

# RESEARCH

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Center for Economic & Business Development  
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## ***Economic Impact of the Arts in Oklahoma***

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Oklahoma Arts Council

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## EXECUTIVE SUMMARY

The Arts industry, hereafter referred to as the Arts, generates a considerable amount of economic activity for the national economy. This activity includes Arts related employment, the operating budgets of non-profit Arts organizations, visitors attending Arts events, etc. These economic activities, in turn, have a significant economic impact upon the national economy when employees spend their incomes, the non-profit Arts organizations use their operating budgets for expenses, visitors to Arts events spend money for meals, transportation, souvenirs, etc.

Americans for the Arts, a national non-profit organization advancing the arts in the United States, recently published a national economic impact report of the Arts entitled **Arts & Economic Prosperity**. In the report, Americans for the Arts report that the total impacts of the non-profit Arts industry include:

- Total Expenditures equaling \$134.0 billion,
- Full-Time Equivalent Jobs equaling 4.85 million jobs,
- Resident Household Income equaling \$89.4 billion,
- Local Government Revenue equaling \$6.6 billion,
- State Government Revenue equaling \$7.3 billion, and
- Federal Income Tax Revenue equaling \$10.5 billion

(Americans for the Arts, "Arts & Economic Prosperity: The Economic Impact of Nonprofit Arts Organizations and Their Audiences", 2003.)

Three people not employed by Americans for the Arts or the American Express Foundation, which helped to fund the economic impact study, were quoted in the national report - an Oklahoman was one of those three. Ken Fergeson (Chairman & CEO, NB&C, and President-Elect, American Bankers Association) is quoted within the **Arts & Economic Prosperity** national report as saying:

"As chairman of the Oklahoma Chamber of Commerce, I have visited almost every city and town in the state. There is a visible difference in places with an active cultural community. I see people looking for places to park, stores staying open late, and restaurants packed with customers. The business day is extended and the cash registers are ringing."

Representative Louise M. Slaughter (D-NY, and Co-Chair, Congressional Arts Caucus) makes a similar statement and is also quoted in the **Arts & Economic Prosperity** national report as saying:

"What's good for the arts is good for the economy. The mayors of cities with strong economies tell us that the arts have helped their communities thrive. Federal support for our nation's cultural organizations is sound public policy."

While Representative Slaughter is primarily concerned with influencing national public policy, the purpose of the Oklahoma Arts Council is to implement state public policy from legislation passed by the Oklahoma Legislature and signed by the Governor.

In Oklahoma, the Oklahoma Arts Council (OAC) offers financial support through grants to many non-profit Arts organizations and Arts events in the state. Economic activity associated with the Oklahoma Arts Council and the Arts organizations and events supported by the Oklahoma Arts Council includes:

- Employment totaling 16 jobs at the Oklahoma Arts Council,
- Grants totaling \$3,395,098 from the Oklahoma Arts Council which benefits:
  - 1,087 Arts events distributed throughout the state, and
  - 416 different non-profit and government organizations throughout the state;
- Operating budgets totaling \$107,244,128 for non-profit Arts organizations supported by the OAC,
- Employment (full-time) totaling 950 jobs for non-profit Arts organizations supported by the OAC,
- Employment (part-time) totaling 758 jobs for non-profit Arts organizations supported by the OAC,
- Volunteers totaling 29,964 people for non-profit Arts organizations supported by the OAC, and
- Visitors totaling 2.1 million people to the Arts events supported by the OAC.

Together these activities have a significant economic impact upon Oklahoma. This report highlights the employment, output, income, tax and population impacts that the aforementioned Arts activities have upon the state of Oklahoma and six sub-state regions. It does not include the economic impacts of Arts events and organizations that do not receive any support from the Oklahoma Arts Council.



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## AVERAGE EMPLOYMENT IMPACTS (2003-2010)

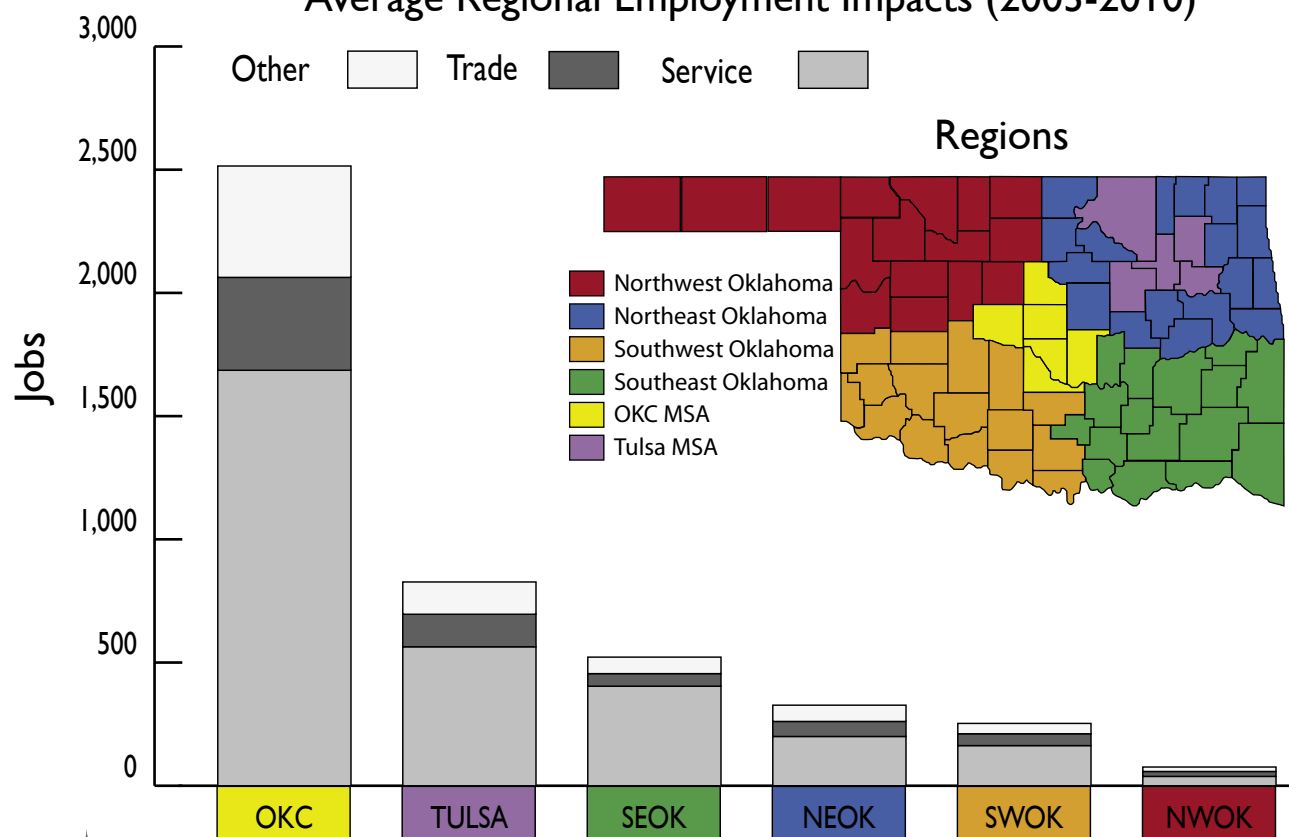
The Oklahoma Arts Council and the Arts events and organizations that it supports<sup>1</sup> have an impressive employment impact in Oklahoma averaging 4,519 jobs/year over the 2003-2010 time frame. Since many of the organizations that receive financial support from the Oklahoma Arts Council are non-profit service-providing organizations, approximately two-thirds (67.6% or 3,054 jobs) of the average employment impacts occur in Oklahoma's Service sector. Other sectors benefitting from the employment impacts are the state's Trade (wholesale and retail) sector (15.3% or 689 jobs), Construction

sector (4.5% or 205 jobs) and Government sector<sup>2</sup> (6.2% or 279 jobs).

The accompanying bar chart delineates Oklahoma's 2003-2010 average employment impacts for each of the six sub-state regions in the Oklahoma REMI model. As is readily apparent, a substantial amount of the economic impacts occur in the Oklahoma City MSA. This is explained by the fact that operating budgets at non-profit art organizations in the OKC MSA account for 53.5% of the statewide operating budgets for non-profit art organizations receiving financial support from the Oklahoma Arts Council.

Average employment impacts in the Oklahoma City MSA equal 2,515 jobs with 1,686 occurring in the Service sector and 376 in the Trade sector. In the Tulsa MSA, average employment impacts equal 827 jobs (Service: 564 jobs; Trade: 132 jobs). Similarly, average employment impacts equal 522 jobs (Service: 404 jobs; Trade: 52 jobs) in Southeast Oklahoma, equal 327 jobs (Service: 200 jobs; Trade: 61 jobs) in Northeast Oklahoma, equal 253 jobs (Service: 163 jobs; Trade: 48 jobs) in Southwest Oklahoma, and equal 75 jobs (Service: 38 jobs; Trade: 19 jobs) in Northwest Oklahoma.

## Average Regional Employment Impacts (2003-2010)



## REGIONAL OUTPUT IMPACTS (2003-2010)

Averaging \$270.250 million/year, the Oklahoma Arts Council, together with the non-profit Arts events/organizations which it supports, generate a considerable amount of economic activity in the state. The Net Present Value<sup>3</sup> (NPV) of this economic activity, as measured by Output, equals \$1.755 billion over the 2003-2010 time frame. Included in Output are consumption spending, investment spending, government spending, net exports and intermediate demand.

The economic impact upon Oklahoma's consumption spending has a NPV of \$831.650 million, which is

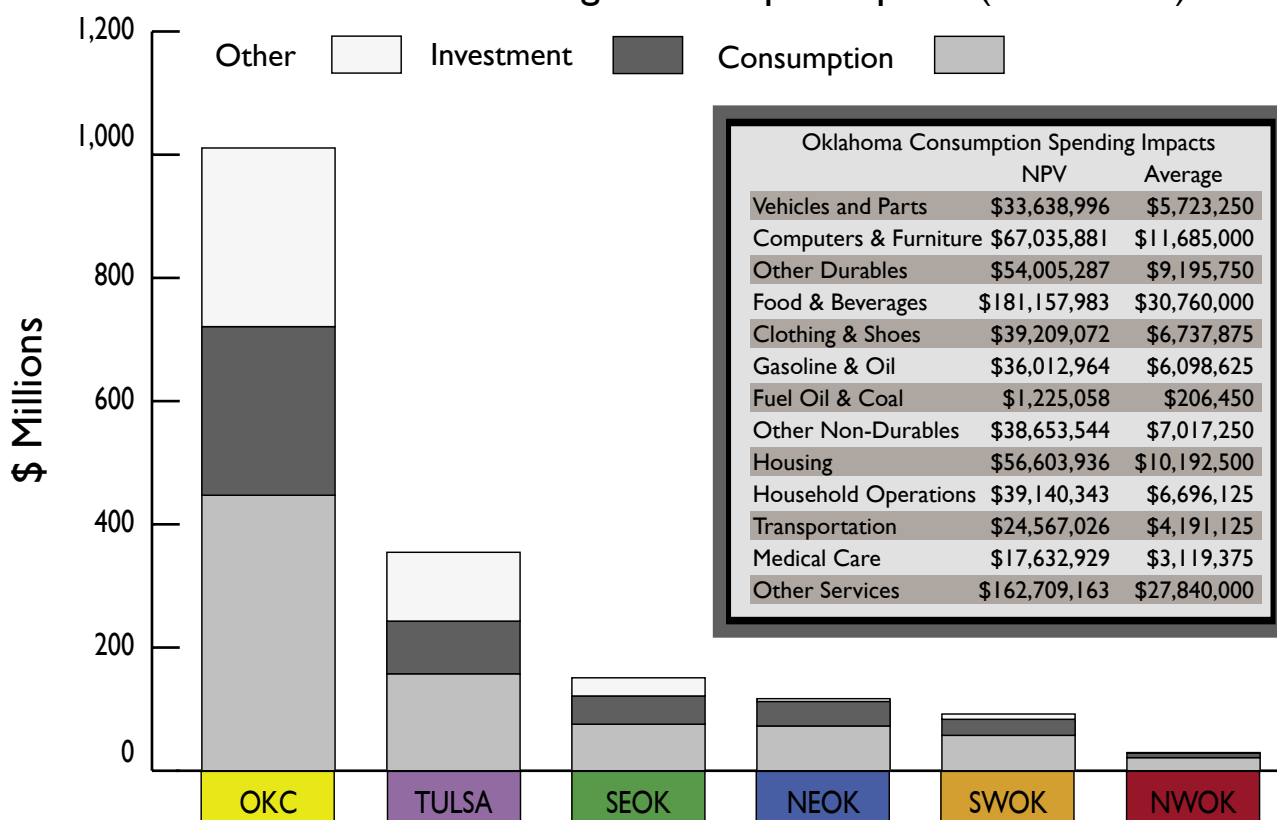
divided among ninety consumption categories including household expenditures on new autos, furniture, gasoline, books, health care, and eighty-five additional categories. These ninety categories have been aggregated into thirteen broad categories in the table below.

The economic impact upon Oklahoma's investment spending has a NPV of \$478.613 million and includes business expenditures on capital assets such as buildings and equipment.

Regionally, the economic impacts of the Oklahoma Arts Council and

the Arts events/organizations that it supports average \$155.688 million/year in the Oklahoma City MSA and have an NPV of \$1.010 billion over the 2003-2010 time frame. Similarly, the impacts average \$54.411 million/year with a \$354.514 million NPV for the Tulsa MSA; average \$23.299 million/year with a \$150.913 million NPV for Southeast Oklahoma; average \$18.050 million/year with a \$117.004 million NPV for Northeast Oklahoma; average \$14.248 million/year with a \$92.212 million NPV for Southwest Oklahoma; and average \$4.561 million/year with a \$29.531 million NPV for Northwest Oklahoma.

## NPV of Regional Output Impacts (2003-2010)



## INCOME IMPACTS (2003-2010)

The Oklahoma Arts Council, and the events/organizations that it supports, impact Oklahoma's proprietor's & labor income (total income) with a NPV of \$1.056 billion from 2003-2010. Of this amount, the lion's share, \$840.008 million, is disposable personal income, \$112.182 million is income taxes<sup>4</sup>, and the remaining \$103.443 million is income adjustments.<sup>5</sup> The impacts upon state tax revenues will be discussed in greater detail in the next section.

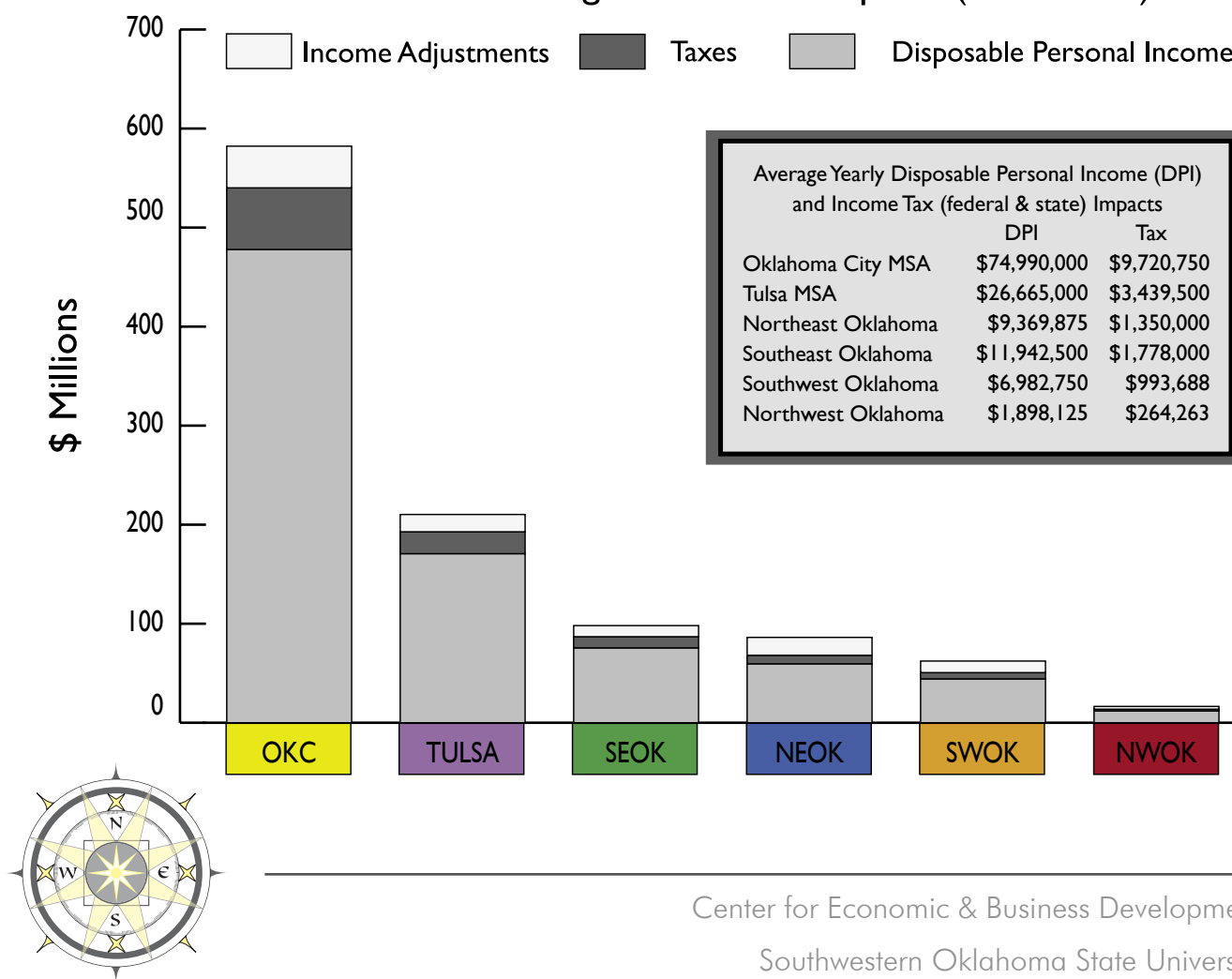
The Oklahoma City MSA's total income impact from 2003 to 2010 would have a NPV of \$582.1 million.

This total includes \$477.9 million in disposable personal income, \$62.1 million in taxes, and \$42.1 million in income adjustments. Similarly, the total income impact for the Tulsa MSA has an NPV equal to \$210.3 million, of which \$170.7 million is disposable personal income, \$22.1 million is taxes, and \$17.5 million is income adjustments. Southeast Oklahoma's total income impact has a NPV of \$98.1 million. Of the total, \$75.6 million is disposable personal income and \$11.3 million is taxes, and \$11.2 million is income adjustments.

Northeast Oklahoma's total income

impacts have a NPV of \$86.2 million, which consists of \$59.5 million in disposable personal income, \$8.6 million in taxes, and \$18.1 million in income adjustments. Southwest Oklahoma's total income impacts have a NPV of \$62.4 million, which consists of \$44.3 million in disposable personal income, \$6.3 million in taxes, and \$11.7 million in income adjustments. Northwest Oklahoma's total income impacts have a NPV of \$16.6 million, which consists of \$12.0 million in disposable personal income, \$1.7 million in taxes, and \$2.8 million in income adjustments.

## NPV of Regional Income Impacts (2003-2010)





## STATE TAX IMPACTS (2003-2010)

The economic activity supported by Arts in Oklahoma generates tax revenue not only for the state in the form of income & sales taxes, but also for the counties and cities in the form of sales and property taxes. The tax impacts reported in this section differ from the tax impacts reported in the previous section.<sup>6</sup>

Income tax revenue<sup>7</sup> received by the state from employment supported by Arts related activities average \$4.665 million/year between 2003 and 2010, and the NPV of this revenue equals \$29.674 million. Of the average yearly income tax impacts,

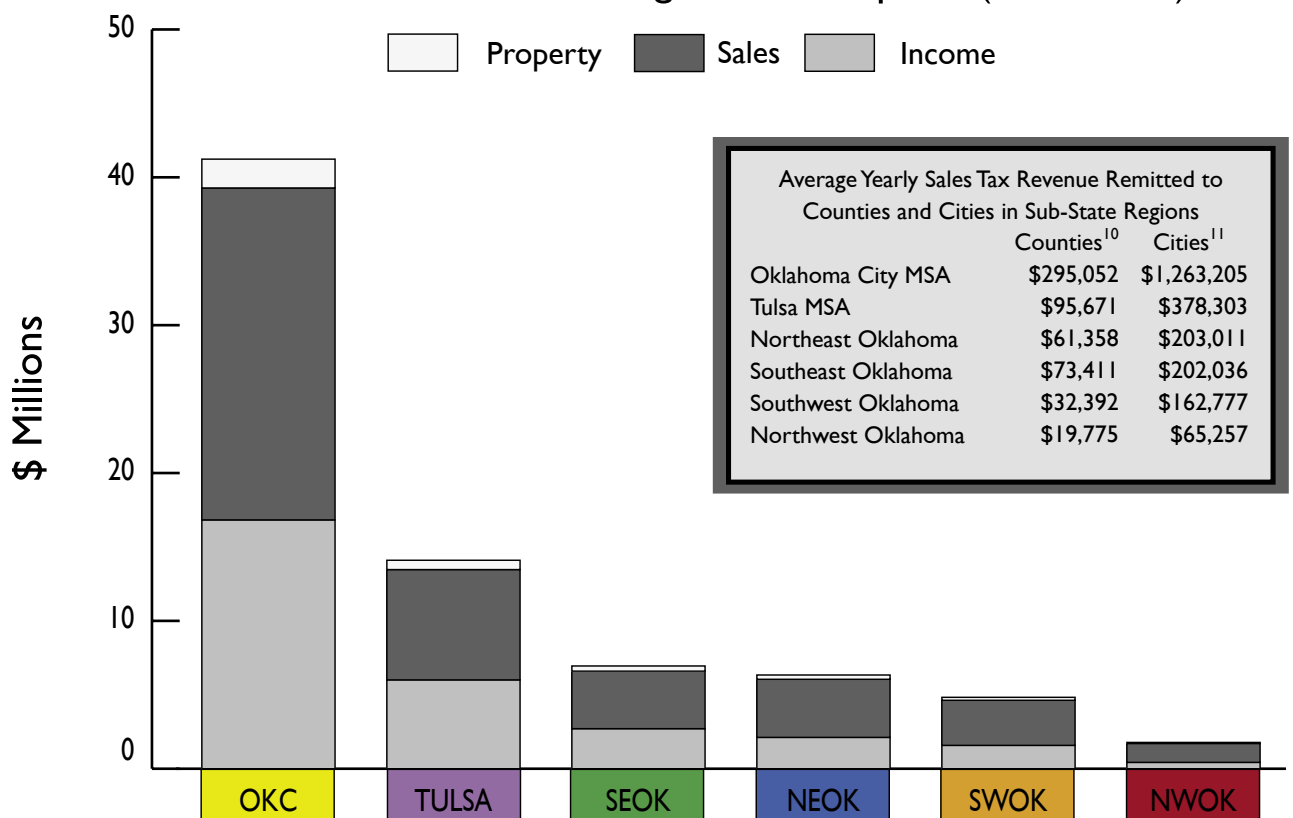
the Oklahoma City MSA averages \$2.640 million/year, the Tulsa MSA averages \$938,000/year, Southeast Oklahoma averages \$428,000/year, Northeast Oklahoma averages \$334,000/year, Southwest Oklahoma averages \$249,000/year, and Northwest Oklahoma averages \$67,000/year.

Sales tax revenue<sup>8</sup> generated by consumption activity in the state averages \$6.534 million/year and the NPV of this revenue equals \$42.056 million. Of the yearly amounts, the state of Oklahoma collects an average of \$3.682 million/year. The remainder is remitted to the counties

and cities in the respective regions where the activity occurs. Average yearly sales tax collections for each of the six sub-state regions is presented in the table below.

Property tax revenue<sup>9</sup> is generated from new capital stock formation in each of the regions. The 2003-2010 NPV of increased property tax revenue for local government units is projected to equal \$1.950 million in the Oklahoma City MSA, \$633,000 in the Tulsa MSA, \$287,000 in Northeast Oklahoma, \$350,000 in Southeast Oklahoma, \$199,000 in Southwest Oklahoma, and \$68,000 in Northwest Oklahoma.

## NPV of Regional Tax Impacts (2003-2010)



## POPULATION IMPACTS (2010)

Population impacts in the REMI model consist of the number of economic migrants, retired migrants, international migrants, and the natural population changes of births and deaths in a region.

The Oklahoma Arts Council and the Arts events and organizations that the Council supports would help the state retain 5,184 people by 2010. These are people who would otherwise leave the state if the Arts events and organizations supported by the Council disappeared.<sup>12</sup> Of the total population impact, 4,695 people would be retained by the state for economic reasons.

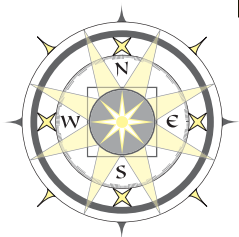
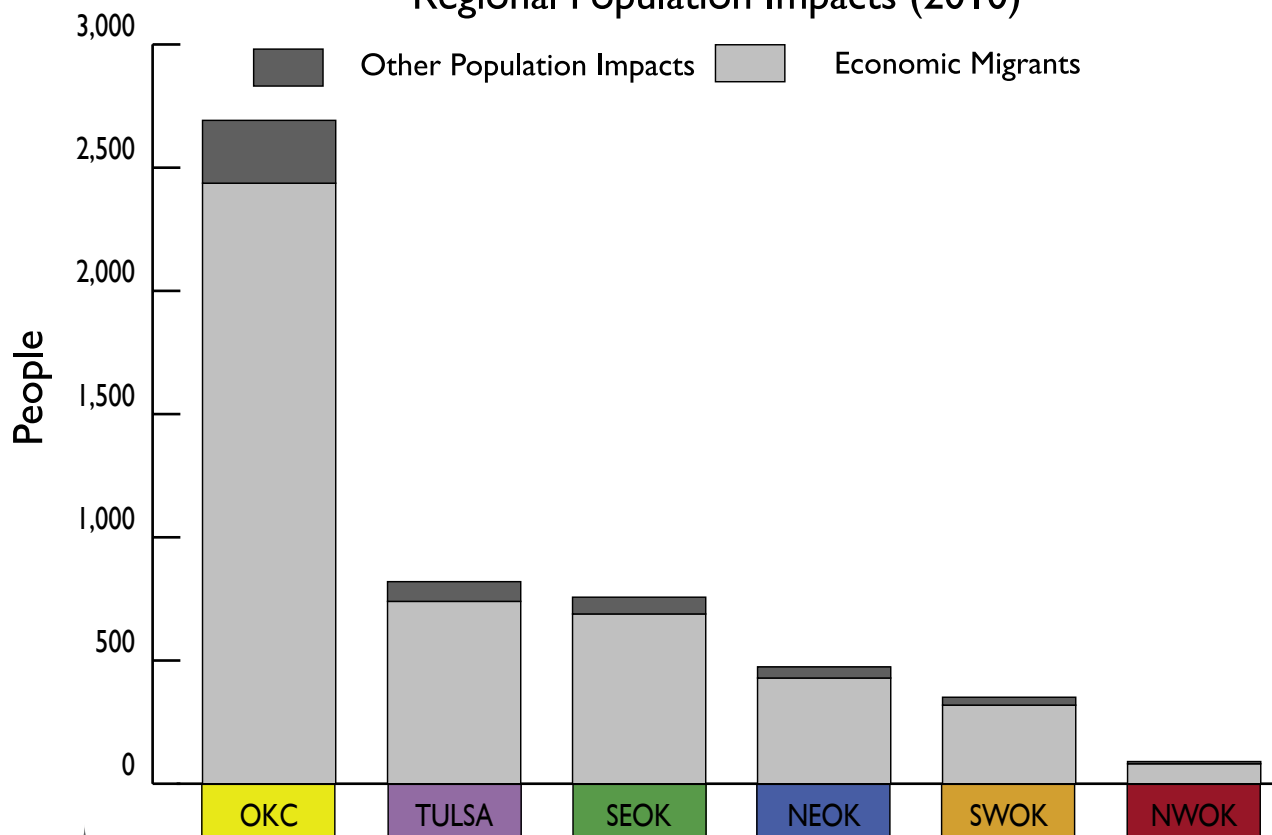
A majority of the state population impacts occur in the Oklahoma City MSA since there are larger Arts organizations when compared to other sub-state regions. The graph below shows that the Oklahoma City MSA would retain 2,692 people by 2010, 2,437 for economic reasons and the remainder as other migrants or a greater birth rate than death rate.

The Tulsa MSA experiences the second largest population impact with 849 people remaining in the state due to the relatively better economic opportunities and quality of life factors than if the Oklahoma

Arts Council and the Arts events and organizations it supports disappeared. Of this impact, 740 people stay for economic reasons.

By 2010, Southeast Oklahoma would retain 758 people, of which 689 would remain for economic reasons. Similarly, Northeast Oklahoma would retain 473 people, of which 429 would remain for economic reasons. Southwest Oklahoma would retain 351 people, of which 319 would remain for economic reasons. And by 2010, Northwest Oklahoma would retain 90 people, of which 81 people would remain for economic reasons.

## Regional Population Impacts (2010)



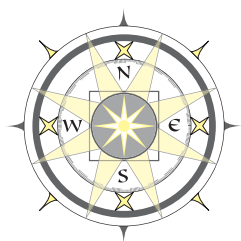
## SUMMARY OF THE ECONOMIC IMPACTS OF ARTS IN OKLAHOMA

The Arts events and organizations in Oklahoma generate an average (2003-2010) of \$8.147 million in tax revenues, of which \$4.465 million per year is income tax revenue and \$3.682 million is sales tax revenue. These tax revenues do not include federal, county or city tax revenues. In addition to these state tax revenues, the Arts in Oklahoma were shown to:

- Account for an average of 4,519 jobs per year between 2003-2010 in Oklahoma
- Contribute \$1.754 billion (NPV) in state output between 2003-2010 in Oklahoma
- Contribute \$1.056 billion (NPV) in proprietor's & labor income between 2003-2010 in Oklahoma
- Contribute \$29.674 million (NPV) in state income tax revenue between 2003-2010 in Oklahoma
- Contribute \$42.056 million (NPV) in total sales tax revenue between 2003-2010 in Oklahoma
- Contribute \$3.488 million (NPV) in property tax revenue between 2003-2010 in Oklahoma
- Retain 5,184 people in Oklahoma by 2010

## ENDNOTES

1. All of the economic impacts presented in this report represent the **combined** economic impacts of the Oklahoma Arts Council, the Arts events supported by the Oklahoma Arts Council, and the non-profit Arts organizations supported by the Oklahoma Arts Council. The economic impacts presented in this report do not include economic impacts from Arts events or Arts organizations that do not receive any support from the Oklahoma Arts Council. Please see Appendix B (page 16) for the methodology of this economic impact report.
  2. Government sector employment is largely influenced by population changes in the REMI model. With a greater population, more police/fire services will be demanded as will public school teachers and other state & local government services. (See the population impacts on page 6 for the impacts of the Arts upon population.)
  3. The Net Present Value calculation uses a discount rate of 5% and an eight year time period (2003-2010). As justification for the 5% discount rate, the St. Louis Federal Reserve Bank (<http://research.stlouisfed.org/fred2>) reports the following recent interest rates:
    - A. 10-Year Treasury (Constant Maturity) equaled 4.48% on November 7, 2003
    - B. 7-Year Treasury (Constant Maturity) equaled 3.90% on November 7, 2003
    - C. Bank Prime Loan rate equaled 4.00% on October 1, 2003
    - D. Moody's Seasoned Aaa Corporate Bond Yield equaled 5.70% on October 1, 2003
  4. Tax impacts reported with the income impacts (page 4) equal the sum of federal and state income taxes. They do not include sales or property taxes.
  5. Income Adjustments include dividends, rent, transfer payments, interest income, and net residential adjustments. The sum of disposable personal income, taxes and income adjustments equals proprietor's & labor income. The sum of taxes and disposable personal income equals personal income.
  6. Tax impacts reported on page 5 represent state tax revenue. These tax impacts do not include federal income taxes, but do include state income taxes, sales taxes and property taxes.
  7. The Oklahoma Tax Commission (<http://www.oktax.state.ok.us/publicat.html>) reports \$2,703,464,621 of income tax was collected in the 2001-2002 fiscal year. The Bureau of Economic Analysis (<http://www.bea.gov>) reports personal income in Oklahoma equaled \$86,749,508,000 in 2001. The proportion of income tax collected to personal income equals 3.116%. The calculation for Oklahoma tax revenue applies the same proportion (income tax collected/personal income = 3.116%) to the personal income figure reported by the REMI model.
  8. The sales tax revenue calculation applies the state sales tax rate (4.5%) and the weighted average of regional county and city tax rates to taxable consumption categories (see page 3 for consumption categories and notes 7 and 8 for information about the weighted averages). Taxable consumption categories do not include Fuel Oil & Coal, Housing, Household Operations, Transportation, Medical Care, or Other Services. Additionally, only a 3.25% ad valorem tax rate is applied to the Vehicles & Parts consumption category.
- Oklahoma gasoline tax is \$0.17/gallon of unleaded fuel. The Energy Information Administration reports the highest cost of fuel (<http://tonto.eia.doe.gov/oog/ftp/area/wogirs/xls/pswrgvwrmw.xls>) in the Midwest region equalled \$1.874/gallon in June, 2000. Estimating state revenue from the Gasoline & Oil consumption category requires dividing total estimated consumption (average = \$6,098,625) by cost/gallon. The result is equal to number of gallons (3,254,336 gallons). Multiplying these gallons by state tax/gallon results in gasoline tax revenue (average = \$553,237). A higher cost of fuel/gallon results in lower, and more conservative, number of gallons consumed, which in turn results in lower tax revenue.
9. Property taxes, known as the Ad Valorem tax in Oklahoma, are calculated with two formulas. The first formula is a calculation to determine a home's assessed value (Property Value x Assessment Rate). The assessed value is then multiplied by the tax rate to determine an individual's liability. The assessment rate is limited to a range of 11.0 – 14.0 percent by state law. The tax rate is determined by the sum of local mills (a tax of .001). To be conservative the lowest possible assessment rate of 11.0% was used along with an average mill of 83.75. The Residential Actual Capital Stock variable from the REMI model was multiplied by the assessment rate of 11.0% and then a homestead exemption total was subtracted from the total assessed value before multiplying it by the tax rate of 8.375%. The homestead exemption is a \$1000 dollar exemption for each qualifier. The homestead exemption total was calculated using an averaged sale price of \$137,435 for a single family residence home. Residential Actual Capital Stock was divided by this average sale price to get total units, which was then multiplied by 1,000 to get the homestead exemption total.
  10. A weighted average county tax rate was applied to estimate sales tax revenue remitted to counties in each of the six sub-state regions. The weight in the calculation is the dollar amount of sales occurring in each county. For example, in Southeast Oklahoma, the tax rate in each of the sixteen counties is multiplied by the ratio of the county's sales to the region's sales. The sum of the results is equal to the weighted average county tax rate in Southeast Oklahoma.
  11. The same process (as in Note 10 above) is used to calculate the weighted average city tax rates for each of the six sub-state regions.
  12. As a counterfactual positive simulation, the population impacts represent people that the REMI model projects would leave the state for relatively better economic opportunities (jobs, income) or quality of life factors elsewhere.



## REMI MODEL LINKAGES

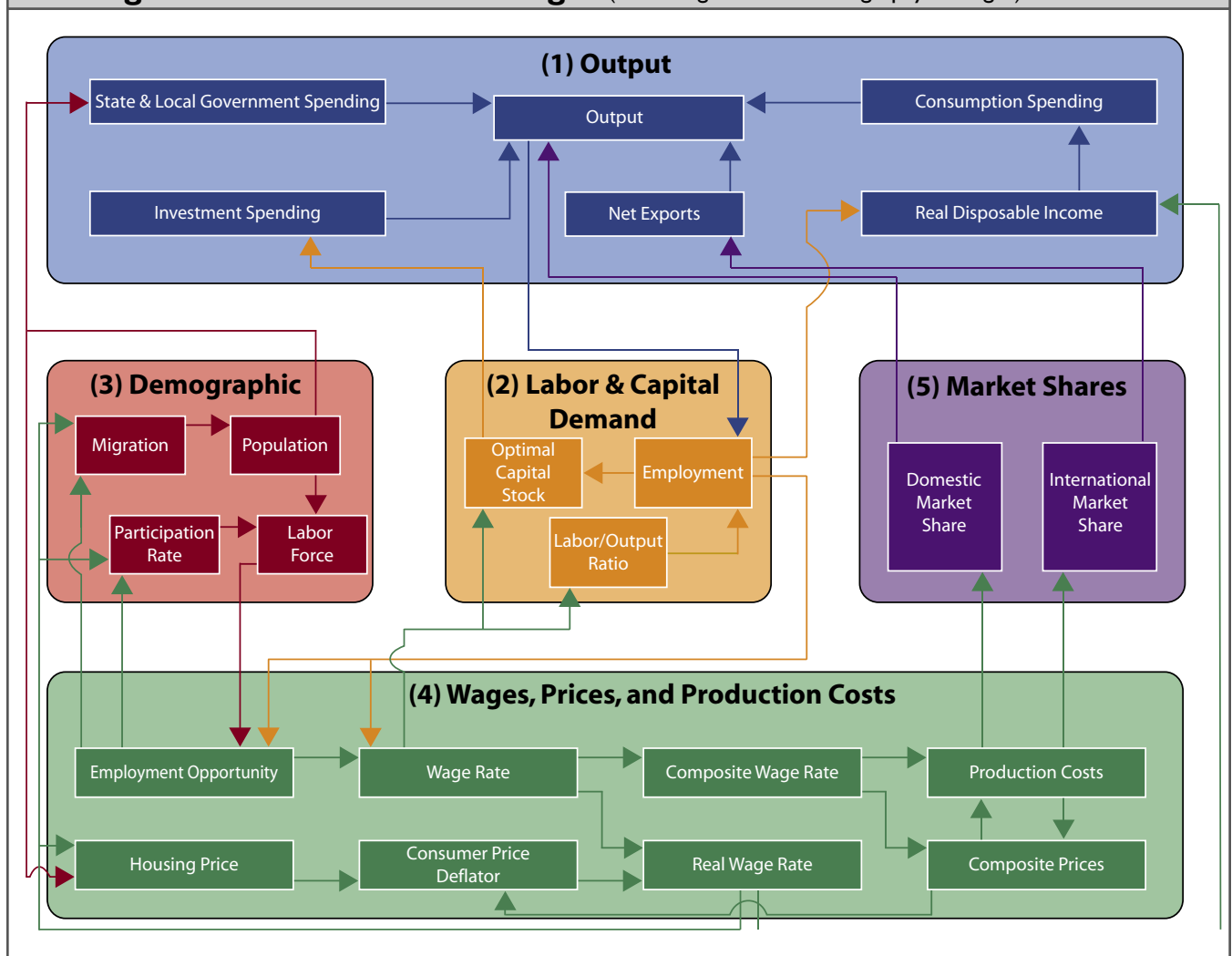
**R**egional Economic Models, Inc. (REMI), based in Amherst, MA, produces economic modeling software that enables users to “answer what if questions” about their respective economies. Each REMI model is tailored for specific geographic regions by using data, including employment, demographic, and industry data, unique to the modeled region. The Center for Economic & Business Development uses the Oklahoma REMI model, which is a six region, 53 sector

REMI model, to forecast how a given economic activity or policy change occurring in one region would affect that region, a group of regions, and/or the state.

The REMI simulation model uses hundreds of equations and thousands of variables to forecast the impact that a economic/policy change has upon an economy. Basically, the REMI model measures this economic impact by first forecasting the region's

performance as if there were not any changes (the control forecast), and then forecasting the region's/state's performance if the economic activity occurred (the alternative forecast). The difference between the two forecasts represents the economic impact of the economic activity upon the region, group of regions, and/or the state. It is these economic impacts that were reported in the Economic Impact Analysis section of this report. A basic graphic representation

**Figure 1: REMI Model Linkages** (Excluding Economic Geography Linkages)



of some of the linkages in the economic modeling software is presented in Figure 1.

As can be seen in Figure 1, the REMI model contains five “blocks”. Each block has its own variables and interactions so that changing any one variable in the model not only affects other variables in its own block, but also variables in other blocks. For example, if XYZ Corporation expanded its operations in Oklahoma City by hiring an additional 100 new employees, then that initial employment increase would ultimately affect output, population, migration, wage rates, etc. It is through the model’s linkages and interactions that employment’s (in Block 2) direct effects upon optimal capital stock (Block 2), employment opportunity (Block 4), and real disposable income (Block 1), that the employment gain works its way through the model to affect each of the other variables.

Commenting first on employment’s positive effect upon optimal capital stock, this variable will increase from an employment gain because (1) some new employees will demand newly constructed houses, and (2) physical capital will be required to assist the labor to produce output. Optimal capital stock interacts with actual capital stock (not shown) to affect the level of investment (Block 1) in the model which ultimately increases

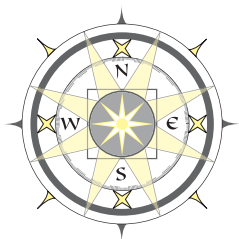
Oklahoma City’s output (Block 1). Higher optimal capital stock when compared to actual capital stock spurs investment in the region since the difference represents unfulfilled demand for physical capital. And output increases since it is equal to the sum of personal consumption, state & local government spending, investment spending, net exports from the region, as well as demand for intermediate inputs.

Commenting next upon employment’s effect upon employment opportunity, this variable increases because 100 new jobs have been created in the economy. An increased employment opportunity will positively affect wage rates (Block 4) if the region’s employment is growing faster than the region’s labor force (Block 3). Wage rates interact with the consumer price deflator, which is an adjustment factor accounting for differing inflation rates in various regions, to affect real wage rates (Block 4). Higher real wage rates in one region compared to another region serve as an incentive for people to move between geographic regions; thus real wage rates affect migration (Block 3).

Commenting last upon employment’s effect upon real disposable income (Block 1), as jobs are created, income paid to the new employees also increases. The newly employed will save a portion of their income and spend a portion

of their income upon consumer goods, the latter of which increases consumption (Block 1). As a component of output, increased personal consumption produces a subsequent rise in output.

Obviously, the previous example is only a simple illustration of a more complex model. For more information about the REMI model and its equations, please read Regional Economic Modeling by George Treyz (Kluwer Academic Publishers, 1993.)



## FORECASTING WITH THE REMI MODEL

Given the previous basic illustration of the REMI model, the process that the REMI model uses to forecast the economic impact of a policy change can be illustrated.

As can be seen in Figure 2, the process begins with a policy question and concludes with a comparison between a control forecast and an alternative forecast.

A control forecast, which uses current data regarding the economy, is generated by the REMI model.

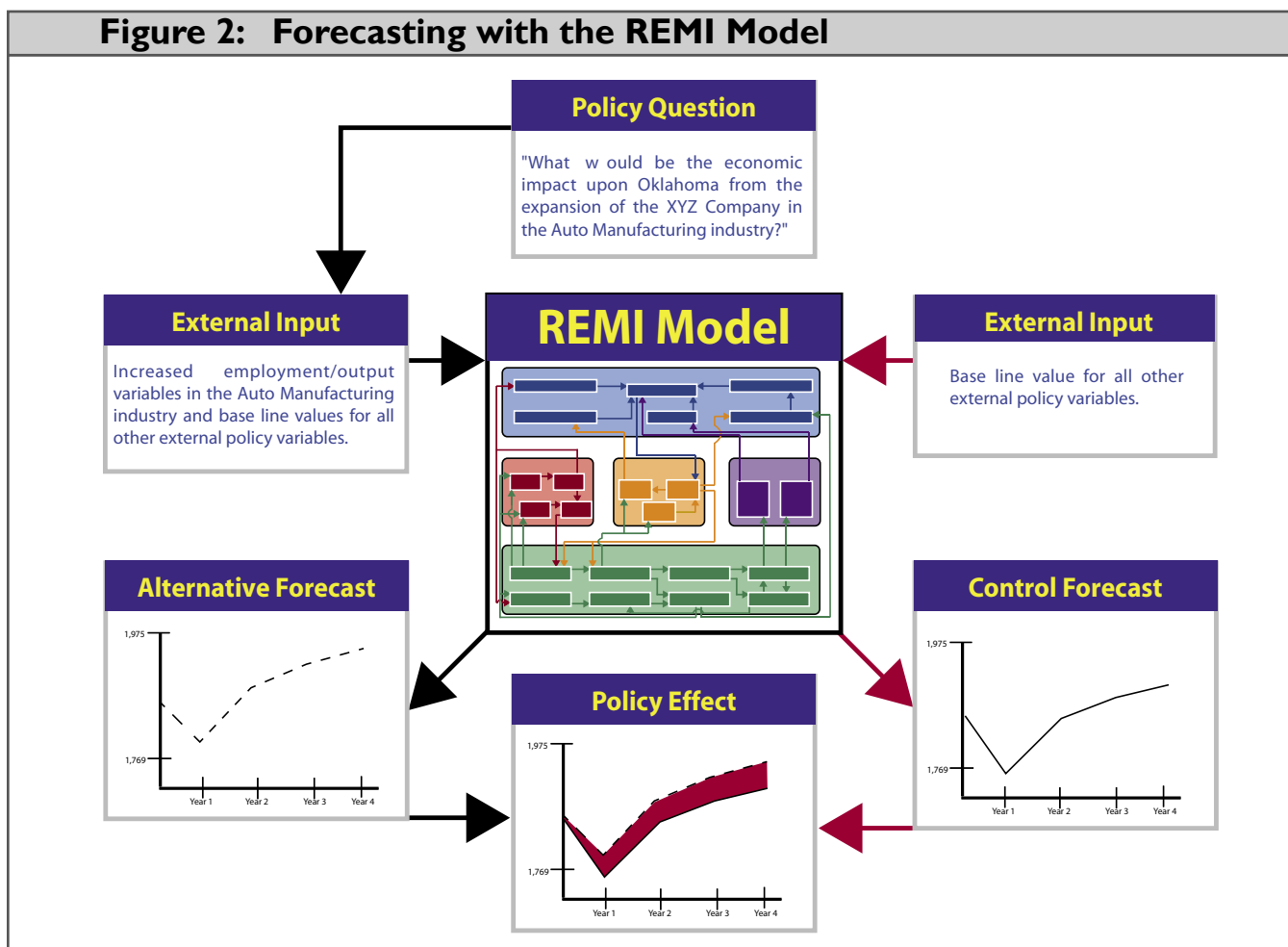
The control forecast represents the projection of the economy into the future *ceteris paribus*. This means that future economic growth will follow similar patterns in the future as had been experienced in the past.

The alternative forecast allows the user to input variable changes to occur in future time periods. Only those variables that would be affected by the policy change being measured would be changed in the alternative forecast. The REMI model then forecasts economic

performance based upon the policy variable changes.

The difference between the alternative and the control forecasts, measured by the distance between the two forecast lines, represents the economic impact of the policy change upon the economy. If the alternative forecast is greater than the control forecast, then a positive economic impact results for the economy. A negative economic impact results should the alternative forecast be less than the control forecast.

**Figure 2: Forecasting with the REMI Model**



## OKLAHOMA REMI MODEL

As is observable from the accompanying map, the state of Oklahoma is divided into six regions in the REMI model used by the CEBD. They are: Northwest Oklahoma, Northeast Oklahoma, Southwest Oklahoma, Southeast Oklahoma, the Oklahoma City metro area, and the Tulsa metro area. The Oklahoma City metro area and the Tulsa metro area correspond to the Metropolitan Statistical Areas (MSAs) defined by the Office of Management & Budget.

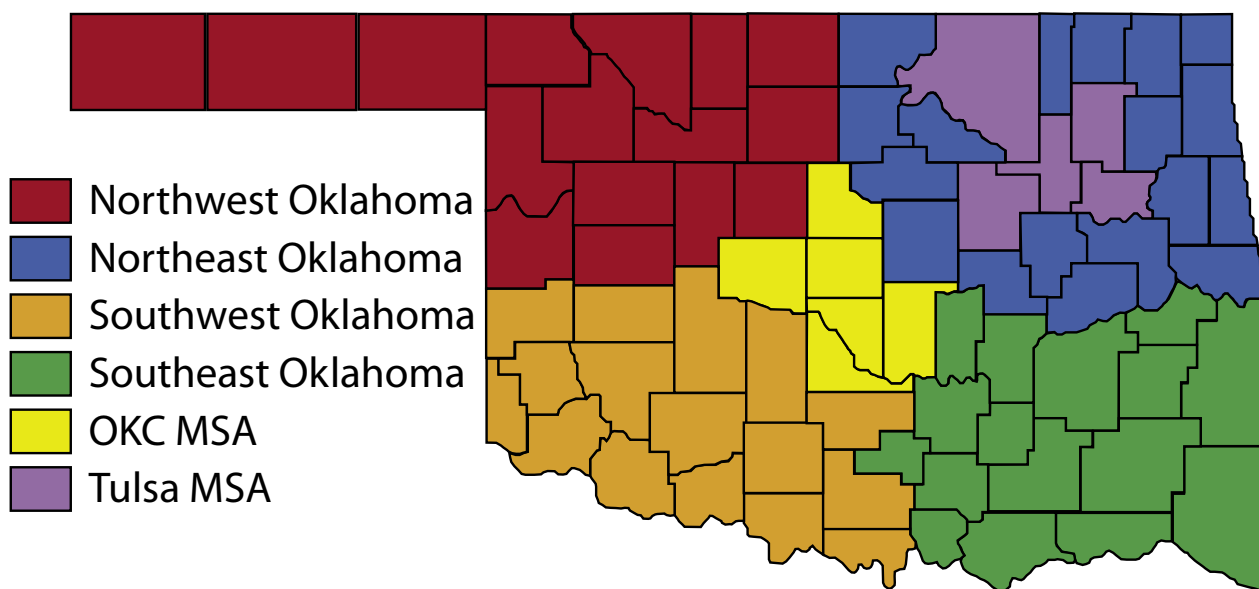
areas in the United States based upon the size of the economies and commuting patterns. The two largest MSAs by population in Oklahoma are the Oklahoma City MSA and the Tulsa MSA. As defined by the OMB, the Oklahoma City MSA is comprised of six counties (Canadian, Cleveland, Logan, McClain, Oklahoma, and Pottawatomie counties), and the Tulsa MSA is comprised of five counties (Creek, Osage, Rogers, Tulsa, and Wagoner counties).

of the other regions to produce a user-defined region for the purposes of measuring economic impacts. For example, if an economic impact were to be quantified for Eastern Oklahoma, then the three regions of Northeast Oklahoma, Southeast Oklahoma and the Tulsa metro area could be combined to be reported as Eastern Oklahoma.

The Office of Management & Budget (OMB) defines metropolitan

Additionally, any of the regions may be combined with any combination

**Figure 3: Regions in the Oklahoma REMI Model**





## LIMITATIONS OF ECONOMIC IMPACT ANALYSIS

It is important to note that while economic impact analysis is a valuable tool for economic development, economic impact analysis does have limitations. Resource Systems Group, Inc. identified some of the limitations of their economic impact analysis tool. Those limiting factors that pertain to REMI-modeled economic impact analysis are:

- Economic impact analysis cannot determine whether a new economic activity/project is economically feasible or profitable. It is possible that projects with very large favorable economic impacts may be unprofitable.
- Economic impact analysis cannot identify the specific individuals or the location of individuals or businesses impacted. For example, the analysis may show that a specific number of jobs will be generated in the trucking industry, but it cannot determine if those jobs will be filled from a specific town.
- Economic impact analysis cannot determine whether the outcomes of an economic activity are socially or environmentally beneficial.

Regarding the first point, the purpose of economic impact analysis is not to determine whether a new economic impact activity is profitable. Rather, the purpose of economic impact analysis is to

quantify the impact of the new economic activity upon an economy. Other assessment tools, like market feasibility studies or cost/benefit analyses, can help decision-makers determine whether an economic activity/project is profitable.

Regarding the second point, although the economic impact cannot identify a specific company or city, the REMI model can forecast the region in which the economic impact will occur. With the state divided into six regions, the level of detail is greater in the REMI model than with other economic impact analysis models.

Regarding the final point, Resource Systems Group, Inc. reported that economic impact analysis “can only deal with impacts that are easily quantifiable in dollars or employment. Environmental, health, or social impacts are not normally assessed, even though they may have economic implications.” While this may be a limitation of IMPLAN-modeled economic impact analysis, this is not a limitation with REMI-modeled economic impact analysis. Admittedly these externalities are not easily quantifiable, but they may still be quantified through the use of well-formed surveys. With a quantifiable amount associated with the externality, its impact may then be modeled through an additional simulation.

There is at least one other limitation when measuring the

economic impacts upon a region not mentioned in the Resource Systems Group, Inc. report. That limitation relates to using aggregated industry data to measure economic impacts. Most economic impact tools use historical data to model future events. Some of the historical data is aggregated in order to make the modeling tool more affordable and user-friendly. Using aggregate industry data to model the economic impact of a specific company requires the assumption that the specific company is a good sample of the aggregate of the whole industry.

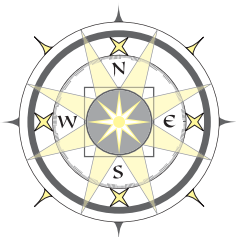
Lastly, it should be noted that economic impact analysis is not the same tool as a cost-benefit analysis. A cost-benefit analysis quantifies all of the costs, including social and environmental costs, and all of the benefits associated with a project, and if the ratio of benefits to costs is greater than 1.0, then this becomes the basis for approving a project. Economic impact analysis does not have any threshold associated with the tool. Rather, the REMI-modeled economic impact analysis will forecast quantifiable amounts of employment, population, income, etc. over a range of years for any region. These quantifiable forecasts can then be used with other tools, including cost-benefit analysis and feasibility reports to assist in the decision-making process.

## WEAKNESSES OF THE OKLAHOMA REMI MODEL

Separate from the limitations of economic impact analysis, there are unique limitations to the REMI model. Every economic impact model attempts to simulate real world conditions, and every economic impact model has its own unique weaknesses. The primary weakness of our REMI model is that the geographic regions in the model

cannot be dis-aggregated further. This means that our version of the REMI model cannot forecast the economic impacts upon smaller regions. Specifically, the six regions cannot be broken into the counties comprising their respective region. The reader should bear in mind that every model has its weaknesses, and while it is not the purpose of this

report to list the relative strengths and weaknesses of each of the economic impact models, we want to be as transparent as possible regarding the REMI modeling software used by the CEBD.



## STRENGTHS OF THE OKLAHOMA REMI MODEL

One of the key features differentiating the REMI simulation model from other economic impact measurement tools is the fact that REMI uses several economic impact methodologies to predict impacts upon an economy. Whereas other tools rely upon one methodology to predict economic impacts, REMI combines several economic impact methodologies, which has the effect of minimizing the weaknesses of any one methodology. Methodologies included in the REMI model are input-output, econometric equations, economic-base, and it

also includes aspects of computable general equilibrium.

An additional strength of the REMI model involves its dynamic nature. Whereas economic impact models relying solely on input-output are only able to make static one year forecasts, the REMI model is able to forecast the economic impacts over a number of years.

Also differentiating the REMI model from other economic impact models is its ability to report the economic impacts with a myriad of economic and/or demographic

variables. This means that not only will traditional economic impact variables (for example, employment, income, gross regional product, etc.) be reported by the REMI model, but the model is also able to report other economic and socioeconomic variables (for example, capital stock, economic migrants, population by age/gender, etc.) as well. By forecasting nontraditional economic and socioeconomic variables, the REMI model provides a more complete picture of the impacts a given scenario would have upon an economy.

## PROJECT INFORMATION ABOUT THE ECONOMIC IMPACT OF THE ARTS IN OKLAHOMA

The economic impact of the Arts in Oklahoma was modeled as a “counterfactual positive” simulation. To explain the previous statement, the REMI model uses historical data from the Bureau of Economic Analysis, US Census Bureau and other federal and state government agencies as a foundation upon which to forecast future economic and socioeconomic variables. Therefore, in order to model the economic impacts of any business, industry, and/or agency that presently exists in the economy, it is necessary to remove data associated with that business, industry, and/or agency from the modeling software in the current year as well as future years.

The resulting forecast produces negative impacts when compared to the control forecast. In order to explain the positive impacts that the business, industry, and/or agency has upon the economy, the results are multiplied by negative one. This represents a “counterfactual positive” simulation. This type of simulation requires the assumption that any dollars/jobs removed from the model will not be re-spent or re-employed elsewhere.

Five complementary scenarios comprise the economic impact of the Arts in Oklahoma, and most of the data used in the study was collected and provided by the Oklahoma Arts Council. Of additional benefit, the Oklahoma Arts Council aggregated the data

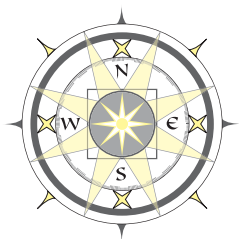
by the same geographic regions as is present in the Oklahoma REMI model. This geographic-specific data enabled us to model the economic impact of the Arts in the state more accurately by associating the economic variables with their appropriate sub-state region.

The first scenario models the economic impacts of money granted by the Oklahoma Arts Council to various Arts projects/organizations in the state of Oklahoma. For the most recent year, the Oklahoma Arts Council granted a total of \$3,395,098 to over one thousand (1,087) Arts-related projects in the state of Oklahoma. The REMI variable used in this scenario was “state government spending” and the reported amounts for each of the six sub-state regions equaled \$429,267 in Northeast Oklahoma, \$207,575 in Southeast Oklahoma, \$403,226 in Southwest Oklahoma, \$251,406 in Northwest Oklahoma, \$1,434,928 in the Oklahoma City MSA, and \$668,696 in the Tulsa MSA.

The second scenario models the economic impacts of the direct employment at the Oklahoma Arts Council. The REMI variable used in this scenario was “state government employment” and the reported employment for the Oklahoma Arts Council equaled 16 jobs. For modeling purposes, all of this employment was placed in the Oklahoma City MSA.

The third scenario models the economic impacts of people volunteering their time for the various Arts-related projects across the state of Oklahoma. By volunteering for arts-related events, volunteers work to improve the quality of life of their community, region and the state. In the REMI model, if a dollar value can be placed on this quality of life factor, then it would have an economic impact upon the region.

The Independent Sector, a “diverse collection of more than 1 million charitable, educational, religious, health, and social welfare organizations”, estimates the dollar value of volunteer time at \$16.54/hour in 2002 based upon Bureau of Labor Statistics data. Additionally, the same organization reports time spent by volunteers on projects average 3.6 hours/week. To remain conservative, the economic impacts reported in the main body of this study assume only one week’s worth of time is spent by volunteers on their arts projects in Oklahoma. However, Appendix C relates some of the economic impacts if the reader were willing to assume that 187.2 hours/year (3.6 hours/week x 52 weeks) were spent by the average volunteer in Oklahoma. The REMI variable used in this scenario was non-pecuniary (amenity) aspects, which has the effect of making the region/state more attractive to the labor force and thereby attracts economic



migrants to the area.

The fourth scenario models the economic impacts of the non-profit operating budgets of the Arts projects/organizations supported by the Oklahoma Arts Council. Before being entered into the REMI model, the operating budgets are revised downwards by subtracting the amount of money that each project/organization receives as grants from the Oklahoma Arts Council. Doing this avoids double-counting the economic impacts of the grants awarded by the Oklahoma Arts Council since the first scenario already measures these economic impacts. Additionally, several state and local government entities receive grants from the Arts Council for some of the art-related events that they sponsor. None of the public sector operating budgets is included in any scenario since Arts related events are not the primary purpose of any of the government entities. The REMI variable used in this scenario was placed in the “non-profit” industry and the revised operating budgets equaled \$6,637,801 in Northeast Oklahoma, \$16,329,756 in Southeast Oklahoma, \$5,927,808 in Southwest Oklahoma, \$1,110,030 in Northwest Oklahoma, \$55,583,560 in the Oklahoma City MSA, and \$18,261,075 in the Tulsa MSA.

The fifth scenario models the economic impacts of visitors to the arts events in each of the sub-state regions. For each Arts

event supported by a grant from the Oklahoma Arts Council, the number of youth benefiting, number of artists, and the total number of people benefiting from the event were reported. We subtracted the number of youth benefiting and the number of artists from the total number of people benefiting to estimate the number of arts-visitors attending events supported by grants from the Oklahoma Arts Council.

The Americans for the Arts, a national nonprofit organization serving as an advocate for the Arts in America, reports that arts-visitors spend, on average, \$22.87/person when attending arts events. This spending does not include spending on admission to the arts event, rather includes spending on meals/refreshments (\$10.33/person), transportation (\$2.63/person), lodging (\$2.55/person), souvenirs (\$3.51/person), and other items (\$3.85/person). Five comparable REMI categories were used to model the economic impact of visitors to arts events in each of the six sub-state regions.

The economic impacts presented in the main body of this report represent the **sum** of the combined economic impacts from each of the five scenarios detailed in this appendix.

If each of these five scenarios were modeled independently, then their relative impacts could be reported,

which would require a longer report. However, for comparative purposes only, the 2003 employment impacts of state grants (Scenario 1) account for 1.6% of the total impact when the total impact is equal to the sum of the five scenarios. The economic impacts of state employment (Scenario 2) account for 0.5% of the total 2003 employment impacts. Similarly, volunteer time (Scenario 3) accounts for less than 0.1%, the operating budgets of non-profit organizations (Scenario 4) accounts for 81.1%, and art event visitors (Scenario 5) accounts for 16.7% of the total 2003 employment impacts.

Nationally, more interest is being placed on the role that quality of life plays in economic development. Some evidence of this is being reported in newspapers around the nation.

USA Today (Haya El Nasser, “Mid-size cities get hip to attract young professionals: Behind the art and music festivals, an economic incentive”, USA Today, October 10, 2003) reported that many cities, including Memphis, Tampa, St. Louis and Cincinnati, are luring young professionals by staging arts and music festivals as well as other events. The reason for this is that employers will go where the qualified labor force is located and that the younger professionals are placing greater emphasis on quality of life factors. More to the point Haya El Nasser writes:

“‘Be hip and they will come’ is the motto of a new movement in second-tier cities that have lost their best and brightest to more urbane centers such as San Francisco, New York, Seattle, Atlanta, Washington and Boston. Wooing young people has never been high on cities’ economic agendas. Until now.”

“Cities spent decades dangling tax breaks and other financial sweeteners to attract big business. They poured billions of dollars into new stadiums, convention centers and aquariums. But their populations continued to shrink and to age. Two-thirds of the 50 largest metropolitan areas had fewer young adults in 2000 than in 1990, according to the Census. These cities now realize that they’ve done little to appeal to the labor force that will shape their economic future: educated 25- to 34-year-olds.”

Not surprisingly, this same population trend referred to by Haya El Nasser occurred in both the Oklahoma City MSA and the Tulsa MSA. In the Oklahoma City MSA, the proportion of 25- to 34-year-olds decreased from 17.8% of total population in 1990 to 14.2% in 2000. In the Tulsa MSA, the proportion of 25- to 34-year-olds decreased from 17.2% of total population in 1990 to 13.8% in 2000.

One of Pittsburgh’s strategies for attracting young professionals is to improve and restore the city’s parks. The Pittsburgh Post-Gazette (Tom Barnes, “Parks key to attracting young tech workers to Pittsburgh, study says”, Pittsburgh Post Gazette, October 3, 2003) reported that:

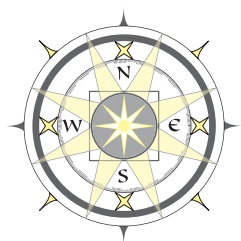
“After staring into computer screens at the office all day, many of the 20-somethings who work in high-tech fields don’t want to go home and stare at the television.”

“...The report said parks should offer high-tech workers a diversity, ‘from quiet, grassy areas for relaxation and benches to park cafés, water features and active sports,’ including running, cycling, tennis basketball and golf.”

Other recommendations to improve Pittsburgh’s parks include adding more *music and art* in the parks.

Given that the importance of quality of life factors are important to the economy, this alternative simulation places a greater value on quality of life features in the state of Oklahoma. Nevertheless, the major issue with forecasting the economic impacts that result from the quality of life factors is quantifying the quality of life variable.

One solution would survey not only the population’s “Willingness-to-Pay” for additional Arts amenities in their



community and/or state, but also survey the population's "Willingness-to-Pay" to avoid fewer Arts amenities in their community and/or state. This approach was used in Kentucky by Thompson, Berger, et al. (Thompson, Berger, Blomquist, et al, "Valuing the Arts: A Contingent Valuation Approach", May 15, 2002.) These researchers found that "mean willingness-to-pay (WTP) ranged from \$6 to \$8 per household among all Kentucky households to support a 25% increase in Arts performances. Mean WTP ranged from \$11 to \$13 annually to avoid a 25% decrease in performances and from \$25 to \$27 to avoid a 50% decrease." However, without the benefit of survey data, we have to find an alternative method to quantify how the Arts in Oklahoma affect the quality of life in the state.

Our alternative method of quantifying the quality of life variable centers on the volunteer information provided by the Oklahoma Arts Council. If it is assumed that the time spent by Arts volunteers is time spent to improve the quality of life in their community/state, then we can quantify the quality of life variable by valuing the time spent by volunteers on arts-related projects.

As mentioned in Appendix B, the Independent Sector estimates the value of volunteer time at \$16.54/hour based off of Bureau of Labor Statistics information. Additionally, the Independent Sector surveyed time spent per volunteer and estimates it at 3.6 hours/week. The main body of the Economic Impact of the Arts in Oklahoma assumes that the average Oklahoma arts volunteer spends only one week of their time volunteering for arts events and organizations. These economic impacts assume that the average Oklahoma arts volunteer spends an entire year volunteering for arts events and organizations. This increases time spent from 3.6 hours to 187.2 hours. The non pecuniary (amenity) aspects variable remains the same in the REMI model; however, the values increase.

For comparison purposes, the same summary economic impact statistics will be reported as was reported on page 7. As previously mentioned, the only variable changed between the two simulations was the magnitude of volunteer time.

With greater emphasis on quality of life factors, the Arts events and organizations in Oklahoma generate an average (2003-2010) of \$10.043 million in state tax revenues, \$5.888 million per year in income tax revenue and \$4.155 million in state sales tax revenue. With greater emphasis placed upon quality of life factors, the Arts in Oklahoma:

- Account for an average of 5,093 jobs per year between 2003-2010 in Oklahoma
- Contribute \$1.979 billion (NPV) in state output between 2003-2010 in Oklahoma
- Contribute \$1.474 billion (NPV) in state proprietor's & labor income 2003-2010 in Oklahoma
- Contribute \$37.210 (NPV) million in state income tax revenue 2003-2010 in Oklahoma
- Contribute \$47.238 million (NPV) in total sales tax revenue 2003-2010 in Oklahoma
- Contribute \$4.435 million (NPV) in property tax revenue 2003-2010 in Oklahoma
- Retain 11,450 people in Oklahoma by 2010



The economic impacts presented in the main body of the report include all of the Arts organizations receiving financial support from the Oklahoma Arts Council in the most recent year. Notably absent from the list of Arts organizations receiving financial support from the Oklahoma Arts Council is the Tulsa Philharmonic Orchestra, which ceased operations on September 12, 2002.

This appendix will relate the negative economic impacts that are projected to occur in the Tulsa MSA, and the state as a whole, because the Tulsa Philharmonic is no longer operating. Stated another way, these are the additional economic impacts that would have occurred in the Tulsa MSA, and the state as a whole, if the Tulsa Philharmonic were still operating and receiving financial support from the Oklahoma Arts Council.

#### EMPLOYMENT IMPACTS

Losing the Tulsa Philharmonic initially cost the Tulsa MSA 129 jobs in 2003, and by 2010 these employment losses decrease to 102 jobs as the REMI model works towards an equilibrium. As a result of losing the Tulsa Philharmonic, the Tulsa MSA is projected to have 114 fewer jobs, on average, over the 2003 to 2010 time frame. Of the average employment losses, Service sector employment losses account for 74.1% (85 jobs) of the total and Trade sector employment losses account for 12.3% (14 jobs) of the total employment losses.

The negative economic impacts are not limited to the Tulsa MSA. Losing the Tulsa Philharmonic cost the state of Oklahoma 120 jobs, on average, over the 2003 to 2010 time frame. This means that the rest of the state is projected to lose an average of 6 jobs (120 jobs - 114 jobs) over the entire time frame.

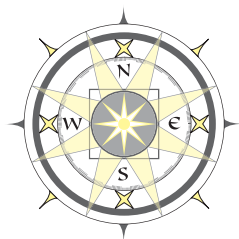
Viewed differently, if the Tulsa Philharmonic were operating in 2003, employment in the Tulsa MSA would have been 129 jobs higher in 2003. On page 2 of this report, average employment over the entire time frame would have been 941 jobs in the Tulsa MSA, which is 114 jobs higher than was reported as the economic impact.

#### OUTPUT IMPACTS

The negative impacts of losing the Tulsa Philharmonic initially cost the Tulsa MSA \$7.660 million in reduced output in 2003. Over the 2003-2010 time frame, output is projected to be an average of \$6.835 million/year less in the Tulsa MSA. The net present value of this reduced output over the entire period equals \$44.563 million.

Similarly for the state of Oklahoma, the loss of the Tulsa Philharmonic cost the state \$8.100 million of reduced output in 2003. Averaged over the 2003-2010 time frame, reduced output is projected to be \$7.225 million/year less in the state of Oklahoma, and the net present value of this reduced output equals \$47.115 million.

Given the above information, output would be \$390,000 less in the rest of the state as a result of losing the Tulsa Philharmonic.





### INCOME IMPACTS

The economic impact of losing the Tulsa Philharmonic resulted in Tulsa's Disposable Personal Income being \$2.980 million less in 2003. Over the entire time frame, Disposable Personal Income averages to be \$3.592 million/year less in the Tulsa MSA, which translates into a \$23.002 million net present value.

For Oklahoma, Disposable Personal Income averages to be \$3.838 million/year less as a result of losing the Tulsa Philharmonic. The net present value of this equals \$24.574 million.

### STATE TAX IMPACTS

Lower incomes and employment also mean lower taxes collected. In 2003, a loss of \$112,000 in state income taxes is projected to occur in Oklahoma as a result of the closure of the Tulsa Philharmonic. Of the total state income taxes lost in 2003, \$106,000 would have been collected in the Tulsa MSA. Over the 2003-2010 time frame, state income taxes average \$135,000 less statewide, of which \$126,000 would have been collected in the Tulsa MSA.

### POPULATION IMPACTS

In 2003, the Tulsa MSA is projected to have lost 24 people as a result of operations ceasing at the Tulsa Philharmonic. By 2010, the population loss will grow to 111 people due to relatively worse economic opportunities and lower quality of life factors in the Tulsa MSA when compared to the rest of the nation.

Similarly for the state of Oklahoma, 26 people left the state as a result of the closure of the Tulsa Philharmonic. By 2010, the population loss will grow to 117 people. Therefore, 2 people not residing in the Tulsa MSA were projected to have left the state in 2003, and by 2010, this population loss grows to 6 people in the rest of Oklahoma.

The methodology used to measure the economic impacts of the Tulsa Philharmonic was the same methodology discussed in Appendix B. Grant money that the Tulsa Philharmonic received in the year prior to ceasing operations equals \$132,900, which was placed in Tulsa's scenario 1 variable. Scenario 2 is not relevant to this simulation, so there were no variables associated with this scenario. Scenario 3 variables, volunteer time, use the 15 volunteers that spent their time for the Tulsa Philharmonic. Scenario 4, operating budgets, use the \$3,206,700 operating budget of the Tulsa Philharmonic, and scenario 5, visitors, includes the economic impact of the 17,100 people attending the Tulsa Philharmonic performances in the year before it ceased operations.

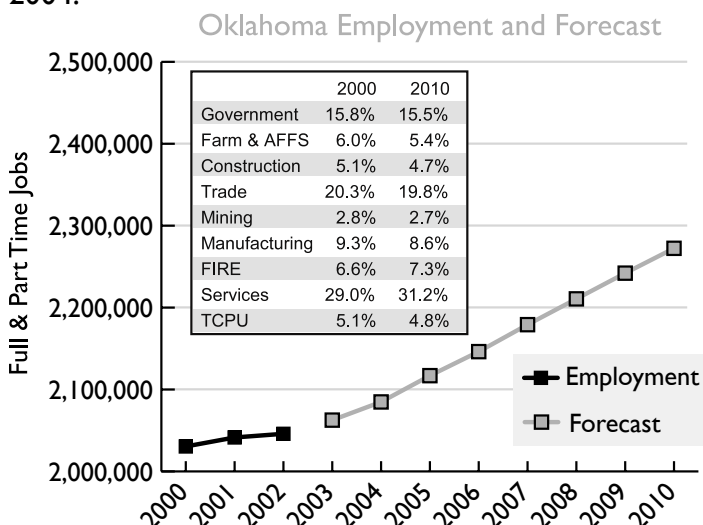


# Economic Forecast Series

## 2003-2010 Forecast

**Employment** in the state of Oklahoma equaled 2,030,454 jobs in 2000. With the economy dipping into recession, the state only managed to add 15,478 jobs by 2002. Projected job gains between 2002 and 2003 total 16,687 jobs for the state's economy.

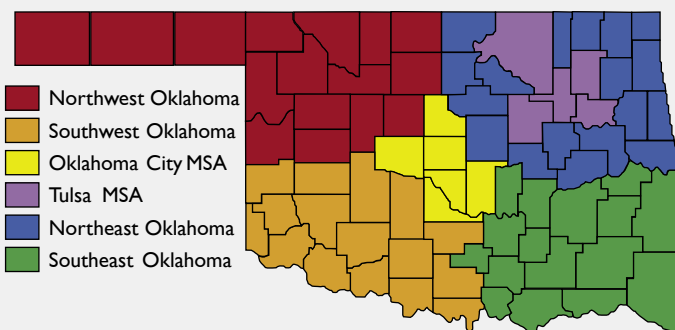
Oklahoma's employment is projected to increase 209,753 jobs, or 10.2%, between 2003 and 2010. In the shorter term, the state's economy is expected to add an additional 22,196 jobs between 2003 and 2004.



**Gross State Product (GSP)** is one measure of economic activity and may be delineated as to the expenditure source of the activity. Household spending, business spending, government spending, and trade activity (exports minus imports) account for the sources of economic activity.

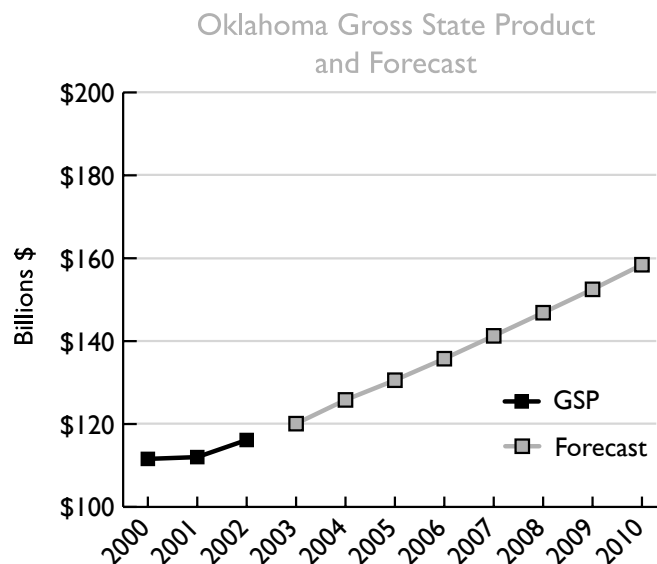
Oklahoma's GSP totaled \$111.588 billion in 2000 and increased \$4.560 billion, or 2.6%, by 2002. Between 2000-2002, household spending accounted for 59.2% of the state's GSP. Similarly, business spending

## State of Oklahoma



accounted for 15.4%, government spending 21.8%, and trade activity 3.7% of the state's GSP.

Oklahoma's GSP is projected to increase from \$120.091 billion in 2003 to \$158.432 billion in 2010. This represents a 31.9% increase over the projected time frame and an annual average growth rate of 4.0%.



**Real Disposable Income** represents income available for consumption or savings for the entire state. In 2000, Real Disposable Income equaled \$66.660 billion and increased 7.8%, or \$5.172 billion, by 2002. On a per capita basis, personal income

# Economic Forecast Series

## 2003-2010 Forecast

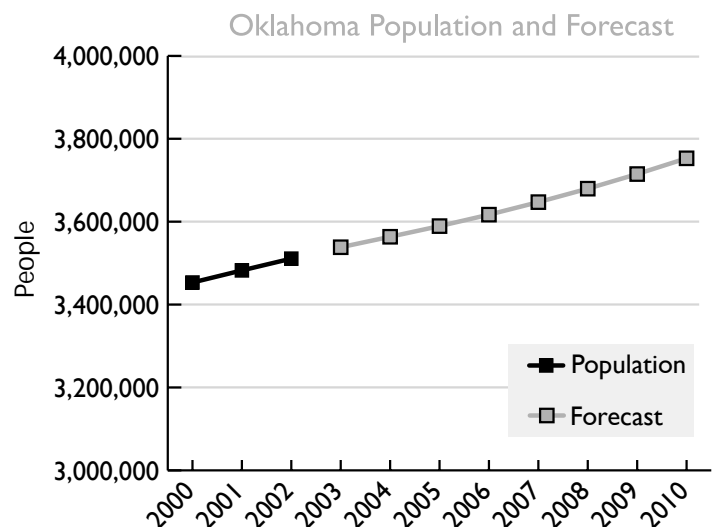
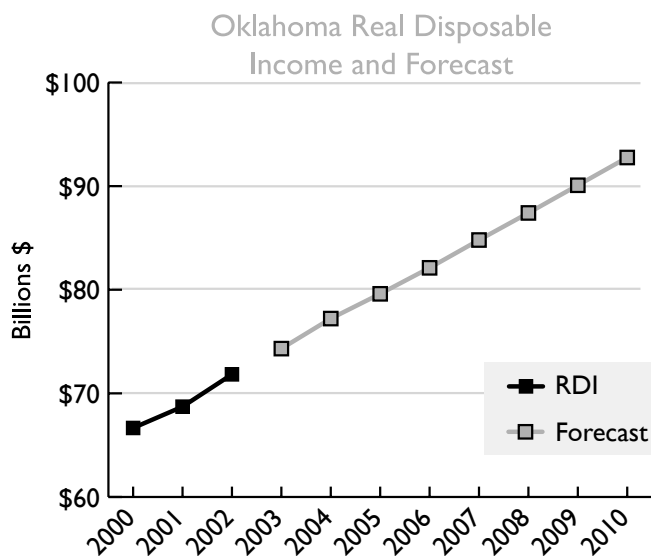
## State of Oklahoma

increased from \$19,304 in 2000 to \$20,460 in 2002.

Oklahoma's Real Disposable Personal Income is forecasted to increase from \$74.318 billion in 2003 to \$92.760 billion in 2010. This represents a 24.8% growth rate over the time period. Over the same time period, per capita personal income is projected to grow from \$21,004 in 2003 to \$24,717 in 2010.

While greater economic opportunities resulted in a net gain of 5,940 people for Oklahoma in 2000 and 2001, the state is estimated to have experienced a net loss of 1,292 economic migrants in 2002.

International migrants, estimated at 14,411 people, increased the state's population, while the state lost 576 retired migrants over the 2000-2002 time frame.



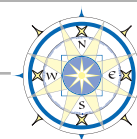
**Population** in the state of Oklahoma is estimated to have increased from 3,453,250 people in 2000 to 3,510,824 people in 2002, which translates into a 1.7% population increase. Much of this population increase, totaling 57,574 people, may be attributable to the number of births exceeding the number of deaths by 40,935 people in the state. The remaining 16,639 people would be classified as a type of migrant – economic migrants, retired migrants, change in military & dependants, and international migrants.

Economic migrants totaled 4,648 people over the time frame and are defined as those people moving to a geographic region for economic opportunities.

Forecast data presented in this newsletter is provided by the Oklahoma REMI model. Visit our website ([www.swosu.edu/bdc](http://www.swosu.edu/bdc)) for information about the REMI model.

Employment data is based off of the BEA employment data series, which includes full & part-time employment, farm and military employment.

Real Disposable Income is adjusted for inflation using 1996 as the base year.



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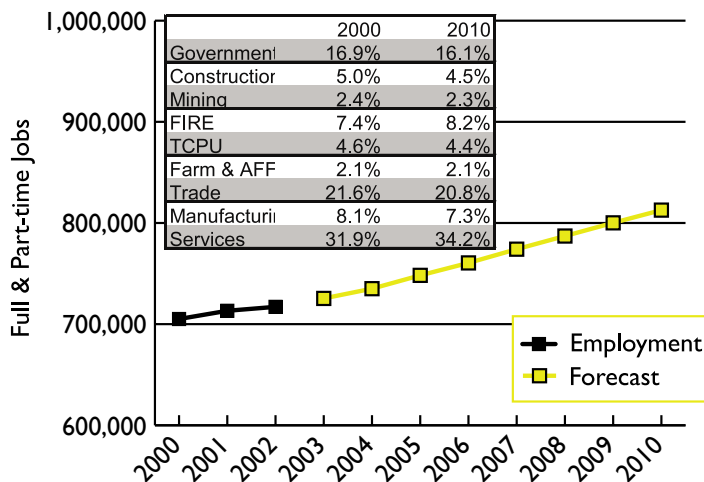
# Economic Forecast Series

## 2003-2010 Forecast

**Employment** in the Oklahoma City MSA equaled 705,077 jobs in 2000. While the state's economy dipped into recession, employment in the metropolitan area fared better than much of the rest of the state with the metropolitan area adding 12,019 jobs by 2002. Projected job gains between 2002 and 2003 total 8,327 jobs for the city's economy.

Oklahoma City's employment is projected to increase 87,300 jobs, or 12.0%, between 2003 and 2010. In the shorter term, the metropolitan area's economy is expected to add an additional 9,634 jobs between 2003 and 2004.

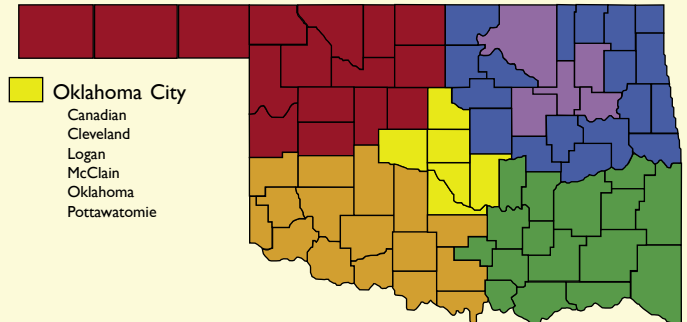
Oklahoma City MSA Employment and Forecast



**Gross Regional Product (GRP)** is one measure of economic activity and may be delineated as to the expenditure source of the activity. Household spending, business spending, government spending, and trade activity (exports minus imports) account for the sources of economic activity.

Oklahoma City's GRP totaled \$38.875 billion in 2000 and increased \$2.522 billion, or 4.2%, by 2002. Between 2000-2002, household spending accounted

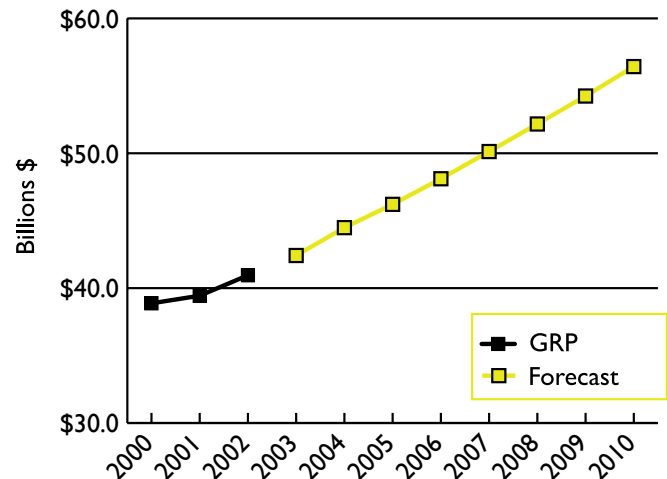
## Oklahoma City MSA



for 57.3% of the city's GRP. Similarly, business spending accounted for 15.9%, government spending 20.7%, and trade activity 6.1% of the metropolitan area's GRP.

Oklahoma City's GRP is projected to increase from \$42.420 billion in 2003 to \$54.244 billion in 2010. This represents a 33.0% increase over the projected time frame and an annual average growth rate of 4.2%.

Oklahoma City MSA GRP and Forecast



**Real Disposable Income** represents the income available for consumption or savings for the metropolitan area. In 2000, Real Disposable Income equaled \$24.563 billion and increased 8.8%, or \$2.154 billion, by 2002. On a per capita basis, personal income increased from \$22,633 in 2000 to \$23,995 in 2002.

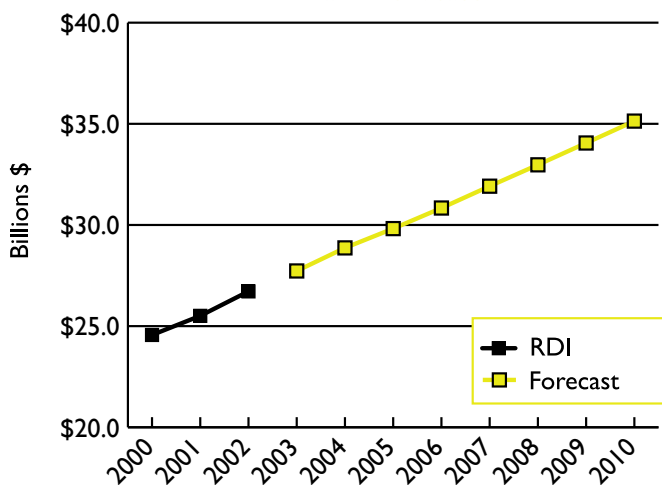
# Economic Forecast Series

## 2003-2010 Forecast

## Oklahoma City MSA

Oklahoma City's Real Disposable Personal Income is forecasted to increase from \$27.727 billion in 2003 to \$35.134 billion in 2010. This represents a 26.7% growth rate over the time period. Per capita personal income is projected to grow from \$24,609 in 2003 to \$28,762 in 2010.

Oklahoma City MSA RDI  
and Forecast



**Population** in the Oklahoma City MSA is estimated to have increased from 1,085,282 people in 2000 to 1,113,433 people in 2002, which translates into a 2.6% (28,151 people) population increase. About half of this population increase may be attributable to the number of births exceeding the number of deaths by 14,686 people in the metropolitan area. The remaining 13,465 people would be classified as a type of migrant – economic migrants, retired migrants, change in military & dependants, and international migrants.

Economic migrants totaled 5,388 people over the time frame and are defined as those people moving to a geographic region for economic opportunities. Relatively better economic opportunities in the Oklahoma City MSA attracted 2,090 people in 2000,

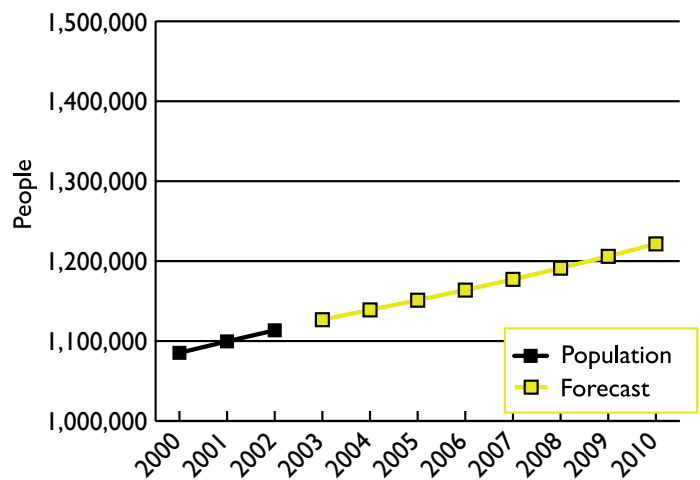
2,537 people in 2001, and 761 people in 2002.

International migrants, estimated at 7,193 people, increased the city's population over the 2000-2002 time frame. Additionally, retired migrants, estimated at 1,486 people, also provided the Oklahoma City metro area with a population gain.

Between 2003 and 2010, Oklahoma City's population is projected to increase by 94,843 people from 1,126,709 people in 2003 to 1,221,552 people in 2010. Of this population gain, the Oklahoma City MSA is projected to attract 14,251 (net) economic migrants and attract 16,872 international migrants.

The 2010 population estimate would correspond to a 12.6% population gain between 2000 and 2010.

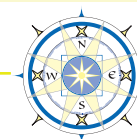
Oklahoma City MSA Population  
and Forecast



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Employment data is based off of the BEA employment data series, which includes full & part-time employment, farm and military employment.

Real Disposable Income is adjusted for inflation using 1996 as the base year.



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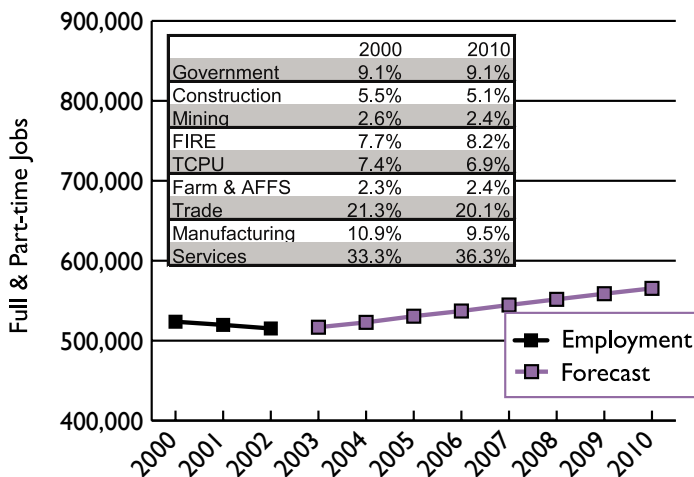
# Economic Forecast Series

## 2003-2010 Forecast

**Employment** in the Tulsa MSA equaled 523,694 jobs in 2000. With the state's economy dipping into recession, the metropolitan area suffered a loss of 8,453 jobs between 2000 and 2002. Projected job gains totaling 1,569 jobs regain some of the city's lost jobs between 2002 and 2003.

Tulsa's employment is projected to increase 48,602 jobs, or 9.4%, between 2003 and 2010. In the shorter term, the metropolitan area's economy is expected to add an additional 6,082 jobs between 2003 and 2004, which regains most of the 8,453 jobs lost between 2000 and 2002.

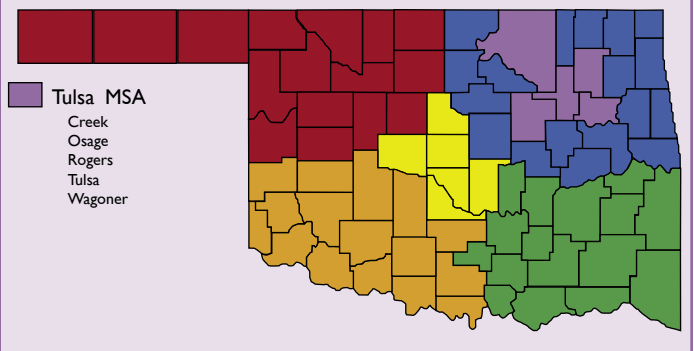
Tulsa MSA Employment  
and Forecast



**Gross Regional Product (GRP)** is one measure of economic activity and may be delineated as to the expenditure source of the activity. Household spending, business spending, government spending, and trade activity (exports minus imports) account for the sources of economic activity.

Tulsa's GRP totaled \$30.616 billion in 2000 and increased \$1.061 billion, or 2.0%, by 2002. Between 2000-2002, household spending accounted for

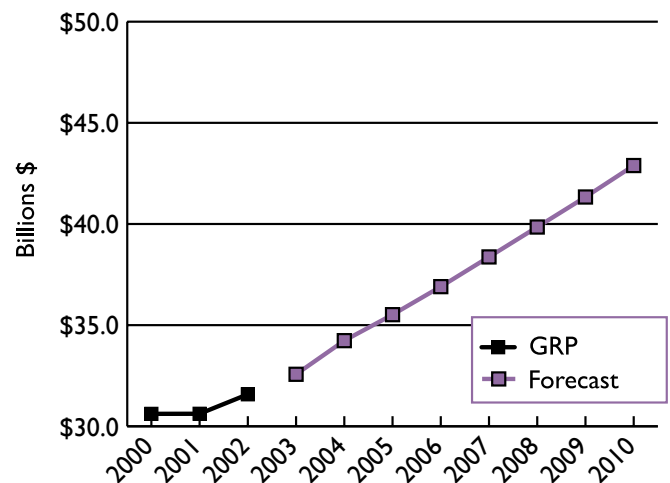
## Tulsa MSA



60.7% of the city's GRP. Similarly, business spending accounted for 15.5%, government spending 13.2%, and trade activity 10.6% of the metropolitan area's GRP.

Tulsa's GRP is projected to increase from \$32.571 billion in 2003 to \$42.899 billion in 2010. This represents a 31.7% increase over the projected time frame and an annual average growth rate of 4.0%.

Tulsa MSA GRP  
and Forecast



**Real Disposable Income** represents income available for consumption or savings for the metropolitan area. In 2000, Real Disposable Income equaled \$20.349 billion and increased 6.1%, or \$1.239 billion, by 2002. On a per capita basis, personal income increased from \$25,285 in 2000 to \$26,342 in 2002.

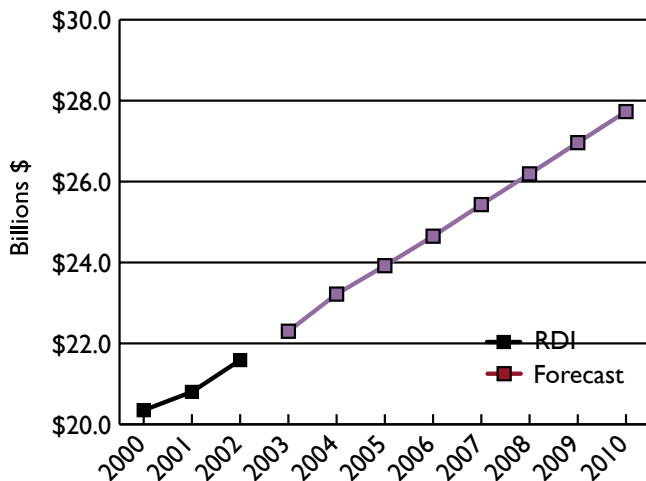
# Economic Forecast Series

## 2003-2010 Forecast

## Tulsa MSA

Tulsa's Real Disposable Income is forecasted to increase from \$22.301 billion in 2003 to \$27.730 billion in 2010. This represents a 24.3% growth rate over the time period. Over the same time period, per capita personal income is projected to grow from \$27,014 in 2003 to \$31,702 in 2010.

Tulsa MSA RDI  
and Forecast



**Population** in the Tulsa MSA is estimated to have increased from 804,774 people in 2000 to 819,513 people in 2002, which translates into a 1.8% population increase. Most of this population increase, totaling 14,739 people, may be attributable to the number of births exceeding the number of deaths by 9,675 people in the metropolitan area. The remaining 5,064 people would be classified as a type of migrant – economic migrants, retired migrants, change in military & dependants, and international migrants.

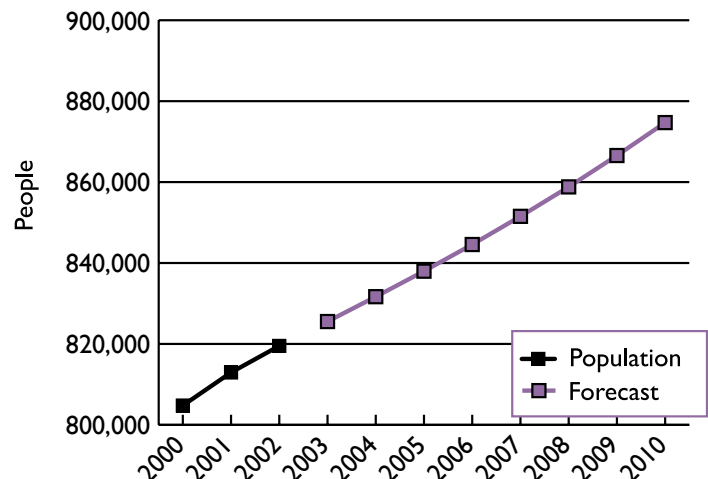
International migrants, estimated at 3,488 people, increased the city's population over the 2000-2002 time frame. Additionally, retired migrants, estimated at 815 people, also provided the Tulsa metro area with a population gain.

Economic migrants are defined as those people moving to a geographic region for economic opportunities. Between 2000 and 2001, the Tulsa metropolitan area attracted 2,500 people with relatively better economic opportunities compared to other regions in the nation. However, economic migration was negative in 2002 as 1,301 people left the metro area for relatively better opportunities elsewhere.

Between 2003 and 2010, Tulsa's population is projected to increase by 49,169 people from 825,536 people in 2003 to 874,705 people in 2010. Of this population gain, the metro area is projected to attract 8,182 international migrants.

The 2010 population estimate would correspond to an 8.7% population gain between 2000 and 2010.

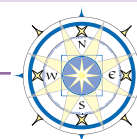
Tulsa MSA Population  
and Forecast



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Real Disposable Income is adjusted for inflation using 1996 as the base year.



Dr Marvin Hankins - Director

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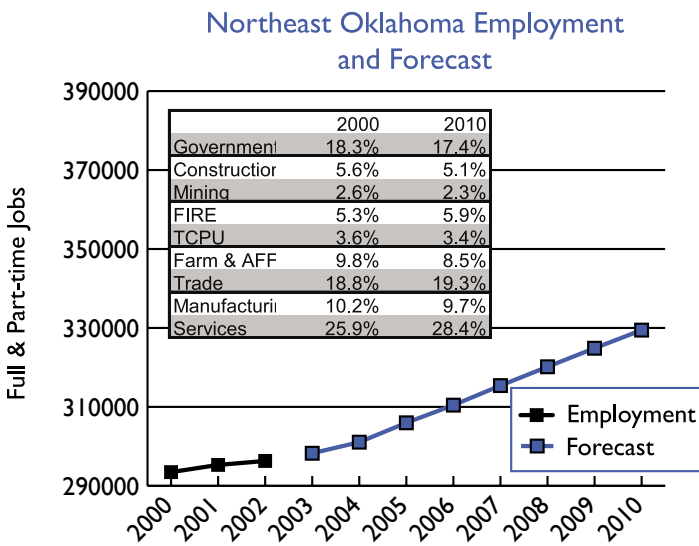


# Economic Forecast Series

## 2003-2010 Forecast

**Employment** in Northeast Oklahoma equaled 293,477 jobs in 2000. With the state's economy dipping into recession, the region only managed to add 2,827 jobs by 2002. Projected job gains between 2002 and 2003 total 1,951 jobs for the region's economy.

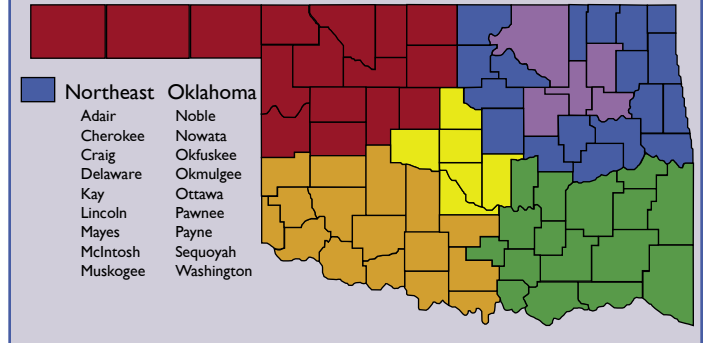
Northeast Oklahoma's employment is projected to increase 31,198 jobs, or 10.5%, between 2003 and 2010. In the shorter term, the region's economy is expected to add an additional 2,810 jobs between 2003 and 2004.



**Gross Regional Product (GRP)** is one measure of economic activity and may be delineated as to the expenditure source of the activity. Household spending, business spending, government spending, and trade activity (exports minus imports) account for the sources of economic activity.

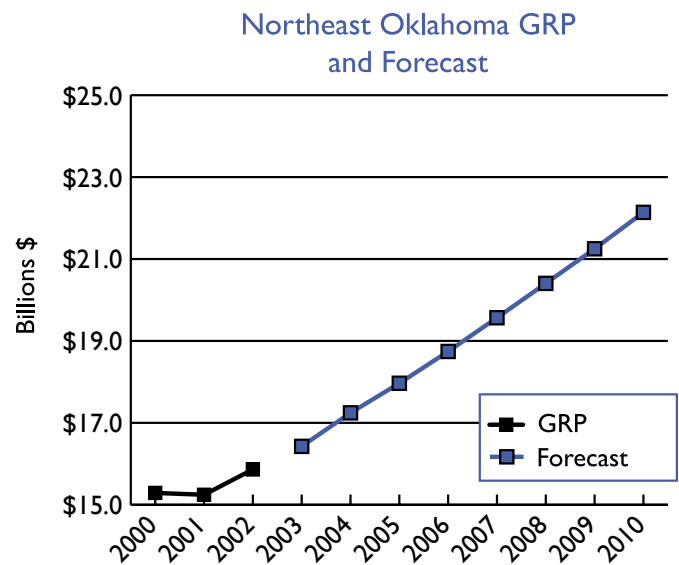
Northeast Oklahoma's GRP totaled \$15.289 billion in 2000 and increased \$1.035 billion, or 4.3%, by 2002. Between 2000-2002, household spending accounted for 62.9% of the region's GRP. Similarly, business spending accounted for 16.8% and government

## Northeast Oklahoma



spending 21.6% of the region's GRP. Since the region's imports were greater than its exports, trade activity accounted for -1.2% of the region's GRP.

Northeast Oklahoma's GRP is projected to increase from \$16.426 billion in 2003 to \$22.139 billion in 2010. This represents a 34.8% increase over the projected time frame and an annual average growth rate of 4.4%.



**Real Disposable Income** represents income available for consumption or savings for the region. In 2000, Real Disposable Personal Income equaled \$8.578 billion and increased 8.7%, or \$743 million, by 2002. On a per capita basis, personal income increased

# Economic Forecast Series

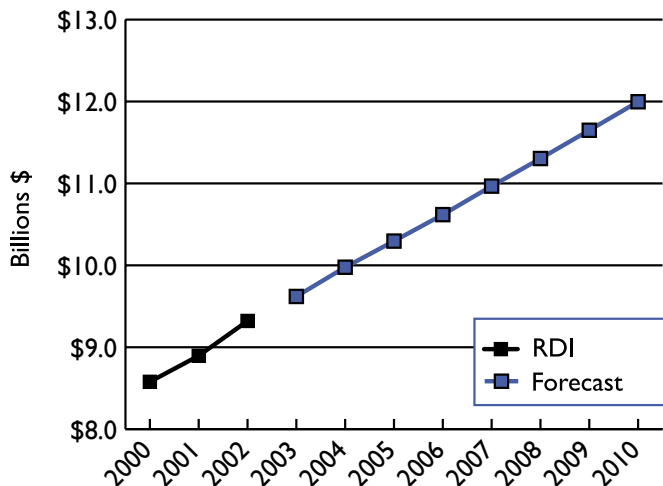
## 2003-2010 Forecast

## Northeast Oklahoma

from \$14,230 in 2000 to \$15,253 in 2002.

Northeast Oklahoma's Real Disposable Personal Income is forecasted to increase from \$9.620 billion in 2003 to \$11.997 billion in 2010. This represents a 24.7% growth rate over the time period. Over the same time period, per capita personal income is projected to grow from \$15,640 in 2003 to \$18,399 in 2010.

Northeast Oklahoma RDI  
and Forecast



**Population** in Northeast Oklahoma is estimated to have increased from 602,831 people in 2000 to 611,106 people in 2002, which translates into a 1.4% population increase. Most of this population increase, totaling 8,275 people, may be attributable to an influx of 5,416 migrants into the region. The remaining increase is attributable to the number of births exceeding the number of deaths by 2,859 people in the region.

Economic migrants totaled 5,522 people over the time frame and are defined as those people moving to a geographic region for relatively better economic

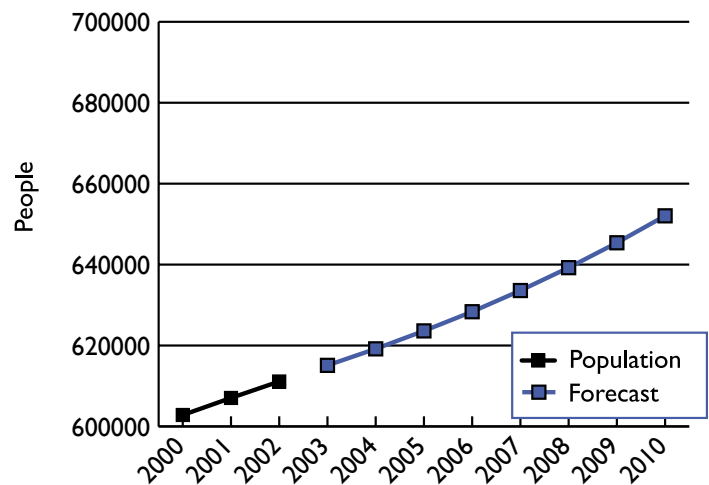
opportunities when compared to other regions in the nation.

International migrants, estimated at 1,160 people, also increased Northeast Oklahoma's population, but the region lost 966 retired migrants over the 2000-2002 time frame.

Between 2003 and 2010, Northeast Oklahoma's population is projected to increase by 36,955 people from 615,094 people in 2003 to 652,049 people in 2010. Of this population gain, the region is projected to attract 15,270 (net) economic migrants and attract 2,720 international migrants.

The 2010 population estimate would correspond to an 8.2% population gain between 2000 and 2010.

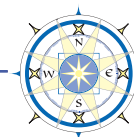
Northeast Oklahoma Population  
and Forecast



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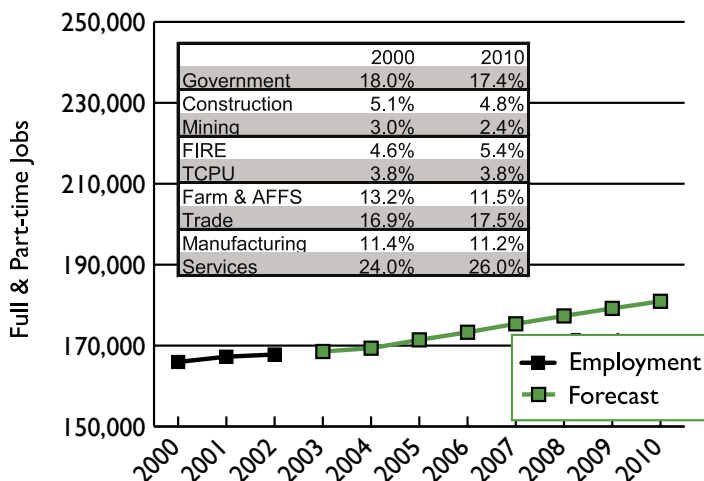
# Economic Forecast Series

## 2003-2010 Forecast

**Employment** in Southeast Oklahoma equaled 165,955 jobs in 2000. The region added 1,843 jobs by 2002 while the state's economy dipped into recession,. Projected job gains between 2002 and 2003 total 745 jobs for the region's economy.

Southeast Oklahoma's employment is projected to increase 12,407 jobs, or 7.4%, between 2003 and 2010. In the shorter term, the region's economy is expected to add an additional 816 jobs between 2003 and 2004.

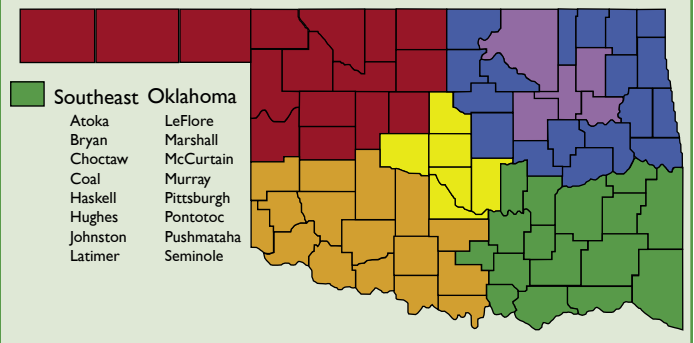
Southeast Oklahoma Employment and Forecast



**Gross Regional Product (GRP)** is one measure of economic activity and may be delineated as to the expenditure source of the activity. Household spending, business spending, government spending, and trade activity (exports minus imports) account for the sources of economic activity.

Southeast Oklahoma's GRP totaled \$8.415 billion in 2000 and increased \$459 million, or 3.7%, by 2002. Between 2000-2002, household spending accounted for 60.1% of the region's GRP. Similarly, business spending accounted for 15.6% and government

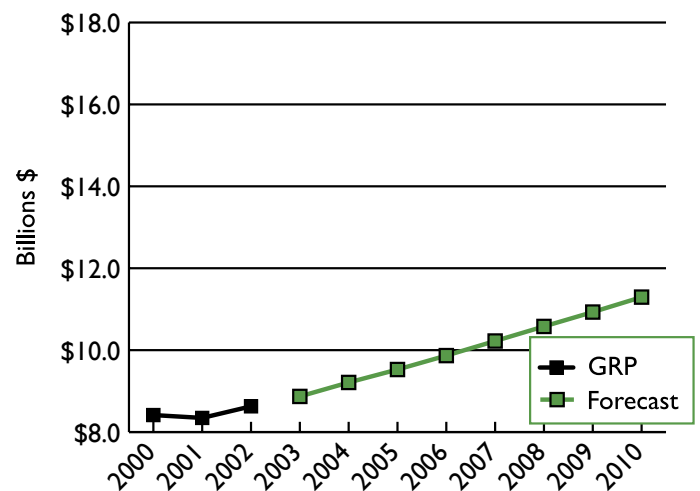
## Southeast Oklahoma



spending 24.3% of the region's GRP. Since the region's imports were greater than its exports, trade activity accounted for -0.1% of the region's GRP.

Southeast Oklahoma's GRP is projected to increase from \$8.870 billion in 2003 to \$11.295 billion in 2010. This represents a 27.3% increase over the projected time frame and an annual average growth rate of 3.5%.

Southeast Oklahoma GRP and Forecast



**Real Disposable Income** represents income available for consumption or savings for the region. In 2000, Real Disposable Income equaled \$4.405 billion and increased 8.9%, or \$393 million, by 2002. On a per capita basis, personal income increased from \$12,845

# Economic Forecast Series

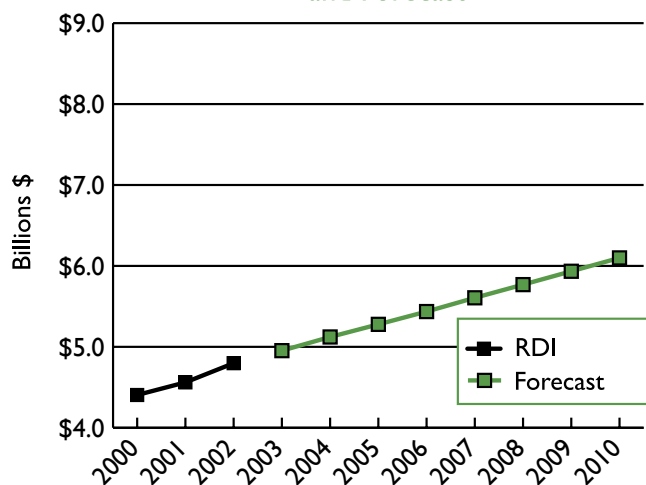
## 2003-2010 Forecast

## Southeast Oklahoma

in 2000 to \$13,830 in 2002.

Southeast Oklahoma's Real Disposable Income is forecasted to increase from \$4.953 billion in 2003 to \$6.099 billion in 2010. This represents a 23.1% growth rate over the time period. Over the same time period, per capita personal income is projected to grow from \$14,197 in 2003 to \$16,582 in 2010.

Southeast Oklahoma RDI  
and Forecast



**Population** in Southeast Oklahoma is estimated to have increased from 342,942 people in 2000 to 346,930 people in 2002, which translates into a 1.2% population increase. Most of this population increase, totaling 3,988 people, may be attributable to an influx of 2,706 migrants into the region. The remaining increase is attributable to the number of births exceeding the number of deaths by 1,282 people in the region.

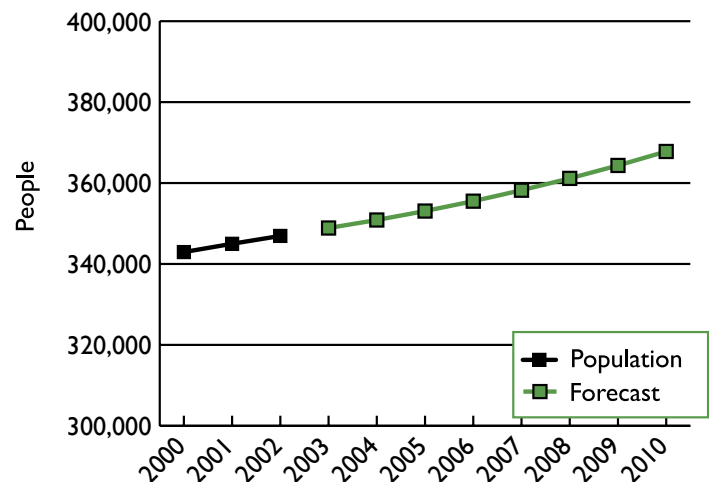
Economic migrants totaled 3,034 people over the time frame and are defined as those people moving to a geographic region for relatively better economic opportunities when compared to other regions in the nation.

International migrants, estimated at 481 people, also increased Southeast Oklahoma's population, but the region lost 635 retired migrants over the 2000-2002 time frame.

Between 2003 and 2010, Southeast Oklahoma's population is projected to increase by 18,915 people from 348,886 people in 2003 to 367,801 people in 2010. Of this population gain, the region is projected to attract 8,862 (net) economic migrants, 1,126 international migrants, but lose 1,484 retired migrants to other regions in the country.

The 2010 population estimate would correspond to a 7.2% population gain between 2000 and 2010.

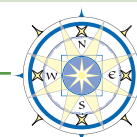
Southeast Oklahoma Population  
and Forecast



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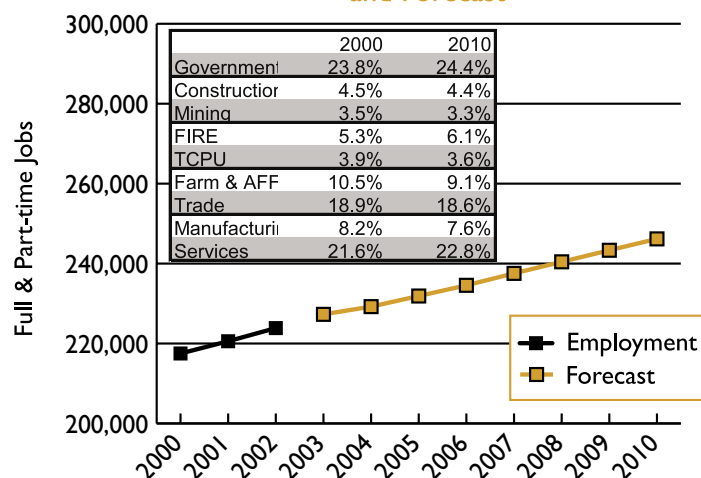
# Economic Forecast Series

## 2003-2010 Forecast

**Employment** in Southwest Oklahoma equaled 217,506 jobs in 2000. The region fared better than other regions in the state while the state's economy dipped into recession. Between 2000 and 2003, the region added 6,352 jobs, a 2.9% job gain. Projected job gains between 2002 and 2003 total 3,440 jobs for the region's economy.

Southwest Oklahoma's employment is projected to increase 18,810 jobs, or 8.3%, between 2003 and 2010. In the shorter term, the region's economy is expected to add an additional 1,930 jobs between 2003 and 2004.

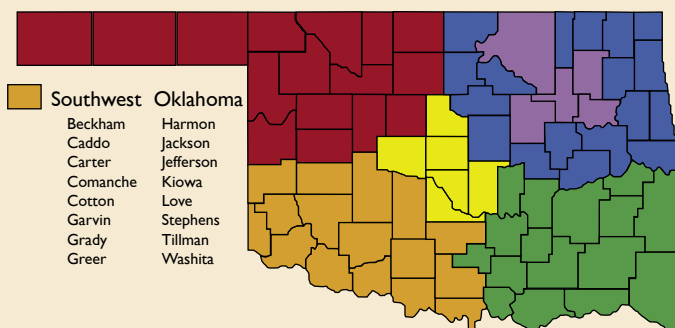
Southwest Oklahoma Employment and Forecast



**Gross Regional Product (GRP)** is one measure of economic activity and may be delineated as to the expenditure source of the activity. Household spending, business spending, government spending, and trade activity (exports minus imports) account for the sources of economic activity.

Southwest Oklahoma's GRP totaled \$11.570 billion in 2000 and increased \$830 million, or 5.2%, by 2002. Between 2000-2002, household spending accounted

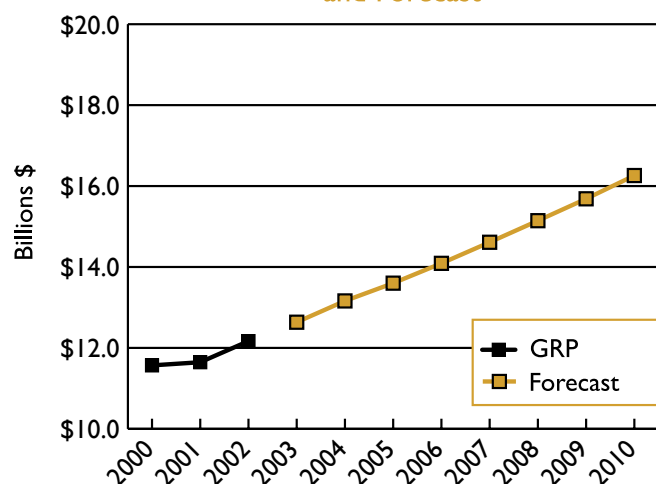
## Southwest Oklahoma



for 58.7% of the region's GRP. Similarly, business spending accounted for 12.7% and government spending 46.5% of the region's GRP, which is largely accounted for by the presence of two military installations in the region.

Southwest Oklahoma's GRP is projected to increase from \$12.635 billion in 2003 to \$16.260 billion in 2010. This represents a 28.7% increase over the projected time frame and an annual average growth rate of 3.7%.

Southwest Oklahoma GRP and Forecast



**Real Disposable Income** represents income available for consumption or savings for the region. In 2000, Real Disposable Income equaled \$5.871 billion and increased 8.7%, or \$508 million, by 2002. On a per

# Economic Forecast Series

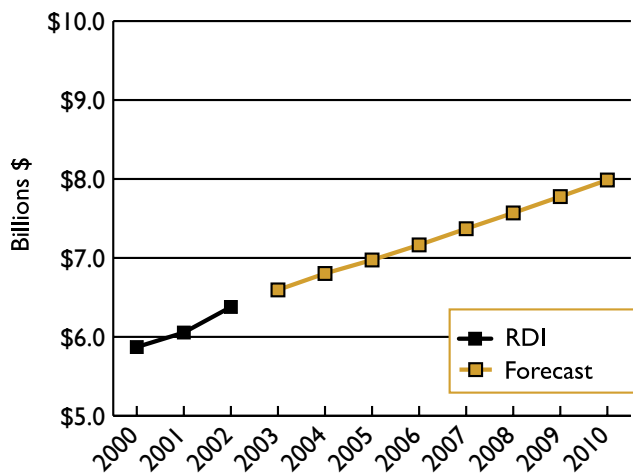
## 2003-2010 Forecast

## Southwest Oklahoma

capita basis, personal income increased from \$14,088 in 2000 to \$15,190 in 2002.

Southwest Oklahoma's Real Disposable Personal Income is forecasted to increase from \$6.595 billion in 2003 to \$7.987 billion in 2010. This represents a 21.1% growth rate over the time period. Over the same time period, per capita personal income is projected to grow from \$15,614 in 2003 to \$18,424 in 2010.

Southwest Oklahoma RDI  
and Forecast



**Population** in Southwest Oklahoma is estimated to have increased from 416,749 people in 2000 to 419,939 people in 2002, which translates into a 0.8% population increase. Nearly all of this population increase, totaling 3,190 people, may be attributable to the number of births exceeding the number of deaths by 9,476 people in the region. Since total population increased less than the number of births exceeding deaths, Southwest Oklahoma experienced a loss of 6,286 migrants from the region.

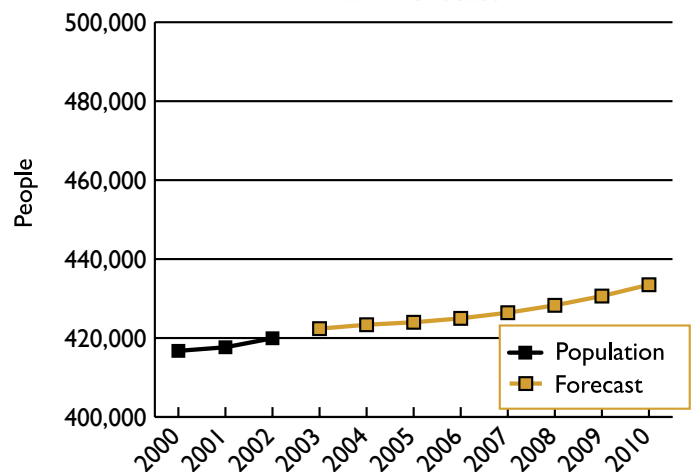
Economic migrants are defined as those people moving to, or from, a geographic region for relatively better economic opportunities when compared to other

regions in the nation. Southwest Oklahoma lost 6,353 economic migrants to other areas of the nation. The region also lost 578 retired migrants, but managed to attract an estimated 871 international migrants over the 2000-2002 time frame.

Between 2003 and 2010, Southwest Oklahoma's population is projected to increase by 11,121 people from 422,378 people in 2003 to 433,499 people in 2010. Most of this population gain is projected to occur from international migrants and from the birth rate exceeds the death rate. Net economic migration is projected to be negative between 2003 and 2009 as people continue to leave the region for better relative economic opportunities elsewhere.

The 2010 population estimate would correspond to a 4.0% population gain between 2000 and 2010.

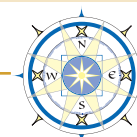
Southwest Oklahoma Population  
and Forecast



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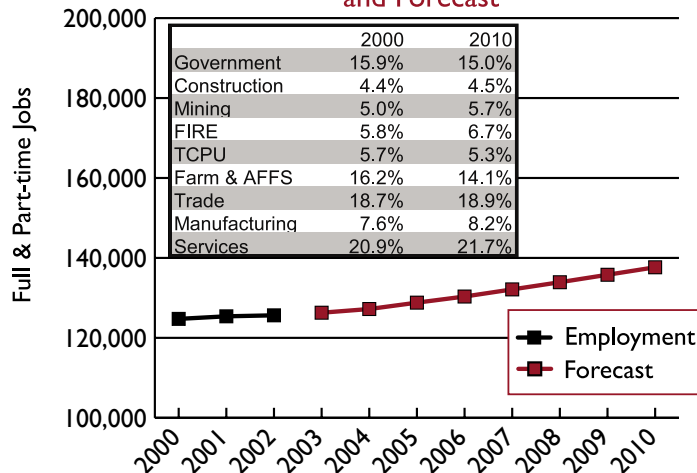
# Economic Forecast Series

## 2003-2010 Forecast

**Employment** in Northwest Oklahoma equaled 124,745 jobs in 2000. With the state's economy dipping into recession, the region only managed to add 891 jobs by 2002. Projected job gains between 2002 and 2003 total 655 jobs for the region's economy.

Northwest Oklahoma's employment is projected to increase 11,364 jobs, or 9.0%, between 2003 and 2010. In the shorter term, the region's economy is expected to add an additional 923 jobs between 2003 and 2004.

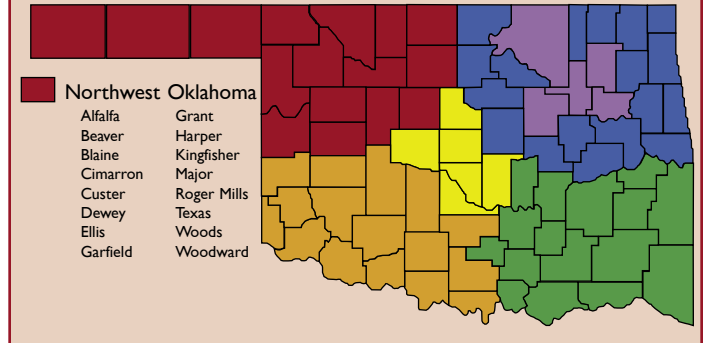
Northwest Oklahoma Employment and Forecast



**Gross Regional Product (GRP)** is one measure of economic activity and may be delineated as to the expenditure source of the activity. Household spending, business spending, government spending, and trade activity (exports minus imports) account for the sources of economic activity.

Northwest Oklahoma's GRP totaled \$6.825 billion in 2000 and increased \$356 million, or 3.5%, by 2002. Between 2000-2002, household spending accounted for 54.5% of the region's GRP. Similarly, business spending accounted for 13.0%, government spending

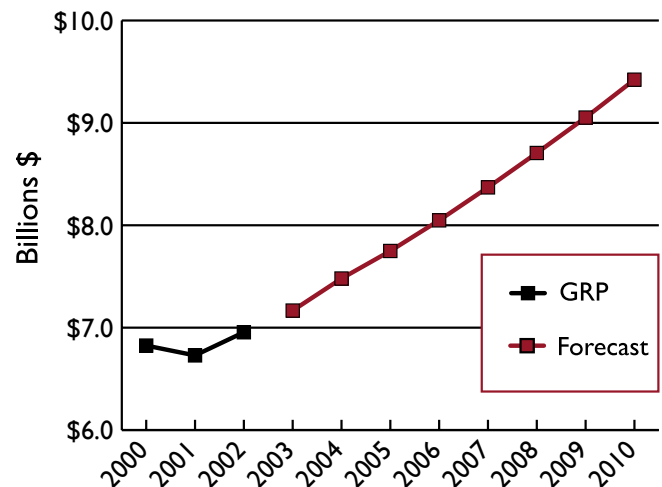
## Northwest Oklahoma



21.5%, and trade activity 11.0% of the region's GRP.

Northwest Oklahoma's GRP is projected to increase from \$7.167 billion in 2003 to \$9.422 billion in 2010. This represents a 31.5% increase over the projected time frame and an annual average growth rate of 4.0%.

Northwest Oklahoma GRP and Forecast



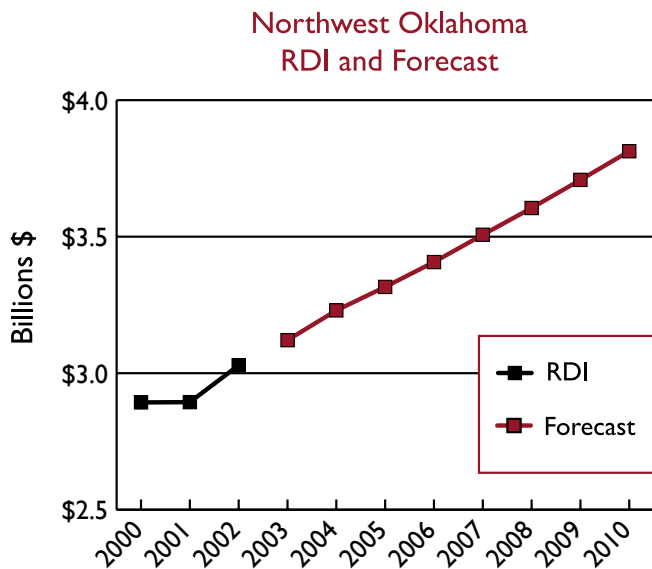
**Real Disposable Income** represents income available for consumption or savings for the region. In 2000, Real Disposable Personal Income equaled \$2.893 billion and increased 4.7%, or \$136 million, by 2002. On a per capita basis, personal income increased from \$14,417 in 2000 to \$15,152 in 2002.

# Economic Forecast Series

## 2003-2010 Forecast

## Northwest Oklahoma

Northwest Oklahoma's Real Disposable Personal Income is forecasted to increase from \$3.121 billion in 2003 to \$3.813 billion in 2010. This represents a 22.2% growth rate over the time period. Over the same time period, per capita personal income is projected to grow from \$15,626 in 2003 to \$18,758 in 2010.



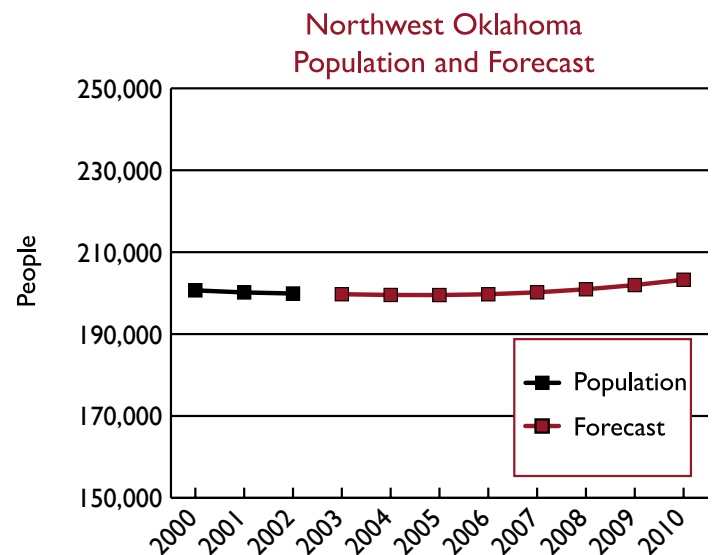
**Population** in Northwest Oklahoma is estimated to have decreased from 200,672 people in 2000 to 199,903 people in 2002, which translates into a 0.4% population loss. While the number of births exceeded the number of deaths in the region by 2,957 people, there was a net migration out of the region of 3,726 people, causing the population decrease.

Economic migrants are defined as those people moving to, or from, a geographic region for relatively better economic opportunities when compared to other regions in the nation. Northwest Oklahoma lost 4,142 economic migrants to other areas of the nation between 2000 and 2002. The region also lost 698 retired migrants, but managed to attract an

estimated 1,219 international migrants over the 2000-2002 time frame.

Between 2003 and 2010, Northwest Oklahoma is projected to reverse the population loss with an increase of 3,540 people from 199,729 people in 2003 to 203,269 people in 2010. However, most of this population gain is projected to occur from international migrants (2,859 people) entering the region and from the birth rate exceeding the death rate. Net economic migration is projected to be negative between 2003 and 2009 as people continue to leave the region for better relative economic opportunities elsewhere.

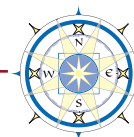
The 2010 population estimate would correspond to a 1.3% population gain between 2000 and 2010.



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