RESEARCH

Southwestern Oklahoma State University
Center for Economic & Business Development
Director: Dr. Marvin Hankins

# *Economic Impact of the Oklahoma Agriculture Enhancement & Diversification Program and the Cooperatives & Farms that it Supports*

---

**Prepared for:**

Oklahoma Department of Agriculture

---

**Prepared by:**

Jon Chiappe
Stephen Nelson

---

December 2003

SWOSU
Southwestern Oklahoma State University

EXECUTIVE SUMMARY

Agriculture represents an important part of Oklahoma's heritage and continues to play an important part of Oklahoma's economy heading into the 21st Century. There were 87,000 Oklahoma farms and ranches accounting for $4.1 billion in agricultural output in 2002. More than ninety percent of the 87,000 farms in Oklahoma fall under the USDA's definition of a small farm, which is a farm that has less than $250,000 in annual sales. (Economic Research Service, USDA, "Oklahoma State Fact Sheet", http://www.ers.usda.gov/StateFacts/OK.htm.) Unfortunately for Oklahoma's small farms, and in turn Oklahoma's rural communities, commodity markets continue to place increasing pressure for these farms to consolidate and the communities to disappear. This is discussed in a national context in the report "Value Added: Opportunities and Strategies" published by the Arthur Capper Cooperative Center at Kansas Sate University in 2000 where it is noted that:

> "The trend toward fewer, larger, and increasingly corporate farms has created a concern that many midsize family-owned farms will disappear. Already less than 2 percent of all farms account for nearly 40 percent of the value of U.S. output." (Coltrain, Barton & Boland, Arthur Capper Cooperative Center, Kansas State University, "Value Added: Opportunities & Strategies", June, 2000, http://www.agecon.ksu.edu/accc/kcdc/PDF%20Files/VALADD10%202col.pdf.)

The National Governors Association's Center for Best Practices notes in their February 2003 issue brief "Innovative State Policy Options to Promote Rural Economic Development" three promising strategies for rural development. The third strategy is to:

> "Reinvigorate the agricultural sector through diversification and value-added agriculture practices. There is more to farming today than simply growing commodity crops. Farmers know they can earn more by growing different types of crops or by raising nontraditional species of livestock. Other farmers are directly processing their crops into finished products that they market themselves. To support this new agricultural environment, states can provide the capital and technical assistance that allow farmers to follow these new paths to wealth creation." (Paul Kalomiris, Center for Best Practices, NGA, Issue Brief, February, 2003, http://www.nga.org/cda/files/0203RURALDEV.pdf.)

Capturing value is not without challenges as noted by the Michigan State University Extension's Value Added Agriculture website:

> "What are the challenges facing farmers in value added agriculture? It requires sound marketing savvy. Getting a new product into the highly competitive retail market is very difficult. USDA estimates that at least two out of every three new food products introduced into the market fail due to lack of customer appeal. Only one in five new businesses succeeds for more than five years. Failure to do market research and the lack of a sound business plan are leading causes for failure." (http://www.msue.msu.edu/valueadded/faq's.htm.)

Oklahoma has taken a proactive role in meeting the challenges posed by the changing face of agriculture by developing the Oklahoma Agriculture Enhancement & Diversification Program in 2000, which is administered by the Oklahoma Department of Agriculture. This program offers financial support to cooperatives, family farms, and researchers to "improve uses for agricultural products, expand the state's production of value-added products and to encourage diversified farming." The financial support, in the form of interest-free loans and grants, is awarded through Cooperative Marketing Loans, Marketing & Utilization Loans, Basic & Applied Research Loans/Grants, or Farm Diversification Grants. (For a description of each program, please see Appendix B.)

This program received state appropriated funds of $150,000 in 2000, $244,492 in 2001, and $230,375 in 2002. With this funding, the Oklahoma Department of Agriculture's AED program and the cooperatives, farms, and miscellaneous groups that the program supports and that are operational have generated the following economic impacts:

Employment impacts totaling 604 jobs in 2003
Output impacts of $25.8 million in 2003
Disposable Personal Income impacts totaling $8.4 million in 2003
State Income Tax impacts of $0.3 million in 2003
Population Impacts of 200 people retained in 2003

## Table of Contents

## Oklahoma Employment Impacts (2003-2010)

The Oklahoma Agriculture Enhancement & Diversification (AED) Program, as well as the cooperatives, farms and miscellaneous groups that receive financial support through the program,[1] have sizeable employment impacts upon Oklahoma's economy.[2] (Please see Appendix B for a definition of the AED programs and a distinction between the types of activities.)

The employment impacts from Operational activities average 756.3 jobs over the 2003-2010 time frame. Beginning in 2003, these employment impacts total 604.0 jobs and increase to 764.7 jobs by 2004, after which time the Operational employment impacts level off.

On average, Operational Cooperative Marketing (OCM) activities account for 74.4%, or 562.8 jobs, of the total Operational employment impacts. Of these jobs, OCM activities support 266.7 Agriculture, Forestry & Fishery Service jobs, 216.4 Farm jobs, and 34.5 Government jobs.[3]

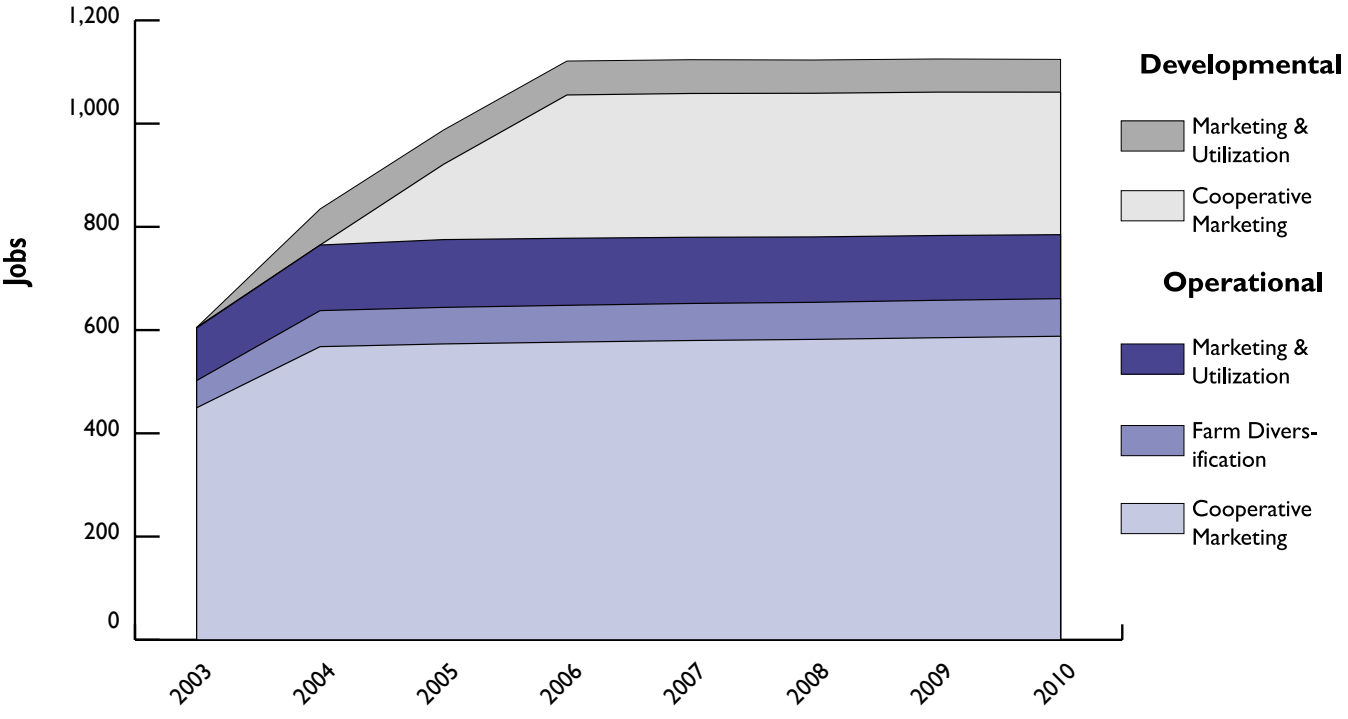
Similarly, Operational Marketing & Utilization (OMU) activities account for 16.4%, or 124.3 jobs, of the total Operational employment impacts. Of these jobs, OMU activities support 58.8 Non-Durable Manufacturing jobs, 19.6 Farm jobs, and 13.3 Service jobs.

The last Operational activity, Operational Farm Diversification (OFD) activities, account for the remaining 9.2%, or 69.2 jobs, of the total Operational employment impacts. Of these jobs, OFD activities support 49.8 Farm jobs, 5.5 Agriculture, Forestry & Fishery Service jobs, and 4.0 Government jobs.

Developmental employment impacts[4] average 284.8 jobs over the 2004-2010 time frame. The Developmental Cooperative Marketing impacts average 219.2 jobs while Developmental Marketing & Utilization impacts average 65.6 jobs.

Research-related impacts (not graphed) support 1.5 Service jobs in 2003 and disappear afterwards.

### State Employment Impacts 2003-2010



## Oklahoma Output Impacts (2003-2010)

Combined economic activity generated by the three Operational components averages $28.604 million/year over the 2003-2010 time frame. The Net Present Value[5] (NPV) of this economic activity, as measured by Output, equals $185.325 million. The measure of Output includes consumption spending, investment spending, government spending, net exports (exports minus imports), and intermediate demand.

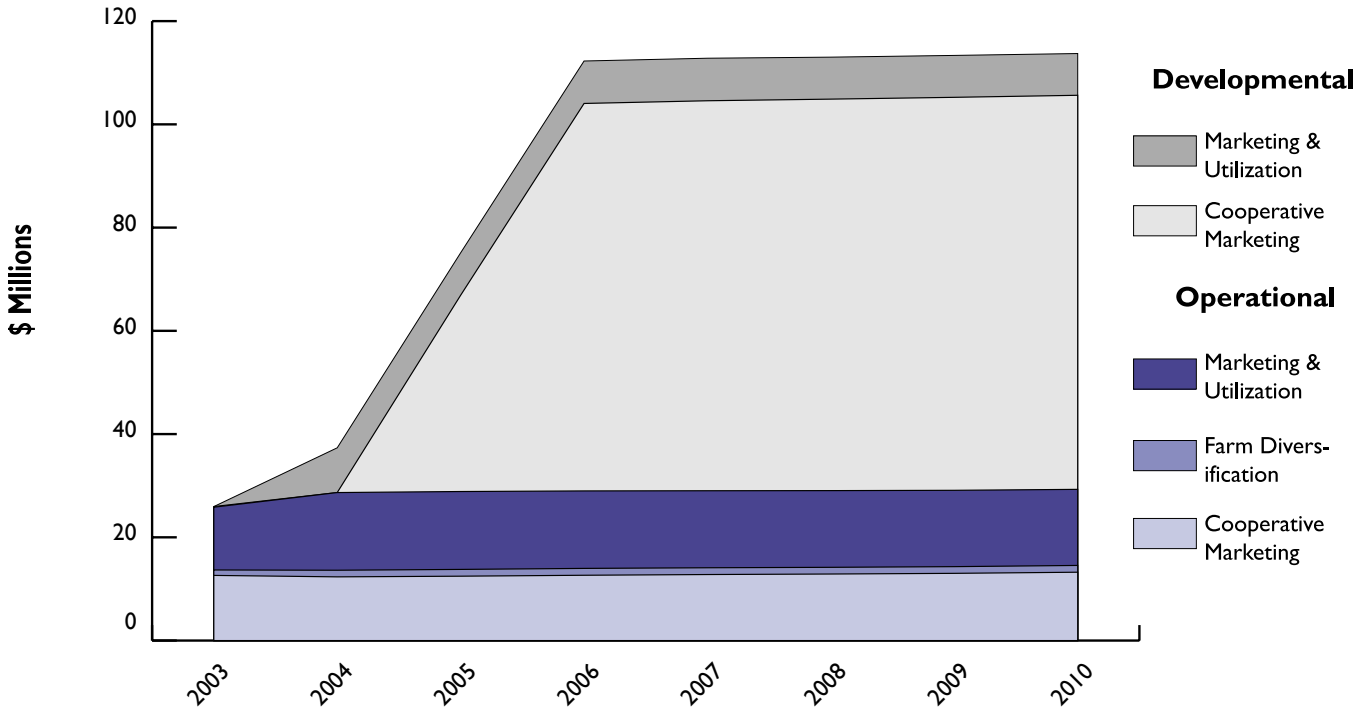
Operational Cooperative Marketing activities account for 44.6% of the total Operational activity. Consumption spending supported by OCM activities average $7.134 million/year (NPV=$44.995 million), while net exports average $7.945 million/year (NPV=$51.513 million).

Operational Marketing & Utilization activities account for 50.9% of the total Operational activity. Consumption spending supported by OMU activities average $2.385 million/year (NPV=$15.193 million), and net exports average $3.868 million/year (NPV=$29.924 million).

Operational Farm Diversification activities account for 4.5% of the total Operational activity. Consumption spending supported by OFD activities average $0.919 million/year (NPV=$5.807 million), and net exports average $0.679 million/year (NPV=$4.384 million).

As is apparent from the accompanying graph, Developmental Cooperative Marketing (DCM) activities dominate the state output impacts, which is due to the nature of the modeled activity. As a new meat processing facility, American Native Beef, the only DCM activity, would buy Oklahoma Beef, which would show up as an economic impact upon intermediate demand. Of the $69.49 million/year on average of increased output attributable to the DCM activity, intermediate demand is projected to account for an average of $57.904 million/year.

### State Output Impacts 2003-2010



## Disposable Personal Income Impacts (2003-2010)

Disposable personal income is an after-tax figure and represents that portion of earned income that can be spent or saved.

Operational cooperatives & farms receiving financial support through the Oklahoma Agriculture Enhancement & Diversification Program have a respectable disposable personal income impact averaging $14.553 million/year between 2003 and 2010. The net present value of these Operational disposable personal income impacts equals $91.667 million.

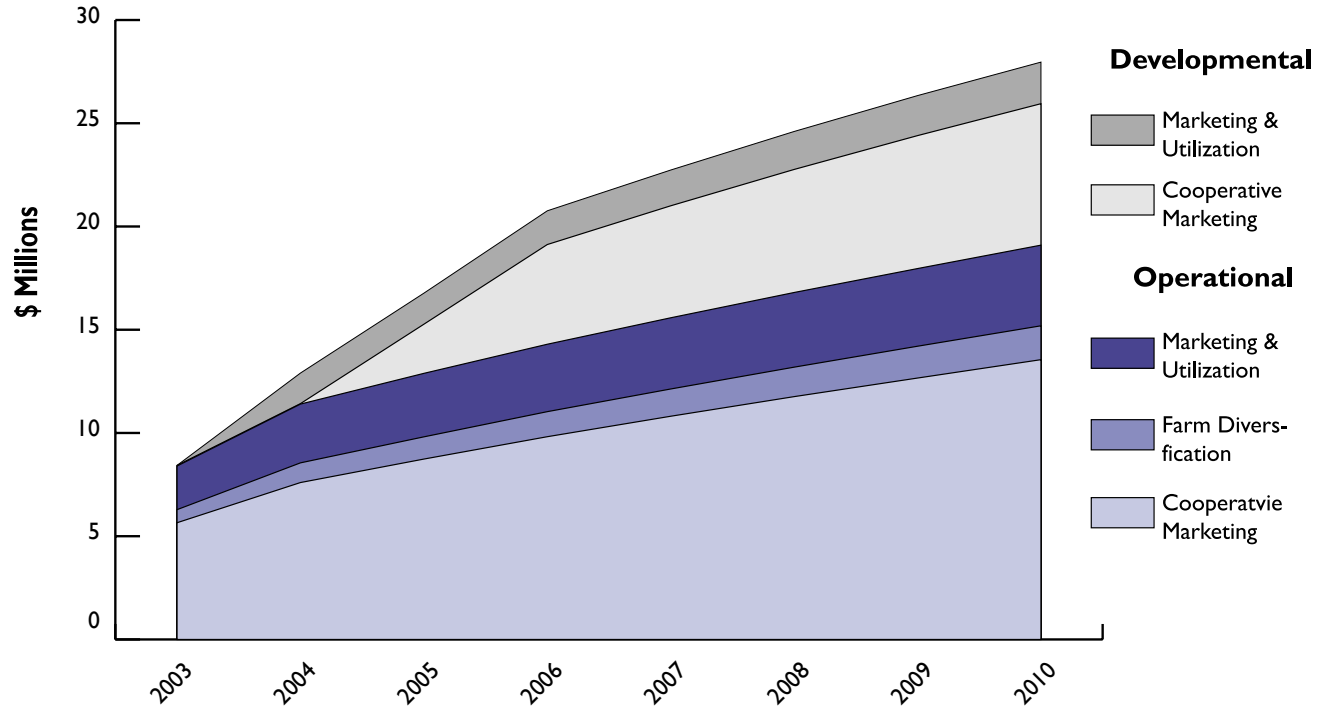
Operational Cooperative Marketing activities not only account for the greatest share, 69.2%, of the total Operational impacts upon disposable personal income, but are also projected to experience the greatest growth rate, 139.7%, between 2003 and 2010. Disposable personal income impacts attributable to OCM activities are projected to grow from $5.653 million in 2003 to $13.550 million in 2010.

Operational Marketing & Utilization activities account for 22.4% of the total Operational impacts and experience a 54.0% growth rate over the time period. OMU activities generate $2.113 million of disposable personal income in 2003 and grow to $3.906 million in 2010.

Operational Farm Diversification activities account for the remaining 8.4% of total Operational impacts and experience a 93.5% growth rate over the time frame. OFD activities generate $0.633 million of disposable personal income in 2003 and grow to $1.225 million in 2010.

Developmental disposable personal income impacts average $5.509 million/year over the 2004-2010 time frame and have a net present value of $33.442 million. Developmental Cooperative Marketing (DCM) activities account for 72.5% of these total Developmental impacts, while Developmental Marketing & Utilization (DMU) activities account for the remaining 27.5%.

### Disposable Personal Income Impacts 2003-2010



## State Tax Impacts (2003-2010)

The previously discussed employment, output, and income activity generates tax revenue[6] for federal, state, and local governments. While this section is primarily focused on state tax revenue, federal income taxes generated from Operational activities are estimated to be $600,100 in 2003 and $729,800 in 2010.

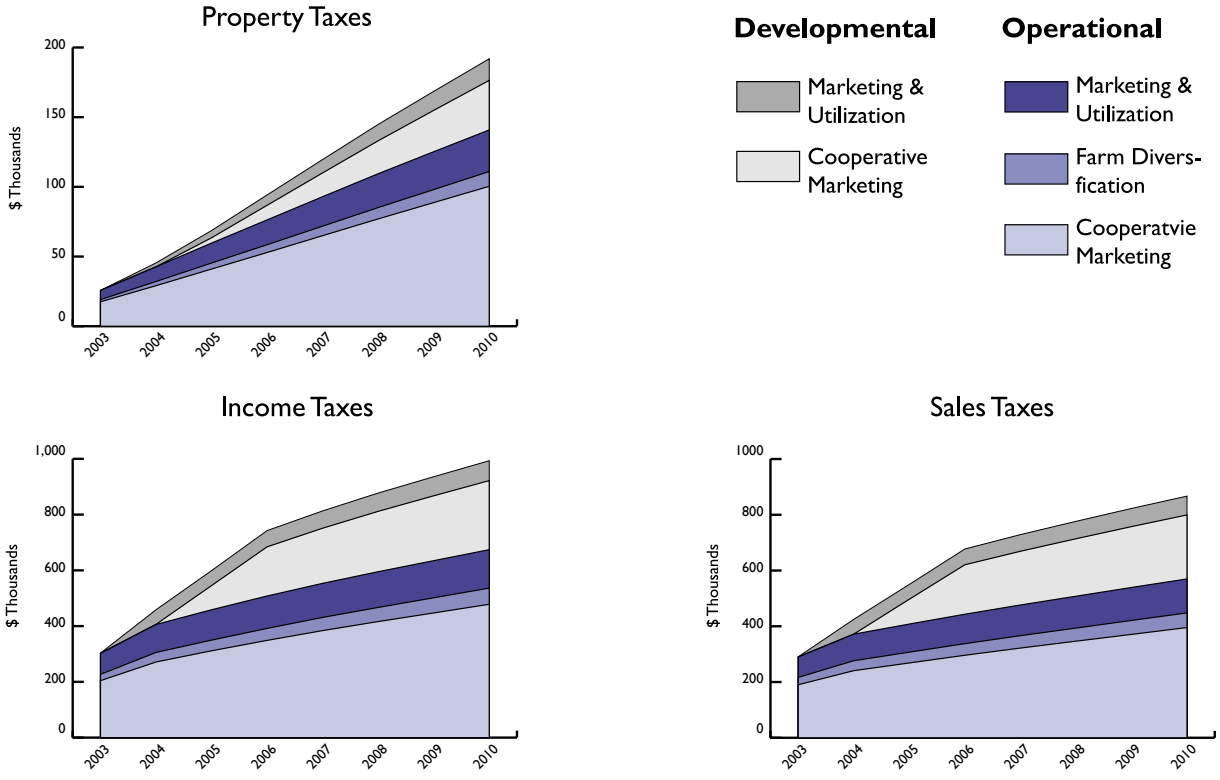
Property taxes[7] are generated from the creation of new residential and non-residential capital stock and are collected by local governments. Operational activities are projected to support $25,600 of property tax revenue in 2003 and $140,800 of property tax revenue in 2010. If the Developmental activities become operational, an additional $51,000 of property tax revenue may be collected by local governments in 2010.

In 2003, Operational activities are estimated to generate $302,100 in Oklahoma income tax revenue. By 2010, Oklahoma income tax revenue supported by the Operational activities is projected to increase to $674,200.

Consumption spending generates sales tax revenue for the state, county and city governments. The three combined Operating activities are projected to generate $289,600 in sales tax revenue in 2003. Of this amount, $160,000 is collected by the state, and the remaining $125,600 is remitted to the cities and counties. By 2010, total Operating activities are projected to generate $569,700 sales tax revenue with state of Oklahoma retaining $312,600 of that amount.

Total income and sales tax revenue generated from the Operational activities is projected to equal $462,100 in 2003. By 2010, Oklahoma income and sales tax revenue is projected to increase to $986,800. In addition to this state tax revenue, counties and cities in Oklahoma are projected to collect property and sales tax revenue totaling $155,200 in 2003 and $397,900 in 2010.[10]

## State Tax Impacts 2003-2010



## Population Impacts (2003-2010)

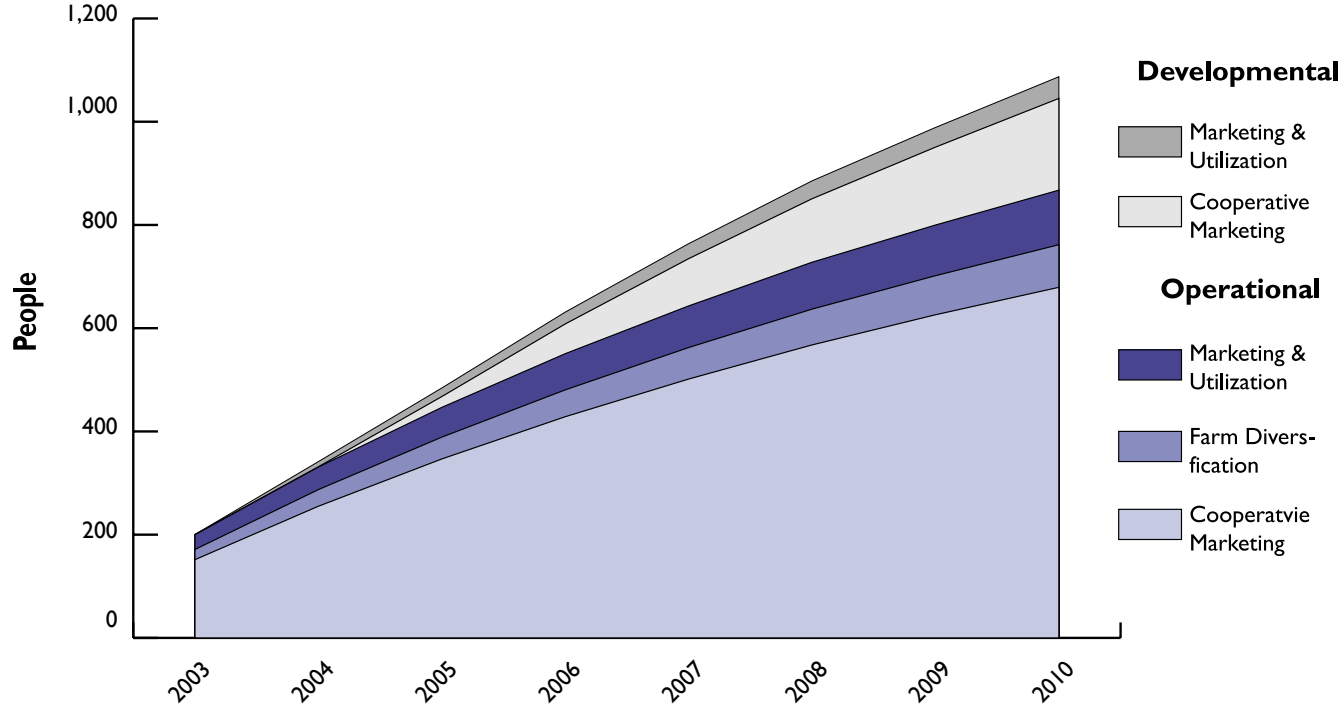
Population impacts[11] are defined as people that the state would retain or gain as a result of the economic activity generated from the cooperatives and farms that receive financial support from the Agriculture Enhancement & Diversification Program. The graph below shows both the people that the state would retain (Operational) and the people the state would gain (Developmental) from these economic activities.

In 2003, Oklahoma will have retained 152 people because of Operational Cooperative Marketing (OCM) activities, 20 people because of Operation Farm Diversification (OFD) activities, and 29 people because of Operational Marketing & Utilization (OMU) activities. It is assumed that these 200 people would leave Oklahoma if their farms or programs had not received funding from the AED programs.

The Operational impacts on the state grow until the end of the forecast in 2010 when the impacts total 867 people. Of this 2010 population impact, 679 people, or 78.3% of the total, are retained because of OCM activities, 83 people, or 9.6% of the total, are retained because of OFD activities, and 106 people, or 12.2% of the total, are retained because of OMU activities.

In addition to the Operational projects, there are also Developmental projects whose success cannot be guaranteed. The projects in the developmental stage, the gray areas in the graph below, represent additional population impacts that could occur if these Developmental projects are successful. These impacts total 220 people by 2010 with 178 people, or 80.9%, resulting from Developmental Cooperative Marketing activities and 42 people, or 19.1%, resulting from Developmental Marketing & Utilization activities.

### State Population Impacts 2003-2010



## Economic Impact Summary

The combined Operating impacts of the Oklahoma Agriculture Enhancement and Diversification Program as well as the cooperatives and farms that receive financial support through the program have an average (2003-2010) impact of $746,960/year in state tax revenues. Of this amount, $516,492/year is income tax revenue and $230,468/year is sales tax revenue. These tax revenues do not include federal, county or city tax revenues. In addition to these state tax revenues, the Oklahoma Agriculture Enhancement & Diversification Program and the organizations receiving financial support through the program were shown to:

Account for an average of 756 jobs per year between 2003-2010 in Oklahoma
Contribute $185.325 million (NPV) in output between 2003-2010 in Oklahoma
Contribute $91.667 million (NPV) in disposable personal income between 2003-2010 in Oklahoma
Contribute $3.255 million (NPV) in state income tax revenue between 2003-2010 in Oklahoma
Contribute $2.851 million (NPV) in total sales tax revenue between 2003-2010 in Oklahoma
Contribute $0.499 million (NPV) in property tax revenue between 2003-2010 in Oklahoma
Retain 867 people in Oklahoma by 2010

In addition to the above Operational impacts, the Developmental projects that have received financial support from the Oklahoma Agriculture Enhancement & Diversification Program could also have sizeable economic impacts if they become Operational. If they become operational, these Developmental projects could generate an additional $296,806/year, on average, in state tax revenue between 2004 and 2010. Of this amount, $198,890/year would be income tax revenue and $97,916 would be sales tax revenue. These Developmental impacts could also:

Account for an average of 284 jobs per year between 2004-2010 in Oklahoma
Contribute $361.773 million (NPV) in output between 2004-2010 in Oklahoma
Contribute $33.442 million (NPV) in disposable personal income between 2004-2010 in Oklahoma
Attract 220 people to Oklahoma by 2010

## Endnotes

1. All of the economic impacts presented in this report represent the **combined** economic impacts of the Oklahoma Agriculture Enhancement & Diversification Program and the cooperatives, farms, and miscellaneous groups receiving financial support through the program. Please see Appendix B (page 16) for the methodology of this economic impact report.

2. While the economic impacts are reported for the state as a whole, the variables used in the modeling process were placed in the appropriate sub-state region where the activity is taking place.

3. 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.)

4. The graphed economic impacts are linear from one year to the next. In the employment graph, it might appear that there are employment impacts in 2003 for Developmental Marketing & Utilization activities. However, there are not any Developmental Marketing & Utilization employment impacts in 2003. There are projected to be 69.8 jobs in 2004 attributable to Developmental Marketing & Utilization activities, and as a linear graph, it would appear as a steadily increasing line between 2003 and 2004.

5. 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 4.23% on December 5, 2003
B. 7-Year Treasury (Constant Maturity) equaled 3.76% on December 5, 2003
C. Bank Prime Loan rate equaled 4.00% on December 5, 2003
D. Moody's Seasoned Aaa Corporate Bond Yield equaled 5.59% on December 5, 2003

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. 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.

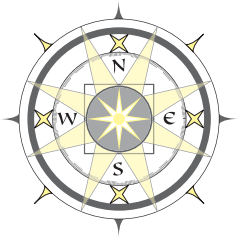
8. The Oklahoma Tax Commission (http:www.oktax.state.ok.uspublicat.html) reports $2,703,464,621 of income tax was collected in the 2001-2002 fiscal year. The Bureau of Economic Analysis (http://www.bea.gov) reports personal income in Oklahoma equaled $86,749,508,000 in 2001. The proportion of income 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.

9. 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/ftparea/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 = $5,929,000) by cost/gallon. The result is equal to number of gallons (3,163,820 gallons). Multiplying these gallons by state tax/gallon results in gasoline tax revenue (average = $537,849). A higher cost of fuel/gallon results in lower, and more conservative, number of gallons consumed, which in turn results in lower tax revenue.

10. A weighted average county tax rate and a weighted average city tax rate was applied to estimate sales tax revenue remitted to counties and cities in Oklahoma. The weight in the calculation is the dollar amount of sales occurring in each county.

11. The population impacts from Operational activities that were active before the creation of the Oklahoma Agriculture Enhancement & Diversification Program represent people that the REMI model projects would leave the state for relatively better economic opportunities (jobs, income) elsewhere. The population impacts from new Operational activities since the program's creation represent new people attracted to the state for relatively better economic opportunities. Likewise, the population impacts from Developmental activities represent people the REMI model predicts would be attracted to the state to take advantage of the relatively better economic opportunities. All of the population impacts are reported as positive impacts.

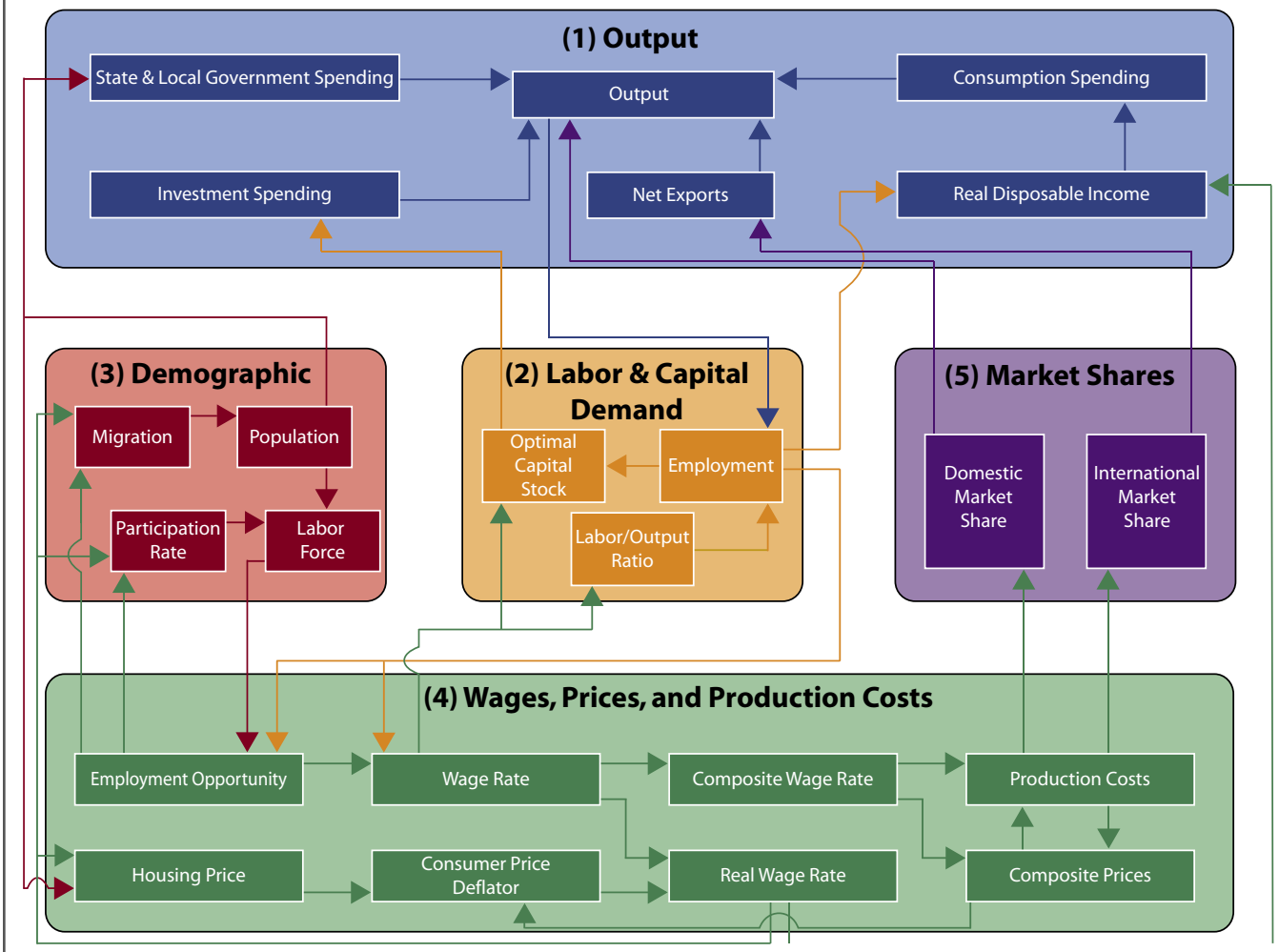


## REMI Model Linkages

Regional 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 below.

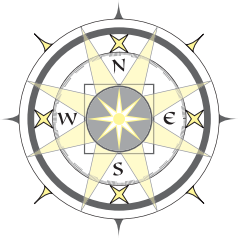
As can be seen in Figure 1, the REMI model contains five "blocks". Each block has its own variables and interactions so that changing any one variable in the model not only affects other variables in its own block, but also variables in other blocks. For example, if XYZ Corporation expanded its operations 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.

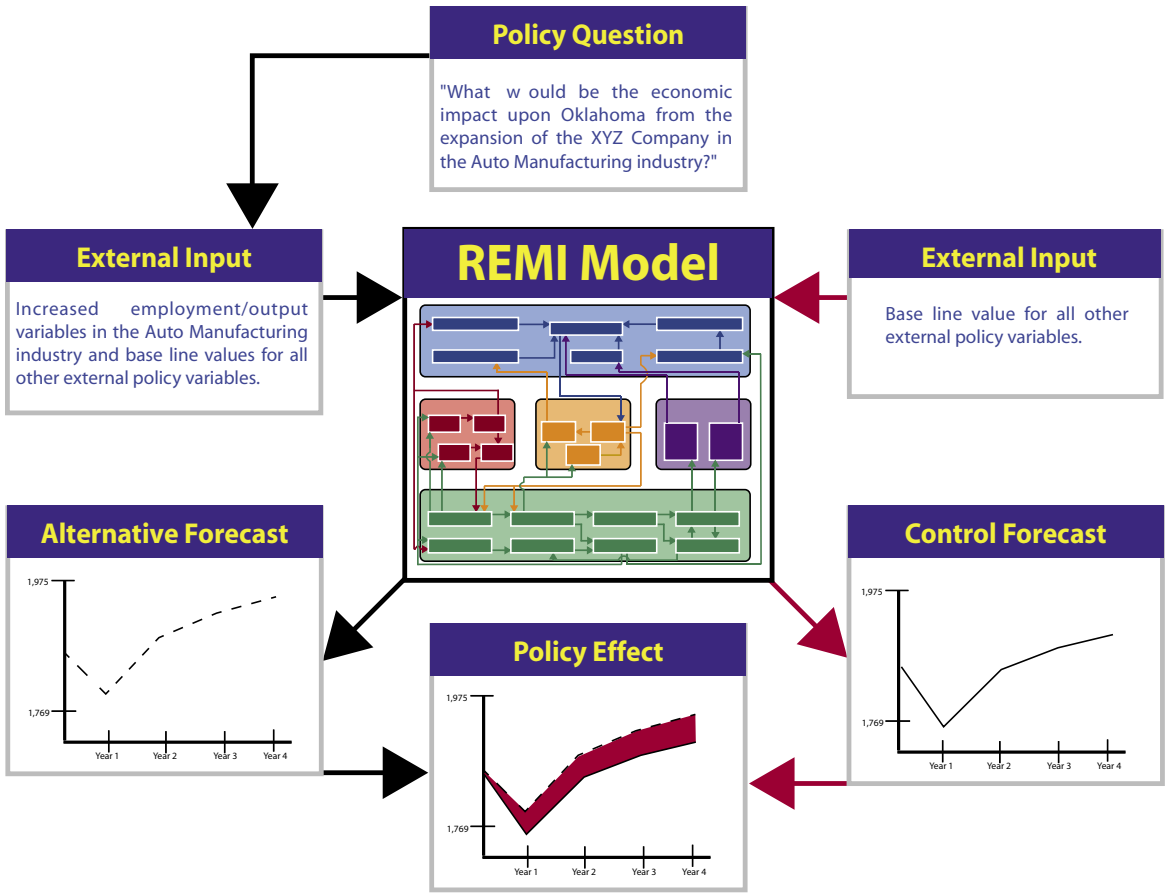
As can be seen in Figure 2, the process begins with a policy question and concludes with a comparison between a control forecast and an alternative forecast.

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**



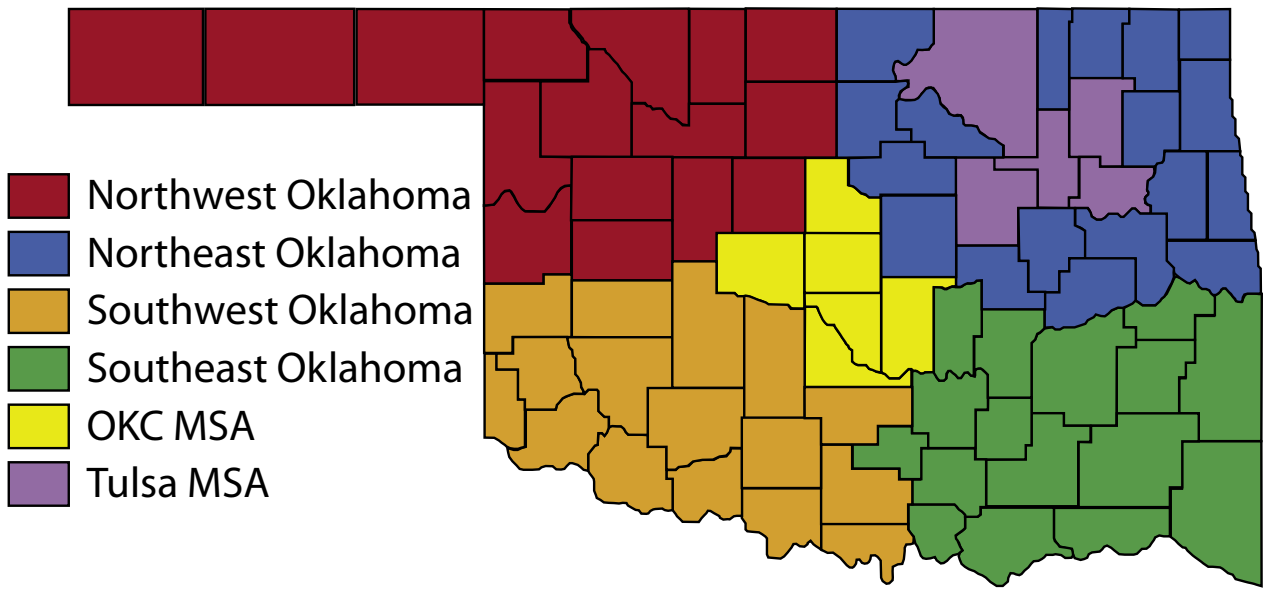
## Oklahoma REMI Model

As is observable from the accompa nying 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 metro area and the Tulsa metro area correspond to the Metropolitan Statistical Areas (MSAs) defined by the Office of Management & Budget.

The Office of Management & Budget (OMB) defines metropolitan areas in the United States based upon the size of the economies and commuting patterns. The two largest MSAs by population in Oklahoma are Oklahoma City MSA and 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).

Additionally, any of the regions may be combined with any combination 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 would be combined to be reported as Eastern Oklahoma.

**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 disaggregated 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.

The economic impacts contained in this report model the combined impacts of each of the four Oklahoma Agriculture Enhancement & Diversification Programs (AED) as well as the economic impacts of the cooperatives, farms, and miscellaneous groups receiving financial support through the AED programs.

Before explaining the methodology used to model this report's economic impacts, it may be beneficial to provide additional information regarding the four loan/grant programs comprising the Oklahoma Agriculture Enhancement & Diversification Program. The following information was supplied by the Oklahoma Department of Agriculture.

Cooperative Marketing:
This loan may be used by a group to organize a cooperative to market a product. The loan may also be used to formulate or implement a marketing plan if the cooperative is already in place.

Marketing & Utilization:
This loan must be used for product development and/or implementation of a sound marketing plan for Oklahoma agricultural products and by-products.

Basic & Applied Research:
This loan/grant should focus on research efforts on use and processing of agricultural products and by-products. Applications must include research with reasonable expectations of resulting in a marketable product.

Farm Diversification:
Grants will be awarded to those projects dealing with the diversification of a family farm to non-traditional crops or on-farm value-added processing of agricultural commodities.

The cooperatives, farms and miscellaneous groups receiving financial support through each AED Program were split into four broad categories for modeling purposes.

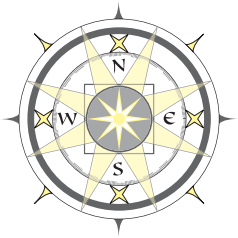
Those cooperatives, farms and miscellaneous groups that are presently operating were placed into an ***Operational*** category. One example of an Operational entity in the Marketing & Utilization program is Kennedy Foods, which used the funds from the AED Program to develop displays for the marketing of peanut butter slices. The Oklahoma Department of Agriculture reports that "the store displays will provide better visibility for the peanut butter slices and will allow Kennedy Foods the opportunity to display their product in additional stores without the expense of 'slotting fees'."

Those cooperatives, farms and miscellaneous groups working on projects that are not yet operational, but are still organized and are working towards the goal of becoming operational, were placed into a ***Developmental*** category. In the report, these economic impacts were separated from the Operational economic impacts and were graphed in shades of grey. The explanation for this is that these are projects that have a greater degree of uncertainty associated with them. However, if these projects are successful, their economic impacts may be significant. One example of a Developmental entity is American Native Beef, which was funded through the Cooperative Marketing program. American Native Beef, if it becomes operational, would be a cow and bull meat processing facility established as a closed-cooperative of local ag-producers with expected sales of $68,000,000.

Those cooperatives, farms and miscellaneous groups were unsuccessful in the marketplace were placed into a ***No Longer Operational*** category. Work was performed upon these projects, but those involved decided not to pursue the project based on research results or another factor.

All research related work was placed into a ***Research*** category, which has the potential to develop into a marketable product, but the modeling process only accounts for the amount spent on research.

Given this information, the variables used to model the economic



impacts can now be discussed.

Cooperative Marketing:
The ***Operational*** organizations receiving assistance through the Cooperative Marketing program include Mid-Ok Coop, Harmon County Economic Development, and Ken Stamper. Variables used to model the combined economic impacts include: (1) State Government Spending, (2) Investment Spending upon non-residential capital stock, (3) Dairy Farm Sales, (4) Firm Sales - Utility, (5) Firm Sales - Ag, Forestry & Fishing, (6) Production Costs - Ag, Forestry & Fishing, (7) Federal Civilian Spending, and (8) Nullify Investment Spending. The Nullify Investment Spending variable avoids double counting construction related activity if it is input into the model manually (variable 2),

American Native Beef is the only ***Developmental*** group receiving support through the Cooperative Marketing program. Variables used to model these potential economic impacts include: (1) State Government Spending, (2) Investment Spending upon non-residential capital stock, (3) Federal Civilian Spending, (4) Production Costs, (5) detailed industry output in the Meat Products industry, and (6) Nullify Investment Spending.

Marketing & Utilization:
Ten Marketing & Utilization projects are classified as ***Operational***. Variables used to model this program's economic impacts include: (1) State Government Spending, (2) Investment Spending upon non-residential capital stock, (3) Farm Sales, (4) Farm Employment, (5-8) detailed industry output for the Meat Products industry, Bakery Products industry, Beverages industry, and Miscellaneous Food products industry, (9) Production Costs, and (10) Nullify Investment Spending.

Two of the organizations included in the Operational category above also have ***Developmental*** components. Value Added Products may further expand sales with an additional product line and there may be construction activity associated with Enriched Life Foods. Variables used to model these Developmental impacts include: (1) detailed industry output for the Bakery Products industry, and (2) Investment Spending upon non-residential capital stock.

Farm Diversification:
Grant assistance has enabled fifteen family farms to diversify operations and are classified as ***Operational***. Variables used to model this program include: (1) State Government Spending, (2) Farm Employment, (3) Investment Spending upon non-residential capital stock, (4) Production Cost, (5) detailed industry output for the Research & Testing Services industry, and (6) Consumption Spending related to tourism.

One family farm in the above Farm Diversification program also has a ***Developmental*** component, and the variable used was Investment Spending upon non-residential capital stock. However, these economic impacts are not graphed since their magnitude is extremely small compared to the other economic impacts.

As for the ***No Longer Operational*** classifciation, the primary variable used was State Government Spending in the amount that the project received financial support from the state. Because the relative size of the economic impacts associated with this category were small compared to the economic impacts of the other categories, these economic impacts were discussed but were not graphed in the report.

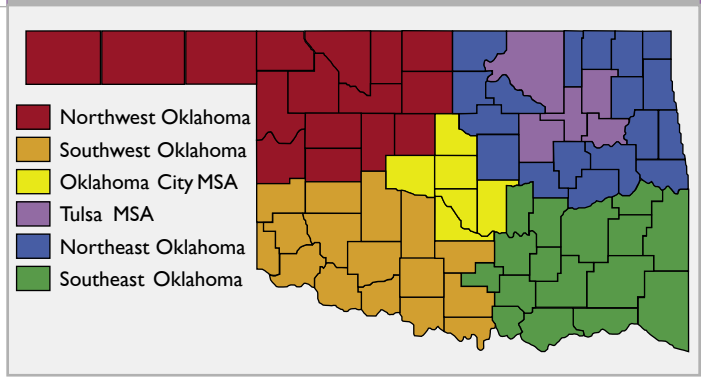
As for the ***Research*** activity, the variable used was a detailed industry output variable for the Research & Testing Services industry. All of the Basic & Applied Research assistance was placed into this category. These impacts were only mentioned in the employment section given the small size of the impacts.

An important assumption regarding this methodology is that none of the projects would have occurred if funding were not available through the Oklahoma AED Program.

# *Economic Forecast Series*

## 2003-2010 Forecast

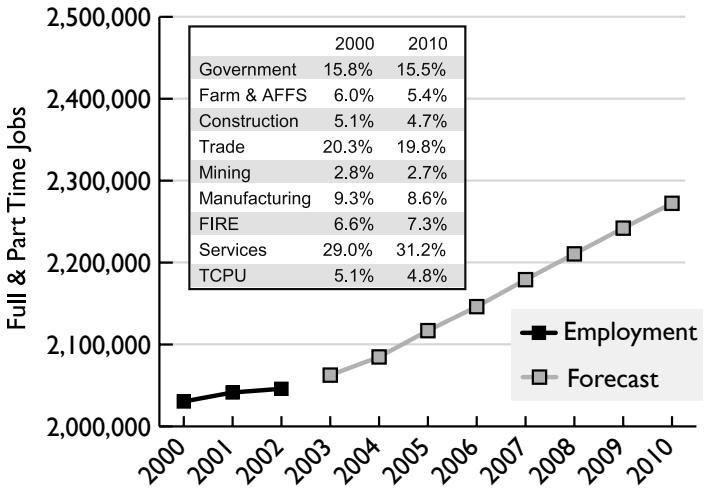
## State of Oklahoma




**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.

Oklahoma Employment and Forecast



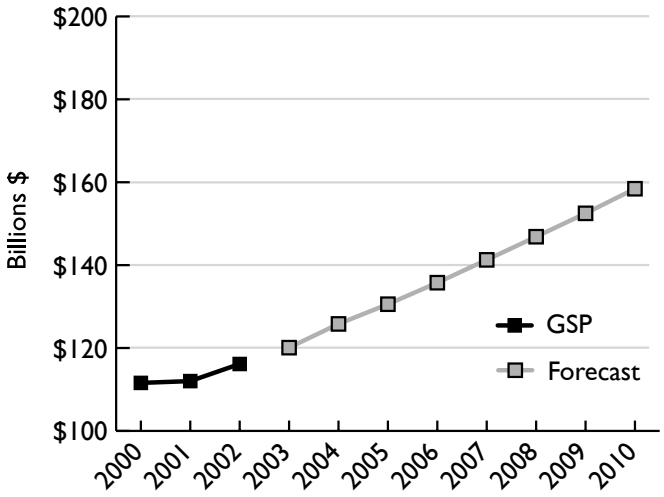

| | 2000 | 2010 |
|---|---|---|
| Government | 15.8% | 15.5% |
| Farm & AFFS | 6.0% | 5.4% |
| Construction | 5.1% | 4.7% |
| Trade | 20.3% | 19.8% |
| Mining | 2.8% | 2.7% |
| Manufacturing | 9.3% | 8.6% |
| FIRE | 6.6% | 7.3% |
| Services | 29.0% | 31.2% |
| TCPU | 5.1% | 4.8% |

**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 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%.

Oklahoma Gross State Product and Forecast



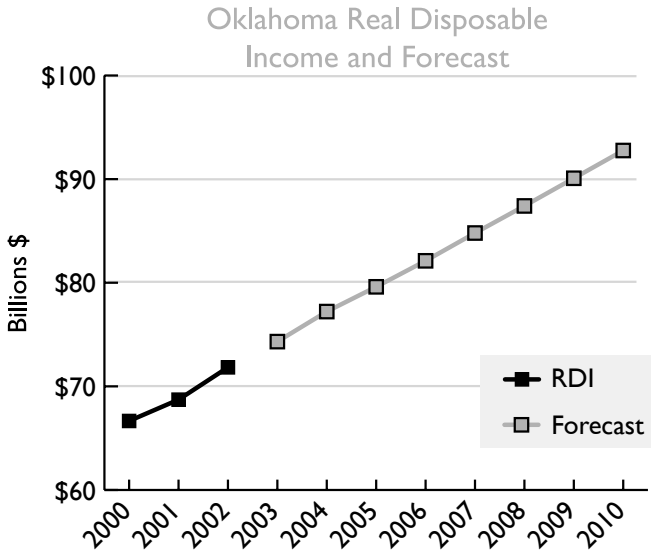

**Real Disposable Income** represents income available for consumption or savings for the entire state. In 2000, Real Disposable Income equaled $66.660 billion and increased 7.8%, or $5.172 billion, by 2002. On a per capita basis, personal income



SWOSU
Southwestern Oklahoma State University

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.

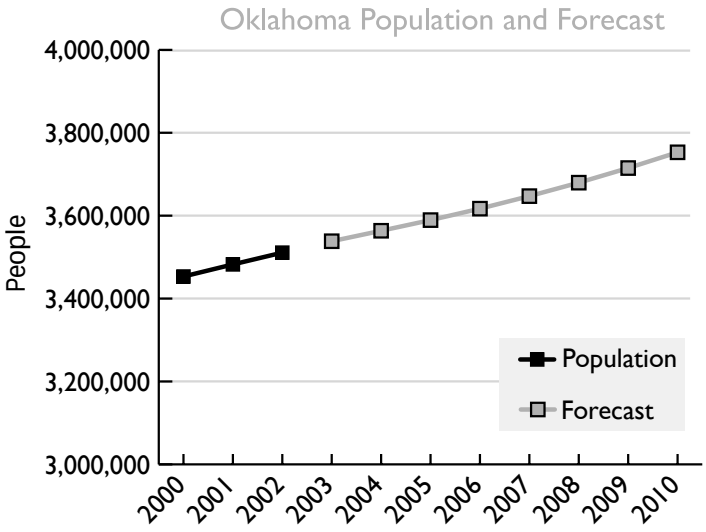



**Population** in the state of Oklahoma is estimated to have increased from 3,453,250 people in 2000 to 3,510,824 people in 2002, which translates into a 1.7% population increase. Much of this population increase, totaling 57,574 people, may be attributable to the number of births exceeding the number 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.

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.




Forecast data presented in this newsletter is provided by the Oklahoma REMI model. Visit our website (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.

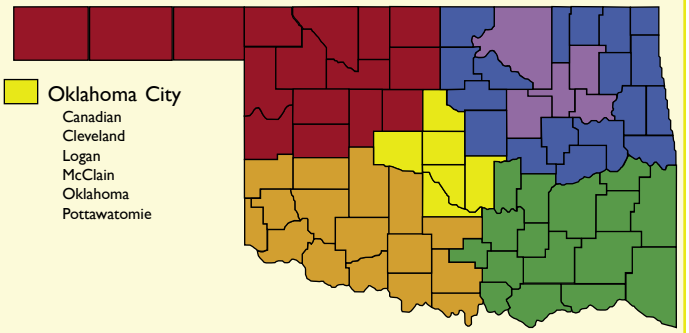
Dr Marvin Hankins - Director

Prepared by:
Jon Chiappe
Stephen Nelson

# Economic Forecast Series

## 2003-2010 Forecast

## Oklahoma City MSA

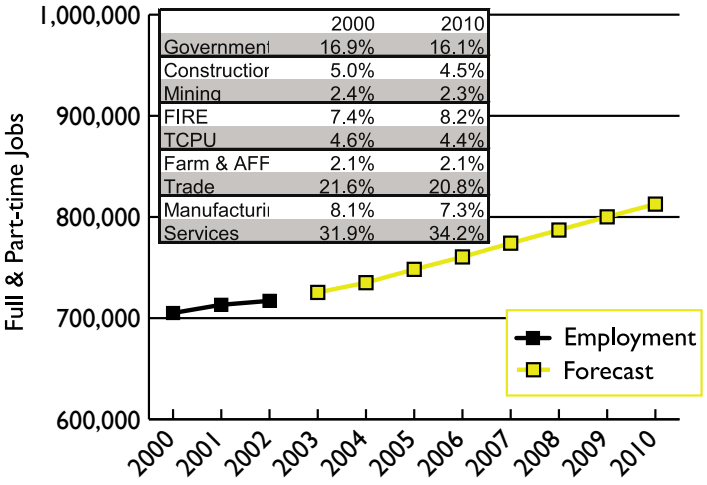



**Employment** in the Oklahoma City MSA equaled 705,077 jobs in 2000. While the state's economy dipped into recession, employment in the metropolitan area fared better than much of the rest of the state with the metropolitan area adding 12,019 jobs by 2002. Projected job gains between 2002 and 2003 total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

| | 2000 | 2010 |
|---|---|---|
| Government | 16.9% | 16.1% |
| Construction | 5.0% | 4.5% |
| Mining | 2.4% | 2.3% |
| FIRE | 7.4% | 8.2% |
| TCPU | 4.6% | 4.4% |
| Farm & AFF | 2.1% | 2.1% |
| Trade | 21.6% | 20.8% |
| Manufacturi | 8.1% | 7.3% |
| Services | 31.9% | 34.2% |

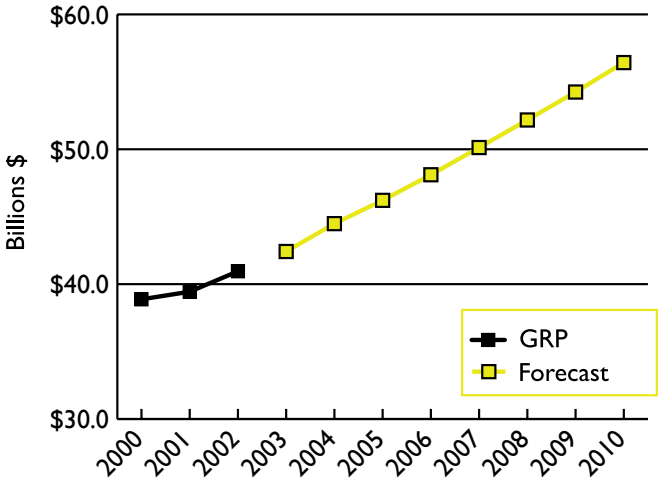



**Gross Regional Product** (GRP) is one measure of economic activity and may be delineated as to the expenditure source of the activity. Household spending, business spending, government spending, and trade activity (exports minus imports) account for the sources of economic activity.

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 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.



SWOSU
Southwestern Oklahoma State University

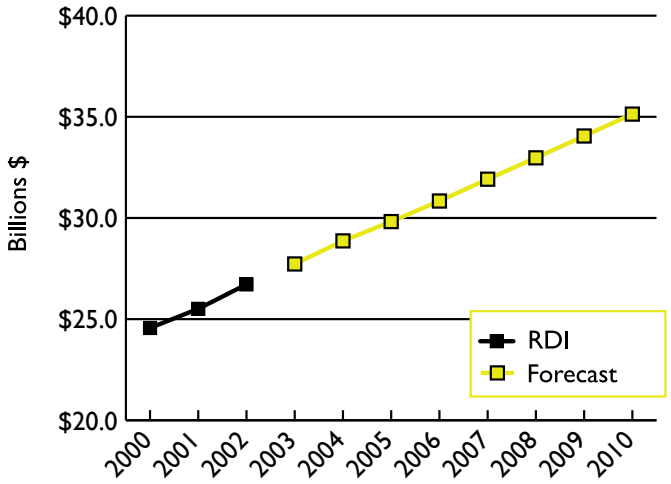
# Economic Forecast Series

## 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.

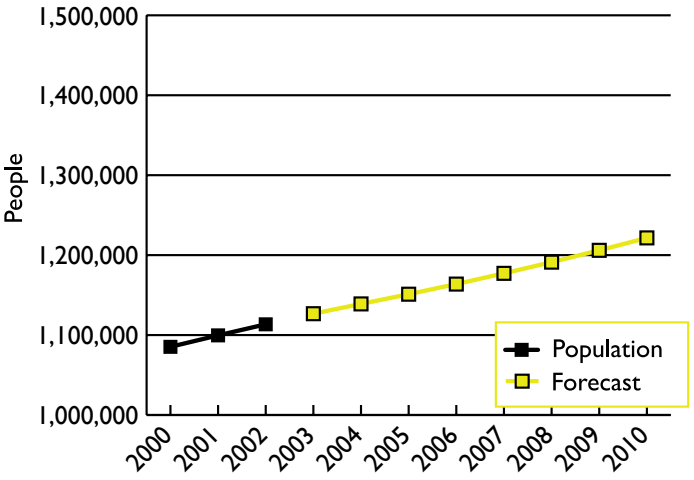
Economic migrants totaled 5,388 people over the time frame and are defined as those people moving to a geographic region for economic opportunities. Relatively better economic opportunities in the Oklahoma City MSA attracted 2,090 people in 2000, 2,537 people in 2001, and 761 people in 2002.

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




Forecast data presented in this newsletter is provided by the Oklahoma REMI model. Visit our website (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.

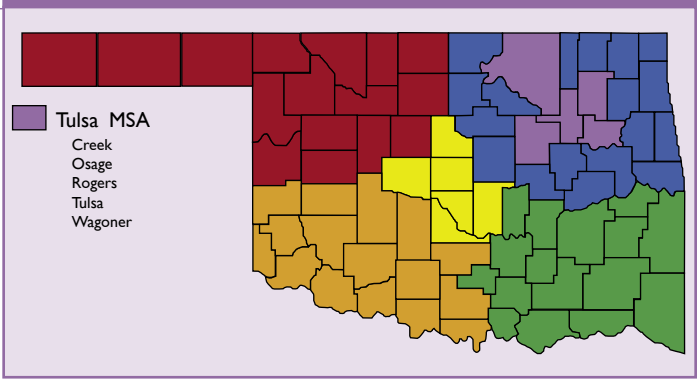

Dr Marvin Hankins - Director

Prepared by:
Jon Chiappe
Stephen Nelson

# *Economic Forecast Series*

## 2003-2010 Forecast

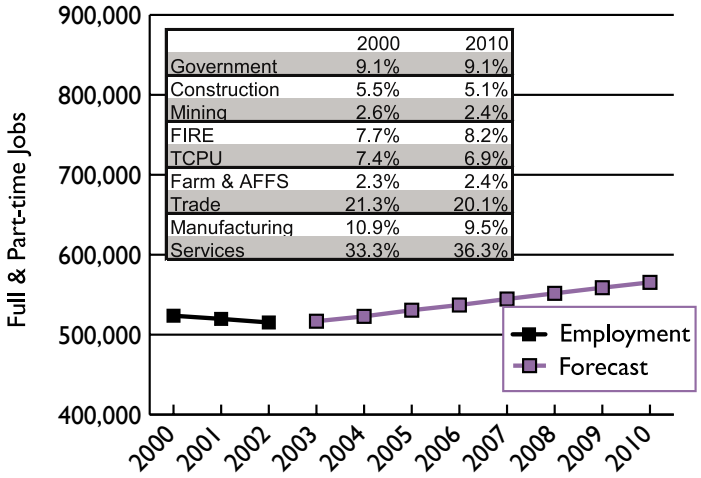
## Tulsa MSA




**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



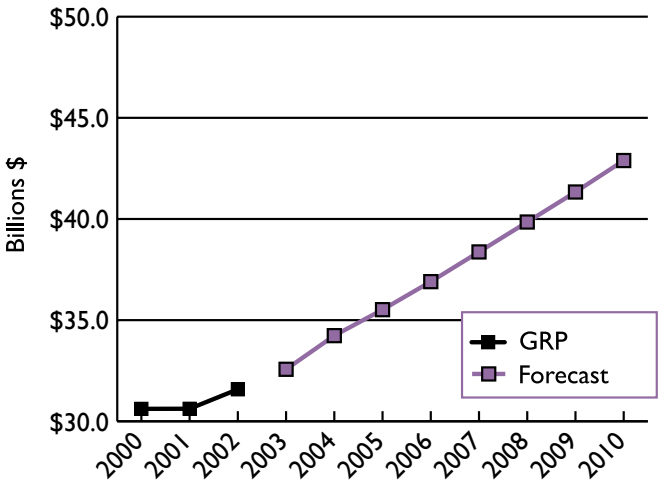

| | 2000 | 2010 |
|---|---|---|
| Government | 9.1% | 9.1% |
| Construction | 5.5% | 5.1% |
| Mining | 2.6% | 2.4% |
| FIRE | 7.7% | 8.2% |
| TCPU | 7.4% | 6.9% |
| Farm & AFFS | 2.3% | 2.4% |
| Trade | 21.3% | 20.1% |
| Manufacturing | 10.9% | 9.5% |
| Services | 33.3% | 36.3% |

**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 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.



SWOSU
Southwestern Oklahoma State University

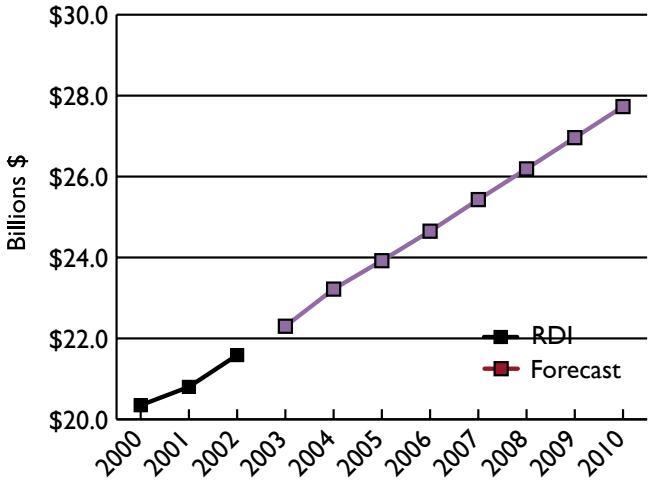
# *Economic Forecast Series*

## 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.

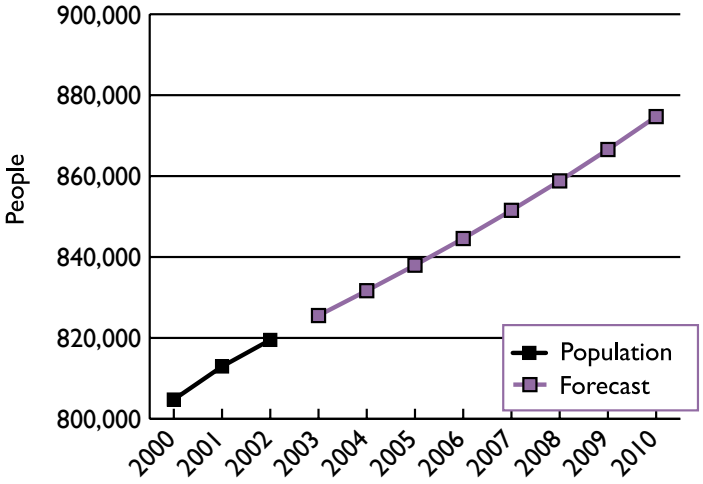
International migrants, estimated at 3,488 people, increased the city's population over the 2000-2002 time frame. Additionally, retired migrants, estimated at 815 people, also provided the Tulsa metro area with a population gain.

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




Forecast data presented in this newsletter is provided by the Oklahoma REMI model. Visit our website (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.

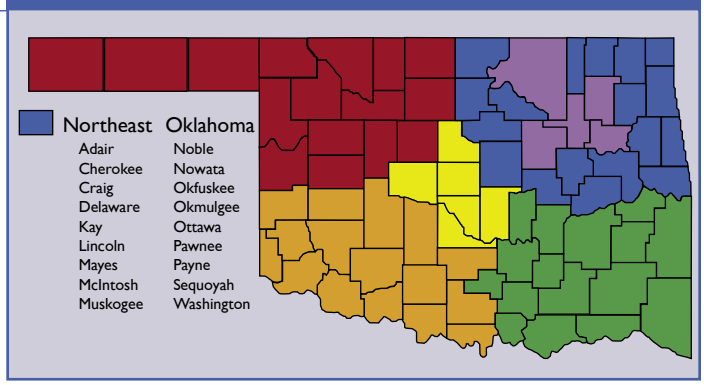

Dr Marvin Hankins - Director

Prepared by:
Jon Chiappe
Stephen Nelson

# *Economic Forecast Series*

## 2003-2010 Forecast

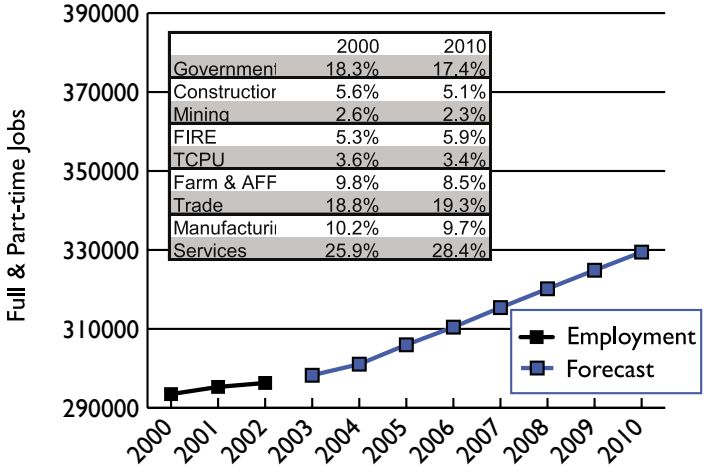
## Northeast Oklahoma




**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.

Northeast Oklahoma Employment and Forecast



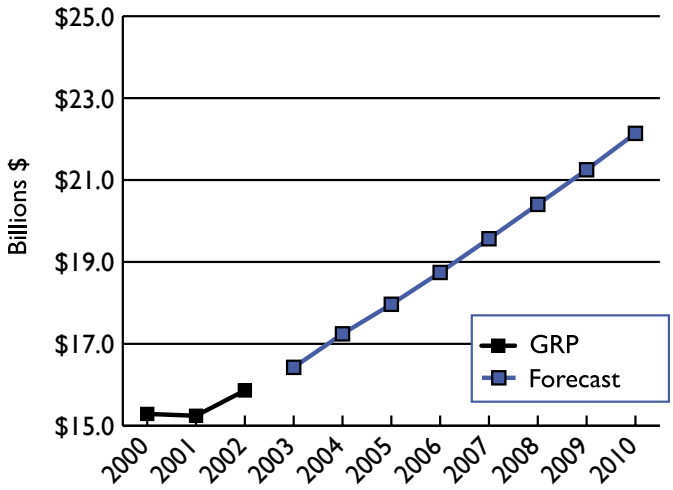

| | 2000 | 2010 |
|---|---|---|
| Government | 18.3% | 17.4% |
| Construction | 5.6% | 5.1% |
| Mining | 2.6% | 2.3% |
| FIRE | 5.3% | 5.9% |
| TCPU | 3.6% | 3.4% |
| Farm & AFF | 9.8% | 8.5% |
| Trade | 18.8% | 19.3% |
| Manufacturi | 10.2% | 9.7% |
| Services | 25.9% | 28.4% |

**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 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%.

Northeast Oklahoma GRP and Forecast




**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



SWOSU
Southwestern Oklahoma State University

# *Economic Forecast Series*

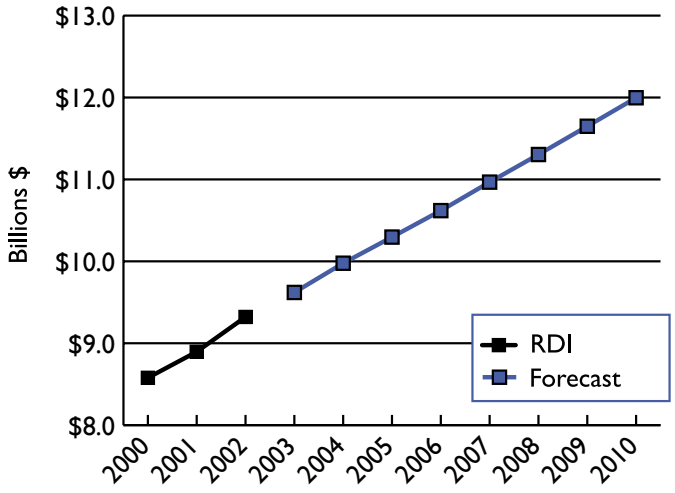
## 2003-2010 Forecast

## 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.

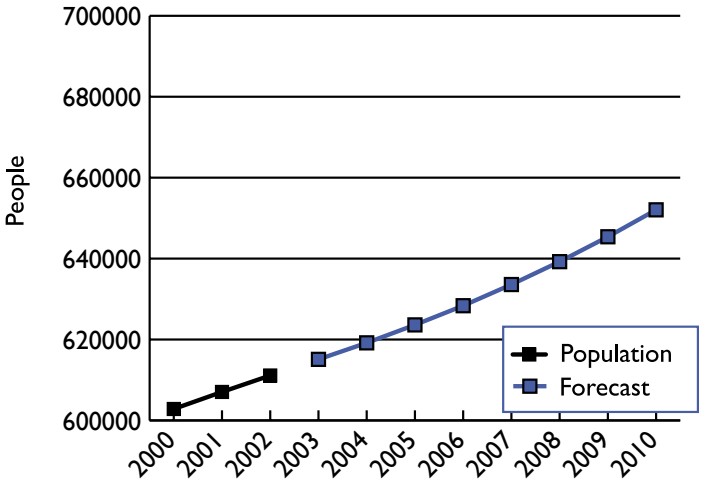
Economic migrants totaled 5,522 people over the time frame and are defined as those people moving to a geographic region for relatively better economic opportunities when compared to other regions in the nation.

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




Forecast data presented in this newsletter is provided by the Oklahoma REMI model. Visit our website (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.

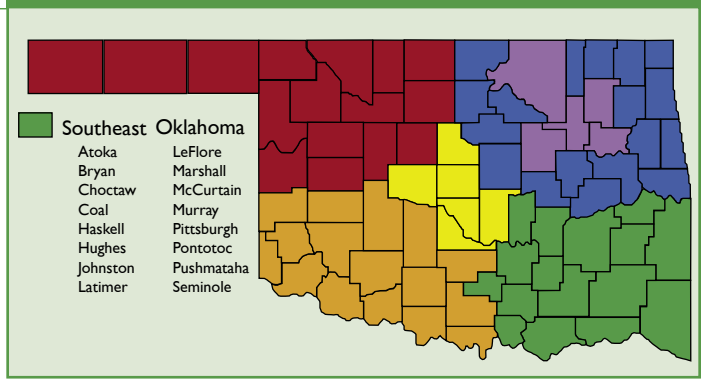

Dr Marvin Hankins - Director

Prepared by:
Jon Chiappe
Stephen Nelson

# *Economic Forecast Series*

## 2003-2010 Forecast

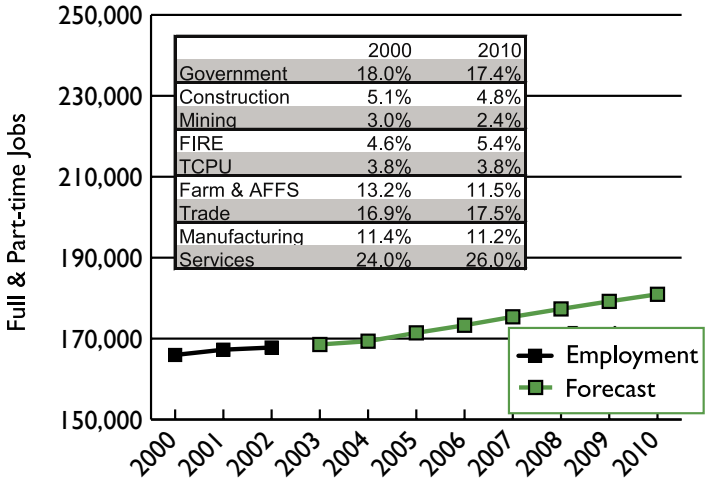
## Southeast Oklahoma




**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



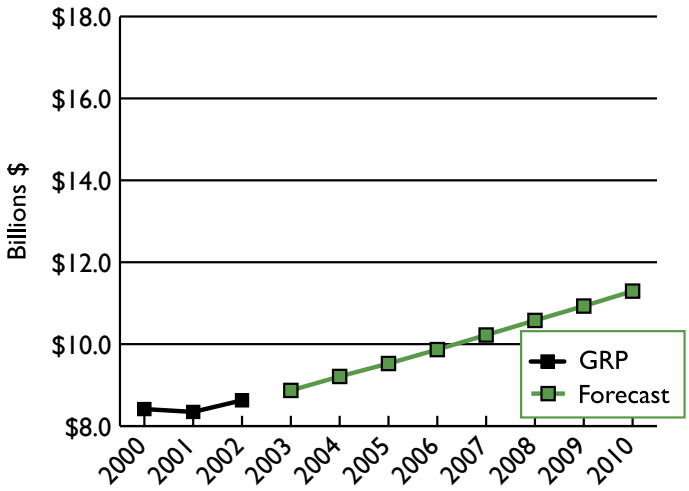

| | 2000 | 2010 |
|---|---|---|
| Government | 18.0% | 17.4% |
| Construction | 5.1% | 4.8% |
| Mining | 3.0% | 2.4% |
| FIRE | 4.6% | 5.4% |
| TCPU | 3.8% | 3.8% |
| Farm & AFFS | 13.2% | 11.5% |
| Trade | 16.9% | 17.5% |
| Manufacturing | 11.4% | 11.2% |
| Services | 24.0% | 26.0% |

**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 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



SWOSU
Southwestern Oklahoma State University

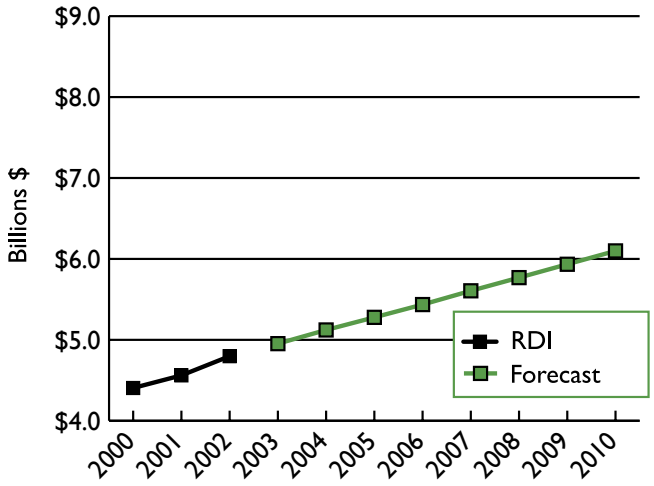
# *Economic Forecast Series*

## 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.

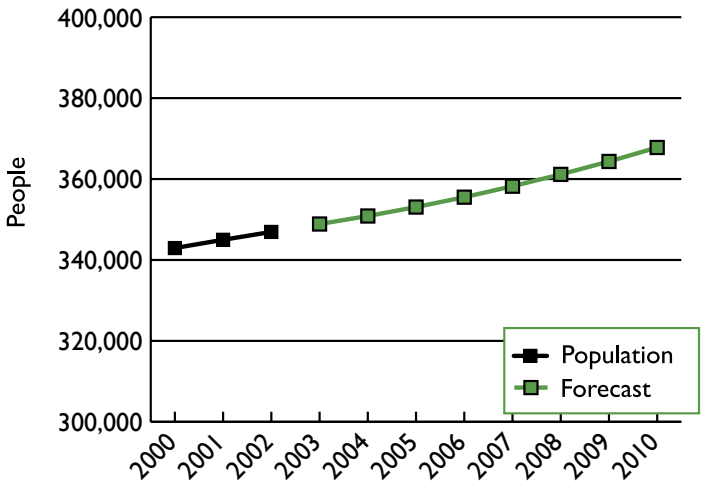
Economic migrants totaled 3,034 people over the time frame and are defined as those people moving to a geographic region for relatively better economic opportunities when compared to other regions in the nation.

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




Forecast data presented in this newsletter is provided by the Oklahoma REMI model. Visit our website (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.

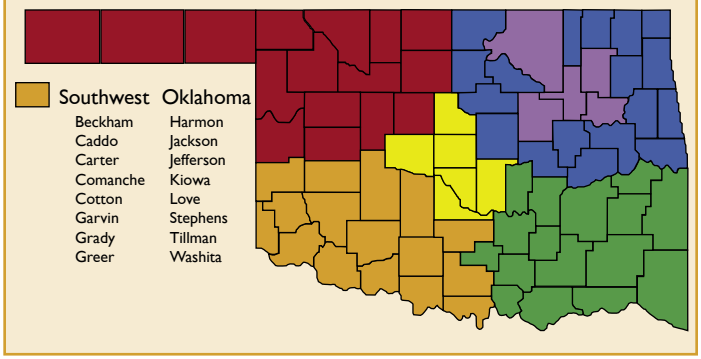

Dr Marvin Hankins - Director

Prepared by:
Jon Chiappe
Stephen Nelson

# *Economic Forecast Series*

## 2003-2010 Forecast

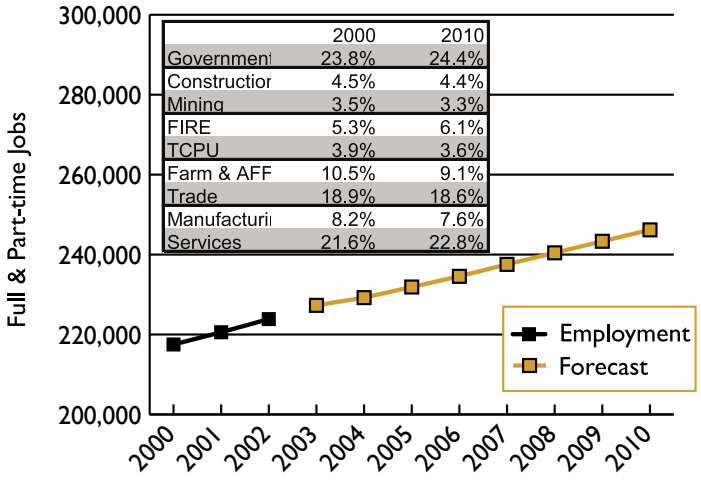
## Southwest Oklahoma




**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



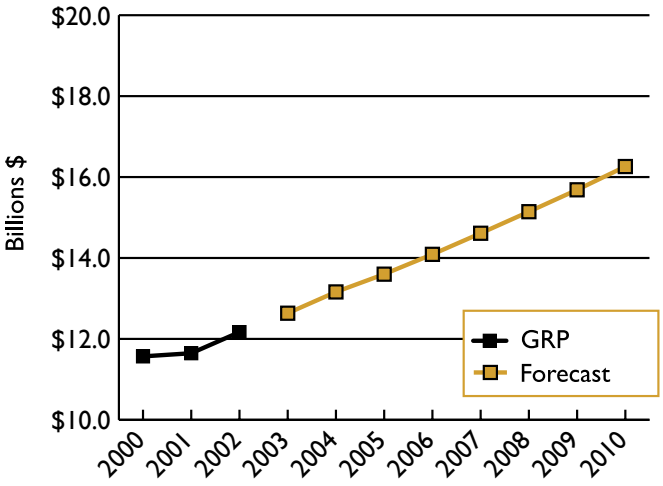

| | 2000 | 2010 |
|---|---|---|
| Government | 23.8% | 24.4% |
| Construction | 4.5% | 4.4% |
| Mining | 3.5% | 3.3% |
| FIRE | 5.3% | 6.1% |
| TCPU | 3.9% | 3.6% |
| Farm & AFF | 10.5% | 9.1% |
| Trade | 18.9% | 18.6% |
| Manufacturing | 8.2% | 7.6% |
| Services | 21.6% | 22.8% |

**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 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



SWOSU
Southwestern Oklahoma State University

# Economic Forecast Series

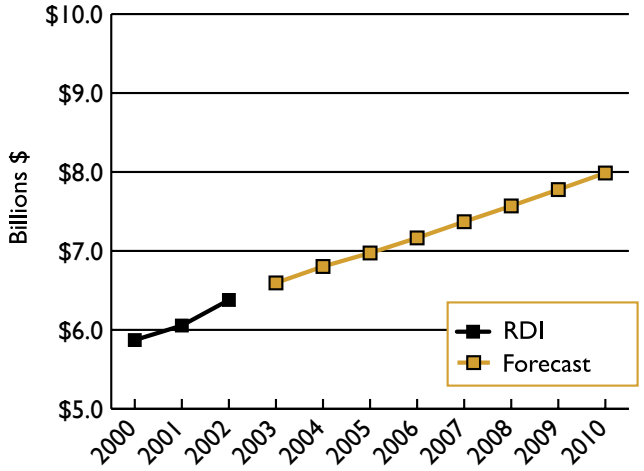
## 2003-2010 Forecast

## 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



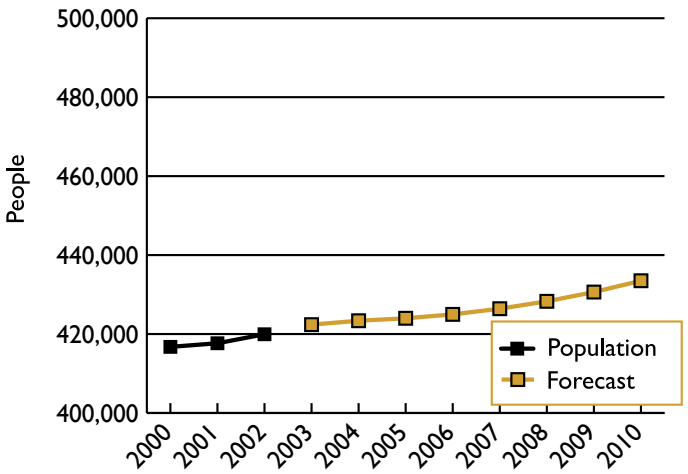

**Population** in Southwest Oklahoma is estimated to have increased from 416,749 people in 2000 to 419,939 people in 2002, which translates into a 0.8% population increase. Nearly all of this population increase, totaling 3,190 people, may be attributable to the number of births exceeding the number 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




Forecast data presented in this newsletter is provided by the Oklahoma REMI model. Visit our website (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.

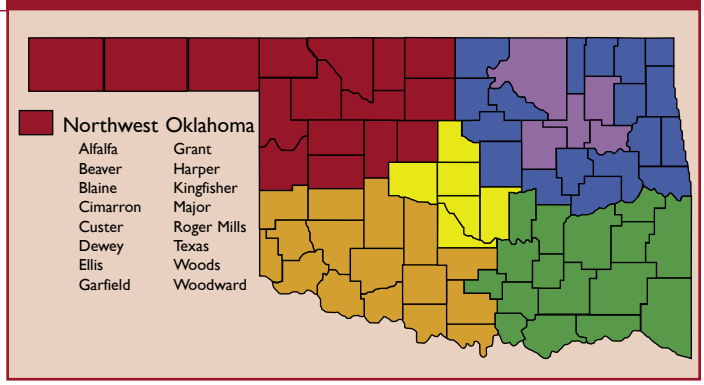

Dr Marvin Hankins - Director

Prepared by:
Jon Chiappe
Stephen Nelson

# *Economic Forecast Series*

## 2003-2010 Forecast

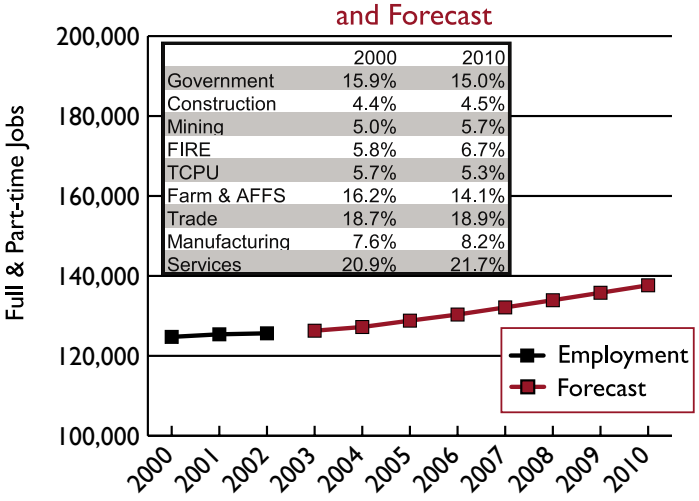
## Northwest Oklahoma




**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



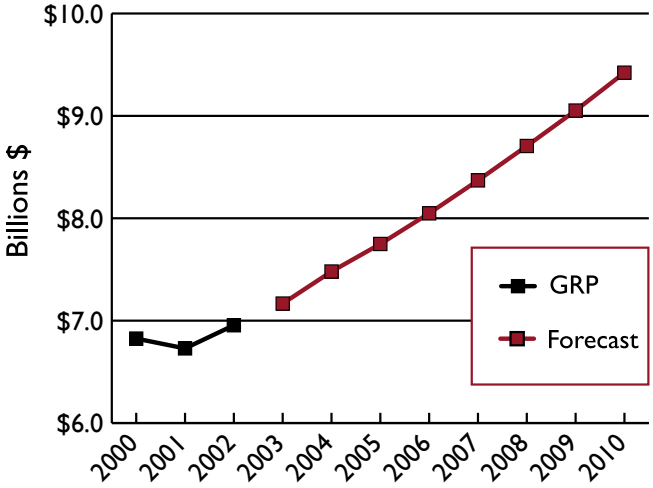

| | 2000 | 2010 |
|---|---|---|
| Government | 15.9% | 15.0% |
| Construction | 4.4% | 4.5% |
| Mining | 5.0% | 5.7% |
| FIRE | 5.8% | 6.7% |
| TCPU | 5.7% | 5.3% |
| Farm & AFFS | 16.2% | 14.1% |
| Trade | 18.7% | 18.9% |
| Manufacturing | 7.6% | 8.2% |
| Services | 20.9% | 21.7% |

**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 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.



SWOSU
Southwestern Oklahoma State University

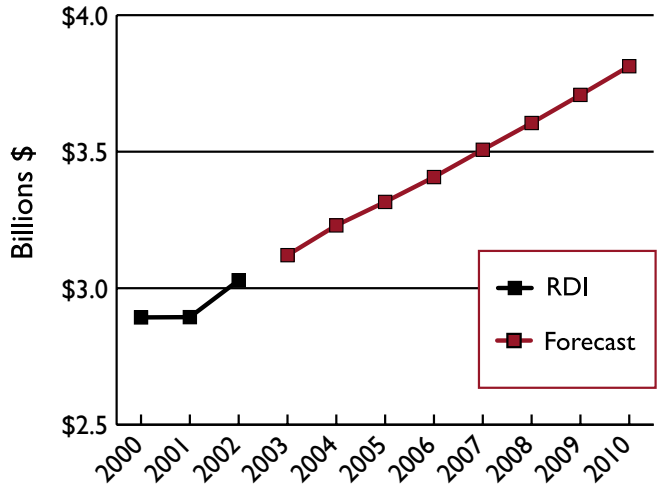
# *Economic Forecast Series*

## 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.

Northwest Oklahoma
RDI and Forecast



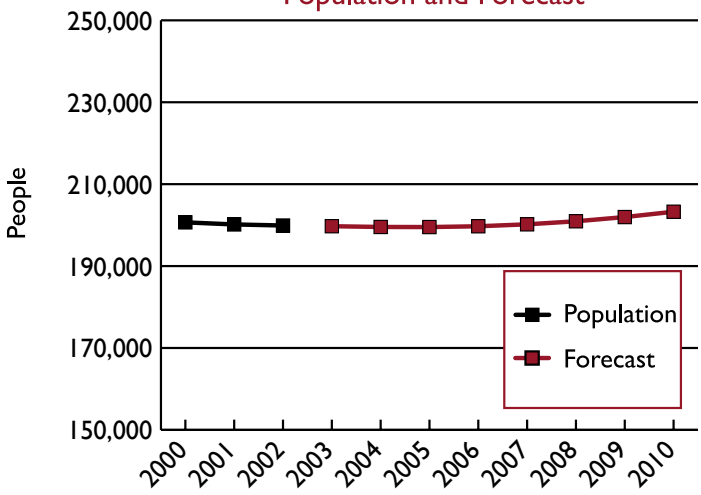

**Population** in Northwest Oklahoma is estimated to have decreased from 200,672 people in 2000 to 199,903 people in 2002, which translates into a 0.4% population loss. While the number of births exceeded the number of deaths in the region by 2,957 people, there was a net migration out of the region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

Northwest Oklahoma
Population and Forecast




Forecast data presented in this newsletter is provided by the Oklahoma REMI model. Visit our website (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.


Dr Marvin Hankins - Director

Prepared by:
Jon Chiappe
Stephen Nelson