pay. They include the following NAICS industries: information; professional, scientific, and technical services; manufacturing; utilities; wholesale trade; and finance and insurance. The first three of these, as noted above, do have some high-tech elements to them. However, there are other components to these industries that are not high-tech and they could additionally benefit the state's economic position. Incidentally, Oklahoma is not currently specialized in any of these sectors. The utilities sector is very small and we appear to be specialized there already, but some minor additions might be possible. Efforts to promote wholesale trade and finance and insurance activity, both areas in which Oklahoma is not specialized presently, would also appear to be quite beneficial. Wholesale trade gains could appear as a corollary to any gains arising from the manufacturing sector.

Finally, two interesting points from the competitive disadvantage category seem worthy of note. First of all, one might wonder why a centrally based state in the U.S. reports transportation and warehousing as an industry of competitive disadvantage. What can be done to encourage a change of position here? Secondly, Oklahoma appears to be too heavily into state and local government vis-à-vis the rest of the nation.

Notes

[1]Warner, Larkin and Robert C. Dauffenbach. "Increasing Oklahoma's Competitiveness in the New/ Global Economy: An Assessment." *Oklahoma Business Bulletin*, Vol. 70, No. 2, 2002, pp. 7-20.

[2]Employment figures are from the Bureau of Labor Statistics (BLS) Current Employment Statistics (CES) survey, a monthly survey of approximately 300,000 nonfarm business establishments. Wage and salary disbursement data used in the calculation of U.S. average wages comes from the Bureau of Economic Analysis (BEA) Quarterly Personal Income series. Details on the structure of NAICS can be found at

http://www.census.gov/epcd/www/naics.html.

Discussion of the conversion of the CES survey to NAICS is found at

http://www.bls.gov/sae/saenaics.htm#naics.

[3]The following citations include some of the earliest discussions of the shift-share technique:

Ashby, L.D. "Growth Patterns in Employment by County, 1940-50 and 1950-60." U.S. Dept. of Commerce, Office of Business Economics, Government Printing Office, Washington, D.C., 1965

Dunn, E.S., Jr. "A Statistical and Analytical Technique for Regional Analysis." *Papers and Proceedings of the Regional Science Association*, Vol. 6, 1960, pp. 97-112.

Perloff, H., E.S. Dunn, P. Lampard and R. Muth. *Regions, Resources and Economic Growth*. Baltimore: John Hopkins University Press, 1960.

[4]Richardson, H.W. *Urban and Regional Economics*. Hammondworth: Penguin, 1978.

[5]Esteban-Marquillas, J.M. "A Reinterpretation of Shift-Share Analysis." *Regional and Urban Economics*, Vol. 2, No. 3, 1972, pp. 249-261.

[6]The Esteban-Marquillas four-component shift-share model of employment change (national growth, industry-mix, competitive, and allocation effects) over time can be expressed in the following manner:

$$e^t_{is} - e^o_{is} = e^o_{is}\, r_n + e^o_{is}\,(r_{in} - r_n) + e^o_{in}(e^o_s/e^o_n)(r_{is} - r_{in}) + (e^o_{is} - e^o_{in}(e^o_s/e^o_n))(r_{is} - r_{in})$$

where e = employment; r = rate of growth from initial to terminal year; the superscripts t and o denote terminal year and initial year, respectively; and the subscripts i, s, and n denote industry, state, and nation, respectively. Homothetic employment is represented by the following term: $e^o_{in}(e^o_s/e^o_n)$.

[7]In this model, a competitive advantage (disadvantage) is said to occur for an industry if the industry growth rate for the state is greater than (less than) the national growth rate for the corresponding industry. Correspondingly, an industry within the state is considered specialized (not specialized) if its starting year employment is greater than (less than) the homothetic expectation.

[8]For presentation purposes in the Current Employment Statistics survey, all government employment is defined by ownership using the familiar categories of federal, state, and local government. Federal government pertains to civilian employee only.

[9]These top-five industries were also responsible for 66.9 percent of the 293.6 thousand-job increase witnessed over the subset period of 1990-2000.

[10]Hecker, Daniel. "High-technology employment: A broader view." *Monthly Labor Review*, June 1999, pp. 18-28.

[11]The mining sector reported here is actually the NAICS sectors 11 and 21 or what is formally referred to as Natural Resources and Mining. In Oklahoma, this is primarily mining activity.

[12]The educational services sector represents only private sector services of this nature.

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SELECTED INDICATORS FOR OKLAHOMA

	1st Qtr '05	4th Qtr '04	1st Qtr '04	Percentage Change '05/'04 1st Qtr	Percentage Change 1st Qtr '05 4th Qtr '04
Crude Oil Production (000 bbl)[a]	17,252	18,171	16,923	1.9	-5.1
Natural Gas Production (000 mcf)[a]	381,422	370,862	413,142	-7.7	2.8
Rig Count	151	154	150	0.7	-1.9
Intial Unemployment Claims	23,152	24,527	27,867	-16.9	-5.6
Permit-Authorized Construction					
Residential Single Family					
Dollar Value ($000)	500,032	441,199	462,835	8.0	13.3
Number of Units	3,371	3,026	3,286	2.6	11.4
Residential-Multi Family					
Dollar Value ($000)	45,860	44,491	47,357	-3.2	3.1
Number of Units	685	853	790	-13.3	-19.7
Total Construction ($000)	545,892	485,690	510,192	7.0	12.4
Employment					
Total Labor Force (000)[b]	1,709.6	1,718.9	1,699.7	0.6	-0.5
Total Employment (000)	1,626.2	1,641.7	1,605.9	1.3	-0.9
Unemployment Rate (%)	4.9	4.5	5.5	--	--
Wage and Salary Employment (000)	1,476.2	1,489.1	1,450.4	1.8	-0.9
Manufacturing	141,167	141,967	141,133	0.0	-0.6
Mining	31,600	31,333	29,800	6.0	0.9
Government	310,333	312,133	299,967	3.5	-0.6
Construction	60,667	62,300	60,067	1.0	-2.6
Retail Trade	166,700	171,000	167,233	-0.3	-2.5
Average Weekly Hours (Per Worker)					
Manufacturing	39.0	41.1	40.2	-3.0	-5.1
Average Weekly Earnings ($ Per Worker)					
Manufacturing	554.64	593.77	581.36	-4.6	-6.6

Note: Includes revisions in some previous months.
[a]Figures are for 4th Qtr 2002.
[b]Sales of larger private owned utility companies.
[c]Labor Force refer to place of residence, non-agricultural wage and salary employment refers to place of work.

OKLAHOMA GENERAL BUSINESS INDEX

	Preliminary Forecast Mar '05	Mar '04	Mar '03	Percentage Change '05/'04 Mar	'05/'03 Mar
State	135.9	133.7	130.4	1.6	4.2
Oklahoma City MSA	142.1	136.9	133.0	3.8	6.8
Tulsa MSA	136.7	134.9	133.3	1.2	2.6

ADJUSTED RETAIL TRADE FOR METRO AREAS AND STATE ($ Seasonally Adjusted)

	1st Qtr '05	4th Qtr '04	1st Qtr '04	Percentage Change '05/'04 1st Qtr	Percentage Change 1st Qtr '05 4th Qtr '04
OKLAHOMA CITY MSA					
Durable Goods	682,829,382	655,579,181	628,554,953	8.6	4.2
Lumber, Building Materials and Hardware	245,676,806	231,030,164	219,697,524	11.8	6.3
Auto Accessories and Repair	95,538,320	95,163,067	90,773,724	5.2	0.4
Furniture	83,220,226	82,271,282	80,053,225	4.0	1.2
Computer, Electronics and Music Stores	92,916,444	88,152,283	84,748,900	9.6	5.4
Miscellaneous Durables	147,485,946	141,650,331	136,400,590	8.1	4.1
Used Merchandise	17,991,640	17,312,054	16,880,990	6.6	3.9
Nondurable Goods	1,790,878,361	1,754,960,622	1,670,842,756	7.2	2.0
General Merchandise	639,559,045	617,938,178	598,357,124	6.9	3.5
Food Stores	238,829,767	265,125,676	267,828,902	-10.8	-9.9
Apparel	112,527,915	108,830,673	105,484,236	6.7	3.4
Eating and Drinking Places	401,449,285	372,263,818	351,943,157	14.1	7.8
Drug Stores	41,072,312	39,985,036	37,698,340	8.9	2.7
Liquor Stores	23,700,690	23,289,495	21,861,410	8.4	1.8
Miscellaneous Nondurables	91,242,521	89,425,817	84,458,214	8.0	2.0
Gasoline	242,496,826	238,101,928	203,211,374	19.3	1.8
Total Retail Trade	2,473,707,742	2,410,539,803	2,299,397,709	7.6	2.6
TULSA MSA					
Durable Goods	454,819,245	449,152,954	438,412,466	3.7	1.3
Lumber, Building Materials and Hardware	154,501,340	141,673,738	154,053,329	0.3	9.1
Auto Accessories and Repair	59,484,668	60,434,139	59,784,439	-0.5	-1.6
Furniture	55,072,772	53,240,121	53,044,289	3.8	3.4
Computer, Electronics and Music Stores	80,916,638	87,826,323	68,960,847	17.3	-7.9
Miscellaneous Durables	91,619,511	90,555,483	89,590,820	2.3	1.2
Used Merchandise	13,224,316	15,423,151	12,978,742	1.9	-14.3
Nondurable Goods	1,338,214,316	1,331,262,734	1,279,638,787	4.6	0.5
General Merchandise	444,561,893	436,892,722	439,011,025	1.3	1.8
Food Stores	203,281,825	218,320,927	230,894,799	-12.0	-6.9
Apparel	82,614,392	79,577,737	75,203,646	9.9	3.8
Eating and Drinking Places	261,367,802	248,871,883	237,799,351	9.9	5.0
Drug Stores	34,295,988	33,415,038	31,825,444	7.8	2.6
Liquor Stores	19,233,736	19,088,797	17,926,412	7.3	0.8
Miscellaneous Nondurables	62,750,589	76,330,902	60,282,225	4.1	-17.8
Gasoline	230,108,091	218,764,727	186,695,885	23.3	5.2
Total Retail Trade	1,793,033,561	1,780,415,688	1,718,051,252	4.4	0.7
LAWTON MSA					
Durable Goods	44,465,952	41,821,070	43,070,304	3.2	6.3
Lumber, Building Materials and Hardware	19,946,928	16,817,525	17,968,197	11.0	18.6
Auto Accessories and Repair	6,746,259	6,829,821	6,623,763	1.8	-1.2
Furniture	3,698,890	3,574,664	3,822,849	-3.2	3.5
Computer, Electronics and Music Stores	4,363,388	4,817,508	4,702,686	-7.2	-9.4
Miscellaneous Durables	8,004,615	8,185,337	8,506,904	-5.9	-2.2
Used Merchandise	1,705,872	1,596,215	1,445,906	18.0	6.9

ADJUSTED RETAIL TRADE FOR METRO AREAS AND STATE ($ Seasonally Adjusted)

	1st Qtr '05	4th Qtr '04	1st Qtr '04	Percentage Change '05/'04 1st Qtr	Percentage Change 1st Qtr '05 4th Qtr '04
LAWTON MSA					
Nondurable Goods	152,539,504	151,012,275	149,328,316	2.2	1.0
General Merchandise	70,088,876	69,065,039	69,613,110	0.7	1.5
Food Stores	15,116,654	17,592,863	17,082,723	-11.5	-14.1
Apparel	9,331,278	8,712,955	10,668,484	-12.5	7.1
Eating and Drinking Places	29,940,185	28,266,047	26,547,391	12.8	5.9
Drug Stores	2,256,292	2,216,557	2,247,643	0.4	1.8
Liquor Stores	1,302,779	1,038,188	1,073,485	21.4	25.5
Miscellaneous Nondurables	6,891,083	6,356,869	6,935,084	-0.6	8.4
Gasoline	17,612,357	17,763,757	15,160,396	16.2	-0.9
Total Retail Trade	197,005,456	192,833,345	192,398,621	2.4	2.2
ENID MICROSA					
Durable Goods	29,950,779	29,476,450	27,225,489	10.0	1.6
Lumber, Building Materials and Hardware	11,968,397	11,467,389	9,884,028	21.1	4.4
Auto Accessories and Repair	5,414,092	5,621,449	5,849,370	-7.4	-3.7
Furniture	2,691,555	2,305,428	2,462,165	9.3	16.7
Computer, Electronics and Music Stores	3,336,120	3,799,420	2,799,387	19.2	-12.2
Miscellaneous Durables	5,691,861	5,354,705	5,372,663	5.9	6.3
Used Merchandise	848,755	928,059	857,876	-1.1	-8.5
N**ondurable Goods**	96,025,958	94,216,705	93,739,323	2.4	1.9
General Merchandise	36,249,858	34,488,156	35,226,369	2.9	5.1
Food Stores	15,921,896	18,056,261	18,701,850	-14.9	-11.8
Apparel	4,146,074	3,772,134	4,114,467	0.8	9.9
Eating and Drinking Places	16,990,042	15,187,768	14,679,989	15.7	11.9
Drug Stores	2,977,896	3,032,953	2,840,997	4.8	-1.8
Liquor Stores	954,403	874,713	902,267	5.8	9.1
Miscellaneous Nondurables	4,470,284	4,366,012	4,950,852	-9.7	2.4
Gasoline	14,315,505	14,438,708	12,322,532	16.2	-0.9
Total Retail Trade	125,976,737	123,693,156	120,964,812	4.1	1.8
OKLAHOMA					
Durable Goods	1,703,465,360	1,703,486,589	1,692,558,487	0.6	0.0
Lumber, Building Materials and Hardware	645,237,332	614,906,055	611,498,465	5.5	4.9
Auto Accessories and Repair	266,668,705	267,438,310	267,059,246	-0.1	-0.3
Furniture	195,293,508	187,414,165	190,037,253	2.8	4.2
Computer, Electronics and Music Stores	238,814,737	258,146,940	250,169,944	-4.5	-7.5
Miscellaneous Durables	311,079,056	324,295,976	327,845,587	-5.1	-4.1
Used Merchandise	46,372,021	51,285,144	45,947,991	0.9	-9.6
Nondurable Goods	5,114,451,556	5,059,561,905	4,905,484,770	4.3	1.1
General Merchandise	1,787,899,695	1,749,465,403	1,709,322,755	4.6	2.2
Food Stores	802,747,771	889,427,539	923,548,355	-13.1	-9.7
Apparel	261,290,872	251,648,685	247,554,860	5.5	3.8
Eating and Drinking Places	985,045,110	919,613,360	879,346,460	12.0	7.1
Drug Stores	95,373,712	91,230,164	98,101,301	-2.8	4.5
Liquor Stores	55,144,660	55,214,145	56,686,057	-2.7	-0.1
Miscellaneous Nondurables	259,512,234	228,053,439	244,249,981	6.2	13.8
Gasoline	867,437,501	874,909,171	746,675,000	16.2	-0.9
Total Retail Trade	6,817,916,916	6,763,048,494	6,598,043,257	3.3	0.8

ADJUSTED RETAIL TRADE FOR SELECTED CITIES ($ Seasonally Adjusted)

				Percentage Change	
	1st Qtr '05	4th Qtr '04	1st Qtr '04	'05/'04 1st Qtr	1st Qtr '05 4th Qtr '04
Ada	59,881,115	60,549,416	60,661,760	-1.3	-1.1
Altus	45,247,782	45,680,520	45,188,491	0.1	-0.9
Alva	14,023,436	13,982,009	13,927,328	0.7	0.3
Anadarko	15,753,145	15,758,274	15,845,351	-0.6	0.0
Ardmore	84,179,865	83,449,150	82,180,502	2.4	0.9
Bartlesville	100,582,535	98,540,980	96,430,492	4.3	2.1
Blackwell	13,395,881	13,403,044	12,578,082	6.5	-0.1
Broken Arrow	146,583,362	153,128,959	145,780,822	0.6	-4.3
Chickasha	37,315,396	36,991,282	35,731,643	4.4	0.9
Clinton	19,179,019	19,497,757	19,810,566	-3.2	-1.6
Cushing	18,225,975	17,736,067	17,003,919	7.2	2.8
Del City	25,140,456	25,179,899	25,077,449	0.3	-0.2
Duncan	56,461,404	56,573,879	54,527,263	3.5	-0.2
Durant	48,050,056	47,702,423	45,993,462	4.5	0.7
Edmond	201,838,822	195,718,297	187,655,055	7.6	3.1
El Reno	28,638,787	28,937,370	28,553,464	0.3	-1.0
Elk City	41,726,144	42,690,039	39,158,532	6.6	-2.3
Enid	116,443,949	113,895,979	111,976,126	4.0	2.2
Guthrie	20,610,420	20,912,024	20,609,094	0.0	-1.4
Guymon	26,764,066	26,244,680	24,513,262	9.2	2.0
Henryetta	13,188,536	12,824,528	12,935,331	2.0	2.8
Hobart	6,372,595	6,405,048	6,268,898	1.7	-0.5
Holdenville	9,531,714	9,256,505	8,960,198	6.4	3.0
Hugo	16,939,554	16,928,071	16,902,792	0.2	0.1
Idabel	18,707,096	19,210,494	17,354,320	7.8	-2.6
Lawton	180,600,961	180,600,961	180,600,961	0.0	0.0
McAlester	68,181,769	66,804,851	64,081,867	6.4	2.1
Miami	32,798,557	31,542,643	31,377,557	4.5	4.0
Midwest City	140,592,090	139,507,400	131,215,049	7.1	0.8
Moore	89,125,428	90,136,301	83,410,985	6.9	-1.1
Muskogee	115,040,863	111,939,774	107,434,301	7.1	2.8
Norman	266,448,258	253,281,337	247,589,139	7.6	5.2
Oklahoma City	1,338,829,704	1,299,704,647	1,267,941,266	5.6	3.0
Okmulgee	32,216,755	32,225,528	32,178,824	0.1	0.0
Pauls Valley	20,464,773	20,438,029	19,920,234	2.7	0.1
Pawhuska	6,455,184	6,350,390	6,099,930	5.8	1.7
Ponca City	61,028,164	59,111,885	65,216,786	-6.4	3.2
Poteau	35,421,801	34,498,666	32,627,987	8.6	2.7
Sand Springs	57,491,344	56,632,515	55,398,688	3.8	1.5
Sapulpa	49,413,044	51,582,420	48,301,329	2.3	-4.2
Seminole	22,249,863	22,835,684	23,634,328	-5.9	-2.6
Shawnee	98,166,259	95,268,624	88,643,964	10.7	3.0
Stillwater	114,428,593	113,124,759	108,291,600	5.7	1.2
Tahlequah	58,282,683	56,961,221	54,934,402	6.1	2.3
Tulsa	1,163,772,787	1,149,199,431	1,102,290,645	5.6	1.3
Watonga	5,360,541	5,391,057	5,341,150	0.4	-0.6
Weatherford	27,721,657	28,692,119	26,870,141	3.2	-3.4
Wewoka	3,407,537	3,280,830	3,470,005	-1.8	3.9
Woodward	44,588,735	44,895,683	42,568,296	4.7	-0.7
Total Selected Cities	5,168,872,190	5,087,026,934	4,929,025,336	4.9	1.6

SELECTED INDICATORS FOR THE ENID AND LAWTON MSA'S AND MUSKOGEE MA

				Percentage Change	
	1st Qtr '05	4th Qtr '04	1st Qtr '04	'05/'04 1st Qtr	1st Qtr '05 4th Qtr '04
ENID MSA					
Employment (Number)					
Labor Force[a]	28,377	26,166	26,156	8.5	8.4
Total Employment	27,267	25,381	25,265	7.9	7.4
Unemployment Rate (%)	4.0	3.0	3.4	--	--
LAWTON MSA					
Employment (Number)					
Labor Force[a]	47,110	43,418	42,811	10.0	8.5
Total Employment	44,913	41,689	41,118	9.2	7.7
Unemployment Rate (%)	4.7	4.0	4.0	--	--
Wage and Salary Employment	40,833	41,000	40,067	1.9	-0.4
Wholesale and Retail Trade	5,733	5,733	5,800	-1.2	0.0
Manufacturing	3,800	3,867	3,833	-0.9	-1.7
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	4,390	3,995	4,752	-7.6	9.9
Number of Units	35	33	39	-10.3	6.1
Residential-Multi Family					
Dollar Value ($000)	0	0	100	--	--
Number of Units	0	0	5	--	--
Total Construction ($000)	4,390	3,995	4,852	-9.5	9.9
MUSKOGEE MA					
Employment (Number)					
Labor Forcea	27,913	30,533	30,208	-7.6	-8.6
Total Employment	25,957	28,397	27,870	-6.9	-8.6
Unemployment Rate (%)	7.0	7.0	7.7	--	--
Water Transportation					
Port of Muskogee					
Tons In	124,589	124,841	113,473	9.8	-0.2
Tons Out	47,636	53,239	44,308	7.5	-10.5

Note: Includes revisions.
[a]Civilian Labor Force.
E = Exceeds 600 percent.

SELECTED INDICATORS FOR THE TULSA MSA

	1st Qtr '05	4th Qtr '04	1st Qtr '04	Percentage Change '05/'04 1st Qtr	Percentage Change 1st Qtr '05 4th Qtr '04
Employment (Number)					
Labor Force[a]	440,663	451,222	448,653	-1.8	-2.3
Total Employment	419,573	429,768	420,273	-0.2	-2.4
Unemployment Rate (%)	4.7	4.8	6.3	--	--
Wage and Salary Employment	394,900	401,067	395,367	-0.1	-1.5
Manufacturing	42,267	46,533	46,533	-9.2	-9.2
Mining	4,600	4,633	4,533	1.5	-0.7
Government	51,000	51,367	48,800	4.5	-0.7
Wholesale and Retail Trade	59,700	61,433	60,500	-1.3	-2.8
Average Weekly Earnings Manufacturing ($ Per Worker)	694.33	692.21	678.10	2.4	0.3
Air Transportation					
Passengers Enplaning (Number)	334,606	369,041	342,721	-2.4	-9.3
Passengers Deplaning (Number)	336,451	366,701	328,543	2.4	-8.2
Freight (Tons)	12,828	14,184	13,035	-1.6	-9.6
Water Transportation					
Tulsa Port of Catoosa					
Tons In	241,096	254,385	244,652	-1.5	-5.2
Tons Out	240,879	284,961	308,100	-21.8	-15.5
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	171,285	150,140	138,276	23.9	14.1
Number of Units	1,148	1,039	1,024	12.1	10.5
Residential-Multi Family					
Dollar Value ($000)	1,474	5,005	2,071	-28.8	-70.5
Number of Units	32	72	42	-23.8	-55.6
Total Construction	172,759	155,145	140,347	23.1	11.4

Note: Includes revisions.
[a]Civilian Labor Force.
E = Exceeds 600 percent.

SELECTED INDICATORS FOR OKLAHOMA CITY MSA

	1st Qtr '05	4th Qtr '04	1st Qtr '04	Percentage Change '05/'04 1st Qtr	Percentage Change 1st Qtr '05 4th Qtr '04
Employment (Number)					
Labor Force[a]	581,937	597,657	584,529	-0.4	-2.6
Total Employment	554,547	573,705	557,195	-0.5	-3.3
Unemployment Rate (%)	4.7	4.0	4.7	--	--
Wage and Salary Employment	542,967	550,800	533,133	1.8	-1.4
Manufacturing	38,500	39,133	38,433	0.2	-1.6
Mining	8,567	8,533	7,733	10.8	0.4
Government	114,033	115,267	110,267	3.4	-1.1
Wholesale and Retail Trade	79,967	82,200	80,800	-1.0	-2.7
Average Weekly Earnings Manufacturing ($ Per Worker)	569.51	565.28	555.36	2.5	0.7
Air Transportation					
Passengers Enplaning (Number)	383,951	430,327	374,414	2.5	-10.8
Passengers Deplaning (Number)	395,187	423,871	373,305	5.9	-6.8
Freight Enplaned (Tons)	3,837	5,114	3,428	11.9	-25.0
Freight Deplaned (Tons)	4,555	6,767	4,435	2.7	-32.7
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	283,723	253,907	281,505	0.8	11.7
Number of Units	1,896	1,689	1,949	-2.7	12.3
Residential-Multi Family					
Dollar Value ($000)	29,130	31,798	39,202	-25.7	-8.4
Number of Units	369	666	621	-40.6	-44.6

Note: Includes revisions.
[a]Civilian Labor Force.

SELECTED INDICATORS FOR OKLAHOMA

	2nd Qtr '05	1st Qtr '05	2nd Qtr '04	Percentage Change '05/'04 2nd Qtr	Percentage Change 2nd Qtr '05 1st Qtr '05
Crude Oil Production (000 bbl)[a]	16,822	17,357	18,435	-8.7	-3.1
Natural Gas Production (000 mcf)[b]	407,283	421,759	406,883	0.1	-3.4
Rig Count	152	152	164	-7.3	0.0
Intial Unemployment Claims	22,084	23,152	24,809	-11.0	-4.6
Permit-Authorized Construction					
Residential Single Family					
Dollar Value ($000)	583,619	500,032	529,361	10.2	16.7
Number of Units	3,858	3,371	3,657	5.5	14.4
Residential-Multi Family					
Dollar Value ($000)	38,769	44,491	25,873	49.8	-12.9
Number of Units	377	685	390	-3.3	-45.0
Total Construction ($000)	622,388	544,523	555,234	12.1	14.3
Employment					
Total Labor Force (000)[c]	1,729.0	1,709.6	1,714.5	0.8	1.1
Total Employment (000)	1,652.9	1,626.2	1,630.7	1.4	1.6
Unemployment Rate (%)	4.4	4.9	4.9	--	--
Wage and Salary Employment (000)	1,501.4	1,476.2	1,474.7	1.8	1.7
Manufacturing	140,733	141,167	141,533	-0.6	-0.3
Mining	32,100	31,600	30,900	3.9	1.6
Government	312,267	310,333	301,233	3.7	0.6
Construction	63,367	60,667	62,700	1.1	4.5
Retail Trade	169,433	166,700	169,333	0.1	1.6
Average Weekly Hours (Per Worker)					
Manufacturing	39.9	39.0	41.6	-4.1	2.3
Average Weekly Earnings ($ Per Worker)					
Manufacturing	581.08	554.64	598.90	-3.0	4.8

Note: Includes revisions in some previous months.
[a]Figures are for 4th Qtr 2002.
[b]Sales of larger private owned utility companies.
[c]Labor Force refer to place of residence, non-agricultural wage and salary employment refers to place of work.

OKLAHOMA GENERAL BUSINESS INDEX

	Preliminary Forecast June '05	June '04	June '03	Percentage Change '04/'05 June	'05/'03 June
State	137.3	133.8	130.2	2.6	5.5
Oklahoma City MSA	142.1	137.8	132.2	3.1	7.5
Tulsa MSA	137.6	135.4	131.2	1.6	4.9

ADJUSTED RETAIL TRADE FOR METRO AREAS AND STATE ($ Seasonally Adjusted)

	2nd Qtr '05	1st Qtr '05	2nd Qtr '04	Percentage Change '05/'04 2nd Qtr	Percentage Change 2nd Qtr '05 1st Qtr '05
OKLAHOMA CITY MSA					
Durable Goods	698,749,945	682,829,382	652,432,951	7.1	2.3
Lumber, Building Materials and Hardware	259,625,065	245,676,806	237,589,496	9.3	5.7
Auto Accessories and Repair	93,369,486	95,538,320	93,431,057	-0.1	-2.3
Furniture	86,454,734	83,220,226	80,790,197	7.0	3.9
Computer, Electronics and Music Stores	93,874,745	92,916,444	86,808,293	8.1	1.0
Miscellaneous Durables	148,345,132	147,485,946	137,155,085	8.2	0.6
Used Merchandise	17,080,783	17,991,640	16,658,823	2.5	-5.1
Nondurable Goods	1,766,952,494	1,790,878,361	1,714,350,586	3.1	-1.3
General Merchandise	623,056,750	639,559,045	593,865,332	4.9	-2.6
Food Stores	245,025,049	238,829,767	274,640,609	-10.8	2.6
Apparel	114,827,576	112,527,915	104,861,597	9.5	2.0
Eating and Drinking Places	412,050,580	401,449,285	360,110,497	14.4	2.6
Drug Stores	38,068,990	41,072,312	38,465,978	-1.0	-7.3
Liquor Stores	25,272,106	23,700,690	21,644,441	16.8	6.6
Miscellaneous Nondurables	84,098,989	91,242,521	102,078,384	-17.6	-7.8
Gasoline	224,552,454	242,496,826	218,683,748	2.7	-7.4
Total Retail Trade	2,465,702,439	2,473,707,742	2,366,783,537	4.2	-0.3
TULSA MSA					
Durable Goods	473,034,259	454,819,245	442,251,266	7.0	4.0
Lumber, Building Materials and Hardware	171,186,295	154,501,340	156,301,548	9.5	10.8
Auto Accessories and Repair	60,593,358	59,484,668	59,579,334	1.7	1.9
Furniture	57,936,647	55,072,772	54,348,094	6.6	5.2
Computer, Electronics and Music Stores	73,485,397	80,916,638	66,096,570	11.2	-9.2
Miscellaneous Durables	97,196,908	91,619,511	93,242,681	4.2	6.1
Used Merchandise	12,635,654	13,224,316	12,683,039	-0.4	-4.5
Nondurable Goods	1,314,765,604	1,338,214,316	1,309,429,024	0.4	-1.8
General Merchandise	434,190,236	444,561,893	430,638,939	0.8	-2.3
Food Stores	205,456,269	203,281,825	228,021,653	-9.9	1.1
Apparel	82,466,772	82,614,392	76,105,875	8.4	-0.2
Eating and Drinking Places	266,005,332	261,367,802	245,535,041	8.3	1.8
Drug Stores	31,398,864	34,295,988	30,898,658	1.6	-8.4
Liquor Stores	19,674,272	19,233,736	18,666,299	5.4	2.3
Miscellaneous Nondurables	62,492,491	62,750,589	78,651,658	-20.5	-0.4
Gasoline	213,081,368	230,108,091	200,910,901	6.1	-7.4
Total Retail Trade	1,787,799,863	1,793,033,561	1,751,680,290	2.1	-0.3
LAWTON MSA					
Durable Goods	42,201,234	44,465,952	40,351,855	4.6	-5.1
Lumber, Building Materials and Hardware	18,668,739	19,946,928	16,732,965	11.6	-6.4
Auto Accessories and Repair	6,808,949	6,746,259	6,407,684	6.3	0.9
Furniture	3,680,503	3,698,890	4,178,968	-11.9	-0.5
Computer, Electronics and Music Stores	3,696,912	4,363,388	3,318,131	11.4	-15.3
Miscellaneous Durables	8,027,321	8,004,615	8,485,175	-5.4	0.3
Used Merchandise	1,318,809	1,705,872	1,228,931	7.3	-22.7

ADJUSTED RETAIL TRADE FOR METRO AREAS AND STATE ($ Seasonally Adjusted)

	2nd Qtr '05	1st Qtr '05	2nd Qtr '04	Percentage Change '05/'04 2nd Qtr	Percentage Change 2nd Qtr '05 1st Qtr '05
LAWTON MSA					
Nondurable Goods	147,297,838	152,539,504	145,736,656	1.1	-3.4
General Merchandise	68,149,966	70,088,876	66,958,666	1.8	-2.8
Food Stores	15,003,843	15,116,654	17,250,188	-13.0	-0.7
Apparel	8,916,027	9,331,278	8,571,932	4.0	-4.5
Eating and Drinking Places	30,031,439	29,940,185	27,176,929	10.5	0.3
Drug Stores	2,145,707	2,256,292	2,280,026	-5.9	-4.9
Liquor Stores	1,569,931	1,302,779	1,015,129	54.7	20.5
Miscellaneous Nondurables	5,171,836	6,891,083	6,169,090	-16.2	-24.9
Gasoline	16,309,089	17,612,357	16,314,697	0.0	-7.4
Total Retail Trade	189,499,072	197,005,456	186,088,512	1.8	-3.8
ENID MICROSA					
Durable Goods	28,417,658	29,950,779	26,880,873	5.7	-5.1
Lumber, Building Materials and Hardware	11,843,684	11,968,397	10,072,099	17.6	-1.0
Auto Accessories and Repair	5,060,367	5,414,092	5,675,866	-10.8	-6.5
Furniture	2,632,014	2,691,555	2,734,895	-3.8	-2.2
Computer, Electronics and Music Stores	2,916,743	3,336,120	2,210,306	32.0	-12.6
Miscellaneous Durables	5,402,331	5,691,861	5,615,019	-3.8	-5.1
Used Merchandise	562,519	848,755	572,688	-1.8	-33.7
Nondurable Goods	92,424,535	96,025,958	91,006,121	1.6	-3.8
General Merchandise	34,681,234	36,249,858	34,073,738	1.8	-4.3
Food Stores	15,556,177	15,921,896	17,793,080	-12.6	-2.3
Apparel	4,033,051	4,146,074	3,861,539	4.4	-2.7
Eating and Drinking Places	16,946,382	16,990,042	14,059,381	20.5	-0.3
Drug Stores	2,736,030	2,977,896	2,661,115	2.8	-8.1
Liquor Stores	898,900	954,403	868,452	3.5	-5.8
Miscellaneous Nondurables	4,316,557	4,470,284	4,428,055	-2.5	-3.4
Gasoline	13,256,204	14,315,505	13,260,761	0.0	-7.4
Total Retail Trade	120,842,193	125,976,737	117,886,995	2.5	-4.1
OKLAHOMA					
Durable Goods	1,684,394,875	1,692,521,260	1,660,803,018	1.4	-0.5
Lumber, Building Materials and Hardware	655,846,365	649,988,628	635,371,370	3.2	0.9
Auto Accessories and Repair	266,787,449	266,642,089	266,974,997	-0.1	0.1
Furniture	200,779,944	198,069,484	193,794,079	3.6	1.4
Computer, Electronics and Music Stores	203,380,844	220,516,872	202,444,353	0.5	-7.8
Miscellaneous Durables	320,992,976	314,746,926	325,720,633	-1.5	2.0
Used Merchandise	36,607,298	42,557,261	36,497,586	0.3	-14.0
Nondurable Goods	5,039,132,059	5,144,168,584	5,011,722,542	0.5	-2.0
General Merchandise	1,778,206,155	1,791,088,395	1,703,194,332	4.4	-0.7
Food Stores	807,372,586	794,964,358	917,045,683	-12.0	1.6
Apparel	263,478,071	261,681,050	243,419,083	8.2	0.7
Eating and Drinking Places	1,012,594,442	1,000,066,136	897,331,352	12.8	1.3
Drug Stores	100,204,903	97,988,853	102,863,049	-2.6	2.3
Liquor Stores	55,818,201	55,444,865	55,013,879	1.5	0.7
Miscellaneous Nondurables	218,207,462	259,222,208	289,328,771	-24.6	-15.8
Gasoline	803,250,240	883,712,721	803,526,393	0.0	-9.1
Total Retail Trade	6,723,526,934	6,836,689,845	6,672,525,560	0.8	-1.7

ADJUSTED RETAIL TRADE FOR SELECTED CITIES ($ Seasonally Adjusted)

	2nd Qtr '05	1st Qtr '05	2nd Qtr '04	Percentage Change '05/'04 2nd Qtr	Percentage Change 2nd Qtr '05 1st Qtr '05
Ada	62,083,855	59,881,115	60,105,817	3.3	3.7
Altus	44,395,585	45,247,782	45,331,780	-2.1	-1.9
Alva	14,215,938	14,023,436	13,944,279	1.9	1.4
Anadarko	15,964,625	15,753,145	15,836,653	0.8	1.3
Ardmore	85,995,098	84,179,865	81,025,319	6.1	2.2
Bartlesville	100,476,026	100,582,535	98,519,539	2.0	-0.1
Blackwell	13,344,687	13,395,881	13,035,031	2.4	-0.4
Broken Arrow	138,533,961	146,583,362	145,951,778	-5.1	-5.5
Chickasha	37,100,646	37,315,396	36,067,892	2.9	-0.6
Clinton	19,748,036	19,179,019	19,276,484	2.4	3.0
Cushing	18,318,037	18,225,975	16,531,060	10.8	0.5
Del City	24,731,009	25,140,456	25,463,009	-2.9	-1.6
Duncan	55,876,462	56,461,404	54,642,386	2.3	-1.0
Durant	47,390,148	48,050,056	47,142,903	0.5	-1.4
Edmond	201,544,055	201,838,822	189,952,023	6.1	-0.1
El Reno	28,370,819	28,638,787	28,356,892	0.0	-0.9
Elk City	42,706,923	41,726,144	39,887,468	7.1	2.4
Enid	115,765,676	116,443,949	111,369,179	3.9	-0.6
Guthrie	20,955,575	20,610,420	20,502,482	2.2	1.7
Guymon	25,882,380	26,764,066	24,806,858	4.3	-3.3
Henryetta	13,305,141	13,188,536	13,003,130	2.3	0.9
Hobart	6,391,681	6,372,595	6,303,711	1.4	0.3
Holdenville	9,803,044	9,531,714	9,419,727	4.1	2.8
Hugo	16,723,335	16,939,554	16,802,692	-0.5	-1.3
Idabel	18,769,124	18,707,096	18,188,336	3.2	0.3
Lawton	172,745,161	180,600,961	171,222,075	0.9	-4.3
McAlester	69,884,425	68,181,769	65,722,590	6.3	2.5
Miami	32,509,766	32,798,557	31,259,536	4.0	-0.9
Midwest City	138,954,162	140,592,090	131,407,839	5.7	-1.2
Moore	90,175,411	89,125,428	85,644,823	5.3	1.2
Muskogee	113,516,304	115,040,863	109,537,976	3.6	-1.3
Norman	269,167,004	266,448,258	252,197,634	6.7	1.0
Oklahoma City	1,322,179,214	1,338,829,704	1,281,391,923	3.2	-1.2
Okmulgee	31,581,702	32,216,755	32,069,613	-1.5	-2.0
Pauls Valley	20,406,068	20,464,773	20,018,652	1.9	-0.3
Pawhuska	6,674,655	6,455,184	6,143,216	8.7	3.4
Ponca City	66,153,085	61,028,164	59,030,775	12.1	8.4
Poteau	33,820,871	35,421,801	32,547,847	3.9	-4.5
Sand Springs	57,935,574	57,491,344	55,584,005	4.2	0.8
Sapulpa	49,932,504	49,413,044	48,486,325	3.0	1.1
Seminole	22,100,858	22,249,863	23,340,487	-5.3	-0.7
Shawnee	96,871,928	98,166,259	89,375,314	8.4	-1.3
Stillwater	118,979,363	114,428,593	112,214,272	6.0	4.0
Tahlequah	58,458,205	58,282,683	57,418,411	1.8	0.3
Tulsa	1,181,172,158	1,163,772,787	1,149,587,651	2.7	1.5
Watonga	5,308,457	5,360,541	5,327,205	-0.4	-1.0
Weatherford	29,468,534	27,721,657	28,711,292	2.6	6.3
Wewoka	3,205,824	3,407,537	3,385,914	-5.3	-5.9
Woodward	46,254,585	44,588,735	44,360,591	4.3	3.7
Total Selected Cities	5,215,847,682	5,216,868,462	5,047,452,391	3.3	0.0

SELECTED INDICATORS FOR THE ENID AND LAWTON MSA'S AND MUSKOGEE MA

				Percentage Change	
	2nd Qtr '05	1st Qtr '05	2nd Qtr '04	'05/'04 2nd Qtr	2nd Qtr '05 1st Qtr '05
ENID MSA					
Employment (Number)					
Labor Force[a]	29,057	28,377	26,384	10.1	2.4
Total Employment	28,037	27,267	25,682	9.2	2.8
Unemployment Rate (%)	3.5	4.0	2.7	--	--
LAWTON MSA					
Employment (Number)					
Labor Forcea	47,080	47,110	43,181	9.0	-0.1
Total Employment	44,953	44,913	41,609	8.0	0.1
Unemployment Rate (%)	4.5	4.7	3.7	--	--
Wage and Salary Employment	41,100	40,833	40,833	0.7	0.7
Wholesale and Retail Trade	5,733	5,733	5,733	0.0	0.0
Manufacturing	3,867	3,800	3,900	-0.8	1.8
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	5,015	4,390	4,873	2.9	14.2
Number of Units	40	35	40	0.0	14.3
Residential-Multi Family					
Dollar Value ($000)	0	0	0	--	--
Number of Units	0	0	0	--	--
Total Construction ($000)	5,015	4,390	4,873	2.9	14.2
MUSKOGEE MA					
Employment (Number)					
Labor Force[a]	28,453	27,913	30,836	-7.7	1.9
Total Employment	26,707	25,957	28,686	-6.9	2.9
Unemployment Rate (%)	6.1	7.0	7.0	--	--
Water Transportation					
Port of Muskogee					
Tons In	136,623	124,589	113,910	19.9	9.7
Tons Out	54,419	47,636	35,068	55.2	14.2

Note: Includes revisions.
[a]Civilian Labor Force.
E = Exceeds 600 percent.

SELECTED INDICATORS FOR THE TULSA MSA

	2nd Qtr '05	1st Qtr '05	2nd Qtr '04	Percentage Change '05/'04 2nd Qtr	Percentage Change 2nd Qtr '05 1st Qtr '05
Employment (Number)					
Labor Force[a]	445,347	440,663	450,292	-1.1	1.1
Total Employment	425,870	419,576	426,818	-0.2	1.5
Unemployment Rate (%)	4.4	4.7	5.2	--	--
Wage and Salary Employment	401,900	394,900	399,167	0.7	1.8
Manufacturing	46,133	42,267	47,033	-1.9	9.1
Mining	4,600	4,600	4,600	0.0	0.0
Government	51,000	51,000	49,067	3.9	0.0
Wholesale and Retail Trade	61,000	59,700	61,333	-0.5	2.2
Average Weekly Earnings Manufacturing ($ Per Worker)	721.97	694.33	683.10	5.7	4.0
Air Transportation					
Passengers Enplaning (Number)	420,840	334,606	397,668	5.8	25.8
Passengers Deplaning (Number)	416,194	336,451	387,939	7.3	23.7
Freight (Tons)	13,630	12,828	13,939	-2.2	6.3
Water Transportation					
Tulsa Port of Catoosa					
Tons In	291,974	241,096	272,633	7.1	21.1
Tons Out	232,944	240,879	260,819	-10.7	-3.3
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	188,836	171,285	170,799	10.6	10.2
Number of Units	1,268	1,148	1,175	7.9	10.5
Residential-Multi Family					
Dollar Value ($000)	13,725	1,474	3,470	295.5	831.1
Number of Units	212	32	60	253.3	562.5
Total Construction	202,561	172,759	174,269	16.2	17.3

Note: Includes revisions.
[a]Civilian Labor Force.
E = Exceeds 600 percent.

SELECTED INDICATORS FOR OKLAHOMA CITY MSA

	2nd Qtr '05	1st Qtr '05	2nd Qtr '04	Percentage Change '05/'04 2nd Qtr	Percentage Change 2nd Qtr '05 1st Qtr '05
Employment (Number)					
Labor Force[a]	587,080	581,937	591,287	-0.7	0.9
Total Employment	562,290	554,547	565,332	-0.5	1.4
Unemployment Rate (%)	4.2	4..7	4.4	--	--
Wage and Salary Employment	552,833	542,967	542,633	1.9	1.8
Manufacturing	37,533	38,500	38,333	-2.1	-2.5
Mining	8,633	8,567	8,133	6.1	0.8
Government	113,733	114,033	110,600	2.8	-0.3
Wholesale and Retail Trade	81,533	79,967	80,967	0.7	2.0
Average Weekly Earnings Manufacturing ($ Per Worker)	569.28	569.51	518.74	9.7	0.0
Air Transportation					
Passengers Enplaning (Number)	480,483	383,951	448,156	7.2	25.1
Passengers Deplaning (Number)	469,444	395,187	441,450	6.3	18.8
Freight Enplaned (Tons)	3,883	3,837	3,398	14.3	1.2
Freight Deplaned (Tons)	4,632	4,555	4,449	4.1	1.7
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	342,750	283,723	310,906	10.2	20.8
Number of Units	2,218	1,896	2,114	4.9	17.0
Residential-Multi Family					
Dollar Value ($000)	14,328	29,130	15,538	-7.8	-50.8
Number of Units	251	369	237	5.9	-32.0
Total Construction ($000)	357,078	312,853	326,444	9.4	14.1

Note: Includes revisions.
[a]Civilian Labor Force.