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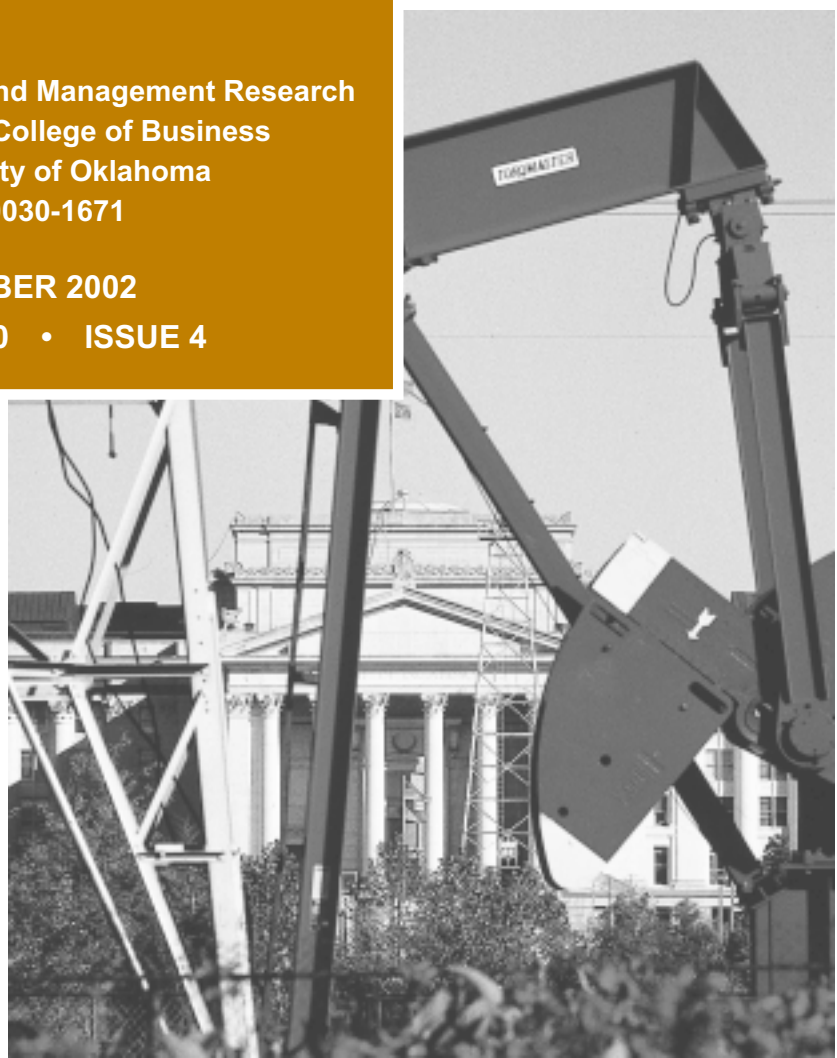

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OVERVIEW

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. Created by the Oklahoma Territorial Legislature in 1890, the university is composed of campuses in Norman and Oklahoma City as well as the Schusterman Center in Tulsa. The university's main campus and the offices of administration of the University of Oklahoma are located in Norman. The OU Health Sciences Center, which is located in Oklahoma City, is the headquarters for the seven professional colleges and offers programs at the University of Oklahoma - Tulsa. OU-Tulsa is composed of the Schusterman Center, where the majority of OU programs serving Tulsa are located; the OU/OSU Research and Graduate Education Center, a collaborative effort to provide graduate education and research programs to the Tulsa metropolitan area; and several clinics and hospitals. OU enrolls almost 29,000 students, has approximately 1,900 full-time faculty members, and has 19 colleges offering 154 majors at the baccalaureate level, 152 majors at the master's level, 74 majors at the doctoral level, eight majors at the first professional level, and five graduate certificates. The university's annual operating budget is more than $1 billion. The University of Oklahoma is an equal opportunity institution.

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Business Highlights

by Robert C. Dauffenbach

National Economy

In thinking about the state of national economy and its expected future direction, I am reminded of the refrain from an old automobile ad: "This is not your father's Oldsmobile." Aside from the fact that we are soon not to have Oldsmobiles anymore, "this is not your father's recession." It is certainly not your father's recovery from recession. Things are different. Very different. And the extent to which they are different makes analysis of future directions difficult.

Never before have we had a recession when the growth rate of the money supply has been so strong. Year-over-year percentage changes in the M2 money supply, the definition of money most commonly used by economists, has been running in the 7.0 percent range after adjustment for inflation. In the fourth quarter of 2001, it grew at an 8.5 percent rate.

"...construction spending dies dramatically in recession. Not so with this one. Housing demand has been strong and shows little sign of waning. "

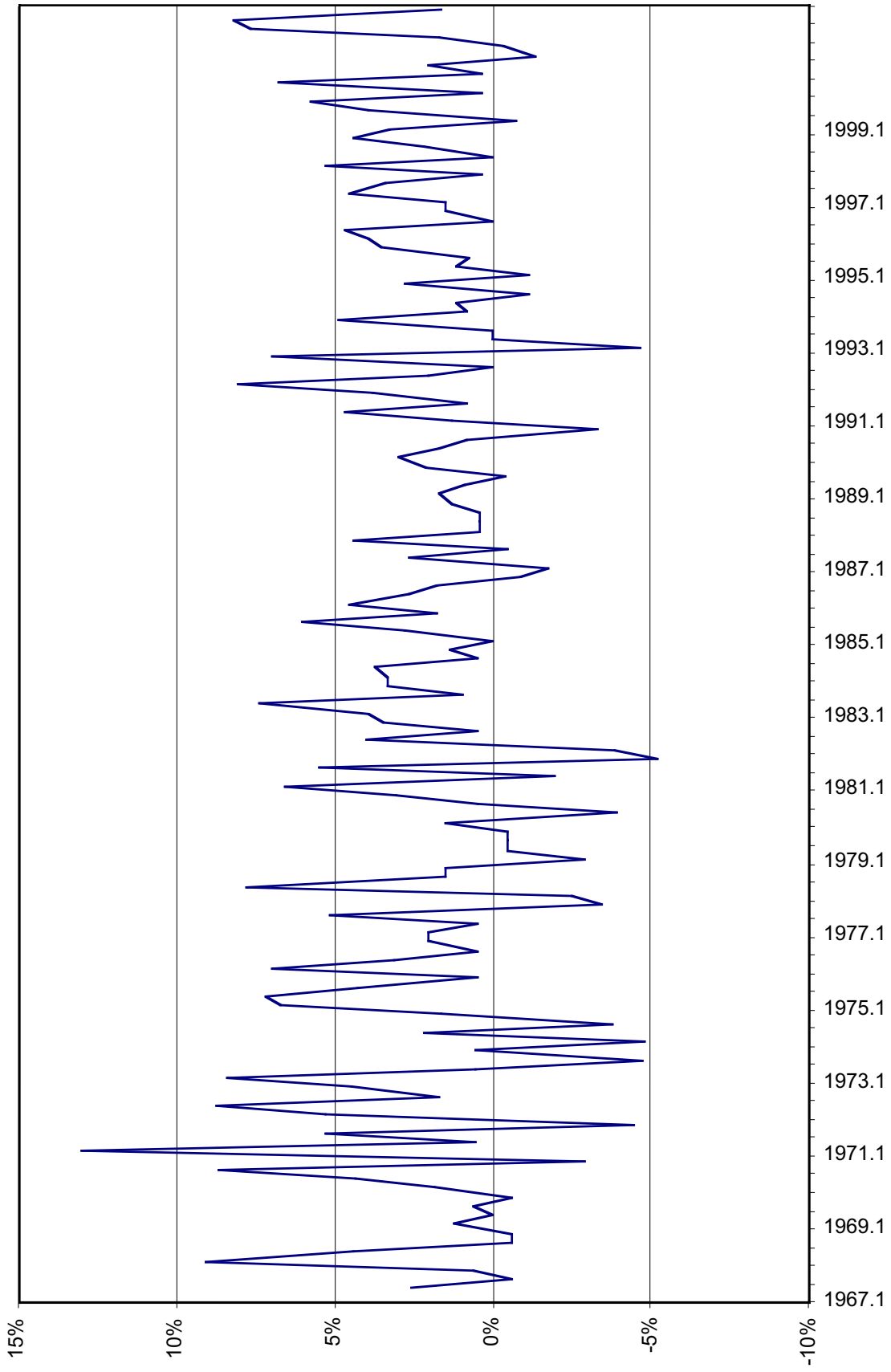
The annualized monthly rate of growth in M2, unadjusted for inflation, was 9.9 percent in August. Typically, near zero and negative changes in the real money supply occur prior to or coincident with recessions as the Fed fights inflation. Surprisingly, the real rate of M2 growth has seldom slipped below 4.0 percent since the fourth quarter of 1997. The economy is awash in loanable funds and has been for some time, but it seems to have made little difference in our present circumstances. These high growth rates of the money supply have had their consequences on interest rates. The real rate of interest is essentially zero. Such low rates tie the hands of monetary officials. How much lower can interest rates go?

Typically, in recession, policy makers are not fighting the aftermath of a financial bubble in stock market prices. Typically, construction spending dies dramatically in recession. Not so with this one. Housing demand has been strong and shows little sign of waning. Typically, consumer spending is negatively impacted. Not so, this time. The consumer has maintained a high rate of spending. Only now are households showing some signs of wanting to increase savings rates. Typically, productivity declines sharply in recession. As Figure A illustrates, productivity actually rose at a healthy quarterly rate 8.0 percent annualized, in the fourth quarter of 2001 and first quarter of 2002. High productivity means more output for the same or fewer workers, making it possible for companies to postpone hiring. No, this is not a typical recession, and the extent to which it differs makes charting of the appropriate public policy course difficult.

Despite the atypical gains in productivity in recession, Figure A also calls into question popular press notions of the *New Economy*. Rates of change in real output per person, also known as *productivity*, have typically been volatile in the US economy. As the chart reveals, higher rates of productivity growth have been in evidence in previous years, and the volatility continues. The 1995 –2000 period

Figure A

Output per Hour of All Employees
Quarterly Growth at Annualized – 1967.2-2002.2



displays, perhaps, less variation in the average rate of productivity growth, if that is what is meant by the *New Economy*.

The end of the recession, the beginning date of which is marked as March 2001, has yet to be called. Many economists believe that the recession has ended, but talk of a double-dip recession is mounting. Calls for even further reductions in already low interest rates are being made. These calls are in spite of the fact that rates on short-term government maturities have not been this low since the recession of 1958. Fear is being expressed that the deflation will take hold of the economy. Financial columnists wonder openly whether the US economy will suffer a long-term, Japanese-style malaise. Consumer spending, roughly two-thirds of GDP, has been a mainstay during the recession, and much public policy has been directed toward an interest rate structure that encourages refinancing and, thus, has placed billions in disposable income in the hands of households. That source of new purchasing power is likely soon to be exhausted.

"Corporate profits are in the doldrums and further pressured by excess capacity, health care and pension costs; government budgets, both state and federal, are in turmoil; and war with Iraq seems imminent."

With continuing increases in medical and insurance costs, declines in the value of some asset holdings (namely, the stock market), and growing signs that corporate layoffs are far from receding, it is questionable that household spending can maintain its torrid pace. Health care costs are inflating at over three times the CPI general rate of inflation and are showing no signs of abating. Whether the housing boom can continue is being questioned. Corporate profits are in the doldrums and further pressured by excess capacity, health care and pension costs; government budgets, both state and federal, are in turmoil; and war with Iraq seems imminent. Corporate scandals also continue to weigh on the stock market.

As measured by the Wilshire 5000 index, the total market value of all stocks on US exchanges, over 7.0 trillion dollars has been lost since it peaked on March 24, 2000. A surprising $3.2 trillion has been lost since early January this year. Faith in the ability of the Federal Reserve and Maestro Greenspan, as he is referred to in a book by Bob Woodward of Watergate fame, is waning. Greenspan recently saw fit to issue a non-*mea culpa* in regard to the stock market bubble, despite his earlier expressed concern for *irrational exuberance* issued in December 1996, well before the bubble hit its full stride.

Asset bubbles, by their very definitional meaning, never end well. Otherwise, we would not call them bubbles. Thus far, the US economy has proven resilient in its response to this broad loss of wealth. Hope remains high that the worst is over for the stock market, and that may well be the case because no one really knows where it is going. Still, it is relevant to explore how the stock market has behaved in past years in relation to important economic aggregates such as GDP and corporate profits in an attempt to understand just how much more of this torture we might be expected to endure.

To conduct a simple analysis of the relationship between stock prices and key economic variables, the average quarterly price of the Dow Jones Industrials Index and the S&P 500 Index were computed. The quarterly ratio of the index value to US Gross Domestic Product, Corporate Profits Before Tax (CPBT), and Corporate Profits After Tax (CPAT) was also computed. The profits figures are from National Income and Product Accounts. The ratios were then averaged for periods 1980-1989, 1985-1992 (when stocks were considered, generally, as fairly valued), and 1990-1994 (the most recent pre-bubble period). The resulting average ratio for each of these periods was then applied to the most recently available quarterly data for GDP and corporate profits before and after taxes, which is the second quarter of 2002. These computations, then, produce a simulation of stock market index values today based on average relationships between stock prices and key macroeconomic values in past years.

The results of these rudimentary computations are shown in the Table I.

From Table I we see that relative to recessionary second-quarter nominal GDP, using the average ratio of the stock market index to GDP over the period 1990-1994, a level of 5267 is justified for the Dow-Jones Industrials. This is roughly 2400 points lower than the close September 30, 2002. Currently, of course, profits are suppressed because of the recession. Relative to these suppressed profit levels, either before or after tax, only an index of about 4550 on the Dow-Jones is justified. Examining the S&P 500, which closed at 815 on September 30th, the results are not sanguine. It would take approximately a 30 percent drop in that index to equate to the 1990-1994 profit ratios. For the two earlier periods included in the analysis, generally lower levels for both indices are indicated.

Should we be concerned about further declines in major stock market indices? Yes, certainly. But, we should be more concerned about the *pace* at which markets regress to fair value, as they are bound to do. If the market continues to decline at the rapid rates experienced thus far in 2002, there is little doubt that there will be repercussions on the aggregate economy. If, however, the progression to fair value proceeds at an orderly rate, say, over the course of two years, there is less reason to be concerned.

A number of factors argue against the above rudimentary analysis. For one, interest rates are very low now and the Fed has signaled its intention to keep rates low until the evidence clearly indicates that the economy has *shaken off* recession. Low interest rates are, of course, supportive of a higher price/earnings multiple. For another, the US economy is 18 months into the recession that may well be over once full accounting of the data are in. Using job gains as a benchmark, the worst appears to be over. Corporate profits are likely to be at their nadir, although signs of movement off the trough are yet to be in evidence. Also, corporations have gotten *leaner and meaner* in the downturn. Any expansion of demand from this juncture will translate quickly to bottom-line earnings. With these factors in mind, the above hypothetical stock market analysis presents worse-case scenarios. It should be noted that other models of equity prices, such as the Fed model, indicate that at present levels, the stock market is undervalued.

The stock market is now in a period of seasonal weakness. The behavior of the stock market this fall and early winter will provide us with a good review of what lies ahead. Despite Nobel prize winning economist Paul Samuelson's pronouncement that the stock market has predicted "nine of the last five recessions," the stock market is the best discounter of future corporate profits that we know of. What it is saying now needs to be given its due. But, care should be taken not to let the *tail wag the dog*. The real economy is doing fairly well. Job growth continues, albeit at a mediocre rate of gain, but gains nonetheless. Personal income continues to expand at a favorable pace. Inflation remains low and will likely continue to do so. It is probable that the likelihood of war and corporate scandals are having as much impact on stock prices as are current expectations of future earnings.

Table I

Hypothetical Fair Value Computations
Dow-Jones Industrials and S&P 500 Indices

	Dow Jones Industrial Index			*S&P 500 Index*		
	GDP	***CPBT***	***CPAT***	***GDP***	***CPBT***	***CPAT***
80-'89	3715	3513	3790	493	466	502
85-'92	4528	4305	4625	585	557	599
90-'94	5267	4539	4566	663	572	575

As noted in last quarter's issue of the *Oklahoma Business Bulletin*, all of these financial difficulties have taken their toll on the Oklahoma economy. WorldCom has a substantial base of operations in the Tulsa area. Tulsa has also been hit hard by the collapse in business prospects for Williams Companies. State revenues have been under duress in recent months and it appears that conditions have worsened. Despite these difficulties, employment statewide has held up fairly well. While, as noted, national employment is down 1.7 million from the peak in March 2001, Oklahoma still is 10,000 ahead of year ago levels. Three months ago, however, Oklahoma was 13,000 ahead. Oklahoma has typically been a late-cycle economy in relation to the national economy. We heat up more slowly and cool-down more slowly in relation to national trends. With hope that the recession is at an end, perhaps the Oklahoma economy can begin once again to exhibit healthy rates of employment growth, which has been the mainstay of the state's economy.

Price College Indicators

As readers of this quarterly report are aware, the Price College Indicators, developed at the University of Oklahoma Center for Economic and Management Research, are designed to provide leading indicators of economic activity for the nation, the state, and the two major metropolitan areas of Oklahoma. The indicators have been scaled so that a value of 50 signifies continuation of present trends while values greater or lower than 50 are associated with rising or falling trend rates of growth. The indicators also serve as instruments for producing forecasts. They have successfully foreshadowed every major national recession in the last 40 years. Many of the variables discussed above are examples of the types of variables that are included in the Price College Indicators.

Table II shows the PCI for national employment, the core rate of inflation, Oklahoma employment, and the two major Oklahoma Metropolitan Statistical Areas (MSAs) for the period 2000:1 – 2002:7.

Table II

Price College Indicators

Year:Month	Natl. Emp.	Inflation	OK Emp.	OKC Emp.	Tul Emp.
2001:01	39	41	33	39	44
2001:02	33	39	25	33	38
2001:03	31	34	21	29	34
2001:04	29	29	19	25	30
2001:05	28	29	19	23	29
2001:06	24	25	13	17	24
2001:07	25	21	12	16	22
2001:08	27	16	10	15	20
2001:09	28	13	8	14	19
2001:10	26	9	8	13	18
2001:11	26	3	6	10	16
2001:12	29	2	12	14	17
2002:01	36	1	16	18	19
2002:02	44	0	24	25	25
2002:03	47	1	29	29	31
2002:04	49	5	33	35	35
2002:05	50	7	35	37	37
2002:06	53	13	38	42	41
2002:07	54	15	41	44	44

Perusal of this table shows that the economy is clearly on the upswing, despite all of the travails mentioned above.

The PCI for the national economy is now clearly above the 50 neutral reading. Fortunately, the PCIs for Oklahoma and its two major metro areas are beginning to show signs of turning upward, nearing the 50 mark. The Oklahoma indicators are still significantly below those of the national economy, but looking at the results in a different way, the Oklahoma numbers have come even more substantially off their recent low points. There is hope then that Oklahoma and its two major metro areas will soon experience a more substantial recovery.

Forecasts

The PCIs provide a mechanism for forecasts of the underlying variables. Table III provides some historical data and shows the forecasts for 2002 and 2003. The values are for the ending month, December, of each year.

As noted in Table III, employment nationally is forecast to end the year only slightly down from December 2001 level. Essentially, at the national level, the forecasting model is predicting a no growth year in nonfarm payroll employment. A 1.1 percent growth rate is anticipated in 2003. Inflation, at the core level, which excludes energy and food, is expected to be mild in 2002, rising only 2.2 percent. Inflation is expected to rise at a somewhat higher rate in 2003, 3.1 percent. Expectations for continuing employment growth in Oklahoma are encouraging, especially in relation to apparent problems nationally. Oklahoma employment is expected to rise by about 13,000 in 2002. Growth in jobs in 2003 should accelerate to a 35,000 gain, or 2.3 percent. The forecast for growth in Oklahoma City employment has improved to 1.5 percent 2002 and a quite respectable 2.1 percent rate for 2003. Tulsa continues to have some growth problems, but is expected to be growing at a 2.1 percent rate in 2003.

There still remains considerable risk to these forecasts for improvement in both the national and this state's economy.

This is not your father's recession. While the recession may well be over, the typical factors that rocket the economy out of recession are not to be relied upon this time. The forecasts are conditional on solid improvement in the US economy as it comes out of recession. But, as noted, concern for a second leg of the recession is mounting. Households cannot be expected to increase their rate of spending. Construction activity has been fairly strong. Stock market valuations, by many measures, still remain quite high. There are structural changes in laws regulating financial accounting that could have dramatic consequences. Corporations could still have some "coming clean" to do on the condition of their balance sheets. Most likely, we will continue with our muddle-through economy, waiting for business investment spending, the clear laggard in this recession, to take hold once again.

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

Table III

PCI Summary of Forecasts[a]

	Actual	Forecast		Growth Rate	
	Dec. 2001	Dec. 2002	Dec. 2003	2002/2001	2003/2002
Natl. Emp.	130,890	130,863	132,354	0.0%	1.1%
Inflation	188	192	198	2.2%	3.1%
OK Emp.	1,512	1,525	1,560	0.8%	2.3%
OKC Emp.	541	549	560	1.5%	2.1%
Tul Emp.	407	408	417	0.2%	2.1%

[a]Employment in thousands

Oklahoma Regional and County Output Trends: 1980-1999

by Mark C. Snead and Tim C. Ireland

A plethora of economic indicators concerning both the U.S. and Oklahoma economies are presently available to the public. The Bureau of Economic Analysis (BEA) in the U.S. Department of Commerce commonly releases the bulk of this information.[1] Here in Oklahoma, many of these national and state indicators can be easily located via the online usage of the Oklahoma Resources Integrated General Information System (ORIGINS), which resides in the Center for Economic and Management Research (CEMR) at the University of Oklahoma. A clear and comprehensive description of the ORIGINS Internet database system was provided in a recent issue of the *Oklahoma Business Bulletin*.[2] These data sources provide an informative picture of what is transpiring within national, state, and county borders.

One category of economic information that is not as readily available concerns local output activity. The BEA presently calculates and releases output information on the state level via its Gross State Product (GSP) series. However, no governmental organization currently estimates output activity on the county level of a state. A previous manuscript, released over twenty years ago, did provide regional and county output estimates for Oklahoma during the 1971-77 period.[3] This current research effort attempts to extend this earlier work by both estimating Oklahoma regional and county output values for the 1980s and 1990s, and by analyzing the various trends that occurred during that time. The essential value of this sub-state output data lies not only in its ability to unmask the divergent regional and local trends that are often obscured within state totals but also in its presentation of the changing economic structure of the various regions within the state.

For the purpose of consistency with the earlier cited study of Oklahoma regional output in the 1970s, the 77 counties of Oklahoma were organized into five distinct regions. These regions represent the Central, Northeast, Northwest, Southeast, and Southwest sectors of the state. Within these geographic delineations, regional output estimates are presented by industry and by county for the time period of 1980-1999. Prior to the presentation and analysis of this data, the methodology for the data construction is discussed briefly.

Data Construction Methodology

The BEA has provided output calculations on the national economy for several decades. However, until fairly recently, they did not provide any output data for economies below the national level. In response to this omission, John W. Kendrick and C. Milton Jaycox developed a methodology in 1965 for estimating output figures on the state level (GSP).[4] This approach calculated gross product originating in each of the major industries (except farming) by manipulating state income-received data in a given industry via certain national ratios. The technique paralleled the traditional calculation of national output by summing for each industry the components that proxy national income, capital consumption, and indirect business taxes. Farming output was calculated in an alternative manner by computing the difference in the value of output and the cost of intermediate production expenses. The

Kendrick-Jaycox methodology could also be extended downward another level to the county level. With the use of county income-received data, those same national ratios could be used to ultimately calculate Gross County Product (GCP).

In the late 1980s the BEA began estimating and reporting GSP by state. This occurrence meant that economists no longer needed to use the cumbersome Kendrick-Jaycox method to estimate GSP and also opened up another avenue for estimating output activity on the county level, an economic segment still not covered by the BEA. In contrast to imposing national ratios and, therefore, national structural implications on county estimation as the Kendrick-Jaycox technique would require, a hopefully more representative local economic picture could be proxied with the BEA's state output data as the base.

Therefore, we estimated GCP for Oklahoma using a new alternative method that takes the existing GSP numbers released by the BEA as a starting point for county allocation. This alternative approach results in county estimates that are consistent with state totals, a fact that is not true with the Kendrick-Jaycox technique. Specifically, this new procedure used the county level nonfarm labor and proprietors' income share (of the state) by industry reported by the BEA to prorate the state's output numbers to each county.[5] This proration was done on an industry-by-industry basis for the following ten economic sectors: mining; construction; manufacturing; transportation, communications and public utilities (TCPU); wholesale trade; retail trade; finance, insurance, and real estate (FIRE); services; federal government; and state and local government. The county level agricultural numbers were developed by prorating the BEA's state level agricultural values using the BEA reported county level total cash receipts from marketings.[6] We then, using an appropriate state-level (chain-type quantity index) industry deflator, converted the nominal output figures into real (chained 1996 dollars) terms.[7]

Real Output Trends

Gross County Product was estimated for the period of 1980-1999 using the methodologies described above. Regional output estimates for the five regions of Oklahoma were created by summing the individual county totals contained within each region. The county membership for each region is as follows:

Central: Canadian, Cleveland, Grady, Kingfisher, Lincoln, Logan, McClain, Oklahoma, Payne, Pottawatomie, and Seminole

Northeast: Adair, Cherokee, Craig, Creek, Delaware, Mayes, Muskogee, Nowata, Okfuskee, Okmulgee, Osage, Ottawa, Pawnee, Rogers, Tulsa, Wagoner, and Washington

Northwest: Alfalfa, Beaver, Blaine, Cimarron, Dewey, Ellis, Garfield, Grant, Harper, Kay, Major, Noble, Texas, Woods, and Woodward

Southeast: Atoka, Bryan, Carter, Choctaw, Coal, Garvin, Haskell, Hughes, Johnston, Latimer, LeFlore, Love, McCurtain, McIntosh, Marshall, Murray, Pittsburg, Pontotoc, Pushmataha, and Sequoyah

Southwest: Beckham, Caddo, Comanche, Cotton, Custer, Greer, Harmon, Jackson, Jefferson, Kiowa, Roger Mills, Stephens, Tillman, and Washita.

Next, regional outputs are examined in terms of (1) their industrial makeup and (2) the value of output by county.

Regional Output by Industry

The last two decades of the twentieth century will probably not go down in the history books as the greatest period of economic growth in the state of Oklahoma. While the 1970s will be remembered as a period of significant economic progress within the state and its five regions, the 1980s brought severe retrenchment and, in fact, required a ten-year period to regain and finally surpass the real GSP level that was recorded in the pre-bust year of 1982. The 1990s brought renewed growth to the state but at a rate considerably below the boom period that predated the "lost 80s." Tables 1 and 2 report the diverse and variable economic behavior that characterized the five regions of Oklahoma during the 1980-1999 period. Regionally speaking, the two

major stories during this time period involved the passing of the gavel of economic leadership from the Central Region to the Northeast Region of the state and the significant economic strides recorded in the Southeast Region. The greatest improvement in real output as measured by both increases in absolute dollars and annual growth rates was recorded in the Northeast Region. Although it relinquished its historic economic leadership role in the state, the Central Region expanded at a rate that was not considerably different from its major rival during this period. The Southeast Region recorded growth rates that were second only to the Northeast and successfully passed both western regions in economic stature. The Southwest and Northwest Regions both experienced losses in the 1980s and modest growth in the 1990s. A relatively weaker performance in the last decade left the Northwest Region on the lowest rung of the state's economic ladder.

TABLE 1

Regional Output by Industry
(Millions of Real Dollars, 1996 = 100)

	Central			*Northeast*		
Industries	1980	1990	1999	1980	1990	1999
Agriculture	$ 160.0	$ 205.4	$ 263.9	$ 189.8	$ 376.2	$ 433.2
Mining	1884.0	1407.1	1409.2	2592.9	2141.8	2127.1
Construction	1309.9	678.8	1123.7	1296.9	795.4	1204.4
Manufacturing	2264.1	3294.0	4642.8	2961.8	5434.0	7851.1
TCPU	2017.4	1901.9	2288.0	2093.8	2906.4	4029.3
Wholesale Trade	1207.6	1490.9	2580.4	1337.0	1407.7	2380.3
Retail Trade	2079.3	2504.3	3635.8	1676.8	2165.1	3224.1
FIRE	5066.7	3812.3	4295.2	3850.1	3220.1	3944.1
Services	4001.4	4906.7	6136.0	3825.6	4466.0	5627.1
Federal Govt.	3070.2	2477.1	2525.6	708.3	575.9	636.7
S&L Govt.	2840.3	3361.4	3618.1	1675.5	1847.5	2106.3
Not allocated by industry[1]	-1912.7	-493.0	372.3	780.3	350.4	-169.9
Gross Regional Product	23988.3	25546.9	32891.0	22988.9	25686.5	33393.8

	Northwest			*Southeast*			*Southwest*		
Industries	1980	1990	1999	1980	1990	1999	1980	1990	1999
Agriculture	$532.1	$664.4	$1032.2	$151.2	$251.8	$438.7	$239.8	$347.2	$366.0
Mining	514.5	590.4	354.4	451.2	342.6	422.6	363.4	193.2	230.6
Construction	338.6	133.7	164.3	311.7	221.8	225.0	244.3	102.3	158.7
Manufacturing	559.0	510.2	828.2	535.8	858.8	1289.3	448.8	635.0	793.5
TCPU	422.9	435.2	431.5	337.8	389.1	539.3	272.7	331.4	371.0
Wholesale Trade	212.2	199.6	256.7	143.6	216.6	314.0	144.3	152.2	208.6
Retail Trade	386.2	367.0	510.0	472.2	579.1	920.0	458.1	475.5	649.1
FIRE	662.7	388.7	427.3	589.2	437.5	539.3	588.1	446.4	484.1
Services	619.5	538.4	568.2	717.5	835.2	1017.2	630.6	619.8	713.5
Federal Govt.	245.2	172.0	172.8	288.3	214.2	218.3	1731.4	1304.8	1128.6
S&L Govt.	489.1	463.2	515.0	825.6	856.3	1013.9	598.1	648.7	765.8
Not allocated by industry[1]	409.3	97.5	-257.9	-12.4	9.8	-77.6	-577.9	-135.6	1.2
Gross Regional Product	5391.2	4560.3	5002.7	4811.5	5212.6	6879.9	5141.6	5120.8	5870.6

[1]This component is the difference in the real dollar gross regional product aggregate and the sum of the ten industries' real outputs.

TABLE 2

Regional Output by Industry
Compound Annual Real Growth Rates (%)

	Central			*Northeast*		
Industries	80-90	90-99	80-99	80-90	90-99	80-99
Agriculture	2.53	2.83	2.67	7.08	1.58	4.44
Mining	-2.88	0.02	-1.52	-1.89	-0.08	-1.04
Construction	-6.36	5.76	-0.80	-4.77	4.72	-0.39
Manufacturing	3.82	3.89	3.85	6.26	4.17	5.26
TCPU	-0.59	2.07	0.66	3.33	3.70	3.51
Wholesale Trade	2.13	6.28	4.08	0.52	6.01	3.08
Retail Trade	1.88	4.23	2.98	2.59	4.52	3.50
FIRE	-2.80	1.33	-0.87	-1.77	2.28	0.13
Services	2.06	2.52	2.28	1.56	2.60	2.05
Federal Govt.	-2.12	0.22	-1.02	-2.05	1.12	-0.56
S&L Govt.	1.70	0.82	1.28	0.98	1.47	1.21
Gross Regional Product	0.63	2.85	1.68	1.12	2.96	1.98

	Northwest			*Southeast*			*Southwest*		
Industries	80-90	90-99	80-99	80-90	90-99	80-99	80-90	90-99	80-99
Agriculture	2.25	5.02	3.55	5.24	6.36	5.77	3.77	0.59	2.25
Mining	1.39	-5.51	-1.94	-2.72	2.89	-0.10	-6.12	1.99	-2.36
Construction	-8.87	2.31	-3.74	-3.35	0.16	-1.70	-8.34	5.00	-2.24
Manufacturing	-0.91	5.53	2.09	4.83	4.62	4.73	3.53	2.51	3.05
TCPU	0.29	-0.10	0.11	1.43	3.69	2.49	1.97	1.26	1.63
Wholesale Trade	-0.61	2.84	1.01	4.20	4.21	4.21	0.53	3.56	1.96
Retail Trade	-0.51	3.72	1.47	2.06	5.28	3.57	0.37	3.52	1.85
FIRE	-5.19	1.06	-2.28	-2.93	2.35	-0.47	-2.72	0.90	-1.02
Services	-1.39	0.60	-0.45	1.53	2.21	1.85	-0.17	1.58	0.65
Federal Govt.	-3.48	0.05	-1.82	-2.93	0.21	-1.45	-2.79	-1.60	-2.27
S&L Govt.	-0.54	1.18	0.27	0.37	1.89	1.09	0.82	1.86	1.31
Gross Regional Product	-1.66	1.03	-0.39	0.80	3.13	1.90	-0.04	1.53	0.70

The Central Region expanded by $8.90 billion during the 1980-1999 period and reached a real output total of $32.891 billion. Annual growth averaged 1.68 percent in the Central Region over the entire nineteen year period with the 1990s producing a much stronger annual average of 2.85 percent. The much slower 0.63 percent annual average in the 1980s was primarily due to the sizeable declines that were registered in the mining; construction; transportation, communications, and public utilities; finance, insurance, and real estate; and federal government sectors during this decade. The manufacturing sector produced the largest absolute real dollar growth during these last two decades while climbing by $2.37 billion, or 3.85 percent, per year. Annual percentage growth in the manufacturing sector of the Central Region was essentially identical in both decades. Significant increases over the entire period were also witnessed in the services ($2.13 billion), retail trade ($1.55 billion), wholesale trade ($1.37 billion), and state and local government sectors ($777 million).

Of those industries recording declines in the 1980s, only the transportation, communications, and public utilities sector was able to overcome its losses and record positive growth for the entire period. The most sizeable 19-year declines were experienced in finance, insurance, and real estate ($771 million); federal government ($544 million); and mining ($474 million).

The Northeast Region recorded the greatest absolute growth in real output of the five regions during the 1980-1999 period by rising from just over $22.988 billion in 1980 to almost $33.394 billion in 1999. Approximately three-fourths of this growth occurred in the 1990s as 1.12 percent annual growth in the 1980s warmed to a 2.96 percent annual value in the following decade. For the entire period, the Northeast Region averaged annual growth of 1.98 percent, the greatest value of all five regions. The single largest contributor to the $10.4 billion increase in regional output during this 19-year period was, by far, the manufacturing sector. Manufacturing rose by nearly $4.9 billion dollars in real terms and produced an annual growth of 5.26 percent. Interestingly, manufacturing grew at a slightly faster rate in the 1980s than it did in the 1990s. Solid growth values were also witnessed in transportation, communications, and public utilities; services; retail trade; and wholesale trade as these industries produced increases of $1.93, $1.80, $1.54, $1.04 billion, respectively. Losses were recorded in mining, construction, and federal government during this period of analysis. However, both the construction and federal government sectors did rebound strongly in the 1990s after experiencing significant losses in the 1980s. Construction actually produced the second highest sectoral growth rate of the 1990s with an annual average of 4.72 percent.

The Northwest Region experienced crippling losses in the 1980s with only modest growth in the 1990s and, therefore, recorded a net loss of $388 million for the 19-year period. A 1.03 percent annual increase in the 1990s was not enough to overcome the 1.66 percent annual decline in the previous decade and resulted in a 1999 real dollar output of $5.002 billion for this region. The bright spots during this time were witnessed in the agriculture, manufacturing, and retail trade sectors. These industries recorded output increases of $500, $269, and $123 million, respectively. On the negative side, the finance, insurance, and real estate; construction; and mining industries listed losses of $235, $174, and $160 million, respectively. Services and the federal government sector also recorded reductions for the 19-year period. On a positive note, of the five sectors recording losses for the overall period of analysis, all but mining generated growth in the 1990s.

The Southeast Region followed a relatively solid economic performance in the 1980s with a truly significant period of prosperity in the 1990s and bolted to a 1999 real output total of $6.879 billion. This total represents an increase of $2.068 billion or 1.90 percent annual growth for the two-decade period. Manufacturing led the growth parade by recording an annual average growth of 4.73 percent. Manufacturing's total rise of $753 million was supported by strong increases in retail trade ($447 million); services ($299 million); agriculture ($287 million); transportation, communications, and public utilities ($201 million); state and local government ($188 million); and wholesale trade ($170 million). The other four industries, mining; construction; finance, insurance, and real estate; and federal government, while registering relatively minor declines during the 1980-1999 period, did produce positive growth rates in the 1990s. As a result of this surge in economic prosperity, the Southeastern portion of the state, which started the 1980s on the lowest rung of the regional economic ladder, can now claim to be the strongest non-metropolitan component of the state's economy.

A slight decline in the 1980s followed by an ample recovery in the 1990s pushed the Southwest Region to a real dollar total of $5.870 billion in 1999. Strong growth of $344 million in manufacturing, $191 million in retail trade, and $167 million in state and local government provided the impetus to overcome the substantial decline recorded in this region's largest industry, the federal government sector, during the 1980-1999 period. This crucial governmental industry declined in both decades and registered a total decrease of $602 million. While overall declines were also witnessed in the mining; construction; and finance, insurance, and real estate

sectors during the 19-year period, these industries did rebound with positive growth numbers in the 1990s. Helpful additions in the sectors of agriculture; transportation, communications, and public utilities; services; and wholesale trade aided this region in climbing by a total of $729 million, or .70 percent per year, over this period of analysis.

Regional Output by County

The real output totals for Oklahoma's 77 counties, as noted in Table 3, reveal a wide variety of growth patterns during the 1980-1999 period.[8] Two-thirds of the counties recorded positive growth during this time with Delaware County, the fastest propagator, having the distinction of growing at just over 5 percent per year. On the other hand, Ellis County was the loss leader during the two decades with an annual average decline of 3.75 percent. Tulsa and Oklahoma Counties, with a combined share of 58 percent in 1999, continued to dominate the Oklahoma economy in terms of output production. Those two counties along with Cleveland, Comanche, and Muskogee compose the top five county output producers for 1999. There is, however, a considerable distance in totals between the top two and the next three.

Oklahoma County, with a real output total of $24.172 billion in 1999, continued to drive the Central Region of the state. Two-thirds of the overall growth in this region can be attributed to Oklahoma County. However, slow movement in the 1980s held this county to an annual average growth of only 1.48 percent for the 19-year period. While Oklahoma County did lose its state leadership position in terms of county output, the Oklahoma City metropolitan statistical area (six county area) did remain as the state leader with a combined real output total in 1999 of $29.920 billion. Other significant output contributors for the Central Region include Cleveland County at $2.842 billion, Payne County at $1.367 billion, and Canadian County at $1.358 billion. Cleveland County, the home of one the state's comprehensive educational institutions, grew at an annual average rate of 4.0 percent during the two decades and led the region in this category. McClain and Canadian Counties both rose at an annual rate that exceeded 3.0 percent during this time. Only Seminole and Kingfisher Counties recorded negative growth values within the Central Region for the 1980-1999 period.

The real output leader in both the Northeast Region and the State of Oklahoma, Tulsa County, achieved an output level of $24.652 billion in 1999 by growing at an average annual rate of 2.36 percent during the last two decades. Tulsa County, which accounts for approximately 73 percent of the total output in the Northeast Region, started the 1980s trailing Oklahoma County by nearly $2.5 billion. However, stronger growth in both decades allowed Tulsa County to finally surpass its main rival in 1997. The Tulsa metropolitan statistical area (five county area) recorded a 1999 real output total of $27.403 billion. Muskogee, Washington, and Rogers Counties checked in as the next largest in terms of real output with 1999 totals of $1.531, $1.105, and $1.056 billion, respectively. The fastest growing counties in both the region and the state were Delaware and Rogers, with annual growth rates of 5.07 percent and 4.88 percent, respectively. While still a leader in economic activity in the Northeast, Washington County also had the distinction of recording the greatest regional decline in real output of 2.61 percent annually during the 1980-1999 period. In total, the Northeast Region saw 13 counties record positive growth rates and four produce negative numbers for the overall period of analysis. Of the latter, only Washington County declined in both decades.

While the 1980s were particularly hard on the Northwest Region and, in particular, Garfield County, the regional output leader, improvement in the 1990s does provide some hope for the economic future of this sector of the state's economy. Garfield County lost approximately $180 million in real output between 1980 and 1999 and ended the century with a real output total of $1.321 billion. Kay County, with a 1999 output total of $1.104 billion, also produced negative growth during this time. This county, however, recorded growth in the 1980s and decline in the 1990s – a pattern very different from the other counties in the region but probably attributable to its major employer. Texas County, with a particularly strong (porcine) surge in the 1990s, provided the growth leadership in the region with a 1.45 percent annual average over the nineteen years.

TABLE 3

Real Output by County

County	Total Real Output ($Thousands, 1996=100) 1980	Rank	1990	Rank	1999	Rank
Adair	123,145	59	199,371	42	238,817	44
Alfalfa	132,946	55	124,142	57	102,694	66
Atoka	94,768	67	117,618	58	173,392	50
Beaver	155,429	47	111,554	59	121,802	60
Beckham	349,796	32	229,558	40	305,710	42
Blaine	209,012	41	175,647	45	188,599	46
Bryan	267,991	35	323,638	32	518,896	24
Caddo	404,863	28	338,674	31	432,552	29
Canadian	764,134	12	925,629	11	1,358,125	7
Carter	991,728	9	947,046	10	1,123,485	9
Cherokee	244,139	37	373,586	27	497,702	26
Choctaw	169,615	44	155,969	47	174,866	49
Cimarron	105,864	63	106,774	60	112,545	63
Cleveland	1,349,369	6	1,816,179	4	2,842,118	3
Coal	40,605	77	47,262	76	59,599	75
Comanche	1,728,772	4	2,173,197	3	2,486,082	4
Cotton	74,524	72	64,393	74	65,777	73
Craig	328,007	33	237,126	39	307,554	41
Creek	646,905	14	681,355	14	914,050	13
Custer	445,714	24	493,683	19	512,714	25
Delaware	150,424	48	209,587	41	385,159	34
Dewey	92,515	68	82,888	69	73,374	72
Ellis	131,484	56	73,861	72	63,560	74
Garfield	1,504,190	5	1,170,932	8	1,321,675	8
Garvin	512,198	19	350,334	30	430,024	30
Grady	540,959	18	498,190	18	626,220	21
Grant	121,642	60	99,286	63	87,595	69
Greer	62,965	75	67,281	73	79,705	71
Harmon	51,328	76	43,551	77	43,827	77
Harper	107,170	62	92,254	65	85,327	70
Haskell	128,368	57	105,543	61	127,931	57
Hughes	125,741	58	103,775	62	127,383	58
Jackson	458,797	21	472,306	20	596,705	23
Jefferson	82,275	69	78,704	71	105,388	65
Johnston	79,203	70	86,121	68	134,688	55
Kay	1,146,782	7	1,247,330	6	1,104,710	11
Kingfisher	401,087	29	268,978	36	312,758	38
Kiowa	135,877	54	129,499	53	141,753	54
Latimer	105,250	64	131,588	51	184,273	48

TABLE 3 (continued)

Real Output by County

County	Total Real Output ($Thousands, 1996=100) 1980	Rank	1990	Rank	1999	Rank
Le Flore	304,092	34	443,802	24	600,209	22
Lincoln	255,750	36	272,881	35	355,625	36
Logan	226,149	38	249,158	38	330,492	37
Love	74,603	71	90,312	66	100,135	67
McClain	156,901	46	196,062	44	311,015	39
McCurtain	368,836	30	471,349	21	657,231	19
McIntosh	108,661	61	137,316	50	195,047	45
Major	163,174	45	124,624	56	134,485	56
Marshall	97,569	65	127,935	55	184,418	47
Mayes	366,045	31	449,056	22	627,972	20
Murray	150,366	49	139,852	49	163,925	53
Muskogee	1,028,372	8	1,194,642	7	1,531,336	5
Noble	209,663	40	197,902	43	256,091	43
Nowata	139,311	53	87,107	67	89,794	68
Okfuskee	96,388	66	92,376	64	117,001	62
Oklahoma	18,271,744	1	19,246,118	1	24,172,416	2
Okmulgee	426,920	27	404,465	25	459,505	28
Osage	573,481	17	397,050	26	412,534	32
Ottawa	444,025	25	367,470	28	464,826	27
Pawnee	149,062	51	170,516	46	165,138	52
Payne	825,783	11	1,023,769	9	1,367,278	6
Pittsburg	447,421	23	563,689	16	715,753	17
Pontotoc	486,233	20	523,808	17	682,452	18
Pottawatomie	746,227	13	756,798	12	906,092	14
Pushmataha	70,767	74	81,203	70	108,091	64
Roger Mills	72,976	73	52,180	75	51,730	76
Rogers	427,229	26	629,398	15	1,056,836	12
Seminole	450,186	22	293,116	33	308,836	40
Sequoyah	187,451	43	264,414	37	418,122	31
Stephens	917,747	10	719,432	13	805,429	15
Texas	584,154	15	445,596	23	768,101	16
Tillman	143,415	52	128,362	54	118,764	61
Tulsa	15,812,711	2	18,520,554	2	24,652,572	1
Wagoner	204,254	42	280,053	34	367,341	35
Washington	1,828,447	3	1,392,757	5	1,105,673	10
Washita	212,546	39	129,983	52	124,483	59
Woods	150,317	50	150,251	48	172,536	51
Woodward	576,892	16	357,235	29	409,582	33

TABLE 3 (continued)

Real Output by County

County	Compound Annual Real Growth Rates (%)					
	80-90	Rank	90-99	Rank	80-99	Rank
Adair	4.94	1	2.03	42	3.55	8
Alfalfa	-0.68	46	-2.09	76	-1.35	68
Atoka	2.18	16	4.41	9	3.23	11
Beaver	-3.26	67	0.98	57	-1.27	66
Beckham	-4.12	72	3.23	21	-0.71	59
Blaine	-1.72	55	0.79	59	-0.54	55
Bryan	1.90	21	5.39	4	3.54	9
Caddo	-1.77	56	2.76	31	0.35	46
Canadian	1.94	19	4.35	10	3.07	15
Carter	-0.46	42	1.92	44	0.66	42
Cherokee	4.35	2	3.24	20	3.82	5
Choctaw	-0.84	49	1.28	53	0.16	50
Cimarron	0.09	38	0.59	60	0.32	47
Cleveland	3.02	8	5.10	7	4.00	4
Coal	1.53	23	2.61	36	2.04	24
Comanche	2.31	13	1.51	50	1.93	26
Cotton	-1.45	52	0.24	65	-0.66	56
Craig	-3.19	66	2.93	28	-0.34	54
Creek	0.52	35	3.32	17	1.84	27
Custer	1.03	27	0.42	63	0.74	40
Delaware	3.37	6	7.00	1	5.07	1
Dewey	-1.09	50	-1.35	73	-1.21	65
Ellis	-5.60	77	-1.66	75	-3.75	77
Garfield	-2.47	62	1.35	52	-0.68	57
Garvin	-3.73	70	2.30	40	-0.92	61
Grady	-0.82	48	2.57	37	0.77	39
Grant	-2.01	60	-1.38	74	-1.71	69
Greer	0.67	32	1.90	45	1.25	35
Harmon	-1.63	54	0.07	66	-0.83	60
Harper	-1.49	53	-0.86	71	-1.19	64
Haskell	-1.94	59	2.16	41	-0.02	52
Hughes	-1.90	58	2.30	39	0.07	51
Jackson	0.29	36	2.63	35	1.39	33
Jefferson	-0.44	41	3.30	18	1.31	34
Johnston	0.84	30	5.09	8	2.83	18
Kay	0.84	29	-1.34	72	-0.20	53
Kingfisher	-3.92	71	1.69	47	-1.30	67
Kiowa	-0.48	43	1.01	56	0.22	49
Latimer	2.26	14	3.81	13	2.99	16

TABLE 3 (continued)

Real Output by County

County	Compound Annual Real Growth Rates (%) 80-90	Rank	90-99	Rank	80-99	Rank
Le Flore	3.85	4	3.41	16	3.64	7
Lincoln	0.65	33	2.99	26	1.75	29
Logan	0.97	28	3.19	24	2.02	25
Love	1.93	20	1.15	55	1.56	30
McClain	2.25	15	5.26	5	3.67	6
McCurtain	2.48	10	3.76	15	3.09	14
McIntosh	2.37	11	3.98	12	3.13	13
Major	-2.66	63	0.85	58	-1.01	63
Marshall	2.75	9	4.15	11	3.41	10
Mayes	2.07	18	3.80	14	2.88	17
Murray	-0.72	47	1.78	46	0.46	44
Muskogee	1.51	24	2.80	30	2.12	23
Noble	-0.58	45	2.91	29	1.06	36
Nowata	-4.59	74	0.34	64	-2.29	74
Okfuskee	-0.42	40	2.66	33	1.03	38
Oklahoma	0.52	34	2.56	38	1.48	31
Okmulgee	-0.54	44	1.43	51	0.39	45
Osage	-3.61	69	0.43	62	-1.72	70
Ottawa	-1.87	57	2.65	34	0.24	48
Pawnee	1.35	26	-0.36	68	0.54	43
Payne	2.17	17	3.27	19	2.69	19
Pittsburg	2.34	12	2.69	32	2.50	20
Pontotoc	0.75	31	2.98	27	1.80	28
Pottawatomie	0.14	37	2.02	43	1.03	37
Pushmataha	1.39	25	3.23	22	2.25	22
Roger Mills	-3.30	68	-0.10	67	-1.79	72
Rogers	3.95	3	5.93	3	4.88	2
Seminole	-4.20	73	0.58	61	-1.96	73
Sequoyah	3.50	5	5.22	6	4.31	3
Stephens	-2.41	61	1.26	54	-0.68	58
Texas	-2.67	64	6.24	2	1.45	32
Tillman	-1.10	51	-0.86	70	-0.99	62
Tulsa	1.59	22	3.23	23	2.36	21
Wagoner	3.21	7	3.06	25	3.14	12
Washington	-2.69	65	-2.53	77	-2.61	75
Washita	-4.80	76	-0.48	69	-2.78	76
Woods	0.00	39	1.55	48	0.73	41
Woodward	-4.68	75	1.53	49	-1.79	71

Cimarron, Noble, and Woods Counties were the only additional counties in the region that produced positive growth for the overall period. Ellis County, as noted previously, was the loss leader for both the region and the state.

While Carter County maintained its economic leadership of the Southeast Region with a 1999 real output total of $1.123 billion, its performance (.66 percent annual growth) paled in comparison to that of many of its neighbors during an exciting 19-year growth spurt within what was previously the lowest regional contributor to the state's economy. Seven of the 20 counties in the Southeast Region grew at an annual rate of over 3.0 percent during this time with Sequoyah and Leflore Counties leading the growth parade at 4.31 percent and 3.64 percent, respectively. Solid two-decade economic performances resulted in Pittsburg, Pontotoc, and McCurtain Counties reporting 1999 real output levels of $715, $682, and $657 million, respectively. As another indication of the relative strength of this region during this time, only two counties, Garvin and Haskell, generated losses over the total two-decade period. Finally, it should be noted that all counties in the Southeast Region recorded positive growth during the last decade of the century.

Overcoming massive losses in the federal government sector, Comanche County continued its economic progression at an annual rate of 1.93 percent during the 1980-1999 period and remained the dominant force in the Southwest Region. Strong gains in manufacturing, services, and the trade industries played a key role in this movement. Comanche County's 1999 real output total of $2.486 billion far outdistanced that of Stephens County ($805 million), Jackson County ($596 million), and Custer County ($512 million), who fell next in relative size. Half of the counties in the region recorded gains during this period, while the other half listed declines. Washita and Roger Mills Counties produced the largest annual percentage declines during the 19-year period with values of -2.78 percent and -1.79 percent, respectively. It should be noted that just as the 1980s took a fairly heavy toll on the Southwest Region, the 1990s proved to be much more amenable to economic success. In the last decade, in particular, only three of the 14 counties in the Southwest Region failed to record growth rates of a positive nature.

Summary and Conclusions

Currently, there are a variety of economic indicators on the national, state, and regional level that describe the key trends in these various entities. One glaring omission to the list, however, is real output activity on the county level. This key economic indicator is not presently reported by any governmental agency on the substate level. This manuscript has attempted to fill this void by estimating real output activity on the regional and county level for the state of Oklahoma.

Certain common themes can be seen in the regional data for Oklahoma. To begin with, the 1980s were definitely not very kind, economically speaking, to the various regional sectors of the state. During this period, growth was weakly positive in the central and eastern portions of the state and of a negative nature in the west. The 1990s, however, brought considerable improvement to all regions, with the western portions of the state still lagging somewhat in a relative context. Across all regions, real growth for the two-decade period was relatively stronger in the manufacturing, retail trade, and wholesale trade sectors. As expected, agriculture continued to be a source of relative strength for the western regions of the state. Losses, however, could be seen across the board in the mining, construction, and federal government entities. Finance, insurance, and real estate also recorded a net loss in real output for all regions except the Northeast Region, which was slightly positive during this 1980-1999 period.

The end of the twentieth century also saw the Northeast Region replace the Central Region as the output leader within the state's economy. Several factors played a role here, but the Northeast Region's heavier reliance on strong industries like manufacturing coupled with weakness in some of the Central Region's proportionally larger sectors (e.g., federal government) certainly contributed significantly to this occurrence. Backed by particularly strong growth in the 1990s, the Southeast Region surged from the back of the pack into the

third largest regional component of the Oklahoma economy. Manufacturing, trade, and the service industries played critical roles in this swell of economic activity. The Southwest and Northwest Regions, plagued by sizeable declines in the 1980s, fell into the bottom two places on the state's economic ladder. Losses in the areas of mining; construction; finance, insurance, and real estate; and the federal government were particularly hard on these two economic regions.

Tulsa County and Oklahoma County both continued to dominate the county scene during the 1980s and 1990s. The order of their relative size changed just as their corresponding regions did during this time. However, the Oklahoma City MSA did continue as the largest metropolitan statistical area within the state. The faster growing counties during these two decades tended to be found on the eastern side of the state, while the slower growing counties were more concentrated in the west. This latter finding is in contrast to the county growth patterns of the 1970s, which tended to be more on a north versus south basis.

Notes

[1]A variety of economic indicators can be found at the website belonging to the Bureau of Economic Analysis, Department of Commerce, Washington, D.C. That website address is: <www.bea.gov>.

[2]McCraw, John. "The New Look and Usefulness of ORIGINS." *Oklahoma Business Bulletin*, Vol. 69, No. 1, 2001, pp. 5-9.

[3]Ireland, Tim C. and Janice Wickstead Jadlow. "Regional and County Output Trends of the Seventies." *Review of Regional Economics and Business*, Vol. 5, No. 2, 1980, pp. 14-19.

[4]Kendrick, John W. and C. Milton Jaycox. "The Concept and Estimation of Gross State Product." *Southern Economic Journal*, Vol. 32, No. 2, 1965, pp. 153-168.

[5]County nonfarm labor and proprietors' income (nonfarm earnings) is the sum of wage and salary disbursements, other labor income, and nonfarm proprietors' income, and is available from the Regional Economic Information System (REIS) database compiled by the Bureau of Economic Analysis (BEA), Department of Commerce, Washington, D.C. (www.bea.gov). The income estimates for several counties are suppressed at the industry level by the BEA due to privacy concerns, and are estimated using available secondary data sources.

[6]This information is available from the Regional Economic Information System (REIS) database compiled by the Bureau of Economic Analysis, Department of Commerce, Washington, D.C. <www.bea.gov>.

[7]In order to minimize the problems involved in measuring real output over time spans in which relative prices and purchasing patterns change, the Bureau of Economic Analysis now constructs estimates of real output using "chain-weighted" price indices. The former method of calculating real output used a single base-period, or constant, set of prices and then valued the output in all periods in those prices. This "fixed-weight"approach, however, results in substantial bias that understates growth for periods before the base period and overstates growth for periods after the base period. Chain-type indices eliminate the distortion from the use of fixed-weights by "chaining" together the weights of adjacent years to form a time series that allows for changes in relative prices and in the composition of output over time. The advantage of chain-weighted indices is that they provide a better estimate of the rate of growth in real output over time for a given industry or component of output. The disadvantage to chain measures is that the industry totals are not strictly additive, especially for periods far away from the base period. For a detailed discussion of BEA's new chain-weighted price indices see:

Landefield, J. Steven and Robert P. Parker. "BEA's Chain Indexes, Time Series, and Measures of Long-Term Economic Growth." *Survey of Current Business*, May 1997, pp. 58-68.

[8]Complete historical data tables (1980-99) at the county level for gross product and income (by industry) are available online from the Oklahoma State Econometric Model at <www.economy.okstate.edu>.

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SELECTED INDICATORS FOR OKLAHOMA

	2nd Qtr '02	1st Qtr '02	2nd Qtr '01	Percentage Change '02/'01 2nd Qtr	Percentage Change 2nd Qtr '02 1st Qtr '02
Crude Oil Production (000 bbl)[a]	16,964	16,911	17,272	-1.8	0.3
Natural Gas Production (000 mcf)[a]	338,305	395,756	396,768	-14.7	-14.5
Rig Count	93	73	149	-37.6	27.4
Intial Unemployment Claims	24,168	27,565	19,043	26.9	-12.3
Permit-Authorized Construction					
Residential Single Family					
Dollar Value ($000)	349,323	310,492	336,210	3.9	12.5
Number of Units	2,627	2,462	2,544	3.3	6.7
Residential-Multi Family					
Dollar Value ($000)	15,738	43,297	4,343	262.4	-63.7
Number of Units	248	561	92	169.6	-55.8
Total Construction ($000)	365,061	353,789	340,553	7.2	3.2
Employment					
Total Labor Force (000)[b]	1,708.4	1,682.9	1,655.5	3.2	1.5
Total Employment (000)	1,633.7	1,606.9	1,606.5	1.7	1.7
Unemployment Rate (%)	4.4	4.5	3.0	–	–
Wage and Salary Employment (000)	1,525.0	1,502.4	1,514.5	0.7	1.5
Manufacturing	175,033	174,600	178,433	-1.9	0.2
Mining	32,367	31,567	31,467	2.9	2.5
Government	303,233	302,933	296,833	2.2	0.1
Contract Construction	65,733	63,033	64,600	1.8	4.3
Services	443,967	432,400	439,533	1.0	2.7
Retail Trade	278,833	272,800	276,333	0.9	2.2
Average Weekly Hours (Per Worker)					
Manufacturing	38.2	38.2	38.6	-1.0	0.0
Average Weekly Earnings ($ Per Worker)					
Manufacturing	532.60	533.83	496.96	7.2	-0.2
Contract Construction	612.54	635.57	638.34	-4.0	-3.6

Note: Includes revisions in some previous months.
[a]Figures are for 1st Qtr 2002. Crude oil includes condensate. Natural gas includes casinghead gas.
[b]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 '02	June '01	June '00	Percentage Change '02/'01 Sep	'02/'00 Sep
State	135.8	132.8	134.0	2.3	1.3
Oklahoma City MSA	134.5	132.0	133.6	1.9	0.7
Tulsa MSA	135.6	136.3	138.5	1.7	0.1

ADJUSTED RETAIL TRADE FOR METRO AREAS AND STATE ($000 Seasonally Adjusted)

	2nd Qtr '02	1st Qtr '02	2nd Qtr '01	Percentage Change '02/'01 2nd Qtr	Percentage Change 2nd Qtr '0 1st Qtr '02
OKLAHOMA CITY MSA					
Durable Goods	611,542,109	609,036,188	582,097,222	5.1	0.4
Lumber, Building Materials and Hardware	202,778,384	197,514,854	183,582,052	10.5	2.7
Auto Accessories and Repair	91,853,029	92,748,880	95,748,847	-4.1	-1.0
Furniture	78,759,272	78,904,999	73,375,195	7.3	-0.2
Computer, Electronics and Music Stores	95,035,372	96,645,681	90,024,241	5.6	-1.7
Miscellaneous Durables	126,383,359	127,216,276	122,626,471	3.1	-0.7
Used Merchandise	16,732,692	16,005,499	16,740,416	0.0	4.5
Nondurable Goods	1,603,582,088	1,596,966,577	1,616,356,256	-0.8	0.4
General Merchandise	551,761,837	571,384,753	538,308,658	2.5	-3.4
Food Stores	287,963,156	291,582,536	305,915,003	-5.9	-1.2
Apparel	103,532,917	105,689,727	105,060,852	-1.5	-2.0
Eating and Drinking Places	327,918,157	334,048,613	312,761,315	4.8	-1.8
Drug Stores	36,208,158	36,322,135	37,944,523	-4.6	-0.3
Liquor Stores	19,925,853	20,514,025	19,258,271	3.5	-2.9
Miscellaneous Nondurables	94,605,893	84,476,285	83,501,074	13.3	12.0
Gasoline	181,666,118	152,948,502	213,606,560	-15.0	18.8
Total Retail Trade	2,215,124,197	2,206,002,765	2,198,453,478	0.8	0.4
TULSA MSA					
Durable Goods	461,418,803	464,796,072	458,872,626	0.6	-0.7
Lumber, Building Materials and Hardware	132,524,803	129,737,526	130,986,764	1.2	2.1
Auto Accessories and Repair	60,145,125	60,877,561	64,173,985	-6.3	-1.2
Furniture	54,989,738	55,667,738	51,922,145	5.9	-1.2
Computer, Electronics and Music Stores	102,841,827	106,473,059	98,681,675	4.2	-3.4
Miscellaneous Durables	96,347,597	97,710,230	99,696,978	-3.4	-1.4
Used Merchandise	14,569,712	14,329,958	13,411,079	8.6	1.7
Nondurable Goods	1,203,854,729	1,180,886,498	1,203,091,447	0.1	1.9
General Merchandise	401,566,115	397,414,227	384,812,257	4.4	1.0
Food Stores	244,338,105	247,683,377	261,369,331	-6.5	-1.4
Apparel	76,630,238	74,722,908	75,087,786	2.1	2.6
Eating and Drinking Places	232,186,846	227,617,176	214,394,533	8.3	2.0
Drug Stores	29,482,170	29,092,338	30,163,188	-2.3	1.3
Liquor Stores	17,338,081	17,035,867	15,873,350	9.2	1.8
Miscellaneous Nondurables	68,007,368	74,247,586	63,471,627	7.1	-8.4
Gasoline	134,305,806	113,073,019	157,919,374	-15.0	18.8
Total Retail Trade	1,665,273,532	1,645,682,571	1,661,964,073	0.2	1.2
ENID MSA					
Durable Goods	26,307,511	26,483,602	24,405,880	7.8	-0.7
Lumber, Building Materials and Hardware	10,054,443	10,503,273	8,618,710	16.7	-4.3
Auto Accessories and Repair	5,655,957	5,473,977	5,471,240	3.4	3.3
Furniture	1,715,444	1,718,268	1,699,332	0.9	-0.2
Computer, Electronics and Music Stores	2,347,099	2,492,540	2,605,121	-9.9	-5.8
Miscellaneous Durables	5,776,353	5,553,764	5,341,313	8.1	4.0
Used Merchandise	758,215	741,780	670,163	13.1	2.2

ADJUSTED RETAIL TRADE FOR METRO AREAS AND STATE ($000 Seasonally Adjusted)

	2nd Qtr '02	1st Qtr '02	2nd Qtr '01	Percentage Change '02/'01 2nd Qtr	Percentage Change 2nd Qtr '02 1st Qtr '02
ENID MSA					
Nondurable Goods	84,661,214	85,454,230	87,904,877	-3.7	-0.9
General Merchandise	29,639,456	29,813,399	28,456,042	4.2	-0.6
Food Stores	21,956,530	22,243,188	22,347,017	-1.7	-1.3
Apparel	3,983,277	3,800,311	4,115,929	-3.2	4.8
Eating and Drinking Places	14,181,629	13,812,702	13,262,274	6.9	2.7
Drug Stores	2,924,234	2,842,815	2,878,155	1.6	2.9
Liquor Stores	772,182	761,544	725,993	6.4	1.4
Miscellaneous Nondurables	4,042,022	4,034,399	4,410,570	-8.4	0.2
Gasoline	7,161,886	8,145,872	11,708,897	-38.8	-12.1
Total Retail Trade	110,968,725	111,937,832	112,310,757	-1.2	-0.9
LAWTON MSA					
Durable Goods	31,533,941	31,913,880	29,840,766	5.7	-1.2
Lumber, Building Materials and Hardware	8,700,982	8,809,583	8,383,788	3.8	-1.2
Auto Accessories and Repair	6,658,519	6,720,959	6,692,241	-0.5	-0.9
Furniture	3,034,859	3,093,601	3,118,512	-2.7	-1.9
Computer, Electronics and Music Stores	3,998,356	4,342,023	3,117,614	28.3	-7.9
Miscellaneous Durables	8,177,324	7,972,418	7,654,780	6.8	2.6
Used Merchandise	963,901	975,297	873,831	10.3	-1.2
Nondurable Goods	132,373,381	130,533,944	131,470,496	0.7	1.4
General Merchandise	61,188,865	60,529,670	59,666,704	2.6	1.1
Food Stores	20,125,763	20,439,146	19,847,323	1.4	-1.5
Apparel	6,398,134	6,733,509	6,422,188	-0.4	-5.0
Eating and Drinking Places	23,540,047	23,799,115	22,765,145	3.4	-1.1
Drug Stores	2,278,410	2,139,636	2,021,137	12.7	6.5
Liquor Stores	819,126	806,306	746,365	9.7	1.6
Miscellaneous Nondurables	5,366,938	5,431,097	5,120,349	4.8	-1.2
Gasoline	12,656,098	10,655,465	14,881,285	-15.0	18.8
Total Retail Trade	163,907,322	162,447,824	161,311,261	1.6	0.9
OKLAHOMA					
Durable Goods	1,597,773,269	1,574,768,637	1,567,428,752	1.9	1.5
Lumber, Building Materials and Hardware	541,465,854	514,109,272	534,744,058	1.3	5.3
Auto Accessories and Repair	272,078,137	269,608,195	272,180,440	0.0	0.9
Furniture	178,118,193	174,815,607	172,474,211	3.3	1.9
Computer, Electronics and Music Stores	267,448,414	284,480,257	238,238,485	12.3	-6.0
Miscellaneous Durables	298,078,196	286,475,535	313,114,150	-4.8	4.1
Used Merchandise	40,584,476	45,279,770	36,677,409	10.7	-10.4
Nondurable Goods	4,844,270,598	4,563,951,575	4,814,579,846	0.6	6.1
General Merchandise	1,659,744,618	1,570,910,447	1,591,885,076	4.3	5.7
Food Stores	1,012,643,635	1,000,287,085	1,089,405,859	-7.0	1.2
Apparel	264,337,433	255,292,861	250,708,260	5.4	3.5
Eating and Drinking Places	867,691,047	849,408,942	813,774,709	6.6	2.2
Drug Stores	95,848,282	95,015,974	95,006,136	0.9	0.9
Liquor Stores	53,459,585	51,019,386	50,225,199	6.4	4.8
Miscellaneous Nondurables	267,027,679	248,179,921	245,030,438	9.0	7.6
Gasoline	623,518,320	493,836,961	678,544,169	-8.1	26.3
Total Retail Trade	6,442,043,868	6,138,720,212	6,382,008,598	0.9	4.9

ADJUSTED RETAIL TRADE FOR SELECTED CITIES ($000 Seasonally Adjusted)

	2nd Qtr '02	1st Qtr '02	2nd Qtr '01	Percentage Change '02/'01 2nd Qtr	Percentage Change 2nd Qtr '02 1st Qtr '02
Ada	54,020,341	53,585,125	55,293,816	-2.3	0.8
Altus	44,152,042	44,142,073	43,439,089	1.6	0.0
Alva	12,937,917	12,964,726	13,897,279	-6.9	-0.2
Anadarko	14,547,063	14,449,428	14,894,146	-2.3	0.7
Ardmore	77,258,121	76,999,920	78,829,576	-2.0	0.3
Bartlesville	91,753,473	91,688,918	95,353,200	-3.8	0.1
Blackwell	11,967,722	11,549,711	10,658,309	12.3	3.6
Broken Arrow	121,775,123	118,853,952	120,402,343	1.1	2.5
Chickasha	36,765,944	36,415,760	36,101,063	1.8	1.0
Clinton	18,144,910	18,796,353	19,936,948	-9.0	-3.5
Cushing	15,843,346	15,844,810	14,693,675	7.8	0.0
Del City	26,941,225	27,156,452	28,520,224	-5.5	-0.8
Duncan	49,455,533	49,685,395	49,924,207	-0.9	-0.5
Durant	36,821,629	36,419,511	35,664,273	3.2	1.1
Edmond	170,118,072	163,711,035	154,628,559	10.0	3.9
El Reno	27,658,549	27,916,925	28,859,110	-4.2	-0.9
Elk City	32,202,369	32,351,862	33,861,347	-4.9	-0.5
Enid	105,228,382	104,820,258	106,893,386	-1.6	0.4
Guthrie	19,107,411	19,046,629	19,778,842	-3.4	0.3
Guymon	23,380,590	23,566,576	23,782,700	-1.7	-0.8
Henryetta	11,720,670	11,686,570	12,199,618	-3.9	0.3
Hobart	6,325,596	6,308,502	6,092,314	3.8	0.3
Holdenville	7,951,957	8,043,989	8,107,121	-1.9	-1.1
Hugo	17,026,012	17,010,336	15,995,341	6.4	0.1
Idabel	16,287,354	16,191,148	16,459,007	-1.0	0.6
Lawton	173,577,684	172,789,110	173,589,137	0.0	0.5
McAlester	63,308,012	62,643,615	62,819,288	0.8	1.1
Miami	29,809,288	29,887,783	29,454,807	1.2	-0.3
Midwest City	134,166,707	133,187,862	139,927,132	-4.1	0.7
Moore	73,500,374	73,304,066	66,798,372	10.0	0.3
Muskogee	107,691,979	107,837,081	111,647,913	-3.5	-0.1
Norman	228,025,926	225,545,755	223,999,042	1.8	1.1
Oklahoma City	1,213,962,344	1,205,787,942	1,210,442,599	0.3	0.7
Okmulgee	36,929,928	36,543,790	33,153,227	11.4	1.1
Pauls Valley	19,158,280	19,130,924	20,417,448	-6.2	0.1
Pawhuska	5,026,393	4,932,612	4,979,112	0.9	1.9
Ponca City	69,470,534	69,351,412	68,426,834	1.5	0.2
Poteau	29,317,005	31,121,248	31,520,471	-7.0	-5.8
Sand Springs	44,897,168	45,602,592	47,902,507	-6.3	-1.5
Sapulpa	49,638,628	49,088,944	51,047,800	-2.8	1.1
Seminole	19,143,198	19,267,405	19,510,315	-1.9	-0.6
Shawnee	85,731,528	85,663,177	87,631,457	-2.2	0.1
Stillwater	100,873,102	101,008,771	103,372,167	-2.4	-0.1
Tahlequah	62,842,103	59,100,580	48,532,839	29.5	6.3
Tulsa	1,157,194,458	1,153,416,069	1,182,520,069	-2.1	0.3
Watonga	5,347,050	5,087,980	5,045,471	6.0	5.1
Weatherford	24,306,982	24,080,410	25,514,204	-4.7	0.9
Wewoka	2,839,025	2,769,062	2,963,403	-4.2	2.5
Woodward	39,659,193	39,923,726	44,214,667	-10.3	-0.7
Total Selected Cities	4,825,808,238	4,796,277,881	4,839,695,772	-0.3	0.6

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

	2nd Qtr '02	1st Qtr '02	2nd Qtr '01	Percentage Change '02/'01 2nd Qtr	Percentage Change 2nd Qtr '02 1st Qtr '02
ENID MSA					
Employment (Number)					
Labor Force[a]	26,313	25,933	25,820	1.9	1.5
Total Employment	25,587	25,187	25,187	1.6	1.6
Unemployment Rate (%)	2.8	2.9	2.5	–	–
Wage and Salary Employment	23,667	23,400	23,767	-0.4	1.1
Wholesale and Retail Trade	6,267	6,033	6,233	0.5	3.9
Manufacturing	2,467	2,500	2,500	-1.3	-1.3
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	1,621	2,809	2,609	-37.9	-42.3
Number of Units	11	15	15	-26.7	-26.7
Residential-Multi Family					
Dollar Value ($000)	120	2,177	0	–	-94.5
Number of Units	2	50	0	–	-96.0
Total Construction ($000)	1,741	4,986	2,609	-33.3	-65.1
LAWTON MSA					
Employment (Number)					
Labor Force[a]	41,767	41,250	40,567	3.0	1.3
Total Employment	40,360	39,747	39,487	2.2	1.5
Unemployment Rate (%)	3.3	3.7	2.7	–	–
Wage and Salary Employment	39,600	39,300	39,400	0.5	0.8
Wholesale and Retail Trade	8,533	8,533	8,667	-1.5	0.0
Manufacturing	3,800	3,867	3,733	1.8	-1.7
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	4,624	4,225	4,275	8.2	9.4
Number of Units	38	36	36	5.6	5.6
Residential-Multi Family					
Dollar Value ($000)	50	0	0	–	–
Number of Units	10	0	0	–	–
Total Construction ($000)	4,674	4,225	4,275	9.3	10.6
MUSKOGEE MA					
Employment (Number)					
Labor Force[a]	32,007	31,010	31,200	2.6	3.2
Total Employment	30,597	29,490	30,167	1.4	3.8
Unemployment Rate (%)	4.4	4.9	3.3	–	–
Water Transportation					
Port of Muskogee					
Tons In	104,013	112,201	148,733	-30.1	-7.3
Tons Out	27,377	21,668	13,319	105.5	26.3

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

SELECTED INDICATORS FOR THE TULSA MSA

	2nd Qtr '02	1st Qtr '02	2nd Qtr '01	Percentage Change '02/'01 2nd Qtr	Percentage Change 2nd Qtr '02 1st Qtr '02
Employment (Number)					
Labor Force[a]	431,383	426,900	419,740	2.8	1.1
Total Employment	411,257	407,860	408,643	0.6	0.8
Unemployment Rate (%)	4.7	4.5	2.6	–	–
Wage and Salary Employment	409,033	404,833	408,533	0.1	1.0
Manufacturing	56,733	56,867	56,300	0.8	-0.2
Mining	5,667	5,767	6,000	-5.6	-1.7
Government	45,000	45,300	44,567	1.0	-0.7
Wholesale and Retail Trade	89,667	89,000	92,300	-2.9	0.7
Average Weekly Earnings					
Manufacturing ($ Per Worker)	597.66	620.50	628.99	-5.0	-3.7
Air Transportation					
Passengers Enplaning (Number)	392,020	332,063	458,762	-14.5	18.1
Passengers Deplaning (Number)	384,616	333,416	457,332	-15.9	15.4
Freight (Tons)	11,780	11,267	11,915	-1.1	4.6
Water Transportation					
Tulsa Port of Catoosa					
Tons In	222,131	240,965	291,808	-23.9	-7.8
Tons Out	295,322	371,251	231,350	27.7	-20.5
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	137,382	112,543	138,657	-0.9	22.1
Number of Units	991	945	1,045	-5.2	4.9
Residential-Multi Family					
Dollar Value ($000)	3,832	31,745	0	–	-87.9
Number of Units	39	298	0	–	-86.9
Total Construction	141,214	144,288	138,657	1.8	-2.1

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

SELECTED INDICATORS FOR OKLAHOMA CITY MSA

	2nd Qtr '02	1st Qtr '02	2nd Qtr '01	Percentage Change '02/'01 2nd Qtr	Percentage Change 2nd Qtr '02 1st Qtr '02
Employment (Number)					
Labor Force[a]	565,063	558,380	555,733	1.7	1.2
Total Employment	542,190	534,100	539,780	0.4	1.5
Unemployment Rate (%)	4.1	4.3	2.9	--	--
Wage and Salary Employment	548,067	538,933	545,767	0.4	1.7
Manufacturing	48,100	47,700	51,367	-6.4	0.8
Mining	7,633	7,500	7,433	2.7	1.8
Government	106,600	106,233	106,733	-0.1	0.3
Wholesale and Retail Trade	127,633	125,400	127,067	0.4	1.8
Average Weekly Earnings					
Manufacturing ($ Per Worker)	587.58	543.92	511.65	14.8	8.0
Air Transportation					
Passengers Enplaning (Number)	426,724	346,208	469,793	-9.2	23.3
Passengers Deplaning (Number)	421,733	351,927	458,096	-7.9	19.8
Freight Enplaned (Tons)	4,350	3,934	4,994	-12.9	10.6
Freight Deplaned (Tons)	4,991	4,842	5,862	-14.9	3.1
Permit-Authorized Construction					
Residential-Single Family					
Dollar Value ($000)	184,200	173,981	168,982	9.0	5.9
Number of Units	1,396	1,314	1,262	10.6	6.2
Residential-Multi Family					
Dollar Value ($000)	1,080	5,277	761	41.9	-79.5
Number of Units	12	92	12	0.0	-87.0
Total Construction ($000)	185,280	179,258	169,743	9.2	3.4

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