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# STATE POLICY & ECONOMIC DEVELOPMENT IN OKLAHOMA: 2003

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A Report to



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OKLAHOMA 21st CENTURY, INC., is pleased to have provided support for this study. The findings reported and the views expressed in this study, however, are solely those of the researchers.

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# STATE POLICY AND ECONOMIC DEVELOPMENT IN OKLAHOMA: 2003

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## Chapter 1

### **The Oklahoma State Budget Crisis: Lessons from the Past, Policies for the Future**

When the 2003 session of the Oklahoma Legislature convenes in February 2003, one of the top issues facing lawmakers will be the state's budget crisis. Chapter 1 of this study explores the origins and nature of this crisis and examines whether and how changes can be made in the state's tax structure and Constitutional Reserve ("Rainy Day") Fund (CRF) to reduce the risk of future crises.

The current budget crisis is attributed primarily to the recent recession in the U.S. economy and the lack of sufficient funds in the state's CRF. Over \$1.1 billion has been deposited in the CRF since its inception, but persistent withdrawals for "emergencies" has resulted in a balance in FY 2003 that is far short of the amount needed to supplement (General Revenue Fund) tax collections. This pattern suggests a structural (long-run) deficit in the state budget. Lawmakers need to find ways, then, to solve both the structural and cyclical (short-run) deficit problems simultaneously.

This study explores ways of solving these problems, primarily by making changes in the state tax code and in the rules governing the CRF. Ideally, changes in the tax code would enhance both revenue stability and long-run revenue growth. Ideally, changes in the CRF would provide enough savings in the fund to weather a 2-3 year revenue decline with some money left over for future contingencies.

There may be ways to substitute selected increases in the sales tax base for individual income taxes and achieve greater revenue stability without reducing revenue growth or equity. Expenditures for health services meet these criteria, although such a change would heighten the need to design tax credits as an offset for an increased tax burden on lower income households. It might be even easier to achieve the objectives of greater revenue stability and maintenance of revenue growth by substituting sales taxes for the corporate income tax, although the small size of

the corporate tax base would limit the magnitude of the effect of this change on overall revenue stability and revenue growth.

A change that may achieve both the stability and growth objectives is the substitution of sin taxes, such as excise taxes on liquor and tobacco, for the corporate income tax. The same may be true for reducing rates on capital gains in exchange for other changes in the individual income tax that would replace the revenue lost.

The often-proposed elimination of the sales tax on food would take away a revenue-stabilizing, but slowly growing, component of the sales tax base. The exact effect of this on revenue stability and revenue growth would depend, however, on what part of the sales tax base was expanded to replace the revenues lost by exempting food purchases. The elimination of the estate tax – also frequently mentioned by state tax reformers – would remove a cyclically stable and fast growing source of revenues.

An examination of the effect of alternative rules for deposits to and withdrawals from the CRF indicate that it could be significantly improved as a stabilizing tool by: (1) reserving interest income from the investment of CRF balances for the CRF, itself, and (2) allowing withdrawals only to cover deficiencies in collections relative to estimates. The CRF could also be improved by adopting rules similar to those used in Virginia that automatically tie deposits to deviations from longer-run trends in collections and also tie withdrawals to deficiencies in collections relative to estimates.

## Chapter 2

### **Contingent Liabilities and the State Budget: The Case of the Oklahoma Teachers' Retirement System**

The second chapter in this study examines a long run fiscal problem — the inadequacy of funding for the Oklahoma Teachers' Retirement System - that does not get the attention it deserves, perhaps because it concerns a program that is not part of the state's annual budget process. OTRS is

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only one of several major long-run liabilities of state government, the accounting for which lies outside the purview of the annual budget review. Others include the Quality Jobs Program, the program of ad valorem tax reimbursement, highway bonds, and other state retirement programs. OTRS is the largest of these by far, with a present value of future liabilities of \$11.1 billion. It is also the most poorly funded of the state retirement systems, with a present value of assets equal to only a little over half of its liabilities.

Efforts to close this gap have been only partly successful, largely because the legislature keeps increasing benefits without providing commensurate increases in revenues. A good, if lamentable, example is the recent granting of unfounded cost of living increases to recent retirees. As a result, OTRS is the next-to-worst-funded public retirement system in the nation, a position it has held continuously since such comparisons have been made starting in 1982. The good news is that retirement liabilities are more like debt liabilities than actual cash liabilities. That is, retirement liabilities ought to be paid over time rather than funded strictly on a cash basis. The bad news is that, given recent decreases in rates of return on equities, the full amortization of OTRS' debt will take an estimated 62.2 years. No debt, not even for capital improvements, can be prudently funded over such a long period. The state constitution, for example, limits state and local government debt repayment to 25 years.

Senate Bill 1376 recognized this situation and changed the level of contributions that would go to OTRS from sales, use, and income taxes directly from the general revenue fund. This change will not take effect until 2004, however. If this commitment actually escapes unscathed in the current budget climate described previously, OTRS could reduce its amortization period by 21 years to 41 years – still on the far end of fiscal prudence.

The Oklahoma Legislature faces policy choices for OTRS that are similar to those faced by the U.S. Congress in its efforts to do something to solve the long-run deficit problem facing Social Security. It must either provide new sources of revenue or reduce benefits, or some combination of both. Unlike the Social Security debate, however, this one is yet to penetrate the public, and

perhaps the legislative, consciousness. This study offers no policy prescriptions to deal with the OTRS funding problem, but it will have served its purpose if it elevates awareness of the problem and ignites a serious discussion of policy alternatives.

### **Chapter 3 Oklahoma's Rural Economy and Structural Change: Perspective and Challenges**

Chapters 3 and 4 address the issue of rural development. Chapter 3 focuses on the history and status of rural Oklahoma, and Chapter 4 examines policies for economic and community development. In this chapter, emphasis is placed on some of the structural changes that are challenges for development in rural Oklahoma—including challenges for community leadership. Some of these challenges, such as those posed by the evolution of the agricultural industries, have been around a long time. Other challenges are relatively new and include such matters as the availability of wide-band telecommunications. What emerges from this review is a portrait of rural Oklahoma that may differ greatly from the picture many people have.

Before examining structural change, it is necessary to be more specific about what is meant by the terms “rural” and “metropolitan” or “urban.” Regardless of definition, it is clear that rural Oklahoma is not a single homogeneous area and that it is inappropriate to use “one size fits all” interpretations of the nature of rural problems and their solutions. For example, the U.S. Department of Agriculture's Economic Research Service classifies counties as retirement destination, federal lands, commuting, persistent poverty, and transfer dependent, and Oklahoma has examples of each, with the exception of federal lands. Many differences are evident, in fact, using a simple East-and-West-of-I35 classification.

Much of rural Oklahoma is characterized by a population that is either stagnant or declining. This makes it difficult to maintain physical and human capital, let alone grow. Rural Oklahoma is also characterized by a relatively low income per capita. Rural Oklahomans are less likely than their urban counterparts to have jobs. The other side of this coin is that a relatively large share of rural

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income comes from transfer payments. Rural Oklahomans also have less education than urban dwellers. In fact, the conclusion is inescapable that per capita personal income would be greater in rural Oklahoma if (1) a larger share of the population was involved in producing goods and services, and if (2) there were higher overall levels of educational attainment enhancing the productivity of those who are employed.

Agriculture has played an important role historically in the Oklahoma economy, but many rural communities must generally face up to the fact that prospects for economic growth are likely to be found in sectors other than the agricultural sector.

Rural Oklahoma also faces the fact that oil and gas are exhaustible resources and that Oklahoma's comparative advantage in this sector is a matter of history.

Essentially all the statewide net expansion of manufacturing employment between 1990 and 2002 was in rural Oklahoma. In spite of this favorable recent record, manufacturing jobs are likely to continue to shrink, both nationwide and in Oklahoma.

Tourism may be a growth sector for some rural areas. For example, there is already evidence of the linkage between tourism and the development of retirement-destination residential communities in eastern Oklahoma. The market for this type of development will expand dramatically as the mass of baby-boomers retires.

The character of rural retail trade and financial services has changed significantly, with local entrepreneurs being replaced in many areas by absentee owners. Although consumers have probably benefited, one cost may be a reduction in the supply of community leaders.

The newest challenge is the New Economy – industries that are technology-based with heavy emphasis on computers and information technology, including innovations in communications. New Economy growth offers both challenges and opportunities for rural Oklahoma. It is an opportunity because many of the New Economy activities are geographically footloose. It is a challenge because quality of life is such an important determinant of the location of firms and workers in this sector of the economy.

## **Chapter 4**

### **Oklahoma Rural Development: Options and Opportunities**

Chapter 4 focuses on a description of rural development, resource use, and rural policy. Specific types of resources essential for rural development are identified, including natural resources, physical capital or infrastructure, human capital, financial resources, and institutional structure. A “healthy community” approach to rural policy is suggested. This includes developing: (1) a diverse and resilient economy with varied sources of income and employment; (2) adequate infrastructure, including the type of investment necessary for the emerging digital economy; and (3) informed local leaders with the knowledge and capacity to deal with today's complex environment.

Diversity requires the creation, attraction, retention, and expansion of private (and public) enterprises. New businesses often need support in several areas, including capital financing, labor supply, technology assistance, and management assistance. Community preparation, tax incentives, and other attraction strategies are useful tools for attracting new businesses. The retention of existing small businesses insures a more stable local economy. Training programs, financial assistance, and a supportive local attitude can greatly aid existing firms. Assistance for rural manufacturers through application engineers or new product development also promotes retention and expansion. The goal of these programs is to increase efficiency of resource use in existing firms so they become more competitive.

Whether addressing the need for economic development or broader quality of life needs, there are potentially fruitful strategies for assisting rural Oklahoma. These strategies include investment in human resources, targeted economic development initiatives, and a focus on infrastructure and services.

Investment in education is a key to rural development. It is especially important that rural students have the same access to information and technology as their urban counterparts if they are to be competitive in the new economy. Providing potential entrepreneurs with appropriate training in

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finance, management, and other areas will also be necessary. Nurturing potential and existing entrepreneurs is a form of human resource investment. The development of local capacity to plan and implement plans is also important, and can be aided by leadership development programs.

There are specific economic sectors that could be targeted for promotion and development in rural areas of the state. Building on the state's natural resource base through value-added agriculture and rural tourism are examples. Alternative energy forms such as wind power or new biotechnology and health-related industries utilizing agricultural crops may hold promise. Their development may be aided by state initiatives such as the Quality Jobs Program, the Linked Deposit Program, and a planned rural capital venture fund. Another incentive, targeted to manufacturing, is the ad valorem exemption funded through the Ad Valorem Reimbursement Fund.

The development of value-added agricultural firms can be accelerated by assistance from the Oklahoma Food and Agricultural Products Research and Technology Center at Oklahoma State University. The Center provides essential services, including business/marketing assistance, educational and quality programs, technical assistance, and research.

Rural development will increasingly involve investments in digital infrastructure. One general provider is OneNet — the official telecommunications and information network for Oklahoma education and government. OneNet provides electronic links for entities such as public schools, technology centers, colleges/universities, courts, libraries, Indian tribes, and government. While OneNet is essentially a state-government operated telecommunications system, most of Oklahoma's rural households and businesses are served through physical facilities of private firms—the largest of which is SBC (formerly Southwestern Bell). Still, the data indicate that rural areas in Oklahoma lag urban areas in Internet use and access. If rural Oklahoma is to successfully participate in the rapidly emerging digital economy, the provision and use of digital technology will need to be addressed further.

## **Chapter 5 Oklahoma's Occupational Structure and Implications for Income Growth**

Chapter 5 is a follow up to a study reported in last year's equivalent of this publication. In an attempt last year to understand how earnings trends by industry affected income growth in the state, the author analyzed average wage rates and employment by industry. This year's study expands on the last year's work by shifting attention to the state's occupational structure.

The objective of this chapter is to determine if the Oklahoma economy has suffered occupational downgrading. This question emerged from last year's study that revealed state employment growth matching the nation's, but wage growth that considerably lagged national patterns of industry real wage advance.

The focus on occupations is important for a variety of reasons. Occupations are central to the operation of labor markets. While a given industry may hire workers with occupational skills that are fairly unique to its needs, it will still typically make use of a broad range of occupational skills and compete for workers in numerous labor markets. We can speak meaningfully, for example, of the existence of labor markets for engineers, computer specialists, nurses, and machinists. One aim of public education is to provide direct education and training for many of these occupations. It is important from a policy perspective to direct students toward the right occupations. In addition, one would expect that the economic success of many states is directly attributable to their ability to attract and utilize high human-capital content jobs - jobs that require a large educational investment on the part of the worker.

A principal finding is that Oklahoma's occupational structure compares quite favorably with that of the nation as a whole. Evidence does exist that the occupational structure has weakened somewhat, but changes in the occupational classification system between census years obscures the meaning of the evidence. The data strongly indicate that the problem is not with the distribution of jobs by occupation, but with what those jobs pay. On average, jobs in Oklahoma pay 15

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percent less than corresponding jobs at the national level. These results reinforce what was identified in last year's study of wage bill trends. Oklahoma, then, is not suffering from an atypical distribution of jobs, either industrially or occupationally. The problem is low pay.

Other principal findings include:

- Oklahoma has not so much slipped down the occupational ladder since 1990 as it has failed to climb it. As revealed by decennial census statistics, gains in employment in high human-capital content jobs increased 5.0 percent in Oklahoma from 1990 to 2000; the gain nationally was 15.4 percent.
- Managerial jobs are particularly low-paying in Oklahoma, averaging only 78 percent of national wage levels. This result is partly attributable to the lack of corporate headquarters in the state and the loss of some corporate headquarters in recent years.
- Oklahoma's share of the adult population who have bachelor's degrees or higher increased in the 1990s to 20.3 percent, but the gap in relation to the nation expanded. It would take an increase of 91,000 graduates in Oklahoma's adult population to match the national average of college graduates, up from about 50,000 in 1990.
- The correlation among states between per capita personal income and the share of population who have bachelor's or higher degrees is quite strong — +0.78. Three-fourths of this correlation is attributable to four variables: earnings in high-level services (business, health, private education, and engineering/architectural); earnings in finance, insurance, and real estate (FIRE); transfer payments; and dividends, interest and rents.

The results of this study imply the need for much more public policy attention to college-usage, as opposed to purely college-producing, strategies. The purpose of such strategies would be to better integrate college- and university-trained personnel into Oklahoma business firms. This can be achieved through involvement of colleges and universities in cooperative arrangements with area businesses on a variety of fronts, including: research and development activities;

public/private internship programs at both the undergraduate and graduate levels; continuing education programs for the employed; and direct attention to entrepreneurship education and growth of family businesses. The data and analysis strongly suggest that college-usage strategies represent a principal means for advancement of the Oklahoma economy.

## **Chapter 6**

### **The Potential Impact of the “Standardized Market Design” on Oklahoma’s Electric Power Infrastructure**

Chapter 6 shifts the focus from markets for labor to markets for electricity. In July 2002, the Federal Energy Regulatory Commission (FERC) issued an important policy proposal in the form of a Notice of Proposed Rulemaking (NOPR). This NOPR describes a plan and prospective policies, known as the Standardized Market Design (SMD), for developing an integrated national wholesale power market. The purpose of this chapter is to describe the SMD, assess its prospects for implementation, and examine its impact on various affected parties in Oklahoma if it is implemented.

The SMD is intended as a basis for developing a reliable, competitive, wholesale market for electricity. The basic elements in the strategy it proposes are: (1) the provision of assured access by power generators to the transmission system at reasonable cost, (2) the mitigation of market power, (3) the assurance of system reliability, and (4) the promotion of new capacity.

Access to the transmission system is a key ingredient. The FERC proposes to do this through the SMD by eliminating price discrimination among customers, by linking transmission rates more closely to the costs of customers (locational marginal pricing), and by facilitating effective congestion management. The FERC proposes to achieve the mitigation of market power by requiring separate ownership of transmission and generation assets, by reducing barriers to market entry, and by using independent market monitors accountable to the FERC. System reliability would be assured by regulating the operation of spot markets. The SMD proposes that independent transmission providers implement and administer

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procedures for planning and oversight within each region of the country. The NOPR envisions a planning process to coordinate and integrate power infrastructure needs and project development within each of these regions.

Creating a standardized national wholesale market for electricity will facilitate and stimulate the transfer of electricity across regions and states, from low-cost producing regions to high-cost producing regions. Electricity prices will tend to rise in low-cost states and fall in high-cost states. Investment in new generating capacity will be stimulated in low-cost states and concentrated in low-cost producing facilities. Given current and prospective fuel prices, most of this investment will be in gas-fired power plants.

Standard market design will give all load-using entities access to low-cost power. Most energy sales will still be conducted through long-term bilateral contracts. So if a region with cheap electricity costs wishes to ensure that local customers continue to enjoy the benefits of that low-cost power, its load-using entities should sign long-term contracts with power producers to “keep that power at home”, rather than losing it through exports.

Given the availability of natural gas supplies in Oklahoma and a relatively small market for electricity that is already well-served with in-state generating capacity, a move to decentralized wholesale power markets will stimulate the building of gas fired generation facilities in the state, much of which will be exported. This will

probably raise the relative price of electricity for Oklahoma consumers of electricity. If the proposed market design succeeds in producing a more efficient wholesale power market nationally, Oklahoma customers will share in those efficiency benefits. Alternatively, if the proposed SMD is unsuccessful, there are dangers of market power abuse and unreliable power supplies.

In Oklahoma, support or concern about interregional power transfers probably will depend on whether one is a consumer, and concerned about the export of low cost electricity and rising in-state electricity prices; whether one is a producer, and concerned about the prospects for new generating facilities and expanded markets; or whether one is a current producer with relatively inefficient production assets, or a new entrant with a checkbook sufficient to fund the construction of new gas-fired facilities. Given the conflicting impacts associated with the SMD, determination of the probable net effect on Oklahoma will require additional study. In essence, the merits of expansion in the state’s natural gas production and gas-fired generating plants must be weighed against increased costs to Oklahoma’s industrial, commercial, and residential users, and owners of existing generation assets.

The SMD is a national policy proposal with important Oklahoma implications, but those implications are as diverse as the many affected constituencies in the state. Whatever one’s perspective, the potential effects of the SMD seem to be too important for Oklahomans to ignore.

# The State Budget Crisis in Oklahoma: Lessons from the Past, Policies for the Future

**W**hen the 2003 session of the Oklahoma Legislature convenes, the top issue facing lawmakers will undoubtedly be the state's budget crisis. This chapter is intended to explain the origins and nature of the current crisis and to examine whether and how changes can be made in the state's tax structure and Rainy Day Fund to reduce the risk of future crises.

## Historical Perspective

The current budget crisis concerns the state's General Revenue Fund (GRF). The GRF is the primary source of revenues available to the Oklahoma Legislature for appropriation to various government programs. The principal revenue sources for the GRF are the state income tax (individual and corporate), the state sales tax, the severance (or gross production) tax on natural gas, and motor vehicle taxes. Together, they normally constitute 85-90 percent of the GRF.

Figure 1.1 illustrates how the GRF has grown, and fluctuated, since 1981. There is an unmistakable upward trend over this period. GRF collections were \$1.707 billion in fiscal year (FY) 1981 (July 1, 1980 to June 30, 1981). They grew to \$4.693 billion in FY 2001, and are projected to fall to \$4.213 billion by the end of the current fiscal year (FY 2003). GRF collections vary from year to year, but they have fallen in only 3 of the last 22 years — FY 1984, FY 1987, and FY 2002 — and they are projected to fall again in FY 2003.

Figure 1.2 shows how GRF collections have fluctuated on an annual basis, measured in terms of the annual percentage change in collections. Revenues fell in FY 1984 by 8.6 percent, precipitating the establishment of a Constitutional Reserve (or "Rainy Day") Fund. Revenues de-

clined in FY 1987 by 8.9 percent, the largest annual percentage decrease in the last two decades. Revenues decreased by 6.0 percent in FY 2002 and they are projected to decrease by another 4.5 percent in FY 2003.

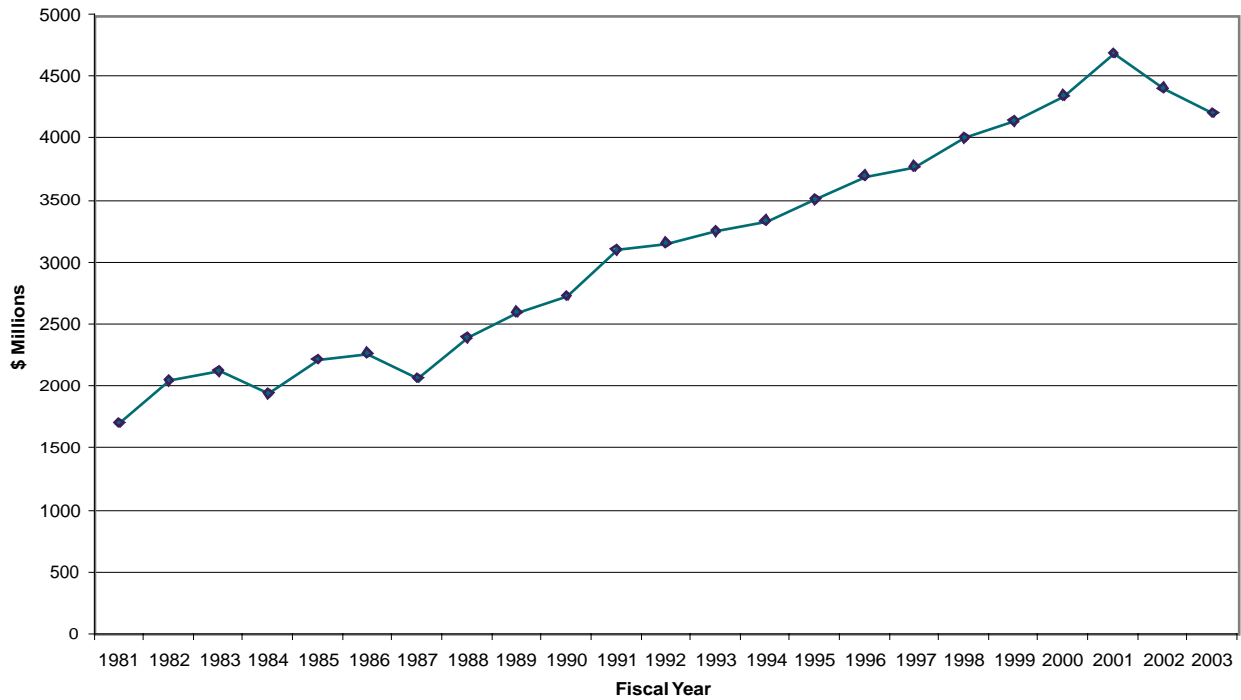
Figure 1.3 illustrates how revenues have fluctuated, measured in terms of the annual increase or decrease in dollars. According to this measure, the largest decline - \$280 million - occurred in FY 2002. Collections declined by \$201 million in FY 1987 and they are projected to fall by the same amount in FY 2003. They fell by \$182 million in FY 1984.

Considered in its entirety, as it should be, the current FY 2002 and FY 2003 revenue decline will most likely be the steepest of the last two decades, surpassing both of the downturns associated with the fluctuating energy sector of the Oklahoma economy in the 1980s. Revenues are on track to fall by 10.5 percent and \$481 million before collections turn upward again.

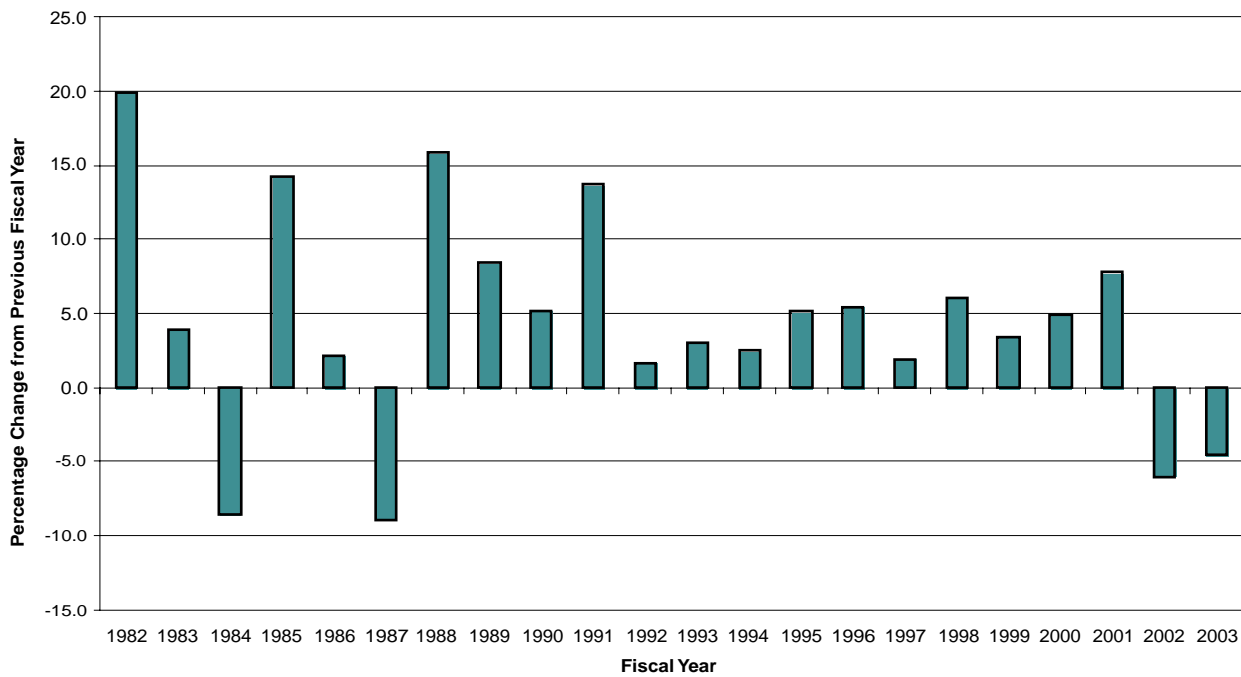
## Anatomy of the Current Revenue Crisis

The U.S. economy experienced a major recession in FY 1982, a somewhat less severe recession in FY 1991, and a mild downturn from the last quarter of FY 2001 (starting in April 2001) to at least the third quarter of FY 2002 (starting in January 2002). Figure 1.1 indicates that growth in Oklahoma's GRF was slowed somewhat by the FY 1982 and FY 1991 recessions. The timing of the current revenue decline relative to the timing of the FY 2001 – FY 2002 recession, however, suggests a much stronger influence of the business cycle this time around.

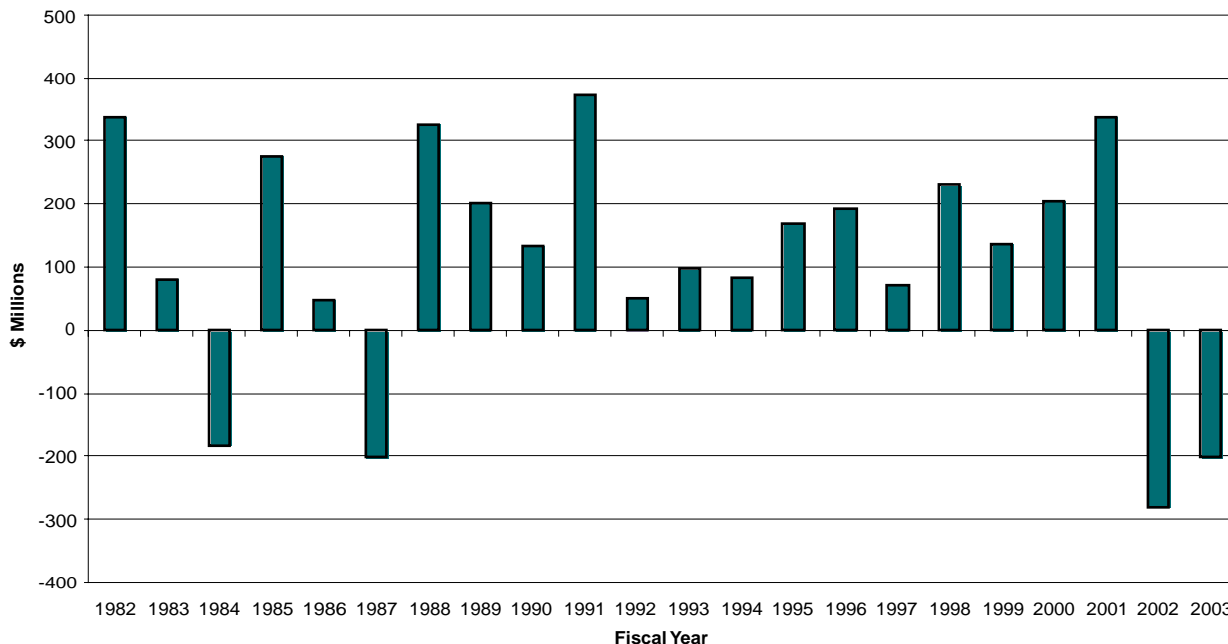
**Figure 1.1**  
**Oklahoma General Revenue Fund**  
**Revenues Collected, FY 1981 - FY 2003**



**Figure 1.2**  
**Oklahoma General Revenue Fund**  
**Annual Change in Revenues Collected, FY 1981 - FY 2003**  
**(Percent)**



**Figure 1.3**  
**Oklahoma General Revenue Fund**  
**Annual Change in Revenues Collected**  
**FY 1981 - FY 2003**  
**(Dollars)**



The data in Table 1.1 appear to confirm this inference. This table shows the various sources of revenue for the GRF in FY 2001 and FY 2002, and the FY 2003 collections estimated for the State Equalization Board by various state agencies in December 2002. As noted in the last row of Table 1.1, total GRF collections are expected to fall by \$481 million from FY 2001 to FY 2003 – the sum of the changes in column 5. Alternatively, declining sources are expected to offset expanding sources by \$517 million to \$36 million. Some of the separate sources responsible for declining collections are sensitive to the business cycle; some are not. Those that are very or moderately sensitive to the business cycle include: the individual and corporate income taxes, motor vehicle taxes, sales and use taxes, and interest and investments. Together, they accounted for \$276 million or 53 percent of the total decrease.

Although the enhanced sensitivity of the GRF to a general business downturn is a new phenomenon for Oklahoma, it is unlikely to be a one-time event. The economic structure of the state’s economy has steadily evolved to more

closely resemble the national economy than it did 20 years ago, and there is little reason to believe that this trend will be reversed. Collections from income and sales taxes have also increased as a share of total GRF collections, and increased dependency on these taxes brings increased sensitivity to the business cycle.

It was noted above that Oklahoma made provisions for a Rainy Day Fund in the aftermath of the GRF crisis of FY 1984. The state’s Constitutional Reserve Fund was created via the approval by voters in 1985 of a referendum specifying an amendment to the state constitution (State Question 686, codified as Article 10, Section 23, of the *Constitution of the State of Oklahoma*). As a general concept, revenues are to be deposited to such funds during periods of economic expansion and withdrawn during periods of contraction to supplement actual collections. Only a handful of the 45 state funds of this type work in this fashion, however, and rules for deposits and withdrawals vary widely across the states.

Oklahoma’s Rainy Day Fund has rules for deposits and withdrawals that appear to be unique.

**Table 1.1**  
**Oklahoma General Revenue Fund, FY 2001- FY 2003**  
**(\$Millions)**

Revenue	FY 2001	FY 2002	FY 2003 <sup>a</sup>	2003-2001 \$ Change	Cyclically Sensitive?
Alcoholic Beverage Tax	14.7	14.8	15	0.3	N
Mixed Beverage Receipts Tax	15.9	17.8	18.6	2.7	N
Beverage Tax	23.3	24	24.2	0.9	N
Cigarette Tax	28.7	25.5	25.9	-2.8	N
Tobacco Products Tax	12	11.5	12.2	0.2	N
Franchise Tax	41	42.6	41.1	0.1	N
Gross Production Tax- Gas	486.3	226.3	251.5	-234.8	N
Income Tax- Individual	1982.1	1987.7	1930.4	-51.7	Y
Income Tax- Corporate	132	137.2	73.1	-58.9	Y
Estate Tax	84.8	85.8	81.3	-3.5	N
Insurance Premium Tax	62.8	67.3	70.5	7.7	N
Motor Vehicle Taxes	244.9	232.3	212.3	-32.6	Y
Sales Tax	1240.6	1241.9	1213.9	-26.7	Y
Use Tax	80.1	73.4	64.8	-15.3	Y
Interest & Investments	128.3	81	37.1	-91.2	Y
Other	114.7	143	139.6	24.9	N
Totals	4692.2	4412.1	4211.5	-480.7	

<sup>a</sup>Projected, 12-20-02

The process begins with estimates of revenues by various state agencies that will be available for deposit in the GRF. These estimates are assembled and reviewed by the State Board of Equalization in the December preceding the start of the next fiscal year. The Board certifies the amount that they estimate will be collected and 95 percent of the amount that they certify becomes subject to appropriation by the legislature. The December certification is reviewed two months later and adjusted if conditions warrant. Actual collections in excess of 95 percent, but less than 100 percent, of the amount certified in February (“5 percent monies”), must be deposited in the Cash Flow Reserve Fund (CFRF). Actual collections in excess of 100 percent of the amount certified in February must be deposited in the Constitutional Reserve Fund (CRF). There is a cap on the

balance in the CRF of 10 percent of the amount certified for the preceding fiscal year. The Board has the authority to later revise its estimate and certification in consideration of any increases or decreases in revenues that would result from predictable changes in the economy. It did so during the 2002 legislative session, in the face of FY 2002 collections that were running far below its original estimate.

Money in the CFRF can be used to pay the state’s bills in the face of the inevitable fluctuations that occur in state tax collections. Money in the CRF can be used for “stabilization” and for “emergencies.” Up to 1/2 of the balance in the CRF at the beginning of a fiscal year may be appropriated for the next fiscal year if the amount certified for the latter is less than the amount certified for the current fiscal year; that is, if there is an

estimated decrease in GRF collections. Up to 1/2 of the balance at the beginning of a fiscal year may also be appropriated, upon a declaration by the Governor that emergency conditions exist, with the concurrence of two-thirds of both houses of the legislature. Alternatively, up to 1/2 of the balance at the beginning of a fiscal year may be appropriated, upon a declaration by the Speaker of the House and the President Pro Tempore of the Senate that emergency conditions exist, with the concurrence of three-fourths of both houses of the legislature. The statutes nowhere specify what constitutes “emergency conditions.”

Table 1.2 shows the history of the CRF since its inception. The CRF was established by a vote of the people in FY 1986, but no deposits were made in the first two years of the Fund (FY 1987 and FY 1988) because GRF collections were less than the amounts estimated in the preceding fiscal years (FY 1986 and FY 1987). The amount collected exceeded the amount estimated for FY 1988 by \$78 million. This amount became the initial deposit in the Fund, subject to appropriation in FY 1989. The 1988 legislature appropriated \$26 million of the \$39 million available for “emergencies,” leaving a balance of \$52 million at the end of FY 1989.

**Table 1.2**

**Oklahoma Constitutional Reserve (Rainy Day) Fund  
FY 1986 - FY 2003  
(\$ Millions)**

<b>Fiscal Year</b>	<b>Estimated</b>	<b>Collected</b>	<b>Variance</b>	<b>Deposited</b>	<b>Withdrawn</b>	<b>Balance</b>
1986	2456.6	2271.3	-185.3			
1987	2166.7	2070.0	-96.7	0.0	0.0	0.0
1988	2319.8	2397.8	78.0	0.0	0.0	0.0
1989	2499.8	2600.6	100.8	78.0	26.0	52.0
1990	2661.2	2735.1	73.9	100.8	75.0	77.8
1991	3034.4	3109.5	75.1	74.0	30.0	121.8
1992	3213.a	3161.2	-52.7	75.1	61.9	135.0
1993	3365.2	3258.9	-106.3	0.0	43.9	91.1
1994	3398.5	3341.5	-57.0	0.0	45.6	45.5
1995	3515.3	3512.6	-2.7	0.0	0.0	45.5
1996	3613.6	3705.0	91.4	0.0	22.7	22.8
1997	3531.0	3777.7	246.7	91.4	52.8	61.4
1998	3866.4	4009.3	142.9	247.4	154.4	154.4
1999	4185.6	4147.5	-38.1	144.0	148.6	149.8
2000	4271.4	4354.0	82.6	0.0	74.9	74.9
2001	4456.0	4717.9	261.9	82.6	78.8	78.7
2002	4810.3	4413.5	-396.8	261.9	268.6	72.0 <sup>a</sup>
2003	4789.5 <sup>b</sup>	4212.7 <sup>c</sup>	-576.8	0.0	TBD	TBD
<b>Totals</b>				<b>1155.2</b>	<b>1083.2</b>	

<sup>a</sup>Actual balance is \$72.4 million; error is due to rounding

<sup>b</sup>Estimate of Dec 21, 2001.

<sup>c</sup>Projection of December 20, 2002

TBD: To Be Determined

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Table 1.2 indicates that amounts deposited in the CRF were equal to the positive variance between amounts collected and estimated in the preceding fiscal year (as required by the Oklahoma Constitution), except in FY 1991, FY 1998 and FY 1999. During those fiscal years extra deposits were made of funds appropriated from the CRF in previous years, but not spent.

Until FY 2002, all of the money withdrawn from the CRF was justified by the declaration of “emergency conditions” and legislative concurrence with such declarations. Thus, the amount withdrawn was either less than or equal to (as in FYs 1994, 1996, 2000, and 2001) one-half of the funds available (as the Constitution requires). In FY 2002, the legislature withdrew \$268.6 million for emergencies and stabilization (for the first time), leaving a balance of \$72.4 million for the 2003 legislative session. The FY 2002 withdrawal was composed of \$170.34 million for emergencies (one-half of the \$340.68 million balance), \$85.2 million for stabilization (one-half of the remainder), and \$13 million from an increase in income tax revenues. The stabilization withdrawal was based on a downward revision during FY 2002 of estimated revenues. The \$13 million was generated by the suspension, for part of FY 2002, of previously provided reductions in the top bracket rate of the individual income tax and more generous sales tax credits. Article 10, Section of the Oklahoma Constitution requires the State Board of Equalization to adjust amounts previously certified for changes in the tax laws.

Withdrawals from the CRF in FY 2002 were sufficient to offset nearly 96 percent of the reduction that occurred in GRF collections from FY 2001 to FY 2002. The balance left in the Fund at the beginning of FY 2003, \$72.4 million, is woefully insufficient, however, to make up for the expected difference between the FY 2003 appropriations authority of \$4.7 billion from the GRF and expected collections of \$4.2 billion. Accordingly, state agencies have been ordered to reduce their spending at an annualized rate of 6.5 percent for FY 2003.

## **Policies for the Future**

Given the adverse reactions by state agencies and their constituents to the FY 2003 budget reductions, Oklahoma legislators will be under great pressure to plan for a future free of such episodes. They should begin with a clear vision of what to plan for.

### **What to Plan For**

As noted previously, the current budget crisis is directly related to, although not entirely explained by, a shortfall in revenues induced by the recent recession. The state was able to offset the revenue shortfall by withdrawing funds from the CRF in FY 2002, but the balance in the CRF available for FY 2003 falls far short of what is needed. Total deposits to the CRF to date have been more than enough to cover both the FY 2002 and FY 2003 revenue shortfalls. The legislature has consistently withdrawn funds from the CRF, however, for “emergency” purposes. The use of this Fund for such purposes throughout a period of 14 years in which the GRF did not experience a decrease in collections, strongly suggests the existence of a structural deficit — a chronic shortage of revenues relative to budget demands or needs — in the Oklahoma State Budget. It sends the message that we ought to search for cures for cyclical deficits that also reduce the state’s structural deficit, or at the very least, do not worsen the structural deficit problem. It also suggests that we ought to explore ways to restructure the rules governing the CRF to ensure that funds are adequate to cover more than one year of a cyclical decline in revenues.

### **Changes in Spending and Taxes**

A cyclical deficit is a shortage of revenues relative to expenditures attributable to the business cycle. It occurs because revenues fall and spending increases in a recession. A structural deficit is

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a chronic shortage of revenues relative to expenditures. The legislature can reduce the risk of future cyclical deficits by reducing the degree to which revenues *automatically* decline as the economy contracts or by reducing the degree to which spending *automatically* increases with decreases in economic activity. The legislature can reduce a structural deficit by increasing the rate at which tax revenues grow as income grows or by reducing the long-run growth rate of expenditures.

It should be recognized that the solution required for a cyclical deficit is also a prescription for prolonging or deepening a recession. The state should run a budget deficit if it is to contribute to economic recovery. This would conflict, however, with the constitutional requirement of a balanced budget.

Making headway in solving the cyclical and structural deficits *simultaneously* by approaching the resolution of the problem from the spending side requires a reduction in expenditures that are both counter-cyclical (i.e., increase automatically in a recession) and that grow rapidly in the longer-run. Presumably, it also means replacing them with expenditures that are pro-cyclical (i.e., decrease automatically in a recession), and that also grow slowly in the longer-run.

On the revenue side, there must be a reduction in tax revenues that are pro-cyclical (i.e., that fall in a recession) and that grow slowly in the longer-run. Presumably, they must be replaced with taxes that are more stable during an economic decline and that also grow more rapidly in the longer-run.

The prospect of reducing cyclical and structural deficits simultaneously through changes in expenditures will be unattractive to many lawmakers. The counter-cyclical expenditure programs are dominated at the state level by Medicaid, but also include Temporary Assistance for Needy Families (TANF), unemployment compensation, food programs, mental health, and drug and child abuse prevention programs. Medicaid also grows rapidly in the longer-run; the others do not. This leaves the legislature with the task of reducing the portion of the budget that goes to Medicaid if they want to simultaneously reduce the cyclical and structural deficits with changes made on the expenditure side of the

budget. They must also replace Medicaid with expenditures that automatically fall in a recession and grow more slowly over time. The latter will be easy to find, but the former may well be an empty set.

*Changes in taxes.* here are many potential options on the revenue side of the budget. State taxes are widely believed to vary in terms of degree of sensitivity to the business cycle. This raises the possibility that changes in the current tax structure could be made that would reduce the degree to which GRF collections fall when the economy falters.

The ideal measure for determining the cyclical sensitivity of a tax is the *short-run elasticity (SRE) of the tax: the percentage change in tax revenues for a year due to a one percent change in national income that year.* We have found only one such measure for Oklahoma. In a recent study, Holcombe and Sobel estimated SREs, using data for 1972-1993.<sup>1</sup> They determined that, over this period, total state tax revenue for Oklahoma actually *increased* by 0.034 percent when national income decreased by 1 percent. They did not examine this finding in detail, but they suggest that it is probably attributable to the stabilizing influence of the severance tax on oil and natural gas; i.e., that severance tax collections remained relatively stable or even increased when national income was declining.

If they are right, we should expect greater sensitivity of total tax revenues to changes in national income today than Holcombe and Sobel found, simply because severance taxes account for a much smaller share of total tax revenues now than they did in the 1970s and 1980s. But even if their finding still holds today, it does not necessarily rule out changes in the tax system that could make tax collections even more stable. In fact, it can be viewed as a warning that tax collections will become more unstable in the absence of changes that offset the waning influence of severance taxes.

One change that might help *to reduce the instability of tax collections* is to rely more heavily on the sales tax and less heavily on the individual income tax. Holcombe and Sobel estimate that the SRE for Oklahoma individual income tax revenues with respect to changes in state personal

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income was 1.629 over the period 1972-1993, while the SRE for Oklahoma sales tax revenues with respect to changes in state personal income was only 0.906. Such a change would surely raise equity concerns; the current state sales tax burden falls more heavily on lower income households than does the burden of the state individual income tax. The substitution of the current sales tax base for some of the individual income tax base may also reduce the ability of the tax system to generate growth revenues.

The reason why the effect on revenue growth is uncertain is because a substitution of individual income taxes for sales taxes has two conflicting effects on tax revenues, and we do not know for sure which is stronger. On the one hand, this kind of tax substitution will lower the long-run elasticity (LRE) of the tax system. On the other hand, a reduction in the individual income tax may generate new economic growth, indirectly increasing the overall tax base.

The potential of a tax to generate revenues as the economy grows is measured by the long-run elasticity (LRE) of the tax; namely, the percentage change in tax revenues over a period of several years due to a one percent change in national income over the same time period. According to Holcombe and Sobel, the LRE of Oklahoma's individual income tax revenues with respect to state personal income is 2.497 (a one percent increase in state personal income produces a 2.497 percent increase in individual income tax revenues) over the period 1972-1993, while the LRE of Oklahoma's state sales tax with respect to state personal income over the same time period is only 1.726. State personal income is not a perfect substitute for national income — they do not necessarily change by the same percent at the same time — but movements in the two measures have become more alike as the state's economy has become more like the national economy.

Some economists believe that a reduction in state individual income taxes will generate economic growth by inducing people to work harder and longer. Other economists doubt that this effect, if it does exist, is strong enough to materially affect state income. Thus, it seems likely that,

although tax revenues may be stabilized somewhat by increased reliance on the sales tax, increased stability would come at the price of a less equitable distribution of the tax burden. It is uncertain, but possible, that increased stability would come at the price of reduced revenue growth potential

There may be ways, however, to substitute sales taxes for income taxes and achieve greater revenue stability without reducing revenue growth or equity. The state sales tax is currently levied primarily on sales of tangible items and sales of services are largely exempt. Table 1.3 lists the primary sectors with currently exempt sales, along with the estimated revenues that could be raised by levying a one percent tax on these sales. The task is to find categories on this list with sales that are relatively stable over the course of the business cycle and that have good growth potential. Health services surely meet these criteria. There are probably others, but detailed study will be needed to determine what they are.

It might be easier to achieve the objectives of greater revenue stability and maintenance of revenue growth by substituting sales taxes for the *corporate* income tax. The corporate income tax is a much more cyclically sensitive tax. Holcombe and Sobel estimate a SRE of 3.369 for this tax for all states combined. Their estimate of the SRE for the sales tax is only 1.039. The verdict on the LRE of the two taxes is uncertain. Using 1972-1994 national data, Holcombe and Sobel estimate that the LRE of the corporate income tax base for all 50 states is only 0.635 while that of the sales tax is 0.997. In a study using more recent data from Oklahoma, however, the LREs of Oklahoma's corporate income and sales taxes are estimated to be 1.20 and 1.06, respectively.<sup>2</sup> These results indicate some tradeoff between revenue stability and revenue growth. Further study is needed to reconcile these differences in estimates of LREs and to determine exactly how the sales tax should be changed. Equity concerns, if any, could be addressed by tax credits for lower income households; but there is another problem — the corporate income tax is such a small contributor to total tax revenues that its elimination is unlikely to have a large impact on revenue stability.

**Table 1.3**

**Potential Sales Tax Receipts  
By Two Digit SIC Industry**

<b>SIC</b>	<b>Sector</b>	<b>Estimated Net Taxes Per Percent \$2002 (000)</b>
11	Forestry, Fishing and Hunting and Ag Support Services	965
	Construction	94,043
15	Building construction	32,374
16	Heavy construction other than building	18,200
17	Special trade contractors	43,470
	Transportation, Communication, and Public Utilities	138,084
41	Local and interurban passenger transportation	412
42	Motor freight transportation and warehousing	30,401
44	Water transportation	351
45	Transportation by air	4,448
46	Pipelines, except natural gas	3,996
47	Transportation services	1,983
48	Communications	22,819
49	Electric, gas, and sanitary services	73,674
	Finance, Insurance, and Real Estate	133,030
60	Depository institutions	55,437
61	Nondepository credit institutions	13,704
62	Security and commodity brokers, dealers, exchanges, and services	6,935
63	Insurance carriers	16,652
64	Insurance agents, brokers, and services	9,186
65	Real estate	22,507
67	Holding and other investment offices, except trusts	8,611
	Services	266,418
70	Hotels, rooming houses, camps, and other lodging places	54
72	Personal services	9,404
73	Business services	56,099
75	Automotive repair, services, and parking	11,158
76	Repair services	2,357
78	Motion picture theaters	41
79	Amusement and recreation services	7,116
80	Health services	120,857
81	Legal services	11,333
82	Educational services	1,838
83	Social services	11,828
84	Museums, art galleries, and botanical and zoological gardens	0
86	Membership organizations	4,605
87	Engineering, accounting, research, management, and related services	28,322
89	Services, not elsewhere classified	1,406
	<b>Total</b>	<b>632,541</b>

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A change that may achieve both the stability and growth objectives is the substitution of sin taxes, such as excise taxes on liquor, for the corporate income tax. According to estimates by Holcombe and Sobel, liquor store sales are actually counter-cyclical, with the base *increasing* by 0.586 percent when GDP falls by 1 percent. The base of this tax is not only more stable than the base of the corporate income tax over the course of the business cycle, but it also has comparable revenue growth potential, according to Holcombe's estimates, with a LRE of 0.752 compared to the LRE of 0.635 for the corporate income tax. As just noted, however, the LRE of Oklahoma's corporate income tax may be nearly twice as large as that estimated by Holcombe and Sobel. What's true of liquor taxes may also be true of tobacco taxes, but additional study is needed to confirm.

It would be worth some study, also, to determine if the stability and growth aspects of the individual income tax would be enhanced by reducing rates on capital gains in exchange for other changes in the individual income tax that would replace the revenue lost. Effects on equity would be an important part of such an inquiry.

Finally, two changes in the tax system that have been proposed by former Governor Keating should be evaluated with these criteria. One is the proposal to eliminate the sales tax on food for home consumption, the other is to reduce the estate tax – both in exchange for expansion of the sales tax base to selected services. Elimination of the sales tax on food would take away a revenue-stabilizing, but slowly growing, component of the sales tax base. The effect of this on revenue stability and revenue growth would depend, however, on what part of the sales tax base was expanded to replace the revenues lost by exempting food purchases. The reduction of the estate tax would decrease reliance on a cyclically stable and fast growing source of revenues (one with a LRE of 1.50, according to estimates in Dauffenbach, et al<sup>3</sup>). It would be possible to find a new addition to the sales tax base with cyclically stable revenues, but more difficult to find one that also matched the revenue growth potential of the estate tax at the same time.

## Changes in the CRF

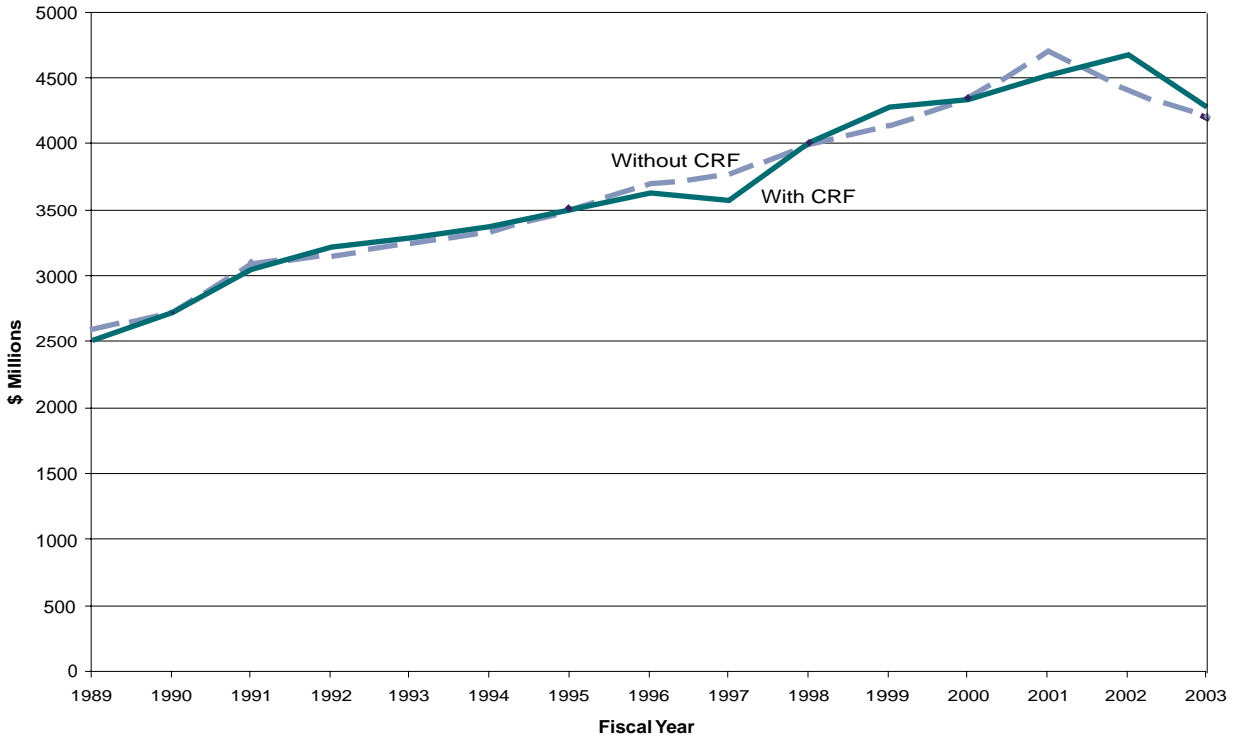
The other general approach explored in this study is modification of the rules for deposits to and withdrawals from the state's Constitutional Reserve Fund. We begin by examining how deposits to and withdrawals from the CRF have altered the course of spending based on appropriations from the General Revenue Fund. Then we consider a handful of alternative rules to see how they would have altered the course of appropriations from the GRF if they had been used instead and, especially, how they would have affected FY 2003 appropriations.

**Current Law.** Figure 1.4 compares funds actually appropriated from the GRF *and* the CRF (appropriations "With CRF" – the solid line in the figure) with those that would have been appropriated from the CRF only (appropriations "Without CRF" – the dotted line in the figure). This figure illustrates the application of the current law, or the rules for deposits and withdrawals described previously.

Activity in the CRF had little effect on appropriations from FY 1989 to FY 1997. In FY 1997, application of the current law resulted in appropriations that were \$194 million less than they would have been without the CRF – a result of small balances at the beginning of the year coupled with a large required deposit because actual collections exceeded estimated collections. Appropriations were \$148 million higher in FY 1999 due to withdrawals from the CRF. Given the steady course of revenue growth (dotted line), these deposits and withdrawals actually destabilized the course of appropriations.

The \$183 million difference in FY 2001 can be justified on stabilization grounds; i.e., as a means of saving some revenues during a year of unusually high revenue growth. Both the \$268 million withdrawal in 2002 and the assumed \$72 million in FY 2003 can also be justified as tools for stabilizing appropriations. The big complaints are that CRF balances are too small relative to need in FY 2003 and that there will be nothing in reserve for FY 2004 and beyond. The State Board of Equalization has certified a \$195 million increase in GRF collections in FY 2004, but there is no guarantee, of course, that it will be achieved.

**Figure 1.4**  
**Oklahoma General Revenue Fund**  
**Funds Appropriated With and Without the CRF**  
**CRF Deposits and Withdrawals Under Current law**  
**FY 1989 - FY 2003**



If they are wrong – and there is evidence from past recessions that they adversely affect state finances for as long as 3 years – there will be a replay of FY 2003.

***Interest Earnings on the CRF Credited to the CRF.*** Balances in the CRF are invested by the State Treasurer, like all balances, in the GRF. The interest earned on these investments is not credited to the CRF, however. It is used for other purposes.

The State Treasurer invests in relatively safe securities, earning moderate rates of return. Still, if the balances left in the CRF at the end of each year had earned 5 percent per year and the interest earnings on those balances had been credited to the CRF, there would be another \$90 million in the CRF in FY 2003. Table 1.4 illustrates how the CRF balances would have differed with the crediting of interest earnings on CRF balances to the CRF itself.

***Withdrawals Limited to Replacing Unrealized Estimates.*** As noted previously, withdrawals from the CRF can be made upon declaration of an emergency by either the governor or the legislative leaders, provided there is concurrence by a supermajority of the legislature. An alternative to these rules would be to restrict withdrawals to no more than the amount required to cover the difference between the amount certified by the State Board of Equalization and actual collections; i.e., to cover unrealized estimates.

Figure 1.5 illustrates how appropriations with this new withdrawal rule (and the current law deposit rules) would have behaved compared to appropriations in the absence of this modified CRF. In this scenario, withdrawals would have been made in FY 1992 through FY 1995, in FY 1999, and in FY 2002 and 2003.

**Table 1.4**  
**Constitutional Reserve Fund Balance**  
**With and Without Interest**  
**FY 1989 - FY 2002**  
**(\$ Millions)**

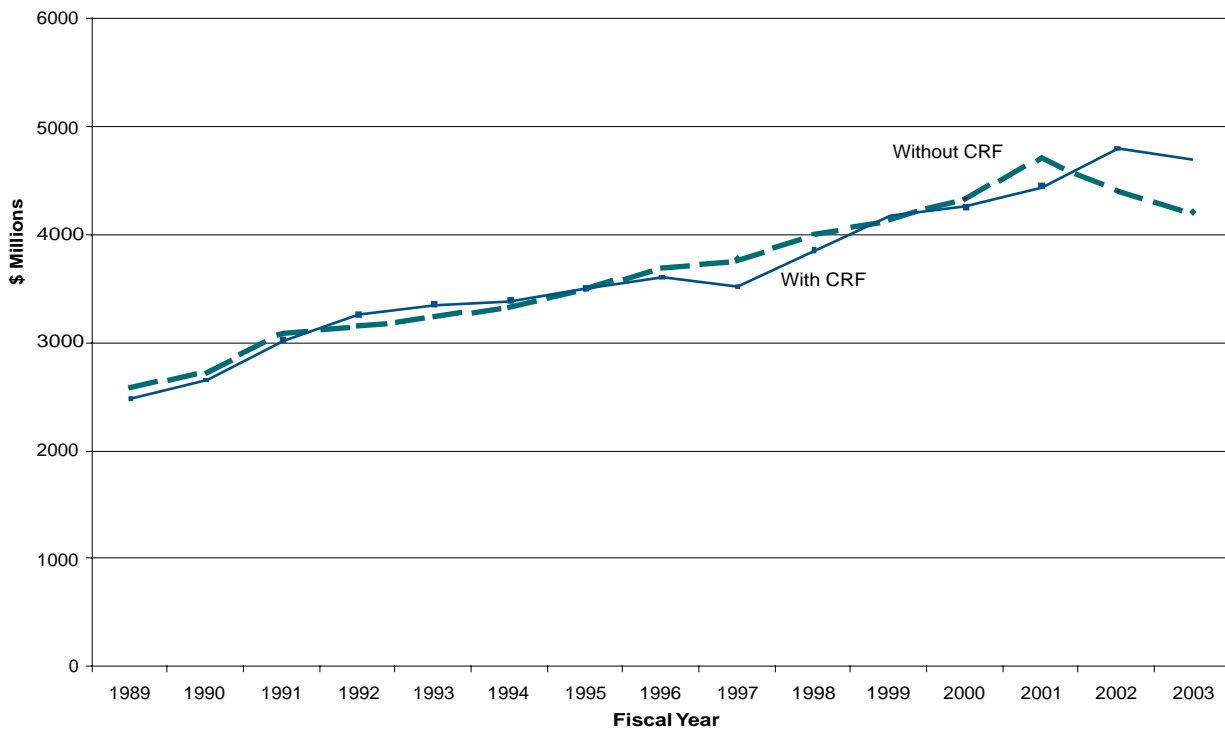
Fiscal Year	Balance without Interest	Balance with 5% Interest
1989	52	55
1990	78	89
1991	122	139
1992	135	160
1993	91	122
1994	45	80
1995	45	84
1996	22	65
1997	60	108
1998	153	211
1999	147	217
2000	72	149
2001	76	161
2002	72	162

Under the current rules, withdrawals have been made every year since 1989, except FY 1995. We already know that application of the current rules have left only \$72 million in the CRF to cover unrealized estimates in FY 2003. Application of the modified withdrawal rule would have left \$500 million in the CRF to cover the unrealized estimate of \$577 million in FY 2003.

This is a much better situation for FY 2003 than under the current withdrawal rules. If the modified withdrawal rule were applied to FY 2003, however, the CRF would be exhausted and there would be nothing in reserve to cover any future revenue shortfalls.

*Withdrawals Limited to Replacing Unrealized Estimates and Interest Earnings on the CRF Credited to the CRF.* The problem of running out of money in the CRF in FY 2003 would not occur if withdrawals had been limited to covering unrealized expectations and interest earnings on CRF balances had been reserved for the CRF. In this case, the CRF

**Figure 1.5**  
**Oklahoma General Revenue Fund**  
**Funds Appropriated With and Without CRF**  
**CRF Withdrawals Limited to Covering Unrealized Estimates**  
**FY 1989 - FY 2003**



balance at the end of FY 2002 would have been \$782 million – enough to cover the entire unrealized FY 2003 estimate of \$577 million and still have over \$200 million in the CRF to cover future contingencies.

**FY 2003 Executive Budget Proposal.** In his final Executive Budget, Governor Frank Keating proposed a new formula for a state Stabilization Fund.<sup>4</sup> His proposal was triggered by recognition of the volatility of state revenues attributable to the oil and gas industry and features deposits from that source.

Figure 1.6 illustrates just how difficult it is to accurately estimate the severance or gross production taxes that flow into the General Revenue Fund. The estimates were especially inaccurate in FYs 2000, 2001 and 2002.

According to the Keating proposal, the Oklahoma Stabilization Fund (OSF) would consist of all revenues from the severance taxes on oil and natural gas in excess of the amounts estimated

(plus any 5 percent monies not used to augment the Cash Flow Reserve Fund). The money in the OSF could only be appropriated according to these guidelines:

1. 5 percent could be appropriated every year,
2. another 5 percent could be appropriated if the additional certified funds available for appropriation in the next year is less than the average growth over the preceding five years, and
3. up to 40 percent could be appropriated if the certified amount is less than that of the current year.

Although the governor intended for this fund to be initially funded with future revenues, we have analyzed the plan as if it were implemented in FY 1994. This would give it some revenues to start working with in FY 1996, the first year that deposits would have been under the Keating rules.

**Figure 1.6**  
**Oklahoma Severance Taxes Earmarked for the General Revenue Fund**  
**Comparison of Annual Amounts Collected and Estimated**  
**FY 1994 - FY 2003**  
**(Dollars)**

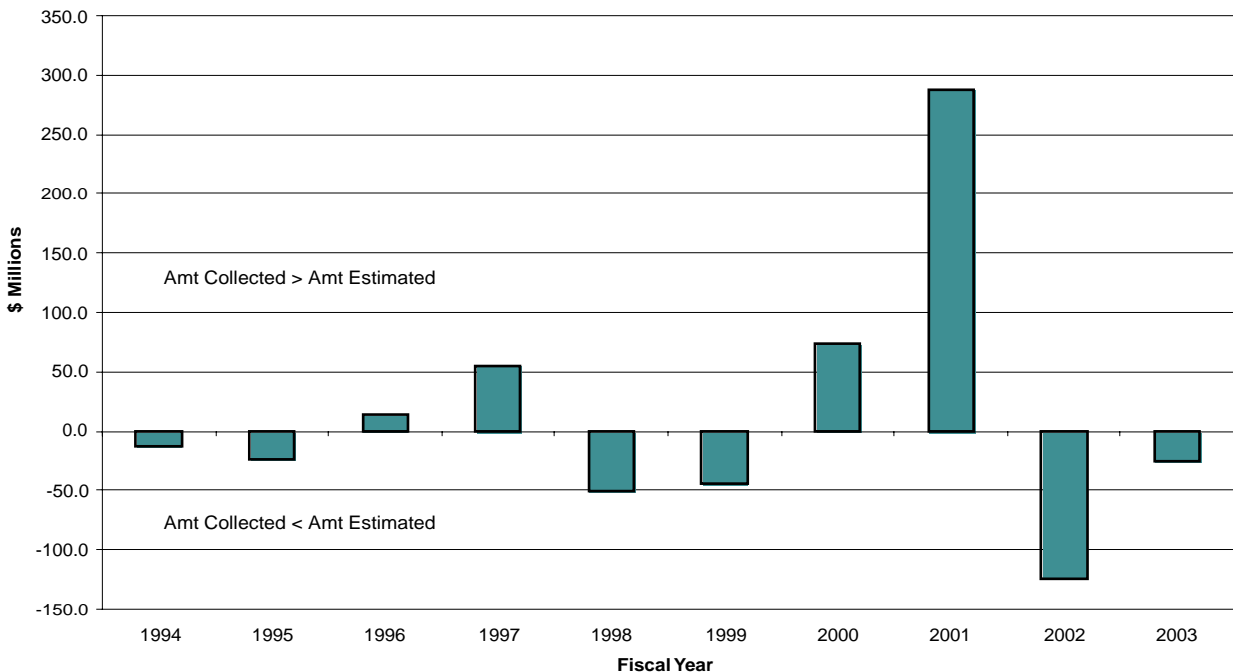


Figure 1.7 illustrates the effect on appropriations if the Keating rules for deposits and withdrawals had been imposed on the CRF starting in FY 1994. It would have done an excellent job in smoothing out appropriations, allowing them to grow at such a modest rate that the shortfall in FY 2003 would be barely visible (\$50 million as opposed to the actual \$577 million). Moreover, there would also be \$172 million in the CRF at the beginning of FY 2004.

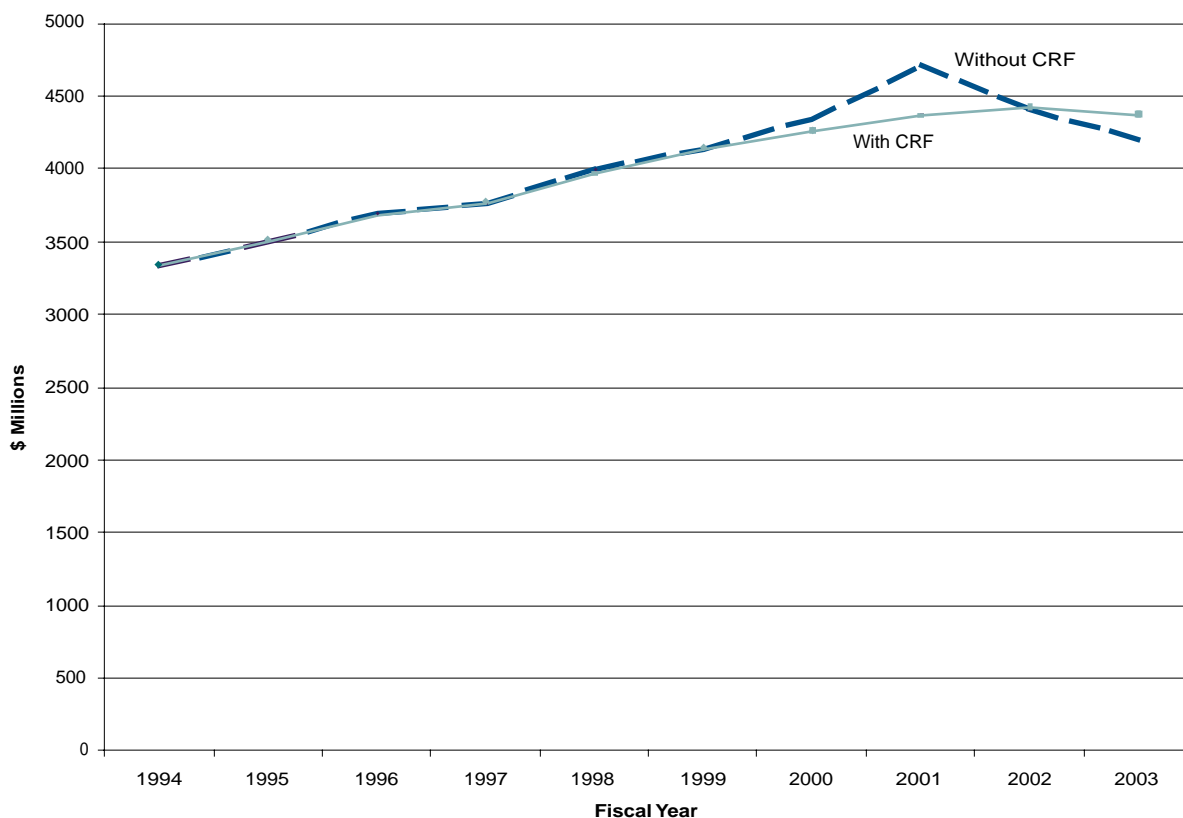
***FY 2003 Executive Budget Proposal Applied to the “Big Four” Taxes.*** Variations in severance taxes account for only part of the variance normally associated with GRF estimates and collections. In fact, Figure 1.8 shows that the estimators miss the mark as often, and sometimes by more, with income, sales, and

motor vehicle taxes, as they do with severance taxes. Thus, we have simulated a scenario in which deposits to the proposed Stabilization Fund are made from the excess of collections over estimates for all four of these taxes. This scenario is depicted as Figure 1.9 (available data allow application to a slightly longer time period, FY 1990 – FY 2003, than possible for Figure 1.7).

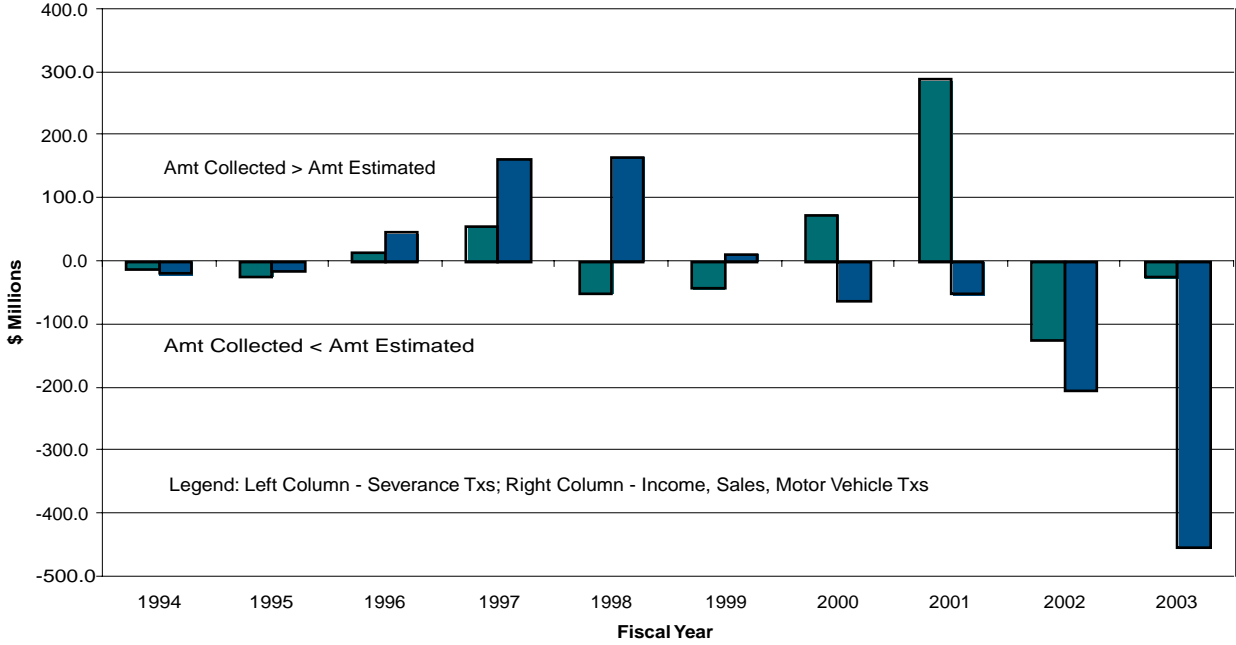
Changing the source of deposits in the modified Executive Budget Proposal does not change the effect of the CRF on the FY 2003 shortfall. It does leave a little more money - \$216 million versus \$172 million – in the CRF at the end of FY 2003.

***Application of Rules for the Arizona Budget Stabilization Fund.*** Another alternative is application of the rules governing the Arizona Budget Stabilization Fund (ABSF) to the CRF: <sup>5</sup>

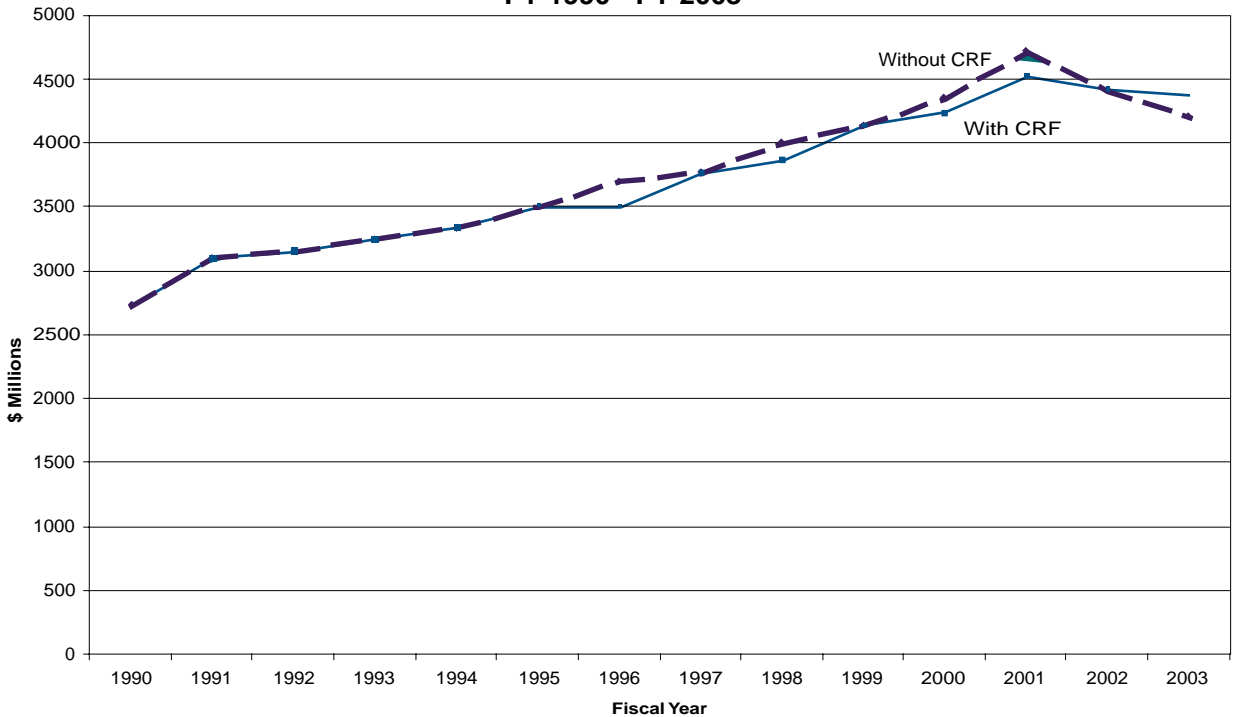
**Figure 1.7**  
**Oklahoma General Revenue Fund**  
**Funds Appropriated With and Without the CRF**  
**CRF Deposits and Withdrawals Under Executive Budget Proposal**  
**FY 1994 - FY 2003**



**Figure 1.8**  
**Oklahoma Taxes Earmarked for the General Revenue Fund**  
**Annual Amounts Collected Vs. Annual Amounts Estimated (Variance)**  
**Severance Taxes Relative to Income, Sales, and Motor Vehicle Taxes**  
**FY 1994 - FY 2003**



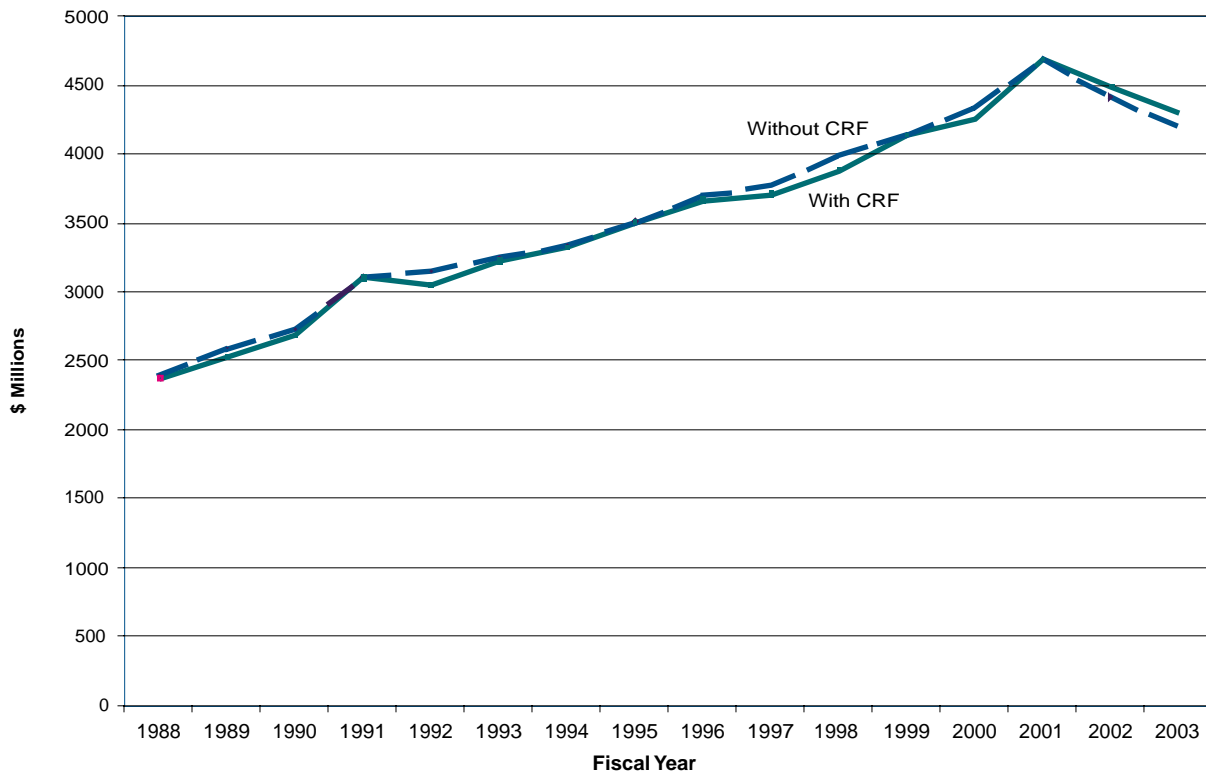
**Figure 1.9**  
**Oklahoma General Revenue Fund**  
**Funds Appropriated With and Without the CRF**  
**CRF Deposits and Withdrawals Under Executive Budget Proposal**  
**Applied to Big Four Taxes**  
**FY 1990 - FY 2003**



1. Deposits into or withdrawals from the ABSF for a given fiscal year are determined by comparing the annual growth rate of inflation-adjusted Arizona personal income (IAAPI) for the calendar year ending in the fiscal year to the trend growth rate of IAAPI for the most recent seven years.
2. PI is total state PI less transfer payments.
3. PI is adjusted using the gross domestic product deflator.
4. The amount deposited is the excess of the annual growth rate over the trend growth rate multiplied by General Fund revenue of the prior fiscal year.
5. If the annual growth rate is less than 2 percent and less than the trend growth rate, the deficiency when multiplied by the General Fund revenue of the prior year equals the amount that can be withdrawn.

Figure 1.10 shows how deposits to and withdrawals from the CRF, using the rules of the Arizona Budget Stabilization Fund, would have modified the course of appropriations from the GRF. Application of these rules would have changed the course of appropriations very little over time and provided little relief from the FY 2002 – FY 2003 downturn in revenues. This is primarily because the General Revenue Fund was declining more than personal income in FY 2002 and FY 2003, but withdrawals from the CRF are not allowed unless the economy, rather than the General Revenue Fund, experiences a significant slowdown relative to its trend performance. The Arizona withdrawal rules are poorly designed to handle the problem of cyclically sensitive revenues. Under the Arizona rules, however, there would be \$401 million in the CRF at the beginning of FY 2004.

**Figure 1.10**  
**Oklahoma General Revenue Fund**  
**Funds Appropriated With and Without the CRF**  
**CRF Deposits and Withdrawals Under Rules of Arizona Budget Stabilization Fund**  
**FY 1988 - FY 2003**



**Application of Rules for the Virginia Revenue Stabilization Fund (VRSF).** The VRSF has deposit and withdrawal rules that bear some similarity to the Arizona rules, except deposits are governed by the growth of GRF collections, not personal income, and withdrawals are governed by unrealized estimates, not by reductions in personal income. These differences make the VRSF something of a hybrid of the Arizona Fund and the current Oklahoma CRF.

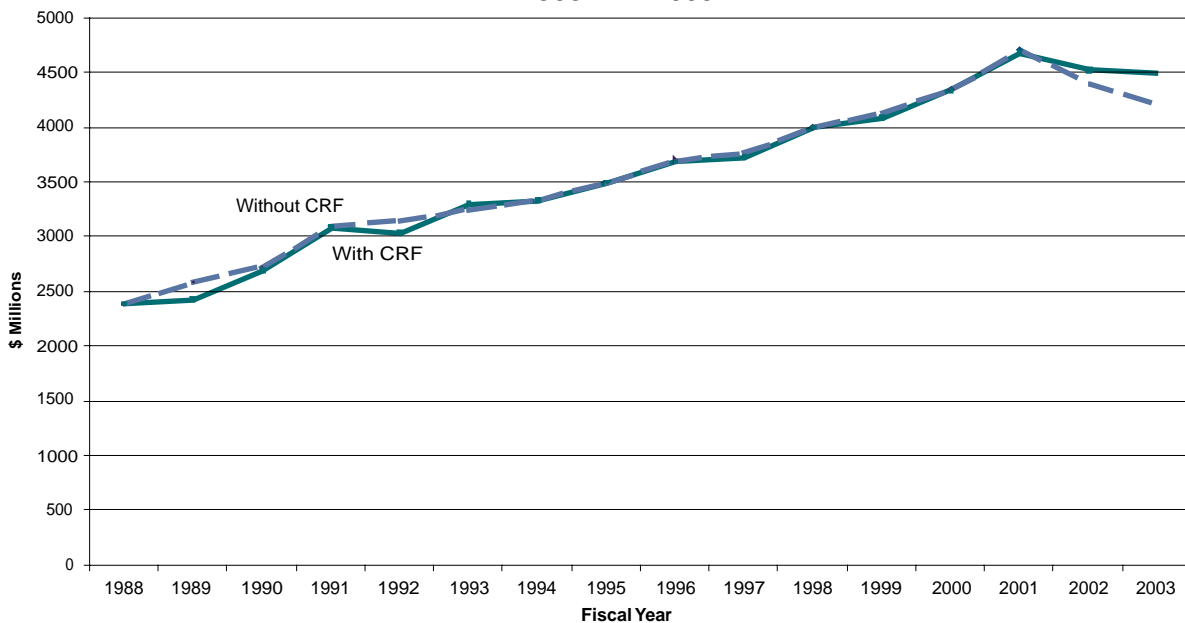
Deposits in the VRSF must be at least 50 percent of collections *times* the difference between the current growth rate of collections and the average growth rate of collections for the previous 6 years. Withdrawals can be no more than one-half of the excess of the estimate over collections, provided that the excess is more than 2 percent of the prior year estimate.<sup>6</sup>

The result of applying these rules to the CRF is illustrated in Figure 1.11. Had these rules been used in Oklahoma, the 2002 and 2003 shortfalls would have been cut in half, appropriations would have fallen from FY 2002 to FY 2003 by only \$32 million, and there would be a balance in the CRF at the end of FY 2003 of \$302 million. Withdrawals from the CRF would actually exceed deposits

by a small amount, but the Virginia rules also specify that interest earned on fund balances will be retained in the fund. Interest earnings are substantial because \$487 million out of a total of \$540 million withdrawn occurs in FY 2002 and FY 2003.

**Policy Implications.** Table 1.5 summarizes the deposit and withdrawal rules that have been illustrated above. Deposits in all plans except the ABSF and VRSF result from forecasting error; that is, from collections that exceed forecasts. Deposits in the ABSF are tied to unusually rapid growth in personal income while deposits in the VRSF are tied to unusually rapid growth in tax revenues. Withdrawals in all plans except the ABSF and VRSF are also tied, in whole or in part, to forecasting error; that is, to collections that are less than estimated amounts. Withdrawals under the current law are unique, however, in terms of the discretion afforded lawmakers via the emergency provisions in the law. Withdrawals from the ABSF are tied to unusually rapid declines in personal income and withdrawals from the VRSF are triggered by year-to-year decreases in estimated revenues.

**Figure 1.11**  
**Oklahoma General Revenue Fund**  
**Funds Appropriated With and Without the CRF**  
**CRF Deposits and Withdrawals Under Rules of Virginia Revenue Stabilization Fund**  
**FY 1988 - FY 2003**



**Table 1.5**

**Alternative CRF Deposit and Withdrawal Rules**

<b>Plan</b>	<b>Deposit Rule</b>	<b>Withdrawal Rule</b>
Current Law	GRF Collections > GRF Estimate	Emergency & Decrease in GRF Year to Year Estimate
Credit Interest to CRF	GRF Collections > GRF Estimate	Emergency & Decrease in GRF Year to Year Estimate
Cover Unrealized Estimate	GRF Collections > GRF Estimate	GRF Collections < GRF Estimate
Cover Estimate & Credit Interest	GRF Collections > GRF Estimate	GRF Collections < GRF Estimate
Exec Budget Proposal: Sev Taxes	SEV Collections > SEV Estimate	Automatic; Decrease in GRF Estimate w/r to 5 Yr Trend in GRF; Decrease in GRF Year to Year Estimate
Exec Budget Proposal: Big 4 Taxes	4 TX Collections > 4 TX Estimate	Automatic; Decrease in GRF Estimate w/r to 5 Yr Trend in GRF; Decrease in GRF Year to Year Estimate
Arizona Budget Stabilization Fund (ABSF)	Increase in PI w/r to 7 Year Trend in PI	Decrease in PI w/r to 7 Year Trend in PI & Current Growth in PI < 2 Percent
Virginia Revenue Stabilization Fund (VRSF)	Increase in GRF Collections w/r to 6 Year Trend in GRF Collections	GRF Collections < GRF Estimate & Current Decrease in Estimate > 2% Previous Year GRF Estimate

**Table 1.6**

**Constitutional Reserve Fund Alternatives  
Change in GRF Appropriations With Alternative Rules for the CRF  
FY 2002 – FY 2003  
(\$Millions)**

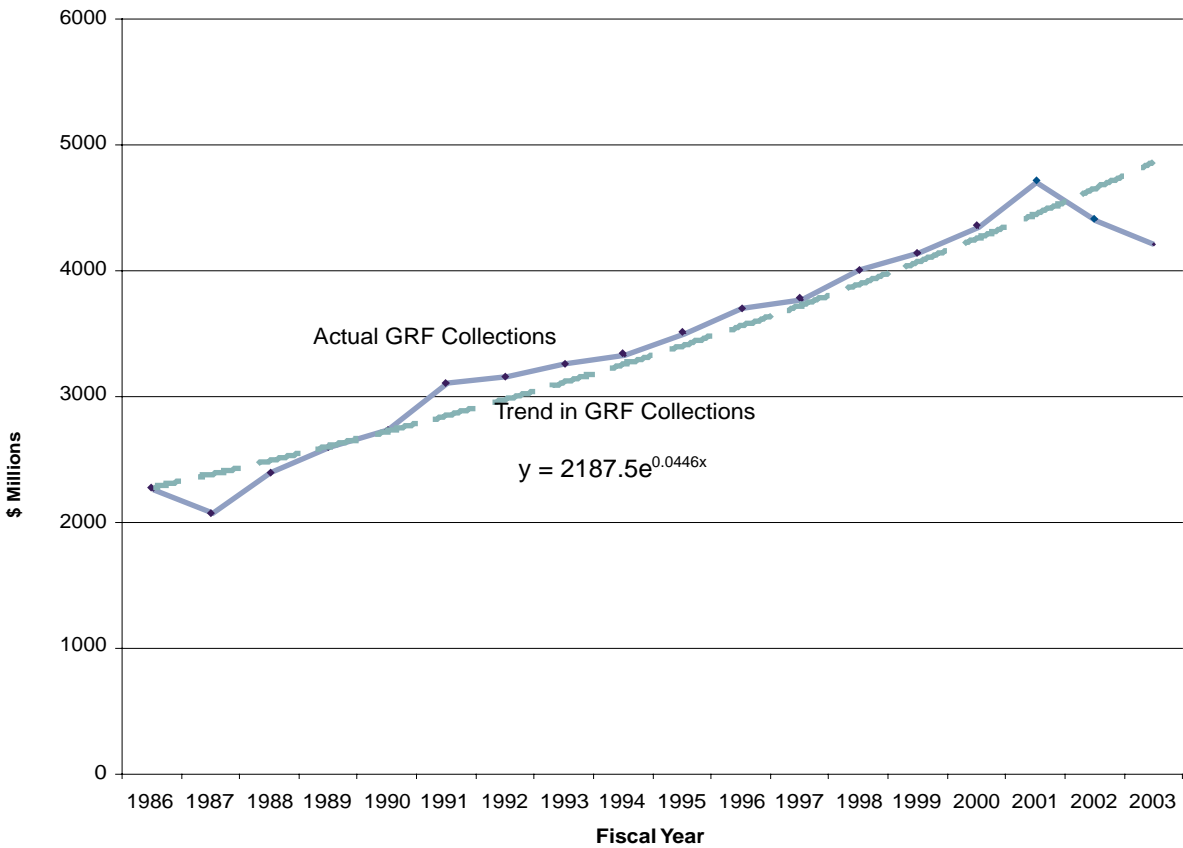
	<b>Current Law</b>	<b>Credit Interest To CRF</b>	<b>Cover Unrealized Estimate</b>	<b>Cover Estimate &amp; Credit Interest</b>	<b>Executive Budget Proposal: Sev Tx</b>	<b>Executive Budget Proposal: 4 Taxes</b>	<b>Arizona Model (ABSF)</b>	<b>Virginia Model (VRSF)</b>
Change in Appros FY 02- 03	-397	-307	-97	0	-50	-50	-189	-32

Table 1.7

**Amount Required from the CRF in FY 2002 to Maintain Long-Run Trend GRF Appropriations  
In FY 2002 and FY 2003; Amount Available from the CRF in FY 2002 Under Alternative Rules;  
CRF Balance Left in FY 2004 Under Alternative Rules  
(\$ Millions)**

Trend Requirement and Plans	CRF Balance FY 2002	CRF Balance FY 2004
Trend Requirement	924	
Current Law	341	0
Credit Interest to CRF	423	0
Cover Unrealized Estimate	897	0
Cover Estimate & Credit Interest	1141	215
Exec Budget Proposal: Sev Taxes	650	172
Exec Budget Proposal: Big 4 Taxes	456	216
Arizona Budget Stabilization Fund	579	401
Virginia Revenue Stabilization Fund	734	302

**Figure 1.12  
Actual and Trend CRF Collections  
FY 1986 - FY 2003**



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Some blame Oklahoma's current (FY 2003) budget crisis on poor forecasting. The actual forecasting record is relatively good, however; the average annual error over the 15-year period from 1987 to 2001 was only +1.5 percent.

The core problem is that we have failed to save enough under current rules governing the CRF. This can be illustrated in two ways. Table 1.6 shows the amount by which appropriations would have to be decreased with the application of alternative rules for the CRF. Application of all of the alternatives to the current rules would have resulted in a smaller reduction in appropriations from FY 2002 to FY 2003. Table 1.7 illustrates a somewhat broader view. The first row in this table indicates the amount required from the CRF in FY 2002 to maintain the long-run (FY 1989 – FY 2003) trend rate of growth in GRF appropriations for FY 2002 and FY 2003 – the period of the current budget crisis. The amount required is \$924 million, determined by fitting an exponential trend line to GRF collections, as shown in Figure 1.12, solving the equation for FY 2002 and 2003, and comparing the solutions with GRF collections in FY 2002 and 2003. The practical meaning of this number is that it is the amount that the state should have saved by FY 2002 to keep GRF appropriations on line with the long-run trend. This is not the only possible savings target, of course, but it will strike many as a reasonable goal. We already know, of course, that balances in the CRF were inadequate according to this criterion. They would have been slightly more adequate if CRF interest income had been saved as part of the CRF. Given the alternatives examined, the balance in the CRF would have met this criterion, however, only if withdrawals had been used to cover shortfalls in collections relative to estimates, and then only if interest earnings on CRF balances also stayed in the CRF. Application

of this withdrawal rule without interest credited would have resulted in balances that were a little short of what was needed. Next in line in terms of adequacy is the VRSF.

The second test implicit in Table 1.7 is the adequacy of balances at the beginning of FY 2004. Ideally, funds should be available in the CRF as a hedge against a longer-than-hoped-for crisis and to meet more remote contingencies. There are several rules that result in balances left over for FY 2004. The two rules that appear to perform best according to both criteria are those that: (1) limit withdrawals to shortfalls in collections relative to estimates and also credit interest earned to the CRF, and (2) mimic the VRSF.

We would not argue that this "evidence" is a sufficient basis for changing the state's constitutional provisions relating to the Constitutional Reserve Fund. We believe that it is a sufficient basis, however, for taking an even more extended, and critical, look at ways to improve the performance of that Fund.

## Endnotes

<sup>1</sup>Randall G. Holcombe and Russell S. Sobel, *Growth and Variability in State Tax Revenues*, 1997, Westport, Connecticut: Greenwood Press.

<sup>2</sup>R. Dauffenbach, A. Holmes, K. Olson, D. Penn, and L. Warner, "Revenue-Neutral Tax Reform for Oklahoma: Issues and Options," *State Tax Notes*, 21(5), July 30, 2001.

<sup>3</sup>R. Dauffenbach, et al.

<sup>4</sup>Office of the Governor, *Executive Budget: FY 2003*, p 99

<sup>5</sup>Arizona Revised Statutes, Article 35, Section 144

<sup>6</sup>Virginia's Revenue Stabilization Fund, from <<http://dls.state.va.us/pubs/report/report1.htm>>

# Contingent Liabilities and the State Budget: The Case of the Oklahoma Teacher's Retirement System

## Introduction

It is a well-established principle of democratic governance that the past cannot bind the future without extraordinary consideration. This principle allows for changes in policies by newly elected representatives of the people without being held to the views of past representatives. All statutes currently on the books potentially are up for re-consideration in every legislative session. In Oklahoma, this principle is embedded in the state constitution and is reinforced through many State Supreme Court rulings. Even the state constitution itself can be reconsidered, but may be amended only through extraordinary means.

This principle of flexibility for future legislative action is perhaps nowhere more apparent than in the area of the state budget process. The constitution provides that all appropriations must be for one fiscal year only and lapse at the end of the fiscal year, with all unexpended funds returned to the state general fund. Exceptions that exist, such as those for the Oklahoma Center for Science and Technology, are constitutionally provided. The constitution also provides that all state contracts must be for one year only. The common provision that a contract may be extended for three years nevertheless allows for a change in policy on an annual basis while providing some expectation of continuity for the vendor, but no legally enforceable right.

The state constitutional provision for a balanced budget is also a statement of this principle of providing freedom for changes in policy by future legislatures. Only a vote of the people may bind future taxpayers with debt.

Nevertheless, past policy creates precedent. Business and consumer expectations of the future tax code can affect economic decisions and the best predictor of the future tax code is the current

tax code. Past decisions, however, can and do create contingent liabilities for all future legislatures. They regularly play an important part in determining the *actual* funds available in any given budget cycle outside what is certified by the State Equalization Board. All general obligation bond debt takes precedence over plans for future expenditures, for example, reducing actual available funds for future fiscal years' appropriations.

During the past decade more and more legislative action has created future liabilities that affect actual available funds. The Quality Jobs program provides that future state payments will be provided to private sector firms on the basis of the number and salaries of new jobs created in the past. If all firms meet their expectations of future employment levels, the state is currently obligated for more than \$700 million.<sup>1</sup>

The state constitution provides five-year property tax abatement for certain industries for new or expanded activities. The state provides payment to local units of government from the Ad Valorem Reimbursement Fund to make up for these losses of local revenues. These reimbursements are funded with income tax revenues that would otherwise be available for appropriation from the general fund. The current year's liability of this program is estimated at \$50 million. The cumulative annual liability is at least five times that amount.

The legislature, in a contested action, has pledged future state general fund revenues for the repayment of significant bond debt. These so-called revenue anticipation notes currently reduce funds available for other programs by \$59.3 million for highway bonds alone. Combined with lease purchase agreements with state agencies, the Capitol Improvement Authority has annual debt service obligations of \$84.1 million which must come from funds for other state activities prior to any legislative determination of priorities.

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## Pension System Liabilities

The largest contingent liability of the state comes from obligations to current retirees and vested members of the seven state-managed defined benefit retirement programs. Combined, these programs have a present value obligation of \$22 billion. These programs are not without assets. The current combined actuarial value of all assets of these programs is \$14.9 billion. Nevertheless, this leaves an unfunded liability of \$7.1 billion.

The unfunded liability of a pension program is not an appropriate measure of the full contingent liability of the state. The unfunded liability of a pension program measures the revenues required to pay all current and future obligations if the program were to be terminated. A program that is one hundred percent funded could theoretically cease and meet all obligations. There are good policy reasons that a state retirement program *not* be one hundred percent funded. A retirement program that is one hundred percent funded is operating on a cash basis, meaning that current taxpayers are paying for benefits that will be provided in the future. Just as intergenerational inequity issues exist when capital programs are funded on a cash basis; the same concern exists when retirement programs are funded on a cash basis. Further, states do not cease operations while private sector firms do, so the financial concern that future obligations can be met are different. This is an important difference between state retirement programs and private sector retirement programs that are required to have higher levels of funding and shorter amortization periods under federal ERISA laws. Government pension systems are exempted from these requirements.

Even with this difference between private sector pension systems and government pension systems, there are fiscally prudent levels of funding and amortization periods for a state pension system, albeit not ones that are uniformly agreed upon.

Oklahoma has seven defined benefit pension plans for various groups of state and local public employees. These are: Oklahoma Teacher's Retirement System (OTRS), Oklahoma Public Employees Retirement System (OPERS), Okla-

homa Firefighter's Retirement System, Oklahoma Police Retirement System, Oklahoma Law Enforcement Retirement System, (OLERS), Oklahoma Judges and Justices Retirement System (Judicial), and Oklahoma Department of Wildlife Retirement System. Each system is funded with a combination of revenues from members and government contributions. In the case of Firefighters some revenues come from a portion of the insurance premium tax on property and casualty policies written in the state, part of the Judicial System revenues come from court fees, and OTRS receives a dedicated portion of the general revenue fund. The contribution levels and benefit structures of all public retirement systems, even those for local government employees such as city firefighters and police officers and county workers (covered by OPERS), are controlled by state legislation. State and county elected officials are covered under the OPERS retirement system.

The benefit structures of the different systems vary dramatically. Vesting occurs within OPERS at 8 years and at 10 years for OTRS. Full retirement occurs within Firefighters, Police, and OLERS with 20 years of service, and for OTRS when the combined years of service and age equal 90 – the Rule of 90. Even within OPERS, correctional officers can receive full retirement benefits with 20 years of service, but employees of other state agencies covered by OPERS must meet the Rule of 90. And within OTRS, employees hired prior to 1992 can retire with reduced benefits under the Rule of 80 (combined years of service and age equal 80) rather than waiting to retire until meeting the Rule of 90. Further, some retirement systems cap benefits while others do not.

The percentage of total contributions to the system directly from employees' paychecks can also vary significantly from system to system and from year to year. In years when pay raises cannot be provided, a reduction in the employee contribution to OPERS has been provided. The employee contribution to OTRS has risen significantly during the past decade in response to the particularly dismal financial condition of that fund. Oklahoma law allows cost-free transfer of years of credited service within funds for employees who change their employment agency and further

allows "double-dipping" for employees who change employment and become vested in more than one system.

Each system, even though managed under state law, is controlled by a separate statute. There are uniform statutory investment guidelines and reporting requirements, but investment decisions are the responsibility of the board that governs each system. As separate funds with different funding and benefit histories, there are different levels of state contingent liabilities arising from each system. Table 2.1 presents the current actuarial assets of each system, their unfunded liabilities, and the current ratios of assets to liabilities (funding ratios).

While revenues from employees and contributions by the state or other governments either directly or through dedicated tax and/or fees are a significant part of the total revenues of each fund, actuarial accrued liabilities are dramatically affected by the investment performance of each fund. Each fund has an assumed actuarial investment return which acts as a target that must be met or increases in liabilities will occur. In the past, some states have made unrealistic assumptions for

these investment returns in order to "pad" the actuarial value of assets of their retirement systems. Oklahoma retirement systems have taken what was thought to be a relatively conservative approach by assuming 7.0% to 8.5% rates of returns. In recent years, however, attaining these returns has proved impossible, even for the most sophisticated investors.

All Oklahoma retirement systems employ professional investment firms to manage their assets. These firms receive contracts on the basis of bids and their historical performance. They are evaluated each quarter by the system's own outside investment advisor and also by the Oklahoma State Pension Commission's independent investment advisor. These evaluations compare Oklahoma pension system fund managers against all fund managers on the basis of the type of funds in which they invest, e.g. large capitalization stock fund managers are compared to all large capitalization stock fund managers.

Table 2.2 presents the over all investment returns of each of Oklahoma's pension systems for the past five years and past seven years.

**Table 2.1**

**Oklahoma Public Retirement Systems  
Assets, Liabilities, and Funding Ratios  
September 30, 2002  
(\$ Thousands)**

	<b>Actuarial Value of Assets</b>	<b>Actuarial Value of Liabilities</b>	<b>Funding Ratio</b>
OTRS	\$ 5,959,000	\$11,159,100	51.4
OPERS	5,299,781	6,639,720	79.8
Fire	1,457,200	1,858,100	78.4
Police	1,370,024	1,554,288	88.1
OLERS	570,337	632,401	90.2
Judicial	193,010	130,227	148.2
Wildlife	55,367	58,675	94.4
<b>Total</b>	<b>\$14,904,719</b>	<b>\$22,032,511</b>	

Table 2.2

**Overall Investment Returns of Oklahoma's Pension Systems,  
Past Five Years and Past Seven Years,  
Ending September 30, 2002**

System	Percent Rate of Return	
	Past 5 Years	Past 7 Years
OTRS	3.4	7.6
OPERS	1.9	6.3
Firefighters	1.3	5.8
Police	1.6	5.6
OLERS	2.7	6.9
Judicial	3.5	7.7
Wildlife	1.9	7.2
Median Total All Public Funds	3.1	7.0

The returns during the most recent year are dismal, with the best results coming from the Judicial fund, which lost *only* 3.4 percent, while the Wildlife fund lost 8.9 percent. The median public fund return for the same time period was a loss of 6%. Results from the third quarter of 2002 are even more alarming, with losses ranging from 9.9 percent at OTRS to 5.7 percent at Judicial. The median loss of all public funds during the third quarter of 2002 was 8.5 percent; no wonder states are concerned about the poor performance of the stock market and low returns on fixed assets. When actuarial assumptions call for returns of 7 percent, losses of even 1.3 percent over a three-year period - the median loss of all public funds during the past three years - creates increases in unfunded liabilities that become almost insurmountable even for very long-run periods, simply because of the powerful effect compounding has on total liabilities.

Even with these abysmal returns, Oklahoma's pension systems have managed to maintain reasonable levels of unfunded liabilities, with the notable exception of the Teacher's Retirement System.

### **Oklahoma Teacher's Retirement System Liabilities**

From Table 2.1 it is clear that the Teacher's Retirement System creates the greatest contingent liability for the state of all the retirement systems. With a funding ratio of just over 50%, OTRS has approximately \$5.2 billion in unfunded liabilities. Perhaps more disturbing is the fact that the level of unfunded liability of the Teacher's Retirement System has grown from approximately \$4.7 billion in 1996 while the funding ratio has *improved* from 39.6% in that year.

Table 2.2 provides some understanding of the cause of this situation. With returns at less than the actuarially assumed level, the Actuarial Accrued Liabilities will increase. However, Actuarial Accrued Liabilities are based upon the *actuarial* value of assets, as provided in GASB 25 regulations, not the market value of assets. The full effect of the recent market decline in assets will not be felt in the funding ratio for three or four years because of the smoothing that takes place in determining the actuarial value of assets. What one concludes is that the increase in the OTRS actuarial liabilities while the funding ratio improves is the result of granting new benefits

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without concomitant increases in revenues above and beyond the negative effects of investment returns below actuarial assumptions.

## **Oklahoma Teacher's Retirement System Funding/Benefit History**

The Oklahoma Teacher's Retirement System has not always been so dangerously under funded. Begun in 1943 to provide a retirement benefit to Oklahoma's teachers, both within the elementary and secondary system and the higher education system, it was funded with a percentage of the gross production tax on natural gas as well as contributions by employees and employing schools districts and institutions of higher education. When the vocational-technical system was created in 1962 its teachers and staff were added to the system.

Like the OPERS at that time, OTRS provided benefits that were capped and thus collected revenues based on the capped salary level. As recently as 1974, the annual benefit cap was only \$9,500. With inflation, of course, a cap fixed at this level means that only a small and declining real retirement benefit was provided. Further, the ten-year vesting requirement meant that, particularly for faculty in the higher education system, retirement benefits were not provided to retirees with shorter term employment. The University of Oklahoma and Oklahoma State University responded to this impairment of their ability to recruit faculty by supplementing OTRS in the early 1970s with a defined contribution plan used by most other colleges and universities nationwide, TIAA/CREF. They contributed approximately 14 percent of salary to this portable plan. Other institutions with the Oklahoma higher education system have since provided this plan to their faculty. A defined contribution plan has no cap on potential benefits because these are driven by amounts contributed and investment returns.

As time passed, caps on benefits were increased in OTRS in increments. But as each increase occurred, benefits were frequently provided retirees as if the cap had never existed. This meant that revenues were remitted based on

low-capped wages and salaries but benefits were provided based on higher caps, thus creating additional liabilities without additional revenues. For each generation of retirees this meant a windfall in benefits relative to contributions.

The funding ratio of OTRS even in a period of significant increases in natural gas tax collections, remained one of the worst in the nation. In 1980, the funding ratio stood at the dangerous level of only 33.8%. Without reviewing the actual funding needs of OTRS, the legislature in 1982 (Senate Bill 18) placed a cap of \$125 million on the gross production tax revenue that would go to OTRS, dedicating the remainder to the Pension System Reserve Fund. Eventually these funds were used to help fund the newly- created Fire-fighters and Police systems that were taken over by the state from cities because of the mismanagement of individual city systems. This action alone cost OTRS approximately \$311 million; funds that would have, with average investment returns, reduced the unfunded liability of the system by some \$2 billion dollars by 2002. Following the oil bust of the 1980s, the cap on the gross production tax became a moot issue, and was repealed in 1988. Coupled with an extremely conservative investment policy, unlike that allowed at OPERS, and other unfunded benefits granted by the legislature from 1980-1986 (the actuarial cost of new benefits granted during this period has been estimated at \$1.54 billion), OTRS emerged from this period with significant unfunded liabilities.

In 1987, perhaps the most damaging piece of legislation to OTRS was passed, House Bill 1473. Simultaneously, the benefit cap was lifted from \$25,000 to \$40,000 and an early retirement window was created that allowed retirement at the new capped level and increased the computation of the final average salary for retirement benefits. The estimated cost of these new benefits was estimated to be nearly \$900 million. A health benefit was also created, but that proved so costly so quickly that it was transferred to a newly created State and Education Employees Group Health and Dental Insurance Plan the next year, but taking with it \$25 million as startup funding. From 1986 to 1990, the OTRS funding ratio declined almost 20 percentage points, a 34 % percent decline.

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The OTRS thus started 1991 with huge unfunded actuarial liabilities as well as dramatic increases in cash outflows. These outflows cut into OTRS's investment returns because they reduced funds available for investment. However, in 1992, the OTRS was placed on equal footing with the other retirement funds as to the options available for investment, putting in place a version of the "prudent man" rule. No changes in contribution levels were provided for all the increases in benefits that had been granted current and future retirees, however.

Even today, the "normal cost", the percentage of salary provided to support the benefit level for current members, is only 10.28%. The total contribution by all contributing parties is 17.34%, but the unfunded liability can only be amortized over 40 years with a contribution level of 18.18 % of salaries. These high levels of required funding arise almost entirely from benefits granted previous and future retirees that must be paid by current employees. Put another way, benefits to active members are equal to approximately 10.28% of salary of current employees, but to pay for liabilities for past services an additional 7.9% of current salary is required.

In order to address the problem of increasing unfunded liability in the OTRS, legislation was passed in 1997 (Senate Bills 568 and 527) that put in place a graduated schedule of increases in contribution levels from employers - institutions of higher education and school districts. This schedule required contributions eventually reaching 18% of salary - enough to guarantee full funding over a 20 year horizon - but it would have placed significant stress on education budgets.

Because of the difficulties faced by education entities in meeting this funding schedule, a special joint legislative and gubernatorial task force was created to develop recommendations balancing the funding needs of the system with the budget impact of the statutory requirements. The result was a reduction in the amount that educational entities would contribute, resulting in an extension in the time period for amortizing the unfunded liability from 19 years to 29 years. The portion of the natural gas tax previously dedicated to OTRS was placed in the general revenue fund

and a portion of the general revenue fund based upon covered salary within OTRS was dedicated to the OTRS fund. This had the effect of funding OTRS on the basis of actual salary requirements rather than a tax source noted for its volatility. The funding schedule for OTRS, nevertheless, remains precarious.

## **Teacher's Retirement: Potential Future Contingent Liabilities**

The Oklahoma Teacher's Retirement System remains the second worst-funded public retirement system in the nation, a position it has held continuously since such comparisons have been made starting in 1982. The simple magnitude of the potential liability of some \$5.2 billion should give pause. But retirement liabilities are more like debt liabilities than actual cash liabilities. That is, retirement liabilities ought to be paid over time rather than funded strictly on a cash basis.

Given the recent decreases in investment returns that have occurred, OTRS full amortization is estimated to require 62.2 years. No debt, even for capital improvements, can be prudently funded over such a long period. The state constitution limits state and local government debt repayment to 25 years.

Senate Bill 1376 recognized this absurd situation and changed the level of contributions that would go to OTRS from sales, use, and income taxes directly from the general revenue fund. This change will not take effect until 2004, however. If this commitment is actually honored in the difficult budget process of maintaining the FY 2003 budget and developing the FY 2004 budget, OTRS could reduce its amortization period by 21 years to a more appropriate level of 41 years. There are no clear guidelines for the prudent amortization period of a public pension system, but certainly 41 years is at the furthest end of prudence. Other Oklahoma pension systems amortize their liabilities over 20 to 30 years, a period that is also common nationally. Just five years ago, the debate concerned whether or not extending the OTRS amortization period from 19 years to 29 years was prudent.

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## Final Thoughts

The process of developing the annual budget for the state of Oklahoma begins with the certification of revenues by the state equalization board. The estimated revenues plus cash on hand are thought to constitute the “funds available for appropriations.” In reality, significant reductions are required before the actual priority setting process of budgeting can occur. These constitute the contingent liabilities of the state and presumably take precedence. For such matters as debt service and payments for lease purchase agreements and various statutory promises made to local governments and the private sector this is true. Quality Jobs payments, and payments to school districts and local governments for in lieu ad valorem taxes abated under the constitution are accounted for prior to developing the state budget.

The matter of unfunded liabilities of the pension systems is, however, very different. Indeed, the assets of the pension systems are often viewed without regard for the systems’ liabilities. Significant spending can and does take place without apparent cost to other competing budget priorities. Indeed, the pension systems often are the place where funds are “found” so that other priorities can be funded. Pay raises in the form of reduced employee pension contributions have been made in the OPERS system and reduced employer contributions by the education entities have been used to increase operating funds for school districts and institutions of higher education. Each of these strategies is “costless” to the general fund but increases the unfunded liabilities of the state, often dramatically.

Perhaps the most pernicious use of the pension systems is the wholesale granting of so-

called cost of living increases to current retirees. Not coincidentally, these are granted in election years. None of the funds’ estimates of actuarial accumulated liabilities account for ad hoc COLA adjustments and thus each are “funded” through increases in the amortization period that reduces the funding ratio. In 2002 the legislature granted five percent COLAs to retirees in all of the systems at an estimated cost of \$390 million; \$131 million of which must be provided by the pathetically funded OTRS. These COLAs are granted without regard to the actual changes in the purchasing power of retirees and are often structured to provide greater benefits to people with the least past service to the state by granting increases on the basis of the size of the retirement funds received. Eventually, of course, these expenditures will have to be covered with actual dollars.

It is the very nature of contingent liabilities in the state budget that they provide political benefit to those who grant them, but a cost to those who come later who have to fund them. With term limits and the natural turnover in the legislature, perhaps it is not unexpected that a greater and greater part of the “funds available for appropriation” are in reality already committed.

## Endnotes

<sup>1</sup>According to Kent W. Olson, (“Tax Incentives for Oklahoma Business Firms: Issues in Accountability, Targeting, and Evaluation,” *State Policy and Economic Development in Oklahoma:2002*, Oklahoma 21<sup>st</sup> Century, Inc., Oklahoma City, 69) the state’s long-run obligation under this program was \$694 million as of 1999. Many additional firms have been enrolled in the Quality Jobs program since then.



## Oklahoma's Rural Economy and Structural Change: Perspective and Challenges

**E**conomic development—the growth of jobs and income—has long been a focal point of state government policies in Oklahoma. Recently there has been special emphasis on two dimensions of state development that are viewed as indicators of an economy failing to perform as well as desired. First, the state's per capita personal income appears to be stuck at about four-fifths the national average—a differential far greater than justified by the state's relatively low cost of living. Second, and more dramatic than the income differential, is the recent loss of one of the state's six members of the U.S. House of Representatives due to reapportionment following the 2000 census. The state's population growth during the last half of the 1980s and the 1990s had failed to keep up with the rest of the nation.

Given this general challenge of economic development, why should there be special policy emphasis on the state's rural economy? Why is rural development different from metropolitan development?

Many of the fundamental factors affecting state economic development are the same in rural and metropolitan areas. These factors range from the state's tax and regulatory systems to more generalized features such as climate and fundamental geographic location. However, two features of rural Oklahoma stand out as contrasting with metropolitan areas. Per capita personal income is lower in many rural areas, and many rural areas have been experiencing slow population growth or even decline. Given the fact that two-fifths of Oklahoma's population lives in rural areas, there is no doubt that the state's overall economic performance would be improved as a result of raising rural incomes and boosting rural population growth.

This chapter focuses on the history and status of rural Oklahoma, and the following

chapter examines policies for economic improvement and general community improvement. In this chapter, emphasis is placed on some of the structural changes that are challenges for development in rural Oklahoma—including challenges for community leadership. Some of these challenges, such as the evolution of the agricultural industries, have been around a long time. Other challenges are relatively new and include such matters as the availability of wide-band telecommunications.

Before examining structural change, it is necessary to be more specific about what is meant by the terms “rural” and “metropolitan” or “urban.” Armed with an operational definition of these terms, it is then important to emphasize that rural Oklahoma is certainly not a single homogeneous area. Ways of classifying rural counties are presented which suggest that it is inappropriate to use “one size fits all” interpretations of the nature of rural problems and their solutions. A brief review of the history of rural/urban population growth in Oklahoma helps to set the stage for the impacts of structural change on rural community and economic development. The review of the effect of structural change includes the following sectors: agriculture, oil and gas production, manufacturing and processing, federal and state government, retailing, health care, banking, utilities, and the print media. This chapter concludes with a summary of threats and opportunities to rural economic development in an environment of “New Economy” global development.

### Defining “Rural”

In contemporary analyses of U.S. rural/urban issues, it is common practice to start with the U.S. Census Bureau's concept of a “Metropolitan Statistical Area” (MSA). An MSA basically

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involves a county with a city of at least 50,000 inhabitants, together with adjacent counties with substantial commuting interaction with the main county. These officially designated counties are defined as “metropolitan” or “urban.” The balance of a state’s counties is then treated as “rural.”

In Oklahoma, the MSAs currently include 14 of the states 77 counties. These are Oklahoma City (Canadian, Cleveland, Logan, McClain, Oklahoma, and Pottawatomie Counties); Tulsa (Creek, Osage, Rogers, Tulsa, and Wagoner Counties); Lawton (Comanche County), Enid (Garfield County); and Oklahoma’s share of the Ft. Smith, AR MSA (Sequoyah County). This convention works reasonably well in analyses of economic development even though it is clear that there are, in the ordinary usage of the word, areas within the MSA counties that are quite rural in nature. It is admittedly awkward to treat much of giant Osage County as “metropolitan.”

Not applied in this and the following chapter is a different definition of “rural” and “urban” also used by the U.S. Census Bureau. That approach focuses on the size of municipalities, and treats as “rural” the open countryside and cities with fewer than 2,500 residents unless the city is located within a larger densely populated area.

## Sorting Different Rural Areas

Various approaches have been used in efforts to understand rural economic development processes and problems. These range from treating each county as unique to more complex classifications based on economics and policy. After reviewing the merits of alternative approaches, it is suggested that a good deal of understanding can be achieved for Oklahoma by using a simple east/west dichotomy.

**Every County Unique**—It can be argued that every one of Oklahoma’s 77 counties is unique, with its own history, economic base, and governmental structure. This recognizes that each area has been influenced by unique historical events and the impact of particular leaders. However, such an approach is too complicated and

impedes analysis, generalization, and understanding.

**One Size Fits All**—A totally opposite position argues that all rural counties should be treated as a single area with emphasis on lower population density than found in MSAs. Such a homogeneous approach was explicit in the 1987 proposal by the Poppers to solve the problem of development in the entire U.S. Great Plains area by having the federal government acquire virtually all the land, resettle the current residents, and turn the area into a giant reserve called the “Buffalo Commons.”<sup>1</sup>

Any reasonable assessment of conditions in Oklahoma suggests the absurdity of the Poppers’ proposal. The amazing variation in climate and topography in Oklahoma immediately dispels the idea of rural Oklahoma as a single homogeneous area. For example, average rainfall per year ranges from above 50 inches in the southeastern part of the state to around 20 inches in the Panhandle, and elevation ranges from 289 to 4,973 feet.<sup>2</sup>

**Searching for Important Distinctions**—A more sophisticated approach was recently proposed by Stauber at a conference sponsored by the Kansas City Federal Reserve Bank’s Center for the Study of Rural America.<sup>3</sup> He suggests four types of rural regions in the United States:

- *Urban periphery*—within a 90 minute commute of large cities;
- *Sparsely populated*—with low population density, isolation, and limited opportunities;
- *High amenity*—areas with attractive scenery and prospects for attracting tourists and retirees; and
- *High poverty*—regions with persistent poverty.

It is fairly easy to anticipate how such a classification system might apply to rural Oklahoma. Much of the western half of the state would be *sparsely populated* and portions of the east would be both *high amenity* and *high poverty*. Given the state’s interstate and turnpike highway system, defining the *urban periphery* as being within a 90 minute commute of a large city is probably not very useful; 30-45 minutes would be

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more appropriate. Many business firms with out-of-state sales have rules of thumb that they will not locate more than a 30-45 minute drive from a major airport.

**The USDA/ERS System**—A more complex system of classifying rural counties was developed during the 1980s and 1990s by the U.S. Department of Agriculture’s Economic Research Service.<sup>4</sup> As the system is currently applied, it takes two approaches to sorting out rural counties. The first approach focuses on counties’ primary economic activity as measured by certain sectors’ shares of labor and proprietor income and the second is oriented toward the application of public policies.

The six economic classes and the number of rural Oklahoma counties in each are *farming dependent* (19), *mining dependent* (4), *manufacturing dependent* (4), *government dependent* (13), *services dependent* (7), and *nonspecialized* (16). The *farming dependent* counties, with that sector accounting for 20 percent or more of labor and proprietor income, are mainly in the western half of the state, while the *government dependent* counties tend to be in the eastern half.

The classification of counties according to policy emphasizes the challenges faced in designing and delivering government services to rural areas. Unlike the economic types, these are not mutually exclusive classifications, and one county may fall into more than one of the five classifications. The classes of counties are *retirement destination*, *federal lands*, *commuting*, *persistent poverty*, and *transfer dependent*.

One Oklahoma county, Delaware, adjacent to Grand Lake in the northeast, is classified as *retirement dependent*. While not on the ERS list, the area in Cherokee and Sequoyah Counties around Tenkiller Lake is known for attracting retirees. There are no counties in the state in which ownership of *federal lands* dominates (as is the case in many areas of the far west). In five *commuting* counties, at least 40 percent of the employed residents had jobs outside the county. Sixteen of the 20 counties classified as *persistent poverty* are in the eastern half of the state, as are 25 of the 28 counties in the *transfer dependent* category. Many of the counties classed as *persistent poverty* are also *transfer dependent*.

**A Simple East/West Oklahoma Dichotomy**—In order to review the historic evolution of rural Oklahoma in the paper’s next section, counties are sorted out in a very simple but meaningful system. The 27 rural counties west of the tier of counties through which Interstate 35 runs north to south are treated as the *western rural* (non-MSA) area, while the remaining 36 rural counties are treated as *eastern rural* (non-MSA). Particularly in the current economic environment, this distinction suggests contrasting growth patterns and challenges for development. Moreover, in a very rough way, this east/west classification recognizes contrasting historical patterns of settlement prior to statehood between Indian Territory in the east and Oklahoma Territory in the west.<sup>5</sup>

## History of Rural/Metropolitan Population Growth

Commenting on the proposition that Oklahoma has too many small towns, historian Bob Blackburn recently observed “We never should have grown as much as we did between 1898 and 1928.”<sup>6</sup> The validity of this proposition is illustrated by the fact that rural Oklahoma’s 63 counties, in the aggregate, experienced a 28 percent loss in population between 1930 and 1960. Citing an “accident in history,” Blackburn pointed out how abundant farmland attracted settlers and how the discovery of oil created boom conditions in one area after another throughout the state.

**Rural/Metropolitan Patterns**—Unlike rural Oklahoma, whose 2000 population of 1,352,292 was 87,173 less than its 1920 level, metropolitan Oklahoma has grown steadily throughout the state’s history. The 2.1 million people in the state’s MSAs accounted for 60.8 percent of the 2000 total population (Table 3.1).

**East/West Contrasts**—The lack of homogeneity in rural Oklahoma appears in a comparison between the 27-county area west of I 35 and the area to the east of I 35. The population of the western rural counties was 462,438 in 1920 and 364,225 in 2000; the eastern counties’ population in 2000 (988,067) was actually a little larger (+11,240) than its 1920 level. The forces leading

to rural decline were much stronger in the west than in the east.

**County Patterns**—A more uneven pattern of population change is observed on a county-by-county basis. For each decade between 1910 and 2000, the number of metropolitan, rural east, and rural west counties losing population is reported in Table 3.2. This table indicates significant periods during which much of rural Oklahoma was emptying out. Even as early as 1910-20 it was clear that the west had attracted too many settlers during the various openings of land for white settlement following 1889. Except for the 1920s and 1970s, most of the counties in rural western Oklahoma have been losing population. In the extreme, for example, are the western counties Alfalfa and Grant that have lost population during every decade since 1910.

During the period 1940-60, most of the eastern rural counties were also losing population. However, this pattern was reversed in the east in the 1960s. During the energy boom decade of the 1970s, all 36 of the eastern rural counties and 18 of the 27 western counties experienced increases. Rural Oklahoma then suffered a return to extensive decline during the 1980s as the energy boom turned to bust. For the western rural area, the extensive pattern of decline continued in the

1990s, while the eastern rural counties experienced a return to growth. The east-west contrast is particularly striking during 1990-2000, when only one of the eastern rural counties lost population, while there was a population decline in 19 of the 27 counties in the western rural area.

The pattern of population decline observed for the state's 14 MSA counties illustrates the effect of the spread of the state's two large metropolitan areas, Tulsa and Oklahoma City. Especially during the period 1930-60, a significant number (8 of 14) of MSA counties lost population each decade. That reflects the fact that many of the counties surrounding the two big cities were relatively unaffected by the big city growth during that period; these were truly rural counties. However, during the entire period 1960-2000, there are only three instances of decadal population decline for any MSA county—only one of which was in the Tulsa or Oklahoma City MSAs. In fact, the 1990s witnessed substantial population growth in several rural counties adjacent to the two big MSAs, e.g. Grady County next to the Oklahoma City MSA, Okmulgee and Mayes Counties next to the Tulsa MSA, and LeFlore County next to the Ft. Smith MSA. It would not be surprising to eventually see these counties added to the officially designated MSAs.

**Table 3.1**

**Rural and Metropolitan Population,  
Oklahoma, by Decade, 1910-2000 (thousands)**

Year	Total population	Metropolitan Statistical Areas	Rural (non-MSA)	Percent rural
1910	1,657	439	1,218	73.5
1920	2,028	589	1,439	71.0
1930	2,396	831	1,566	65.3
1940	2,336	839	1,498	64.1
1950	2,233	965	1,269	56.8
1960	2,328	1,202	1,127	48.4
1970	2,559	1,432	1,127	44.0
1980	3,025	1,713	1,311	43.4
1990	3,146	1,870	1,276	40.6
2000	3,451	2,098	1,352	39.2

Source: Oklahoma Department of Commerce, State Data Center.

Table 3.2

Counties Losing Population, Oklahoma, by Decade, 1910-2000

Decade	Total	MSA state	Eastern rural counties	Western rural counties
Total counties:	77	14	36	27
Number losing population:				
1910-20	20	4	2	20
1920-30	27	1	19	7
1930-40	49	8	15	26
1940-50	64	8	32	24
1950-60	63	8	31	24
1960-70	39	1	17	21
1970-80	9	0	0	9
1980-90	46	2	19	25
1990-2000	20	0	1	19

Source: Oklahoma Department of Commerce, State Data Center.

**Community Response to Population**

**Change**—Rapid population growth creates challenges for communities, but the effects of decline are surely more frustrating. Challenges of rapid growth during the 1990s were particularly great for retirement/tourism-oriented counties in the east (Delaware, Cherokee) and for Texas County in the west where growth was stimulated by extensive growth of hog production and processing. As significant as the challenges of growth may be, the basic economic factors generating the growth also generate the fiscal resources and the community commitment to somehow manage that growth.

An area with significant population decline is normally facing economic forces beyond its control. Population decline is associated with net outmigration—and it is a well-known fact of demography that migrants are normally younger and better educated than those staying put. Migrants may also be more innovative. The community experiences a shrinking of the local sectors with declining school enrollment, fewer retail stores, and a less extensive mix of services. The physical complexion of rural trade centers (often county seats) deteriorates as commercial buildings become vacant and as the community’s housing

stock deteriorates. The physical structure of the community’s business district was designed to serve a much larger population—even before the stresses of restructuring the retail sector evolved. The general decline in life quality naturally leads to efforts to promote economic development and to provide greater employment opportunity—especially for young people.

While less dramatic than the case of population decline, rural communities with relatively static populations face many of the same problems. A static or slowly growing population is also characterized by net outmigration of the young. Moreover, when other areas are growing more rapidly, there is also a loss of community prestige and influence—particularly in the political sphere.

**State Rural Policy and Population—**

Before leaving the topic of population change in rural Oklahoma, it is important to mention a situation that greatly influenced Oklahoma state government policies toward rural areas. Until the mid-1960s *rural overrepresentation* was one of the most important facts of political life in the state. While the population of the state’s metropolitan counties grew from 439,000 to 1.2 million between 1910 and 1960, and while the rural

population declined 91,000, the geographic boundaries of districts used in elected members of the Oklahoma Legislature remained stable. By 1957, the University of Oklahoma's Bureau of Government Research could set forth the following propositions about conditions expected in 1958.

In the general election of 1958, based on population estimated (1956), one ballot dropped in a box in District 26 (Love and Marshall Counties) will have almost twenty-one times the weight on issues considered in the Oklahoma Senate as one ballot cast in District 31 (Tulsa County). One ballot cast in Cimmaron County for State Representative will equal thirteen ballots cast for a Representative in Oklahoma County. Other ratios of ten and eleven to one are found in either house while others of four, five, and six to one are common.<sup>7</sup>

After an extensive legal battle, with the state defending the status quo, in 1964 the federal courts ordered effective reapportionment of the Oklahoma Legislature based on actual population. The immediate result was a major change in the make-up of the Legislature as more than half the incumbents did not retain their seats.<sup>8</sup> Since that time, as metropolitan Oklahoma has expanded relative to rural areas, so has legislative representation. Whatever the concerns of recent legislatures for rural economic development, there is no doubt that policy formulation is less sensitive to rural issues than was the case before the major reapportionment in 1964.

## The Current Economic Structure of Rural Oklahoma

A current overview of the structure of rural Oklahoma provides a basis for examining several major changes that are affecting economic and community development.<sup>9</sup> The nature of this structure is examined using per capita and total personal income, and the components of earnings by place of work.

**Per Capita Personal Income**—Rural Oklahoma's relatively low per capita personal income has already been mentioned—in 2000, \$19,520 in comparison with \$26,307 in the metropolitan area.<sup>10</sup> The reasons for this striking differential are complex, but two features from the 2000 Census of Population suggest the fundamental basis for low income levels. Rural Oklahomans are much less likely to have jobs than their metropolitan counterparts, and are much less well-educated.

The employment rate refers to the share of an area's population 16 years old and over holding military or civilian jobs. These rates indicate much lower fundamental levels of productive economic activity by the rural population. The 2000 employment rates were:<sup>11</sup>

	<u>Male</u>	<u>Female</u>
Total state	66.0%	52.1%
Metropolitan areas	69.6	54.9
Rural counties	60.5	47.8

No doubt part of the reason for these low rural employment rates is due to an older population; after the age of 55, employment rates decline significantly with age. The share of the population 55 and over in rural Oklahoma (25.7 percent) is substantially higher than for metropolitan areas (20.2 percent).<sup>12</sup> The low rates also may reflect more limited opportunities for employment in many rural areas.

Education is often referred to as "investment in human capital." In a wide variety of settings higher levels of educational attainment are associated with higher levels of income. Labor tends to be rewarded according to its productivity, and more education means higher productivity. A significant rural/metropolitan contrast is seen by focusing on the shares of the population 25 years old and over with bachelor's and advanced degrees. The shares with this high-end attainment in 2000 were:<sup>13</sup>

Total state	20.2%
Metropolitan areas	23.3
Rural counties	15.7

Even Oklahoma's metropolitan area high-end educational attainment share was below the national average of 24.4 percent for metro and rural areas combined.

The conclusion is inescapable that per capita personal income would be greater in rural Oklahoma if (1) a larger share of the population was involved in producing goods and services, and if (2) there were higher overall levels of educational attainment enhancing the productivity of those who are employed. With a much larger share of total state population classed as rural, it is also clear that the rural/metropolitan split can be viewed as one of the reasons that the whole state's per capita personal income lags behind the nation (\$23,650 in 2000 compared with \$29,469). In 2000, the nationwide rural share of population was 19.7 percent, while the rural share for Oklahoma was 39.2 percent.

**Total Personal Income**—Total personal income refers to income from all sources for persons residing in a particular area. Normally most of that income is in the form of earnings received from working within the area at issue, though there are also important instances in which income is earned outside the area. An accounting convention also requires subtracting personal contributions for social insurance from the original earnings figure to obtain net earnings by place of residence. Normally, this net earnings figure is around two-thirds of total personal income. The other two major sources of personal income are “rent, interest, and dividends” and transfer payments. Transfer payments are made largely by

governments to retirees, the poor, and the disabled. The defining characteristic of a transfer payment is that the recipient produces nothing currently in return for the payment.

The major types of personal income are reported for the state, metropolitan, and rural areas for 1999 in Table 3.3. While nearly two-fifths of the state's population lived in rural areas, the personal income received by rural residents was only one-third of the state total.

Many rural residents commute to jobs within the state's metropolitan areas or to jobs in bordering states. The extent of this commuting is reflected in the component of Table 3.3 labeled “Adjustment for residence.” This resulted in raising the total earnings in rural Oklahoma by nearly 10 percent. Earnings received by rural residents from employment in rural establishments of \$14,586 million were increased \$1,432 to account for earnings received from jobs elsewhere. Even after this adjustment, earnings of rural Oklahomans accounted for only 59.8 percent of total rural personal income compared to 69.7 percent in the metropolitan areas.

Dividends, interest, and rent are a relatively more important component of income in rural Oklahoma than in metropolitan areas—19.2 percent versus 17.4 percent. This probably reflects agriculture, with a significant component being rent from farmland.

**Table 3.3**

**Personal Income Major Components, Rural and Metropolitan Oklahoma, 1999  
(millions of dollars)**

	Oklahoma	MSAs	Rural) (non-MSA)	Percent rural
Total personal income	77,093	51,681	25,413	33.0
Earnings by place of work	53,546	38,960	14,586	27.2
Less: personal contribution for social insurance	3,181	2,355	826	26.0
Adjustment for residence	843	-589	1,432	176.1
Net earnings by place of residence	51,208	36,016	15,192	29.7
Dividends, interest, and rent	13,911	9,018	4,892	35.2
Transfer payments	11,975	6,646	5,328	44.5

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

The older age and higher incidence of poverty in rural Oklahoma helped cause rural transfer payments to account for 21.0 percent of total personal income—vastly more important than the 12.9 percent share in the metropolitan areas. Transfer payments encompass several different programs, with most of the payments in programs not related to poverty status. In 1999, for example, 70.1 percent of transfer payments in rural Oklahoma were for three such classes of programs: retirement and disability payments, Medicare, and veterans benefits.

**Earnings by Place of Work**—The relative importance of various industries for rural and metropolitan Oklahoma can be observed in data on earnings by place of work (Table 3.4). As would be expected, the great bulk of farm earnings (95.3 percent) in 1999 occurred in rural Oklahoma. The rural share of earnings from state and local government sources (40.6 percent) virtually

matches rural Oklahoma’s share of total population. In all the other industry sectors, the rural share of state earnings by place of work is significantly less than would be warranted by the rural population share. No doubt some of this disparity would shrink if it were possible to account for commuting patterns outside of the rural areas broken down by industry. Nevertheless, for six major industries the rural share of earnings by place of work is around half or less than what would have been expected if earnings were distributed according to population (transportation and public utilities; wholesale trade; finance, insurance, and real estate; health services; services other than health; and the federal government).

Earnings in the health care industry grew rapidly during the 1990s. Between 1990 and 1999, total earnings by place of work in rural Oklahoma grew 43.5 percent while health care earnings grew 63.5 percent.

**Table 3.4**

**Earnings by Place of Work, Industry Components, Rural and Metropolitan Oklahoma  
1999  
(millions of dollars)<sup>a</sup>**

	Oklahoma	MSAs	Rural (non-MSA)	Percent rural
Total earnings	53,546	38,960	14,586	27.2
Farm earnings	990	47	943	95.3
Mining	2,637	1,772	865	32.8
Construction	2,727	1,990	671	24.6
Manufacturing	8,362	6,143	2,219	26.5
Transportation and public utilities	4,109	3,185	893	21.7
Wholesale trade	2,597	2,149	438	16.9
Retail trade	5,141	3,598	1,542	30.0
Finance, insurance, and real estate	2,784	2,232	545	19.6
Health services	4,283	3,392	884	20.6
Services other than health	8,675	6,826	1,849	21.3
Federal government	4,114	3,393	721	17.5
State and local government	6,842	4,065	2,776	40.6

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

<sup>a</sup>In some instances the two components do not add to the state total due to estimating procedures.

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## Key Sectors and Rural Economic Development

Particularly during the last three decades, changes in the structure of major sectors have created significant shifts in the environment for rural economic development in Oklahoma. New arrangements have worked to both the advantage and the disadvantage of rural communities. In all cases, changes have created new challenges. Prominent among the sectors experiencing dynamic change are agriculture, oil and gas production, manufacturing and processing. These three sectors, along with payments by state and federal governments, have long been the main economic base involving production within and sales outside rural areas, and flows of transfers from outside. While tourism is an important component of the economic base of several rural counties, this sector does not appear to have experienced major structural change in the state's recent history. In addition, changes in the structures of essentially local-service sectors, including retailing, banking, utilities, health care, and the print media, are having profound impacts on the dynamics of economic development leadership in rural communities.

**Agriculture**—Farming and ranching, along with oil and gas production, might be referred to as the “heritage industries” of rural Oklahoma. This heritage role is especially true of agriculture; in 1910, for example the Census of Population reported that nearly 60 percent of all gainfully occupied Oklahomans were in agriculture. As late as 1950, 21 percent of those employed worked in agriculture. The relative role of agriculture diminished as farms were consolidated and the number of farms dropped from 213,000 in 1935 to virtually its current level (83,000) in 1969. From 1910 through 1935, the farm population of Oklahoma hovered around one million; by 1950 the state's farm population had dropped to 553,000 and dropped still further to 219,000 in 1969.<sup>14</sup> Agriculture also dominated the entire national economy throughout the 19<sup>th</sup> and early 20<sup>th</sup> centuries. This actual dominance, combined with rural over-representation in legislative bodies throughout the nation, meant that rural economic

development policies were primarily *agricultural* economic development policies. Even today, it is argued that “rural policy is essentially the step-child of agricultural policy.”<sup>15</sup> This is unfortunate because it fails to recognize the heterogeneity in the economies of rural areas. As pointed out above, the USDA's Economic Research Service classified only 19 of Oklahoma's 63 rural counties as “farming dependent.”

Equally troubling are questions about whether the farm policies of the federal government are appropriate for 21<sup>st</sup> Century agriculture, or whether they reflect only the evolution of depression era policies appropriate for a totally different agricultural industry and world economy. One thing is very clear: the prosperity of a significant component of Oklahoma agriculture depends on the federal government. In 2000, for example, federal payments of \$440 million were equivalent to 38.4 percent of Oklahoma net farm income.<sup>16</sup>

Those emphasizing the continued heritage industry role of agriculture in rural Oklahoma point to the fact that the state has 86,000 farms with 34 million acres in farmland out of the state's total area of 44.8 million acres. This is misleading, because the great bulk of farm production is from a relatively small number of large operations.<sup>17</sup> Using a somewhat more conservative definition of what counts as a farm, the U.S. Census Bureau reported 74,214 farms in the state. Nearly three quarters of these 1997 farms reported gross sales of less than \$20,000. After accounting for costs of inputs, gross sales of \$20,000 does not even represent subsistence living. Thus 59 percent of Oklahoma farm operators reported working off the farm, and 31,803 reported working 200 or more days off the farm. A great many farmers support their farming habit by working in town.

At the other end of the spectrum, 6,296 farms with gross sales of \$100,000 or more accounted for 79 percent of sales from all farms. These large operations use advanced technologies including computers and satellite imaging. They are, indeed, part of the “New Economy.”

Farming is a basic economic activity bringing in flows of financial resources from outside the state and generating multiplier effects on other sectors of the rural economy. This flow from

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outside also includes payments by the federal government. Certainly the estimated farm earnings for 1999 of \$943 million in rural Oklahoma represent a significant contribution to economic activity. However, even for rural Oklahoma, farm earnings were only 6.5 percent of total earnings by place of work (Table 3.4).

Unlike oil and gas production that is subject to immutable depletion, agriculture provides a relatively stable structural base for a significant number of rural Oklahoma communities. There is continuous discussion of the challenge of creating opportunities for value-added processing of agricultural products. Beef, pork, and poultry processing are cases in point. However, rural Oklahoma is certainly not of a single mind with respect to the desirability of hogs in the west and poultry in the east—though these represent the most significant sources of recent growth in the state’s agricultural sector. Moreover, agricultural processing is intensely competitive. In December 2002, for example, Tyson Foods announced it was closing a 400-employee poultry processing plant in Adair County along the Arkansas-Oklahoma border.<sup>18</sup>

Many rural communities must generally face up to the fact that prospects for economic growth are likely to be found in sectors other than the agricultural sector. Young people in rural areas are apparently aware of this fact. The national Future Farmers of America organization recently undertook a survey, and discovered that only 4 percent of its 461,000 members were considering a career in farming or ranching.<sup>19</sup>

**Oil and Gas Production**—Although its impact on rural Oklahoma has been dramatic, this sector did not compare with agriculture as a source of employment prior to the 1980s. The boom/bust pattern of population change in Oklahoma during the 1970s and 1980s has already been mentioned. The impact of the sector on rural Oklahoma during that period was widely distributed throughout the state as high energy prices led to further exploration of existing fields. During earlier periods when new fields were being discovered, the impact on individual rural communities was phenomenal. Probably the most extreme example of an oil boom is found in Seminole County in the center of the state. That

county’s population rose from 23,808 in 1920 to 79,621 in 1930—only to drop back to 40,672 in 1950.

After generating as much as 100,000 jobs, largely in rural Oklahoma, during the early 1980s, the state’s oil and gas sector now employs a bit more than 30,000. The servicing of existing rural production facilities and a modest amount of exploration continue to shore up local economies throughout the state. However, like agriculture, the prospects for this sector generating significant growth impulses for rural Oklahoma are not great.

The physical volume of oil and gas production has been declining since the mid-1980s. During the 1990s, gas production declined at a compound annual rate of 3.3 percent, while oil declined at a compound rate of 4.8 percent. Gas production contributes much more to the state’s economy than oil; the value of gas production is about three times the value of oil output. While there is no doubt that higher prices stimulate drilling for new wells and retard the closing of old wells, rural Oklahoma faces the fact that this is a wasting resource, and the most favorable, i.e. least cost, production is a matter of history.

What is not entirely a matter of history is the restructuring of the ownership and management of major oil firms that had their historic origins in rural Oklahoma. This has created current economic stress in rural communities such as Duncan (Halliburton), Ponca City (Conoco) and Bartlesville (Phillips). The recent merger of Phillips and Conoco, and the decision to move the central administrative offices from Bartlesville to Houston is indicative of the prospects for such facilities in rural Oklahoma. Locating major operations along the Gulf Coast proves irresistible to an important group of energy firms. This is a good example of the “clustering” of economic activity in particular metropolitan areas.

**Manufacturing**—Given the volatility of oil and gas production, and given the massive decline in the number of farms and farm population after World War II, it was natural for policies of state government to turn to manufacturing as a way to sustain the economic viability of rural Oklahoma. In 1955, the state created a special state agency whose primary responsibility was attracting and developing manufacturing in both rural and

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metropolitan areas. This effort met with success from the late 1950s through the early 1970s.<sup>20</sup> Although state policy was consistent with manufacturing growth, a principal reason for success was the fact that manufacturing employment was growing at the national level during that period.

During the energy boom from the mid 1970s through about 1983, much of the state manufacturing growth was linked to oil and gas production. As energy prices collapsed, so did this part of the state's manufacturing base; manufacturing employment statewide dropped from 200,000 in 1981 to 156,800 in 1987. By 1990, statewide manufacturing employment had recovered to 168,800.

Beginning in 1990, it is possible to use reports of nonfarm wage and salary employment by the Oklahoma Employment Security Commission to distinguish metropolitan from rural manufacturing jobs.<sup>21</sup> This is accomplished by subtracting figures for the Oklahoma City, Tulsa, Enid, and Lawton MSAs from the state total. (This misses a small number of jobs in Sequoyah County in the Ft. Smith MSA.) In 1990, there were 58,300 manufacturing jobs in rural Oklahoma—34.5 percent of the total. By October 2002, statewide manufacturing stood at 174,000, with 63,400 or 36.4 percent of those jobs in rural areas. This indicates that essentially all the statewide net expansion of manufacturing employment between 1990 and 2002 was in rural Oklahoma.

In spite of this favorable recent record of manufacturing growth in rural Oklahoma, there is reason for concern about future prospects. Nationally, manufacturing jobs were shrinking at a rapid rate—dropping from 19.1 million in 1990 to 16.6 million in October 2002. From 1990 through 2001, manufacturing's share of U.S. gross domestic product dropped from 17.9 percent to 14.1 percent. By November 2002, nationwide manufacturing employment had dropped for 28 consecutive months. While a minor recession had an impact during 2001, this pattern of "deindustrialization" was largely a trend rather than a cyclical phenomenon.

The effects of globalization were also being felt within Oklahoma manufacturing. Representative of problems of traditional low-skill rural

manufacturing was the October 2002 announcement of the closing of two jeans plants and the end of 500 jobs in Coal and Hughes Counties. VF Jeanswear, the firm owning the two plants, has 90 percent of its manufacturing operations in Mexico and the Caribbean.<sup>22</sup> Moreover, owing to successful expansions during the 1950s, 1960s and early 1970s, a number of rural manufacturing facilities are now relatively old and perhaps less productive than more recently completed plants.

#### **State and Federal Government Payments**

— The government sector is also a major source of income for rural Oklahoma. Transfer payments (see Table 3.3) and intergovernmental payments from state and federal levels make up a very important component of the economic base of rural Oklahoma. Transfer payments are arguably the most dynamic component of rural Oklahoma's economic base. Between 1970 and 1999, transfer payments' share of total rural personal income increased from 15.1 percent to 21.0 percent. Thus an ever-increasing share of rural income is being received without anything being produced in return. During the same period, net earnings by place of residence declined from 72.1 percent to 59.8 percent of rural personal income. And, as noted earlier, government payments are equivalent to two-fifths of net farm income in Oklahoma.

Intergovernmental revenues also bring financial resources into rural Oklahoma from outside the area. In the 2001 fiscal year, for example, Oklahoma's public school districts received 69 percent of their general fund revenues from state government. Given the way the state's funding formula operates, and given the relatively low per student wealth in much of rural Oklahoma, it is reasonable to assume that the state funds an even greater share of school revenue in the state's rural area. Also during FY01, the state's schools received 9 percent of their revenues from the federal government.<sup>23</sup> County road systems are heavily reliant on payments from the state. Without federal Medicare and Medicaid payments, significant segments of the rural health services would be much smaller—even though these payments are often alleged to be inadequate. Social Security and veterans benefits are also important.

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To what extent can rural Oklahoma expect to see future significant growth impulses from state and federal funding sources? Future rapid growth of state government sources is problematical. Oklahoma state government's financial capabilities are limited by several factors, including a stringent constitutional provision requiring a vote of the people before taxes are increased and the need to service a sizeable run-up in overall state debt since the late 1990s. Perhaps less problematical are continued growth of transfer payments from the federal government, though the nature of support for health services is far from clear and it is difficult to anticipate how Social Security benefits will be managed as the massive cohort of baby-boomers reach the age of eligibility.

**Tourism**—This is an amorphous sector whose dimensions are hard to identify. Both tourists and local residents make purchases from the same local retail and service businesses. Water-based recreation is probably the most important generator of an inflow of tourism dollars to the state's rural communities. Reservoirs and waterways, largely in eastern Oklahoma and constructed and maintained by the federal government, are key to this sector. A significant share of tourism revenues is seasonal—received between Memorial Day and Labor Day. Wages in this sector are relatively low and skill requirements often are well-matched (unfortunately) to local rural labor forces.

The structure of this sector has arguably remained relatively static because the construction of new reservoirs came to a halt in the 1970s as virtually all good dam sites had been developed. Another factor creating stability in this sector was the completion of the Interstate Highway System—also in the 1970s—with certain cities along the highways benefiting from serving travelers.

The most significant potential for structural change related to tourism is only beginning. There is already evidence of the linkage between tourism and the development of retirement-destination residential communities in eastern Oklahoma. The market for this type of development will expand dramatically as the mass of baby-boomers move through their sixties.

### **New Structures in Local-Service Sectors—**

Basic or “income-generating” industries such as agriculture, energy production, and manufacturing, “exporting” goods outside rural communities, are contrasted with local-service or “income-circulating” sectors. That this is only a rough distinction is emphasized by the extent to which formerly local-service activities in rural Oklahoma have become owned and controlled by entities outside the communities in which facilities are located. Economies of scale and scope, and advantages from profitable mergers and acquisitions, have changed the face of many of Oklahoma's rural communities. Sectors impacted include retailing, health care, banking, utilities, and the print media.

Arguably the most prominent of these changes apply to retailing. Most representative of changes in retailing are the nearly ubiquitous Wal-Mart outlets in Oklahoma's larger rural communities. These large stores have replaced extensive but small networks of dry goods, hardware, drug, and even grocery stores. Even the local restaurant or coffee shop is replaced by fast-food and related chains. In an earlier era, each of these outlets had a local owner-manager who was an entrepreneur of sorts—sometimes progressive, sometimes not—but also often active in community affairs and with no conflict in allegiance to the community.

The concentration of retail and related sales in larger units has not been without benefit to rural Oklahoma. Prices are usually lower and selections greater than they otherwise would be. Moreover, within a county-wide trading area, business is attracted to the main city from neighboring smaller communities, with municipal coffers benefiting from sales tax receipts. But the leadership cadre of “main street” business owners is now different than in an earlier era.

The rapid growth of earnings from health care was mentioned above. As the baby-boomers age, and as improvements in treatment continue, this sector will continue to expand in rural Oklahoma. At this stage, it appears that federal government policies will continue to have a great impact on the structure of health care delivery. Smaller communities in rural Oklahoma continue

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to battle to keep their hospitals operating, while medical services in larger cities and metropolitan areas throughout the state appear to be concentrating expensive medical treatment.

In the “good old days” local bankers could usually, though not always, be counted on to appreciate and support efforts at local community development. Throughout much of its history, Oklahoma was a unit banking state with bank outlets owned individually. With new national and eventually with new state banking policy, unit banking is a thing of the past. Through mergers and acquisitions, local banks have been acquired by larger owners outside the community. Some of the state’s larger banking enterprises are committed to rural development and bring greater financial resources into the communities in which they have acquired banking outlets. Larger banking organizations may assign more competent managers to local branches. (In the days of unit banking, a prominent Oklahoma banker was fond of asserting that “The problem with Oklahoma banking is that there are more banks than there are bankers.”) In other cases, there can be resentment of outside ownership, and less understanding of local development problems than existed with local bank ownership.

The shift from unit banking to branch banking was part of a major national trend toward the deregulation of business that began to develop steam in the mid-1970s. A major subject of deregulation has been public utilities and communications firms. Electric, gas, and telephone companies that had operated purely as regulated natural monopolies have found themselves in a much more competitive environment. Prior to facing the competitive pressures of deregulation these regulated firms usually found it possible to devote substantial efforts to state and community economic development. Rural Oklahoma benefited from the ability of local utility managers to become deeply involved in community economic development, and from the resources that utilities were willing to devote to the promotion of economic development. Economic development staffs have now been cut back, and localities sometimes even find themselves without a local office of the electric, gas, or telephone company.

Locally-owned daily newspapers in rural Oklahoma were often major generators of civic pride and focal points for various community initiatives including economic development. Nobody understood the benefits of economic development better than the local publisher selling advertising to keep his/her paper in business. In recent years, there has been a remarkable shift of ownership of Oklahoma’s rural dailies to outside ownership. Most of the acquisitions have been by a Birmingham, Alabama, firm, Community Newspaper Holdings, Inc. The *2002 Oklahoma Media Guide* of the Oklahoma Press Association reports 20 local daily papers owned by that firm, five of which are papers in small cities within MSA counties. Other outside firms owning dailies in Oklahoma include Gannett, Retherford Publications, and Sumner Family Newspapers. The bulk of the rural weekly newspapers in Oklahoma continue to be owned locally.

The government sector, broadly defined, in rural Oklahoma may be taking on a more significant role in economic development leadership. With a sometimes smaller and less committed cadre of business managers in a community, public officials are positioned to play greater roles in community leadership. It is perhaps not a stretch to include lawyers in this group of government-related leaders; lawyers are “officers of the court.” And, in smaller rural communities, the local school superintendent is sometimes among the highest-paid professionals within the community.

In some communities, what might be called “rural sprawl” is having an impact on community leadership and government affecting economic development. The high share of farm operators with very little sales has been mentioned above. These are families working in town but with a high preference for living in the open country. Inadequate housing stock in some rural communities adds to rural sprawl as families with adequate income find it necessary to build new homes in the countryside. Access to the services of rural water districts is often very important in promoting rural sprawl. However, people living outside the city limits of rural centers of trade and industry cannot vote and hold office in the municipality.

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## The New Economy: Threats and Opportunities

Prior to the minor national recession of 2000-01, virtually everyone was talking about a New Economy as the driver of U.S. growth and prosperity. The New Economy is technology-based with heavy emphasis on computers and information technology including innovations in communications. New Economy growth is spurred by the creation and expansion of small, entrepreneurial enterprise. It offers both threats and opportunities for rural Oklahoma.

What, specifically, is meant by New Economy industries? A close operational definition is found in the work of the U.S. Bureau of Labor Statistics. That agency classifies industries as “high-tech” based on the intensity of employment of scientific, technical, and engineering workers. This results in a set of 29 industries, the most high-tech intensive of which are industrial chemicals, drugs, computer and office equipment, communication equipment, electronic components, aerospace, navigation equipment, measuring and controlling devices, computer and data processing services, and research, development, and testing services.<sup>24</sup> The entire set of 29 industries accounted, nationally, for about 14 percent of total employment in the mid-1990s; however they are projected to account for nearly one-third of employment *growth* in the early 2000s.

Particularly troubling in much of the literature dealing with the geography of New Economy development is the tendency to focus on metropolitan areas and to ignore completely small towns and rural areas.<sup>25</sup> Analysts emphasize the tendency for high-tech sectors to require *clusters* of activity—*critical masses* allegedly only achievable in metropolitan areas.<sup>26</sup> Also emphasized are cultural and recreational amenities sometimes not achievable except where there is significant population density.

This is a big challenge for those concerned with achieving geographic balance in economic growth. It emphasizes the necessity of access to the very best of communications technology such as broadband fiber optic cable (especially two sources) and the existence of first-rate public

schools, technical institutions, and higher education.

Working in rural Oklahoma’s favor is the fact that many of the New Economy activities are geographically footloose. They can be located virtually anywhere, provided there is adequate access to the best communication infrastructure.<sup>27</sup> That is the good news. The bad news, or, better yet, the challenge to rural Oklahoma is stated in a recent study by geographer Joel Kotkin.

As today’s technology allows work to be distributed anywhere, locational *choice* becomes more elastic. The growth of a given jurisdiction or region now depends increasingly on the decisions of specific groups of individual entrepreneurs or workers to locate there. These individuals—investors, engineers, systems analysts, scientists, creative workers—are increasingly what one analyst has called “very sophisticated consumers of place.” . . . As a result, the important distinctions between locations, and the variables governing their success, have become, if anything, *more* important. The more technology frees us from the tyranny of place and past affiliation, the greater the need for individual places to make themselves more attractive. Surveys of high-technology firms find that among factors that drove their decision of where to locate, a “quality of life” that would make the area attractive to skilled workers was far more important than any traditional factors such as taxes, regulation, or land costs.<sup>28</sup>

A major challenge for rural policy thus includes the challenge for Oklahoma’s rural communities to “make themselves more attractive” in this context. Fortunately, institutions of higher education and technology education are distributed throughout Oklahoma. Because of community attractiveness, and because of the existence of a more well-educated population, these communities have promise to become the focal points for New Economy development in rural Oklahoma.

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However, realism must triumph for some rural communities. “Old Economy” activities not requiring highly-educated workforces are still relevant to Oklahoma rural development. One development specialist recently expressed concern over fellow community leaders who had become enamored with high-tech development and who took the position that “The last thing we need around here is another weenie factory.” Given the characteristics of the local work force, perhaps a weenie factory is the *first thing* that is needed!

The following chapter turns to a discussion of the current mixture of Oklahoma economic development policies aimed at improving the position of rural Oklahoma. Certainly in Oklahoma, contemporary rural development policy is much more than an extension of agricultural policy.

## Endnotes

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<sup>3</sup>Mark Drabenstott and Katherine H. Sheaff, “Exploring Policy Options for a New Rural America—A Conference Summary,” *Economic Review*, Third Quarter, 2001, p. 67.

<sup>4</sup>Lloyd Bender, *et al.*, *The Diverse Social and Economic Structure of Nonmetropolitan America*, U.S. Department of Agriculture, Economic Research Service, Rural Development Research Report No. 49, Sept. 1985; Peggy J. Cook and Karen L. Mizer, *The Revised ERS County Typology, An Overview*, U.S. Department of Agriculture, Economic Research Service, Rural Development Research Report No. 89, Dec. 1994; current application to Oklahoma: <http://www.ers.usda.gov/Briefing/Rurality/Typology/Data/Typ89OK>.

<sup>5</sup>Larkin Warner, “An Overview of Oklahoma’s Economic History,” *Oklahoma Business Bulletin*, Sept. and Dec. 1995.

<sup>6</sup>Penny Owen and Ron Jackson, “Successful small towns full of big ideas,” *The Oklahoman*, Nov. 30, 2002.

<sup>7</sup>H.V. Thornton, Corbitt Rushing, and John Wood, *Problems in Oklahoma State Government*, Norman, OK: Bureau of Government Research, University of Oklahoma, 1957, pp. 17-18.

<sup>8</sup>James R. Scales and Danney Goble, *Oklahoma Politics: A History*, Norman, OK: University of Oklahoma Press, 1982, p. 338.

<sup>9</sup>For more detail, see Suzette Barta, Gerald Doeksen, and Mike Woods, *Economic Conditions in Rural Oklahoma*, A Report Prepared for the Seventh Annual Meeting of the Oklahoma Rural Development Council, November, 1999. Another comprehensive source of information on rural Oklahoma was completed in late 2002 and involved interviews with community leaders in 233 rural communities conducted by Oklahoma Department of Commerce research analyst Ron Voth. See “Study focuses on societies in rural areas,” *The Oklahoman*, Jan. 11, 2003. An overview of the survey may be found as “The View from Rural Oklahoma, A Joint Project of the Office of State Finance and the Department of Commerce,” <http://busdev3.odoc5.odoc.state.ok.us>.

<sup>10</sup>*Survey of Current Business*, May 2002, p. 82.

<sup>11</sup>U.S. Census Bureau, Census 2000, SF3, Table P43/P150A-I.

<sup>12</sup>U.S. Census Bureau, Census 2000, SF3, Table P8.

<sup>13</sup>U.S. Census Bureau, Census 2000, SF3, Table P37.

<sup>14</sup>U.S. Census Bureau, *Historical Statistics of the United States, Colonial Times to 1970*, Washington, DC: U.S. Government Printing Office, 1975, Part I, p. 458.

<sup>15</sup>*Annual Report 2001, Center for the Study of Rural America*, Federal Reserve Bank of Kansas City, p. 12.

<sup>16</sup>Oklahoma Agricultural Statistics Service, *Oklahoma Agricultural Statistics 2000*, Sept. 2001, p. 77.

<sup>17</sup>U.S. Department of Agriculture, *1997 Census of Agriculture, Oklahoma*, Table 2, <<http://www.nass.usda>>.

<sup>18</sup>“Tyson plant’s closure devastating in Stilwell,” *The Oklahoman*, Dec. 7, 2002.

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<sup>20</sup>Larkin Warner, "The Administration of State Government Promotion of Economic Development: An Historical Perspective Through 1986," in *State Policy and Economic Development in Oklahoma:2002*, Oklahoma City: Oklahoma 21<sup>st</sup> Century, Inc., 2002, pp. 25-35.

<sup>21</sup>Oklahoma Employment Security Commission, *Oklahoma Current Employment Statistics*, July 2001 and *Oklahoma Labor Market Information*, October 2002.

<sup>22</sup>"Wrangler plans to close down 2 state plants," *The Oklahoman*, Nov. 18, 2002.

<sup>23</sup>Oklahoma State Department of Education, *Statistical Report on Oklahoma Public Schools and the State Department of Education, 2000-2001*, April 2002, p. 5.

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<sup>27</sup>For a discussion of high-tech growth in another part of the nation, see Brian Lego and Stephan J. Goetz, "High-Technology Industry Growth in the Northeast U.S.," *Rural County Business Reports*, Northeast Regional Center for Rural Development, June 2001, <<http://www.cas.nercrd.psu.edu>>.

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## Oklahoma Rural Development: Options and Opportunities

Oklahoma's rural economy is an important segment of the state's overall well being. The 63 nonmetropolitan counties in Oklahoma are home to 39 percent of total State population and 82 percent of the total land mass. Rural Oklahoma hosts most of the State's natural resources and outdoor recreational areas. A healthy sustainable rural economy will enhance statewide income and relieve stress on more congested urban areas.

Rural development is a term that can mean many things to different people. The term is broader than the concept of "economic development" and includes quality of life factors such as services, health care, and education. Thus, rural development can be defined as "a broad notion encompassing all important issues pertinent to the individual and collective vitality of rural people and places; it encompasses . . . education, environment . . . health, services, facilities, capacity for leadership and governance and cultural heritage as well as . . . economic issues".<sup>1</sup> Rural development focuses on both people and places. Current discussion regarding rural development argues for a comprehensive strategy which focuses on specific geographical locations. There is not a single solution or policy which will tend to work for all rural places.

This chapter focuses on a description of rural development, resource use, and rural policy. Specific types of resources available for rural development will be reviewed. Policy options may include assistance to rural areas to enhance or acquire needed resources. Previous rural policy efforts in Oklahoma will also be briefly discussed. Oklahoma is a rural state (compared to many other states) and has a history of rural policy initiatives. Strategies for enhancing the competitiveness of rural Oklahoma will be reviewed. Particular attention will be given to opportunities for rural areas to benefit from the rapidly emerging digital

economy. Finally, the chapter will conclude with specific rural policy challenges and a few examples of positive prospects for rural Oklahoma.

### Rural Development Policy

Rural regions, areas or communities differ in resource endowment. Some resources are natural and some are man-made or developed. A beginning point for rural analysis includes a summary of the various types of resources found in rural Oklahoma. Natural resources are the first to come to mind. Water, soil, and scenic amenities like lakes or mountains are all naturally endowed. Oklahoma's agricultural industry and much mineral extraction (oil, natural gas, coal) are located in rural areas of the state. Specific geographic areas have little choice in the matter of natural resource endowment. Areas or regions do, however, have control over the productive use and protection of these resources.

Another category of resources relate to people (human resources). At any given point in time, a region has some level of workforce quality and quantity. Training programs and education can certainly enhance these types of human resources over time. Another "people" attribute, entrepreneurial ability, is often cited as a key to growth and development. The willingness to take risks and start new business ventures often leads to new jobs and income.

Two other categories of resources include financial resources and institutional resources. The wide range of financial infrastructure includes equity, start-up capital, venture capital, and operating capital. Many rural policy studies have argued that specific financial gaps are barriers to effective rural development efforts. Rural institutions like local government, schools, and civic organizations all combine to hopefully enhance rural development efforts.

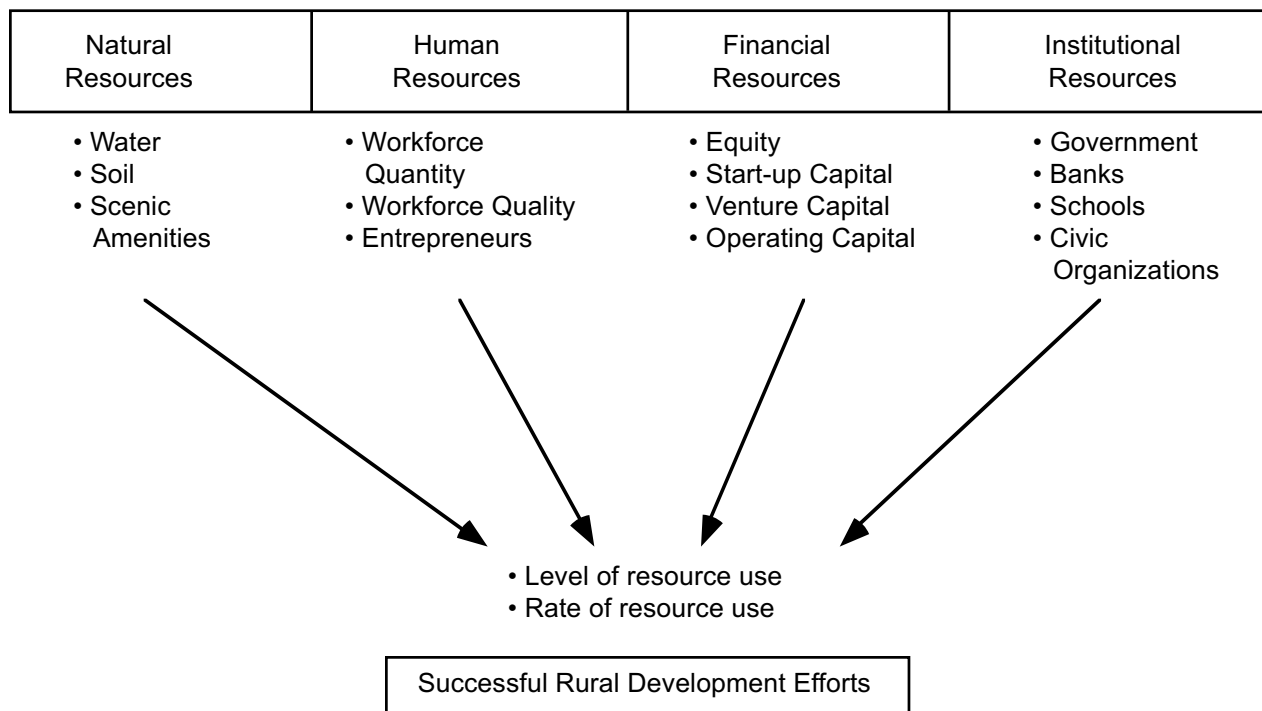
Figure 4.1 provides a simple picture of the various types of resources available for effective efforts. Some communities or regions are more successful than others in their development efforts. The level of resource use and rate of use lead to success or failure. Some communities seem to have a strong capacity to identify resources, combine them and move ahead in a positive fashion. Keys to successful efforts can be summarized with the phrase “local capacity.” Local capacity implies that a community or region is able to identify local assets or resources, enhance those resources when needed, and obtain outside resources when appropriate.

Concern for the status of the rural economy is not a new concept for Oklahoma. Previous

rural summits have identified challenges to be addressed including infrastructure, financial gaps, and leadership. A statewide rural business development conference was held in 1989. Results and recommendations of the conference were reported to Governor Bellman, the Legislature and others in 1990.<sup>2</sup> Four themes emerged, including the need for a variety of technical assistance/leadership programs to be provided on-site to rural communities; the need for public/private partnerships; promotion of regional cooperation; and marketing/ promotion of existing state services available for rural communities. In 1991, Governor Walters called a Rural Summit together to focus existing resources and tackle Oklahoma’s rural problems. Strategies and action plans were

**FIGURE 4.1**

**Rural Development: Effective Resource Use**



- KEYS:** Local capacity to
- identify resources available
  - enhance resources when needed and feasible
  - combine resources effectively
  - obtain appropriate outside resources

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identified in three broad areas: human resources; infrastructure; and employment/ business development.<sup>3</sup> Governor Keating held several rural development workshops during his administration. The Office of State Finance, under Governor Keating, has recently released results of a study of rural Oklahoma communities.<sup>4</sup> The study cited several findings including a lack of resources, regulatory burdens, and poor service.<sup>5</sup>

A recent report for Oklahoma 21st Century<sup>6</sup> cited four rural initiatives recommended by Oklahoma Futures:

1. Provide adequate state funding and support for the health care system in rural Oklahoma.
2. Provide adequate and diverse funding sources for economic development in rural communities.
3. Provide rural Oklahoma with state-of-the-art telecommunications infrastructure and better identification and mapping of existing rural telecommunications assets.
4. Support the continuation and development of the agriculture industry in rural Oklahoma by encouraging more profitable alternative crops and providing tax incentives for value-added manufacturing.

These 4 recommendations seem reasonable and are consistent with the “resources” model of rural development presented in Figure 4.1. A “healthy community” approach to rural policy combines the various initiative proposals into three interrelated and linked components including (1) a diverse and resilient economy with varied sources of income and employment; (2) adequate infrastructure including that type of investment necessary for the emerging digital economy; and (3) informed local leaders with the knowledge and capacity to deal with today’s complex environment.<sup>7</sup> The first of these three components is a diverse economy. Diversity implies consideration of several sources of economic activity including creation, attraction, retention, and expansion of private (and public) enterprises. Taken together, these sources promote the concept that local

leaders must CARE for the community and local economy.<sup>8</sup>

## **Creation**

Creation refers to all local efforts to encourage the formation of new business. In the “age of the entrepreneur,” any concern with emphasis on a local climate helpful for new job formation may lead to greater dividends in the future. Rural areas may view this option as a “grow your own” approach to enterprise development.

New businesses often need support in several areas including capital financing, labor supply, technology assistance, and management assistance. A healthy climate for new business formation addresses all these elements. Resulting new businesses capture additional income for the local economy and provide the often-needed diversification.

## **Attraction**

Attraction refers to the traditional industrial recruitment efforts many southern states have pursued. Community preparation, tax incentives, and other attraction strategies are very familiar tools. This is a highly competitive arena, few businesses relocate every year, and there are thousands of local development organizations seeking this relocation or expansion. However, this may be a viable option in some cases. Rural areas will need realistic goals and targets in terms of firm size and firm type.

Industry and business recruitment is perhaps the best known economic development option. At the state level, this effort receives a great deal of attention. New business recruitment is a viable option. However, local communities should realistically assess their chances of recruiting a basic employer and set appropriate goals.

Major metropolitan areas will attract most larger employers. Factors that influence larger employers include labor supply, transportation, location of related businesses, water or other resource constraints, financial incentives, and community attitude and/or preparedness.

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## Retention and Expansion

Retention refers to activities targeted to existing firms. Retaining 100 existing jobs in a community is just as important (or more so) as attracting 100 new jobs. Expansion takes the concept of retention one step further. Why not encourage expansion of existing firms? After all, there must be a competitive reason for those firms locating in the first place.

Much new job growth comes from the expansion of existing firms. If existing small businesses expand, new jobs and additional income result. Retention of existing small businesses also insures a more stable local economy. Training programs, financial assistance, and a supportive local attitude can greatly aid these existing firms. Training programs are available regarding such topics as financial analysis (for example, cash flow or profit forecasting), personnel management, how to develop a business plan and other management or marketing concerns. Assistance for rural manufacturers through application engineers or new product development also promotes retention and expansion. The goal of these programs is to increase efficiency of resource use in existing firms so they become more competitive.

These are the principal methods or avenues for bringing new jobs to a locality. Of course, local areas can target specific economic sectors such as tourism, retirees, mainstreet businesses, manufacturing, or home-based business. Depending upon the local circumstances, planners may desire to create, attract, retain, or expand across these specific sectors. Communities have limited resources (both volunteer/professional time and funds). It is critical that some form of strategic planning be utilized so these resources are utilized in the most effective manner.

## Strategies for Enhancing Rural Competitiveness

Whether addressing the need for economic development or broader quality of life needs, there are potential strategies that may assist rural Oklahoma. These strategies can be grouped into

three categories, including investment in human resources, targeted economic development initiatives, and a focus on infrastructure and services. Each of the three will be briefly discussed in turn.

## Investment in Human Resources

Most studies in development point to investment in education as one key for success. A well-trained labor force is critical in attracting and sustaining the types of jobs available in the “new economy”. Education in its most desirable form includes a seamless system from common education (K-12) to vocational training and higher education. The key for rural areas is to have quality education available for residents. Oklahoma is currently experiencing a budget crisis like much of the country. Many are concerned that Oklahoma’s educational system will suffer. Rural schools face unique challenges including sparse populations that raise per child costs. Some point to rural small school consolidation as one partial solution—resulting in lower administrative costs. Defenders of rural schools argue any savings in administrative costs will be minimal and will not solve the problem. They also note there will be increases in transportation costs resulting from consolidation. The debate over quality of rural schools, costs, and returns on investment will continue as the budget situation worsens.

There are important new considerations for rural schools as the digital economy grows. It is important that rural students have the same access to information and technology if they are to be competitive in the new economy. Technology may even offer hope for some smaller schools. Satellite courses or web-based courses may enhance the curriculum for schools not large enough to offer advanced courses. Later in this chapter the potential opportunities offered by OneNet, the state telecommunications network, will be addressed.

Another form of human resource investment relates to building on the entrepreneurial spirit of rural Oklahoma. Encouraging rural communities to support the creation and expansion of internally grown small business is a key strategy.<sup>9</sup> Assuring quality workers is an important component of this strategy. Providing potential

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entrepreneurs with appropriate training in finance, management, and other areas will also be necessary. Nurturing potential and existing entrepreneurs is another form of human resource investment.

A final form of human resource investment relates to local capacity. Recall, local capacity is a community or region's ability to identify resources, enhance or obtain additional resources, and move positively toward community goals. Local capacity is often linked to leadership. There are dozens of local leadership programs being developed and offered in communities throughout the state. Leadership Oklahoma is a statewide program offered to emerging leaders on a statewide basis. Leadership Oklahoma also provides outreach assistance to communities interested in forming a local leadership program. The Oklahoma Agricultural Leadership Program targets emerging rural and agricultural leaders. The Initiative for the Future of Rural Oklahoma, offered by the Oklahoma Cooperative Extension Service, is a leadership/community development effort currently assisting 13 local projects including 17 counties around the state. This initiative is combining leadership training with community development assistance and encouraging local leadership teams to identify a local project that improves quality of life or the economy. Caroline Carpenter, with the W.K. Kellogg Foundation, emphasized the importance of leadership programs that work during a recent national rural symposium.<sup>10</sup> She noted leadership development is a "marathon not a sprint" and "leaders become leaders by doing-leading". This emphasizes the hands-on approach to leadership development or leadership development - with a purpose.

State government has been active in assisting local capacity building. The Oklahoma Century Communities Program (originally the Certified Cities Program) is designed to aid communities in self-evaluation in the areas of human resources, economic development, local government structure, community services, and community infrastructure. This evaluation is intended to aid communities in identifying assets, setting goals, and making local improvements. Over 90 Oklahoma communities are participating in this program according to the Department of Com-

merce website. Another highly visible program offered by state government is the Oklahoma Main Street Program. Main Street is a statewide downtown revitalization program which provides training, resources and assistance. There are currently 36 active Main Street communities across the state according to the Department of Commerce website. The Main Street program has been in existence in Oklahoma for the past 15 years and reports a net gain of 2,453 businesses and 7,965 jobs in Main Street communities during that time. Nearly \$338 million in public and private investment is also reported. The Main Street program utilizes four elements in its approach to downtown revitalization including organization, promotion, design, and economic restructuring. A noteworthy attribute of both Century Communities and Main Street is the commitment of state government to partner with other service providers such as universities, technology centers, or state/federal agencies that may provide training or technical assistance.

### **Targeted Economic Development Initiatives**

Economic development efforts are often refined to identify target industries or sectors where a state has a competitive advantage. Oklahoma has identified industries such as aerospace, wholesale trade-warehousing, food processing, trucking, and others. The question arises: "What makes sense for rural Oklahoma?" Are there specific economic sectors that should be targeted for promotion and development in rural areas of the state? Building on the state's natural resource base through value-added agriculture or rural tourism might make sense. Alternative energy forms such as wind power or new biotechnology and health-related industries utilizing agricultural crops may hold promise. There may be specific manufacturing or service sectors that are appropriate for rural areas. Given the fact that rural Oklahoma is so diverse in terms of economy, climate, and natural resources, the target industries will vary from region to region. Effort and care will be needed to identify appropriate targets. Several initiatives have been developed or proposed, including the Quality Jobs Program, the

Linked Deposit Program, and a planned rural capital venture fund. Another incentive, targeted to manufacturing, is the ad valorem exemption. The program is funded through the Ad Valorem Reimbursement Fund, which is fed by one percent of corporate and personal income tax collections. The total amount paid out for the 2001 tax year was \$20,543,634. Of that amount, 71 percent went to the 13 metropolitan counties and 29 percent went to the remaining counties.<sup>11</sup> The program is currently suffering from declining income tax revenues and will fall short of current obligations. Recent reports also indicate that falling state revenues will affect funding to 120 public school districts. Among the biggest losers are school districts in Mid-Del, Bixby, Broken Arrow, Newcastle, and Ponca City.<sup>12</sup>

The Oklahoma Quality Jobs Program Act, SB 459 in 1993, provides for cash payments of up to 5 percent of payroll for ten years to firms creating new jobs with a gross increase in payroll of at least \$2.5 million. Administration of the program can become somewhat complex with provisions related to minimum requirements for out-of-state sales and other features. Data on the Quality Jobs Program from 1993 to 2002 provide an interesting profile. Table 4.1 notes a total of 296 contracts since 1993 with 195 (66 percent) of those contracts occurring in the 14 metropolitan counties of the state. Firms are required to reach

the \$2.5 million payroll threshold by the third year of the contract. Third year estimates for jobs total 105,519 with 26,748 (25 percent) of those jobs occurring in the nonmetropolitan counties. Another interesting statistic relates to jobs claimed by firms in the quarter with the “largest” number of jobs. Of the 77,258 jobs reported, there were 16,681 (22 percent) jobs reported in the nonmetropolitan counties. Because of the complicated nature of the program, tracking jobs created over time is difficult. Clearly most jobs are occurring in the state’s metropolitan counties. A Small Employer Quality Jobs Program was approved last Legislative Session and lowers the threshold requirements. Early interest in contracts indicate this program may have impacts in the more rural counties.

One program developed to create new jobs and aid small business is the Linked Deposit Program. The Oklahoma Treasurer administers this program which provides low interest loans to small businesses and family farmers. The program is aimed at reducing debt service costs to Oklahoma small businesses. The website for the Office of State Treasurer reports up to \$200 million is available for Linked Deposits and claims that several thousand jobs have been created or saved and many family farms remain in operation due to the Linked Deposit Program.

**Table 4.1**

**Oklahoma Quality Jobs Program  
Contracts and Jobs Created  
Metropolitan and Non-Metropolitan Counties  
1993-2001**

	<b>Contracts</b>	<b>Third Years Estimates of Job</b>	<b>Jobs Claimed<sup>a</sup></b>
Nonmetropolitan Counties	101	26,748	16,681
Metropolitan Counties	195	78,771	60,577
<b>Total</b>	<b>296</b>	<b>105,519</b>	<b>77,258</b>

Source: Oklahoma Department of Commerce

<sup>a</sup>Jobs claimed is the sum of each company’s largest “jobs claimed quarter” in which the company received payment.

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House bill 2280, the Oklahoma Rural and Affordable Housing Linked Deposit Act, was enacted during the 2002 Legislative Session. After implementation, a revolving pool of funds for eligible housing developers will also be available.

The Rural Oklahoma Capital Alliance (ROCA) is one example of a cooperative effort emerging to assist rural areas.<sup>13</sup> ROCA has identified a goal to establish a rural capital venture fund of \$200 million to assist in entrepreneurial efforts in Oklahoma. Potential targeted areas include technology, alternative agriculture, value-added processing, rural tourism, alternative energy forms, manufacturing, and rural services. Several entities including banks, individuals, rural organizations, universities, and state government are working together to create this opportunity.

The Oklahoma Food and Agricultural Products Research and Technology Center was established in 1995 and staffed in 1997 to assist local and regional entrepreneurs as well as established firms to compete in the market place. The Center was initially funded as a part of a capital bond package in 1992 and included \$14 million. The purpose of the Center is to help Oklahoma's economy bridge the gap between agricultural production of raw commodities and finished products. The Center provides services including business/marketing assistance, educational and quality programs, technical assistance, and research.

## **Infrastructure and Services**

Infrastructure and services cover a wide-range of topics including public investments in transportation systems, water and sewer systems, and health care. In addition to these types of "traditional" infrastructure the "new economy" requires investments in digital infrastructure, such as telecommunications and the Internet. Before discussing efforts by the state in telecommunications the more traditional areas of water/sewer improvements and health care will be discussed.

Recently, the Oklahoma Water Resources Board was recognized for passing the billion-dollar mark in loans and grants issued over the past 20 years for water and sewer improvements

statewide.<sup>14</sup> Not all of these loans and grants were targeted to rural areas but certainly some were. Programs offered by the Water Resources Board include loans for water and wastewater improvements, revolving loan funds for water infrastructure needs and improvements in drinking water systems, and emergency grants to correct situations that pose immediate threats to life, health or property. There were also 340 Rural Economic Action Plan (REAP) grants totaling \$28.9 million. These REAP funds are targeted to improvements in communities with a population of 7,000 or less. The Water Resources Board provided REAP grants to rural water districts, solid waste management districts, and other local entities.

Reductions in Medicare reimbursement have greatly impacted the financial viability of Oklahoma's rural hospitals. In fact, 60 of Oklahoma's rural hospitals are in serious financial condition and are struggling to survive (data provided by Oklahoma Office of Rural Health). In addition, many rural areas are experiencing an extreme shortage of health workers, especially physicians. In fact 31 counties in Oklahoma are designated by the Oklahoma Primary Care Agency in the Health Department as medically underserved areas. Another 25 counties have areas in their county designated as medically underserved areas. This designation indicates there are not enough medical doctors to serve the basic health needs of rural Oklahoma. Broad recommendations to address disparities in health care are provided by the Oklahoma State Board of Health<sup>15</sup> and include: enhanced capacity to analyze data and link data sources across agencies to create a clearinghouse of health-related data; increasing access for health care among minority population groups; and encouraging community-based partnerships to identify local health priorities and local solutions.

OneNet is the official telecommunications and information network for Oklahoma education and government.<sup>16</sup> OneNet provides electronic links for entities such as public schools, technology centers, colleges/universities, courts, libraries, Indian tribes, and government. OneNet resulted from a 1992 capital bond initiative that provided \$14 million for equipment and installation of a consolidated information network for education and government (Table 4.2). OneNet is operated

**Table 4.2**

**OneNet Information and Description**

- 42 Hub sites connecting users such as schools, libraries, courts, hospitals, clinics, government agencies, and colleges/universities.
- OneNet utilizes fiber optics wireless technology to transmit video and data services.
- OneNet has the capacity to connect more than two million Oklahomans to state services and information services.
- The network was established with \$14 million from a \$350 million statewide capital bond issued after approval by voters in 1992. Became operational in 1996 and is currently valued at over \$200 million.
- There are over 2,000 video conferencing end points on OneNet's network providing over 1,654 computer-based courses and 3,000 interactive video classes in 2001. In total OneNet was utilized to deliver 111,898 higher education credit hours during the 2001 academic year.
- Statewide, 109 library systems utilize OneNet for Internet and telecommunications needs. Data bases such as EBSCOhost and First Search provide electronic access to news services, card catalogs, and periodicals at significant cost savings.

Source: OneNet, a division of the Oklahoma State Regents operated in cooperation with the Office of State Finance.

by the Oklahoma State Regents for Higher Education in partnership with the Office of State Finance. The early goals for OneNet included "providing cost effective, equalized access to advance network services to all Oklahoma educational entities and agencies regardless of location."<sup>17</sup> The intent was for OneNet to be a provider of technology for Oklahoma citizens wherever they reside. OneNet provides comprehensive and high-speed telecommunications access for distance learning and Internet applications. A recent report indicates that over 65 percent of common education utilizes OneNet for Internet Services. The figure is larger when agreements with private telephone companies are included. In 2001, 103 classes were delivered via OneNet by Oklahoma Career Technology Centers. The court system has 54 sites linked to OneNet and utilizes the network for tele-arraignments. There are 109 libraries utilizing One-Net for Internet and telecommunications access. This includes access to databases, news services, and other information services to which rural libraries would otherwise likely not

have access. OneNet provides connectivity to 52 private and government hospitals or clinics throughout the state. The Choctaw nation also utilizes OneNet to connect clinics and hospitals in the southeastern segment of the state.

Tele-medicine, including the transmitting of medical information for specialized evaluation and consultation, offers great potential for enhancing rural health care. The Oklahoma College of Osteopathic Medicine in Tulsa is described as a leader in utilizing distance technology for student education and physician support. Critical areas to be addressed in order to insure the continued success of OneNet include: improving cooperation with smaller telephone companies typically located in rural areas; expanded public/private partnerships allowing for entrepreneurial and flexible approaches; encouraging cooperation across the many educational entities in the state; and insuring all potential users are aware of the services and able to use the technology.

While OneNet is essentially a state-government operated telecommunications system, most

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of Oklahoma's rural households and businesses are served through physical facilities of private firms—the largest of which is SBC (formerly Southwestern Bell). Historically, telephone companies were subject to traditional rate-of-return based public utility regulation by the Oklahoma Corporation Commission. Intense competition has developed as new technologies such as cable TV and wireless cell phones entered markets formerly treated as natural monopolies of local telephone companies. Deregulation of public utilities and greater reliance on market competition has been a major theme throughout the nation since the 1970s. A major step in this direction was the state's Telecommunications Act of 1997.

One of the results of this shift away from classic utility regulation was a 1999 agreement for deregulation forged by SBC, the Attorney General, and the Oklahoma Corporation Commission. As a feature of this new more flexible regulatory framework, SBC established a \$30 million fund to be used for providing new information technology for the state's common and career-tech schools. This was the basis for the creation in 2001 of the Oklahoma Educational Technology Trust. Trustees are leaders from education and government, and the trust is administered by the Communities Foundation of Oklahoma. Grants are made from earnings of the fund, with the University of Oklahoma in charge of administering a major program of implementation. The long term results of this effort will involve the most important means of closing the "digital divide" between metropolitan and rural Oklahoma, i.e. the education of the state's rural young people.

In addition, in 1999 SBC agreed, over the following three years, to provide digital subscriber line (DSL) technology to twenty-two nonmetropolitan cities across the state. The actual extension of this service has been even greater, and will increase further as a result of state legislation passed in 2002 granting SBC deregulation for all high speed Internet access or broadband service. SBC then announced that it would expand DSL from a current level of 41 to 81 towns—most of

which are in the state's rural areas. During 2000-2002 the firm provided additional telecommunications technology and technical assistance to schools in its service area. This has involved outlays of \$10 million impacting 232 school sites, many of which are in rural Oklahoma.

## **Digital Opportunities for Rural Oklahoma**

Rural areas by definition have lower population levels and a sparse population distribution when compared to urban areas. This raises per person costs for many services. Technology, including the Internet, is often cited as one potential answer to rural isolation. Technology may allow rural schools, health care providers, and government to offer services that would otherwise be unavailable. Technology and the "digital economy" may also offer new business opportunities for rural residents, businesses, and potential entrepreneurs.

A recent statewide survey conducted by the Bureau for Social Research at Oklahoma State University presents an interesting picture of Internet access and use throughout the state (Tables 4.3 to 4.6). Statewide, 75 percent of Oklahoma residents indicated they had used the Internet. The corresponding numbers for the Oklahoma City metro-area and the Tulsa metro-area are 77 percent and 81 percent, respectively. The remaining counties dropped to 67 percent when indicating Internet use of some type. Similar numbers were revealed when respondents were asked if Internet access is available in the home or place of business. Rural counties tend to lag urban counties by a significant margin. When comparing Internet use with educational levels it is clear respondents with higher education levels are more likely to use the Internet. The data indicate rural areas in Oklahoma lag urban areas in Internet use and access. If rural Oklahoma is to successfully participate in the rapidly emerging digital economy, issues of supply and demand for digital technology will need to be addressed.

**Table 4.3****Have You Ever Used the Internet?**

		<b>Oklahoma City MSA</b>	<b>Tulsa MSA</b>	<b>Other Counties</b>	<b>All Respondents</b>
		<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>
1	Yes	317 (77.1)	328 (81.4)	265 (67.3)	910 (75.3)
2	No	94 (22.9)	75 (18.6)	129 (32.7)	298 (24.7)
Total		411 (100.0)	403 (100.0)	394 (100.0)	1208 (100.0)

Source: Statewide Survey, Bureau for Social Research, Oklahoma State University, 2002.

**Table 4.4****Do You Have Internet Access in Your Home?**

		<b>Oklahoma City MSA</b>	<b>Tulsa MSA</b>	<b>Other Counties</b>	<b>All Respondents</b>
		<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>
1	Yes	274 (66.7)	288 (71.5)	208 (52.8)	770 (63.7)
2	No	137 (33.3)	115 (28.5)	186 (47.2)	438 (36.3)
Total		411 (100.0)	403 (100.0)	394 (100.0)	1208 (100.0)

Source: Statewide Survey, Bureau for Social Research, Oklahoma State University, 2002.

**Table 4.5****Do You Have Internet Access at Your Place of Business?**

		<b>Oklahoma City MSA</b>	<b>Tulsa MSA</b>	<b>Other Counties</b>	<b>All Respondents</b>
		<b>Freq(%)</b>	<b>Freq(%)</b>	<b>Freq(%)</b>	<b>Freq(%)</b>
1	Yes	215(52.3)	201(50.0)	154(39.4)	570(47.3)
2	No	118(28.7)	112(27.9)	143(36.6)	373(31.0)
3	Not applicable – no place of business	78(19.0)	89(22.1)	94(24.0)	261(21.7)
Total		411(100.0)	402(100.0)	391(100.0)	1204(100.0)

Source: Statewide Survey, Bureau for Social Research, Oklahoma State University, 2002.

**Table 4.6**

**Have You Ever Used the Internet?**

		<b>Less than high school</b>	<b>Some high school</b>	<b>High school graduate</b>	<b>Some Technical school</b>	<b>Technical school</b>
		<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>
1	Yes	4 (25.0)	38 (48.1)	205 (60.7)	14 (70.0)	37 (82.2)
2	No	12 (75.0)	41 (51.9)	133 (39.3)	6 (30.0)	8 (17.8)
Total		16 (100.0)	79 (100.0)	338 (100.0)	20 (100.0)	45 (100.0)

		<b>Some college</b>	<b>College graduate – 4 year degree</b>	<b>Post-graduate degree</b>	<b>Other</b>	<b>All Respondents</b>
		<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>	<b>Freq (%)</b>
1	Yes	270 (83.9)	231 (85.9)	111 (92.5)	1 (100.0)	911 (75.3)
2	No	52 (16.1)	38 (14.1)	9 (7.5)	0 (0.0)	299 (24.7)
Total		322 (100.0)	269 (100.0)	120 (100.0)	1 (100.0)	1210 (100.0)

Source: Statewide Survey, Bureau for Social Research, Oklahoma State University, 2002.

Supply issues relate to the costs of digital infrastructure. Internet access is one issue, high-speed Internet access often required for many businesses is another. Universal service for all can be a “moving target” since technology is changing so rapidly. One suggestion is to target schools, health care facilities, and libraries in rural areas as local service providers for rural communities. Often, rural areas do not offer adequate demand for technology to justify private investments. If all local technology users work together, demand may be enhanced and costs kept to a minimum. Digital technology offers promise for rural areas in both the public sector and the private sector. The Oklahoma Technology Council works to advance the growth of technology industries in the state. Legislative initiatives such as reducing capital gains taxes on high tech start-up businesses and sales tax exemptions on high tech equipment are encouraged. The Oklahoma Science and Technology Research and Development Board works to foster economic development through technological advancement throughout the state, including rural Oklahoma.<sup>18</sup>

## **Oklahoma Rural Development Opportunities**

Certainly, rural Oklahoma, like the rest of the country, faces daunting economic and social challenges. There are bright spots and examples of success and potential, however. One such example is Value Added Cooperative (VAP), a 700- member cooperative located in Alva in Woods County. The plant, an \$18 million, 43,000 square foot facility manufactures pre-proofed frozen dough products. The Cooperative is comprised of Oklahoma wheat farmers, Alva businessmen, bankers, Woods County Economic Development Committee members, the Woods County Industrial Authority, and members of Oklahoma farmers cooperatives.<sup>19</sup> This group raised more than \$7.5 million in capital in less than three months. They were committed to identifying opportunities for value-added activities utilizing Oklahoma wheat. Assistance came from many sources and included the Oklahoma Department of Agriculture, the Oklahoma Food and

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Agricultural Products Research and Technology Center at OSU, and many others.<sup>20</sup> The cooperative model was used for organization and benefited from a 30% tax credit passed by the state legislature. The tax credit is allowed for investments by Oklahoma producers in Oklahoma agricultural processing cooperatives, ventures, and processing marketing associations.

Southeastern Oklahoma has long faced high levels of unemployment. Rural Enterprises of Oklahoma, Inc. (REI) was created by former U.S. Congressman Wes Watkins in 1982 as a job-creating mechanism. REI is a Durant-based non-profit economic development agency providing services for business finance, business development, and international trade. REI has provided business loans totaling over \$200 million since its inception. REI also manages over 18 business incubators throughout the state. These small business incubators offer financial and management assistance to emerging businesses during early stages of the business life-cycle when such assistance may mean the difference between success or failure. One key to REI's success has been the active partnerships forged with entities such as local technology centers, banks, private businesses, universities, and state/federal agencies.

One example of locally grown business is Sundowner Trailers, Inc. located in Coleman, Oklahoma. The firm was founded in 1976 to produce and sell quality livestock trailers. The firm is family owned and employment has grown into the "hundreds". Sundowner is a nationally known firm that has been innovative in product development and marketing efforts. With rapid growth has come the need for more employees-many who commute several miles. Issues of local community development and available housing have arisen (with success comes new needs).

There are other examples of business attraction success in rural Oklahoma. Recently, Big Lots announced plans to open a distribution center eventually employing 500 in Durant.<sup>21</sup> Broken Bow was selected as a site for a \$130 million strand board facility owned by Huber Engineered Woods.<sup>22</sup>

A final example of growth potential lies in northeastern Oklahoma in the Grand Lake and

Lake Tenkiller regions. Tourists, retirees, and second-home owners have discovered the scenic and natural amenities of this segment of Oklahoma. Interested chambers of commerce and regional groups such as the Grand Lake Association hope to continue to enhance economic benefits by utilizing the resources of the region. Organizations are assessing markets and determining how to build on the interest shown by new immigrants and tourists.

All these examples of success emphasize core concepts including cooperation by rural communities and regions to reach a critical mass, public-private partnerships, entrepreneurial willingness to take risks, assistance from a variety of service providers, and leveraging of specific rural assets. Locally grown development (creation, retention, expansion) as opposed to attracting outside firms seems to emerge as particularly viable for rural areas. However, attraction of outside firms may be viable in some cases. Given the current political and economic climate (state economy, national economy, international turmoil, state demographic trends) the basic question arises: will any significant attention be given to rural issues? If support for rural issues emerges, three areas of focus seem to offer promise:

1. Identify industries and clusters of economic activity (or potential clusters) that make sense for rural Oklahoma. Examples might include additional value-added agricultural enterprises, rural tourism, and appropriate manufacturing or service sectors.
2. Invest in appropriate infrastructure including digital equipment and systems.
3. Support growth in human capital development such as rural leadership training and local capacity building.

State government will not be able to solve all the problems of rural Oklahoma. Rural residents, however, are deserving of the same concern afforded all Oklahomans. Successful rural development will also yield positive results for the state. Successful rural communities will most likely be those demonstrating a high level of local leadership and determination. Communities must be willing to help themselves through investment

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of local resources, volunteer time, and talent. As noted in a recent national symposium on rural development, “communities cannot be developed - they must develop themselves.”<sup>23</sup> The state would do well to assist rural areas in identifying and marshalling resources for future progress.

## Endnotes

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# Oklahoma's Occupational Structure and Implications for Income Growth

## Introduction

Oklahoma's enduring slow income growth has proven to be one of the state's most vexing public policy issues. Between 1982 and 2000, Oklahoma fell from near parity to 76.5 percent of the nation's average industry wage rate. Similarly, Oklahoma's per capita personal income is now only about four-fifths of the national level. In an attempt last year to understand how earning trends by industry affected income growth in the state, the author analyzed average wage rates and employment by industry.<sup>1</sup> This year's study expands on the last year's work by shifting attention to the state's occupational structure.

This chapter examines evidence relating to a hypothesis that the Oklahoma economy has suffered occupational downgrading. This hypothesis is developed from last year's effort that revealed state employment growth matching the nation's, but wage growth that considerably lagged national patterns of industry real wage advance. Answers to the following questions are sought:

- Has the Oklahoma economy experienced significant shifts from high-paying management and professional jobs to lower paying production and clerical jobs?
- How does the distribution of jobs among occupations in Oklahoma compare with other states and the nation?
- To what extent are differences in region-wide average earnings across all occupations associated with differences in the distribution of jobs versus differences in the average pay per job?

The focus on occupations is important for a variety of reasons. Occupations are central to operations of labor markets. While a given

industry may hire workers with occupational skills that are fairly unique to its trade, it will still typically make use of a broad range of occupational skills and compete for workers in numerous labor markets. We can speak meaningfully, for example, of the existence of labor markets for engineers, computer specialists, nurses, and machinists. The aim of many college and university programs is to provide direct education and training for many of these occupations. Thus, there are important public policy implications relating to occupational skills; namely, directing students toward the right occupations. In addition, one would expect that the success of many states has to do with their ability to attract and utilize high human-capital content jobs - jobs that require a large educational investment on the part of the worker.

Occupational data are provided by the decennial census and the US Department of Labor's Occupational Employment Statistics (OES) program. The OES is the principal statistical database used for examination of issues of occupational structure in this paper.<sup>2</sup> The Current Population Survey also collects occupational information. Though this survey is used to calculate unemployment rates, the sample sizes are too small to provide occupational information for all but the largest of geographical areas.

This paper is divided into five sections. First, a recap of last year's study is provided. Second, the OES program and the census occupational information resources are examined. Third, the methodology used to assess similarities in occupational structure is discussed. Fourth, the empirical findings are presented. An implications and summary section closes the paper.

A principal finding is that Oklahoma's occupational structure compares quite favorably with the nation's. Evidence does exist that the occupational structure has weakened somewhat, but changes in the occupational classification

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system between census years prevents strong pronouncements. The OES statistics, however, strongly indicate that the problem is not with the distribution of jobs by occupation, but with what these jobs pay. On average, jobs in Oklahoma pay 15 percent less than corresponding jobs at the national level. These results reinforce what was identified in the study of wage bill trends. Oklahoma, then, is not suffering from an atypical distribution of jobs, either industrially or occupationally. The problem is low pay.

Other principal findings include:

- Oklahoma has not so much slipped down the occupational ladder since 1990 as it has failed to climb it. As revealed by decennial census statistics, gains in employment in high human-capital content jobs increased 5.0 percent in Oklahoma, 1990-2000; the gain nationally was 15.4 percent.
- Average occupational earnings differentials vary widely among the states. These range from as much as 18 percent higher in Connecticut to 22 percent lower in Mississippi, relative to the national average. This 40 percent range is found in data from the Occupational Employment Statistics program.
- Occupational earnings among states vary mainly because of general wage level differentials, not because of the occupational distribution of jobs. Even in those states where occupational distributions are concentrated in management and professional categories, such as Maryland and Massachusetts, there is only about a six percentage-point premium from this source. States with job distributions skewed toward generally lower-paying occupations, such as Arkansas and Mississippi, receive about a four percentage-point negative differential from the distribution-of-jobs source.
- Managerial jobs are particularly low paying in Oklahoma, averaging only 78 percent of national wage levels. Partly, this result is attributable to the low number of corporate headquarters in the state and the loss of some headquarters in recent years.

- Oklahoma's share of the adult population who have bachelor's degrees or higher increased in the 1990s to 20.3 percent, but the gap in relation to the nation expanded. It would take an increase of 91,000 graduates in Oklahoma's adult population to match the national average of college graduates, up from about 50,000 in 1990.
- The correlation among states between per capita personal income and the share of population who have bachelor's or higher degrees continues to be strong, +0.78. Three-fourths of this correlation is attributable to only four variables, stated in per capita terms: earnings in high-level services (business, health, private education, and engineering/architectural); earnings in finance, insurance, and real estate (FIRE); transfer payments; and dividends, interest and rents.

The study calls for much more public policy attention to college-usage, as opposed to purely college-producing, strategies. The purpose would be to better integrate university-trained personnel into the machinery of production in Oklahoma. This can be achieved through involvement of colleges and universities in cooperative arrangements with area businesses on a variety of fronts, including: research and development activities; public/private internship programs at both the undergraduate and graduate levels; continuing education programs for the employed; and direct attention to entrepreneurship education and growth of family businesses. The data and analysis strongly suggest that college-usage strategies represent a principal means for advancement of the Oklahoma economy.

## **Main Findings from 2002 Study**

Last year's study contained an analysis of wage and employment data for fifteen industrial sectors. Special treatment was given to services, which were divided into high and low human capital content groups. The wage bill, defined as the sum across industries of average earnings multiplied by the number of jobs, was adjusted for

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inflation to facilitate comparisons between periods. Changes in the aggregate wage bill stem from either changes in wages or changes in the number of jobs by industry. Methods were employed to partition changes in the real wage bill into that part attributable to growth in wages and that part attributable to changes in employment. Other methods were developed to isolate sources of wage bill growth across industries. Oklahoma's patterns of wage bill growth were compared with surrounding states and the nation. This comparative data allows a hypothetical calculation of what Oklahoma's wage bill would have been had it grown in the same manner as the nation or any one of its neighbors.

The study found that Oklahoma's earnings distribution by industry (the percent of total earnings in each industry) roughly matches the nation. Mining and federal civilian industries are about two percentage points higher than the nation and high-level services are about two percentage points lower. High-level services in 2000 represented about one-fourth of aggregate earnings, up from one-twelfth in 1970. The study's main findings were concerned with wage-bill decomposition. Between 1987 and 2000, the wage bill in Oklahoma rose, in real terms, at a seemingly respectable 2.5 percent average annual growth rate.<sup>3</sup> This produced a better than one-third gain in the inflation-adjusted wage bill. This growth, however, placed Oklahoma dead last in the region and 20 percentage points behind the nation. The decomposition of wage bill growth into wage and employment effects showed a dominant employment effect for the state. Indeed, job growth slightly exceeded the nation. The problem was with wage growth, which was 18 percentage points below the national average.

This dependency upon job growth for wage bill gains was excessive. Growth in jobs accounted for 80 percent of the state's wage bill gain. In Colorado, Texas, and the nation as a whole, job growth accounted for only about 60 percent. Even a hypothetical application of Colorado's impressive growth profile to Oklahoma's industry baseline in 1987 shows Oklahoma reaching only 90 percent of the national average wage. Results were even worse when using the growth profiles of some of Oklahoma's

other neighboring states. The results underscored the futility of trying to achieve wage and income parity with the nation. A more reasonable target is an 86 percent Oklahoma-to-US wage ratio with 40 percent, instead of 20 percent, of wage-bill gains coming from increases in the real wage.

It seems peculiar that Oklahoma, with a pattern of growth in wage and salary employment that parallels the nation, and with neighboring states that have enjoyed solid real wage gains, has experienced such a significant decline in its relative wage. As noted, employment growth overall, and by industry, has matched the nation. Yet, even in the go-go days of the mid to late 1990s, Oklahoma continued to decline in terms of its relative wage. A useful hypothesis springs from that analysis: while Oklahoma was gaining in jobs, these jobs had lower skill and education requirements. Perhaps within industries, that is, the Oklahoma work force was sliding down occupational ladders.

## **OES Program and Occupational Classification**

The Occupational Employment Statistics program has been in operation for a number of years. It is an annual mail survey to non-farm establishments to obtain employment and wage and salary information. The program is operated in cooperation with state employment security agencies. A three-year cycle is utilized to collect the information from approximately 400,000 establishments per year. The 2000 Standard Occupational Classification System (SOCS) is used to categorize jobs. The 2000 Census utilized this system, greatly enhancing data comparability. Over 800 detailed occupations are included in this system, which are classified into 96 intermediate-detailed categories (four of which are military). The 96 so-called minor groups are then classified into 23 major-group categories (one of which is military). Owing to recent adoption of the new SOC system, 1999 and beyond OES estimates are not directly comparable with previous years' OES estimates. Prior to 1996 the OES program only collected employment information. Wage and salary information, therefore, is a fairly recent

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addition. A major drawback is that the self-employed are not surveyed.

To have 23 categories of major groups is quite a departure from the past when there were only nine categories in the major groups. Still, such aggregation gives rise to a number of difficulties in occupational classification. For example, consider one of the 23 major groups, legal occupations. It includes lawyers, judges, arbitrators, mediators, adjudicators and hearing officers, what one would consider the upper echelon of the legal professions. It also includes paralegals and legal assistants, court reporters, law clerks, title examiners and abstractors, and other legal support workers. These are certainly different sorts of occupations requiring different amounts of worker skills and education. But they are all counted as “legal occupations.” This problem can be lessened by using the 96 group level, as was done here. 96 categories are too many for summary reporting, though, so many results are shown at the 23-group aggregate level.

The Census of Population contains the most robust collection of occupational data in the US. Unfortunately, it is only collected every ten years and the data are very slow to be completed and published. For example, only recently have the occupational data from the 2000 census been released. The data that have been made available, meanwhile, have been quite aggregated. The census data are also self-reported, which can lead to some overstatement of occupational position. Another problem is that there are frequently differences in the occupational classification systems used. Great strides have been made in the standardization of occupational classification systems, but some changes are always made. Thus, comparing different censuses can be a delicate task. Nevertheless, the sheer mass of data collected provides ample means for characterizing the occupational structure of even quite small regional areas.

## Methodology

Unfortunately, with the slowness of data on the Census front and changes in occupational classification in the OES program, our ability to

make occupational-structure comparisons across time periods is somewhat limited. Still, at a sufficiently high level of aggregation, it should be possible to compare the nation’s occupational distribution in 1990 and 2000 with Oklahoma’s. Simple comparisons of percentage distributions should suffice to show whether there have been any significant changes in Oklahoma’s patterns of occupational employment. Census data will be utilized for this purpose.

The 2002 study made use of index number techniques for purposes of decomposing changes in the real wage bill over time into wage effects and employment effects. A modification of that approach will be used to ascertain how general wage effects and job-distribution effects yield earnings differentials among the 50 states in comparison with the nation. We will be able to estimate the extent to which a favorable average, region-wide, occupational wage level is attributable to generally higher wages or to a favorable distribution of occupational employment.

In appraising the occupational wage differentials among the several states, it is clear that a given state could enjoy both a generally higher wage level, affecting a broad spectrum of occupations, as well as an occupational distribution that, in comparison to the nation, is skewed toward better paying jobs. The average occupational wage would, therefore, be high on both general wage and job distribution effects. Perhaps there are states that suffer from a generally low wage level, again across a broad spectrum of occupations, and a job distribution among occupations that is biased toward typically lower paying jobs. Again, the overall average occupational wage is separable into the two components of general wage and job distribution effects.

This is essentially what economists call an index number problem, a problem principally featured in attempts to measure inflation and real output. It is possible, for example, to compute a hypothetical average occupational wage level for, say, Oklahoma, by multiplying Oklahoma wage levels per occupation by the percentage distribution of jobs nationally and summing. Similarly, it is possible to compute a hypothetical average occupational wage level for Oklahoma by multiplying national occupational wage rates by the

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Oklahoma percentage occupational distribution and summing. The former addresses what Oklahoma jobs, on average, would pay if we had the same patterns of occupational employment as the nation. The latter holds constant the distribution of jobs and examines what average earnings would be in Oklahoma if we enjoyed national wage levels

An Appendix provides a detailed discussion of the techniques used to partition average occupational wage differentials into general wage-level and job-distribution effects. There are two methods. The first creates an index of the partitioned effects. A value of 85.0, for example, for a wage effect indicates that the general wage level is about 15 percent below the nation's. A value of 105.0 for the job (occupational) distribution effect would indicate that the job distribution is favorably skewed toward occupations that pay higher wages, on average. The second technique directly divides the overall percentage wage differential into wage and job distribution effects. For example, for a given state, average occupational wage level may be 10 percent higher than the nation's. Seven percentage points might be attributable to the general wage effect, (saying, on average, that wages are 7.0 percent higher in the state), and 3.0 percent to the job distribution effect. Thus, total percentage wage differential = general wage effect + job distribution effect. All of these effects will be measured relative to the national wage and distribution of jobs by occupation.

## Findings

### Decennial Census Results

The issue of whether the occupational distribution of employment in Oklahoma has changed significantly will be investigated first. As noted previously, there are differences in the occupational classification systems that make it difficult to draw firm conclusions from any observed changes in the distributions. We simply cannot know whether the observed changes are a consequence of real changes in the distribution of

jobs by occupation or simply an artifact of the classification system. Nevertheless, occupational classification systems used by the US Bureau of the Census have been fairly stable between the 1990 and 2000 censuses. The author took considerable care in allocating detailed occupational categories from the 1990 Census to the 2000 major group schema. Table 5.1 shows the Oklahoma and US employment by occupation and percentage changes for the two Census years using the 22 major groups from the 2000 Standard Occupational Classification System (SOCS). The 23rd category, the military, is not shown. A notable feature of Table 5.1 is growth of the computer and mathematical occupations, which doubled in Oklahoma and more than doubled nationally. Community and social service occupations increased by 57 percent in Oklahoma and by 76 percent nationally. In general, we see a fairly high degree of correspondence in the changes. What tends to be up nationally is also showing an increase in Oklahoma, and vice versa. There are a few discrepancies of note, however. Management declined 6.0 percent nationally while falling by 18 percent in Oklahoma. Life, physical and social sciences were up 22 percent nationally but down 2 percent in Oklahoma. Construction and extraction jobs fell nationally by 32 percent, but only 17 percent in Oklahoma. Installation, maintenance, and repair occupations grew 18 percent nationally but 32 percent in Oklahoma. Overall, employment was up 4.9 nationally and 5.6 percent in Oklahoma.

Table 5.2 shows the percentage distribution of employment by occupation, showing how the composition of occupational employment has changed. Figure 1.1 provides a graphical display of the data in Table 5.2. The major change is in the share of jobs in the management category. Closely matching the US percentage value in 1990, Oklahoma's share in the management category has slipped by 2.2 percentage points, from a 9.5 percent to a 7.3 percent share of employment. That is a fairly dramatic change. This, however, does not seem quite so bad when compared to a 1.0 percentage point nationwide decline.

Table 5.1

Employment by Occupation and Percentage Change, 1990 and 2000, Oklahoma and US

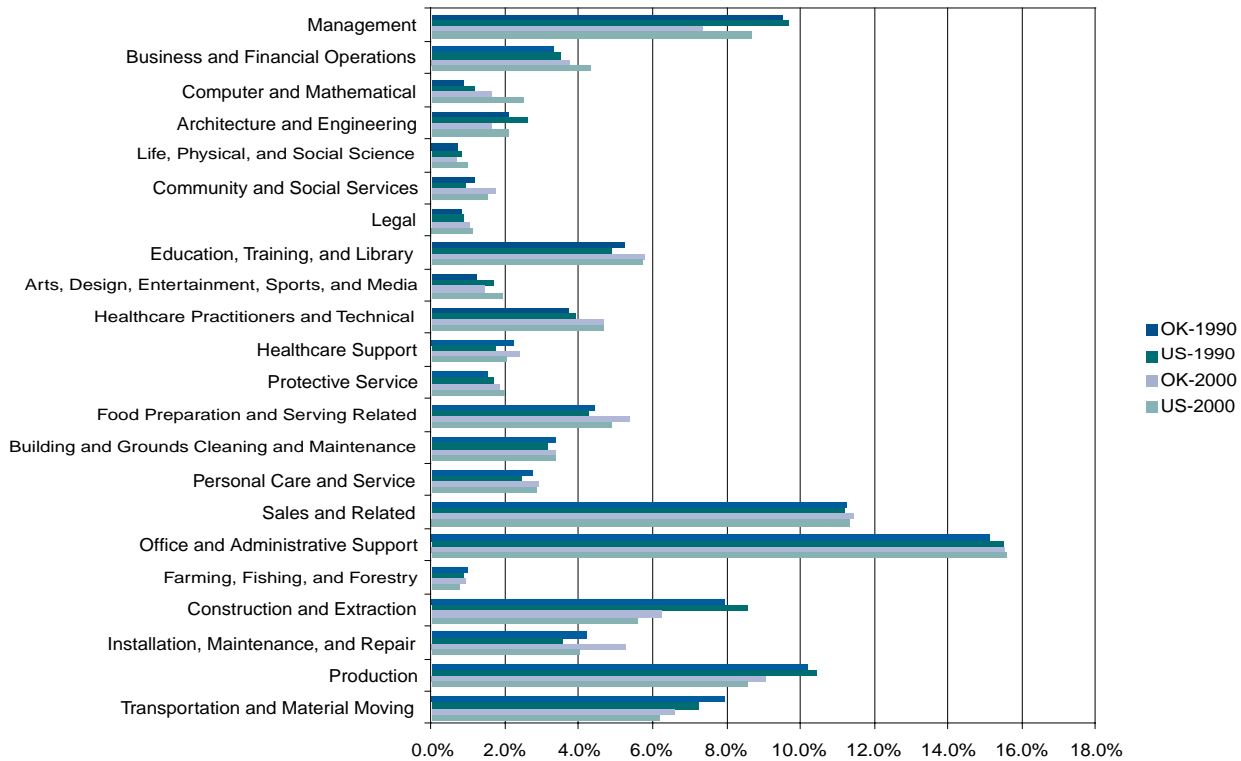
SOC Group Major	Title	OK-1990	US-1990	OK-2000	US-2000	OK % Change	US % Change
11	Management	137,188	11,857,508	111,374	11,115,046	-18.8%	-6.3%
13	Business and Financial Operations	47,069	4,251,857	57,236	5,559,774	21.6%	30.8%
15	Computer and Mathematical	12,359	1,432,232	24,793	3,168,447	100.6%	121.2%
17	Architecture and Engineering	29,585	3,159,209	24,515	2,659,298	-17.1%	-15.8%
19	Life, Physical, and Social Science	10,386	991,053	10,205	1,203,443	-1.7%	21.4%
21	Community and Social Services	16,534	1,107,829	25,955	1,953,184	57.0%	76.3%
23	Legal	11,487	1,024,724	14,999	1,412,737	30.6%	37.9%
25	Education, Training, and Library	75,166	5,981,627	87,530	7,337,276	16.4%	22.7%
27	Arts, Design, Entertainment, Sports, and Media	17,645	2,048,368	21,235	2,484,201	20.3%	21.3%
29	Healthcare Practitioners and Technical	53,282	4,751,245	70,848	5,980,107	33.0%	25.9%
31	Healthcare Support	32,128	2,115,424	35,676	2,592,815	11.0%	22.6%
33	Protective Service	21,478	2,006,355	27,748	2,549,906	29.2%	27.1%
35	Food Preparation and Serving Related	63,108	5,170,179	81,612	6,251,618	29.3%	20.9%
37	Building and Grounds Cleaning and Maintenance	48,135	3,831,441	51,073	4,254,365	6.1%	11.0%
39	Personal Care and Service	39,267	2,997,030	43,703	3,628,243	11.3%	21.1%
41	Sales and Related	162,056	13,724,455	174,252	14,592,699	7.5%	6.3%
43	Office and Administrative Support	218,161	19,001,632	236,901	20,028,691	8.6%	5.4%
45	Farming, Fishing, and Forestry	13,948	1,028,543	13,721	951,810	-1.6%	-7.5%
47	Construction and Extraction	114,645	10,464,276	94,655	7,149,269	-17.4%	-31.7%
49	Installation, Maintenance, and Repair	60,368	4,330,022	79,884	5,106,869	32.3%	17.9%
51	Production	146,774	12,756,383	137,795	11,008,625	-6.1%	-13.7%
53	Transportation and Material Moving	114,331	8,864,573	100,188	7,959,871	-12.4%	-10.2%
	Total	1,445,100	122,895,965	1,525,898	128,948,294	5.6%	4.9%

Table 5.2

Occupational Distribution of Employment, 1990 and 2000, Oklahoma and US

SOC Group Major	Title	OK-1990	US-1990	OK-2000	US-2000	OK % Change	US % Change
11	Management	9.5%	9.6%	7.3%	8.6%	-2.2%	-1.0%
13	Business and Financial Operations	3.3%	3.5%	3.8%	4.3%	0.5%	0.9%
15	Computer and Mathematical	0.9%	1.2%	1.6%	2.5%	0.8%	1.3%
17	Architecture and Engineering	2.0%	2.6%	1.6%	2.1%	-0.4%	-0.5%
19	Life, Physical, and Social Science	0.7%	0.8%	0.7%	0.9%	0.0%	0.1%
21	Community and Social Services	1.1%	0.9%	1.7%	1.5%	0.6%	0.6%
23	Legal	0.8%	0.8%	1.0%	1.1%	0.2%	0.3%
25	Education, Training, and Library	5.2%	4.9%	5.7%	5.7%	0.5%	0.8%
27	Arts, Design, Entertainment, Sports, and Media	1.2%	1.7%	1.4%	1.9%	0.2%	0.3%
29	Healthcare Practitioners and Technical	3.7%	3.9%	4.6%	4.6%	1.0%	0.8%
31	Healthcare Support	2.2%	1.7%	2.3%	2.0%	0.1%	0.3%
33	Protective Service	1.5%	1.6%	1.8%	2.0%	0.3%	0.3%
35	Food Preparation and Serving Related	4.4%	4.2%	5.3%	4.8%	1.0%	0.6%
37	Building and Grounds Cleaning and Maintenance	3.3%	3.1%	3.3%	3.3%	0.0%	0.2%
39	Personal Care and Service	2.7%	2.4%	2.9%	2.8%	0.1%	0.4%
41	Sales and Related	11.2%	11.2%	11.4%	11.3%	0.2%	0.1%
43	Office and Administrative Support	15.1%	15.5%	15.5%	15.5%	0.4%	0.1%
45	Farming, Fishing, and Forestry	1.0%	0.8%	0.9%	0.7%	-0.1%	-0.1%
47	Construction and Extraction	7.9%	8.5%	6.2%	5.5%	-1.7%	-3.0%
49	Installation, Maintenance, and Repair	4.2%	3.5%	5.2%	4.0%	1.1%	0.4%
51	Production	10.2%	10.4%	9.0%	8.5%	-1.1%	-1.8%
53	Transportation and Material Moving	7.9%	7.2%	6.6%	6.2%	-1.3%	-1.0%
Total		100.0%	100.0%	100.0%	100.0%		

**Figure 1.1  
Occupational Distribution of Employed Persons  
Oklahoma and US  
1990 and 2000**



The gains in employment among high human-capital content occupations, many of which typically require college educations (major groups 11 through 25), were 5.0 percent for Oklahoma and 15.4 percent for the nation. The share of employment in these upper echelon occupations fell by 0.1 percentage points in Oklahoma (23.5 to 23.4 percent) for 1990 to 2000, while the share rose in the nation by 2.4 percentage points (24.3 to 26.7 percent). Thus, it can be said in terms of its occupational distribution, Oklahoma's economy has not slipped down the occupational ladder. Instead, in comparison to the nation, it has failed to climb it.

### OES Program Results

As noted, the OES program provides a wealth of information on occupational structure and earnings. Although farm establishments and

the self-employed are not included in this program, this is still a highly useful data set. Moreover, inclusion of earnings information in recent years has been a boon to exploration of issues related to differentials in regional economic performance. Employment and earnings estimates are available for 2001. The author has computed average earnings for Oklahoma and for the nation using the 96 category minor group occupational classification scheme. Results are in Table 5.3. (Only 89 categories appear in the table because of the absence of the military categories, no sample responses in the OES for two minor groups, and no sample responses for water transportation workers in Oklahoma).

Perusal of this table shows that in terms of wage ratios, the pay levels in Oklahoma vary from a high of 117 percent of the corresponding national wage to a low of 49 percent. The highest paying occupations are shown in Table 5.4.

**Table 5.3**

**OES Program Estimates of 2001 Average Salary, Oklahoma and US**

<b>SOC Code</b>	<b>Title</b>	<b>OK</b>	<b>US</b>	<b>Ratio</b>
11-0000	Management Occupations	58,081	74,836	78%
11-9000	Other Management Occupations	47,214	60,005	79%
13-1000	Business Operations Specialists	41,430	49,741	83%
13-2000	Financial Specialists	41,368	51,286	81%
15-1000	Computer Specialists	44,063	60,758	73%
15-2000	Mathematical Scientists	45,390	61,779	73%
17-1000	Architects, Surveyors, and Cartographers	50,344	52,175	96%
17-2000	Engineers	62,471	65,684	95%
17-3000	Drafters, Engineering, and Mapping Technicians	39,712	40,939	97%
19-1000	Life Scientists	45,231	56,709	80%
19-2000	Physical Scientists	63,721	57,274	111%
19-3000	Social Scientists and Related Workers	41,617	55,174	75%
19-4000	Life, Physical, and Social Science Technicians	34,378	36,141	95%
21-1000	Counselors and Social Workers	27,545	34,151	81%
21-2000	Religious Workers	34,760	35,025	99%
23-1000	Lawyers, Judges, and Related Workers	75,938	89,355	85%
23-2000	Legal Support Workers	33,551	37,982	88%
25-1000	Postsecondary Teachers	38,936	50,824	77%
25-2000	Teachers, Primary and Secondary	31,831	41,877	76%
25-3000	Other Teachers and Instructors	31,460	34,730	91%
25-4000	Librarians, Curators, and Archivists	28,254	36,068	78%
25-9000	Other Education, Training, and Library Occupations	16,902	21,656	78%
27-1000	Art and Design Workers	27,703	38,259	72%
27-2000	Entertainers and Performers, Sports and Related	30,463	42,509	72%
27-3000	Media and Communication Workers	31,007	42,693	73%
27-4000	Media and Communication Equipment Workers	23,869	32,977	72%
29-1000	Health Diagnosing and Treating Practitioners	57,947	58,637	99%
29-2000	Health Technologists and Technicians	27,102	32,725	83%
29-9000	Other Healthcare Practitioners and Technical Occupations	45,555	43,984	104%
31-1000	Nursing, Psychiatric, and Home Health Aides	16,379	19,568	84%
31-2000	Occupational and Physical Therapist Assistants and Aides	26,290	30,414	86%
31-9000	Other Healthcare Support Occupations	21,643	25,134	86%
33-1000	Supervisors, Protective Service Workers	37,900	56,436	67%
33-2000	Fire Fighting and Prevention Workers	32,503	36,158	90%
33-3000	Law Enforcement Workers	28,405	39,572	72%
33-9000	Other Protective Service Workers	21,230	20,761	102%
35-1000	Supervisors, Food Preparation and Serving Workers	20,434	26,586	77%
35-2000	Cooks and Food Preparation Workers	14,573	17,172	85%
35-3000	Food and Beverage Serving Workers	13,688	15,303	89%
35-9000	Other Food Preparation and Serving Related Workers	13,691	15,214	90%

**Table 5.3 (continued)**

**OES Program Estimates of 2001 Average Salary, Oklahoma and US**

<b>SOC Code</b>	<b>Title</b>	<b>OK</b>	<b>US</b>	<b>Ratio</b>
37-1000	Supervisors, Building and Grounds Cleaning and Maintenance Workers	24,373	31,248	78%
37-2000	Building Cleaning and Pest Control Workers	15,708	19,010	83%
37-3000	Grounds Maintenance Workers	18,131	21,225	85%
39-1000	Supervisors, Personal Care and Service Workers	23,819	32,284	74%
39-2000	Animal Care and Service Workers	18,453	18,708	99%
39-3000	Entertainment Attendants and Related Workers	14,778	16,309	91%
39-4000	Funeral Service Workers	19,101	22,272	86%
39-5000	Personal Appearance Workers	18,779	21,035	89%
39-6000	Transportation, Tourism, and Lodging Attendants	14,968	30,742	49%
39-9000	Other Personal Care and Service Workers	15,643	19,201	81%
41-1000	Supervisors, Sales Workers	30,127	38,357	79%
41-2000	Retail Sales Workers	17,335	18,998	91%
41-3000	Sales Representatives, Services	43,681	53,543	82%
41-4000	Sales Representatives, Wholesale and Mfg	42,991	50,880	84%
41-9000	Other Sales and Related Workers	23,448	30,997	76%
43-1000	Supervisors, Office and Administrative Support	35,450	40,915	87%
43-2000	Communications Equipment Operators	20,503	22,891	90%
43-3000	Financial Clerks	22,829	26,447	86%
43-4000	Information and Record Clerks	22,120	25,398	87%
43-5000	Material Recording, Scheduling, and Dispatching	24,213	26,261	92%
43-6000	Secretaries and Administrative Assistants	23,274	29,476	79%
43-9000	Other Office and Administrative Support Workers	20,400	24,098	85%
45-1000	Supervisors, Farming, Fishing, and Forestry	33,190	36,208	92%
45-2000	Agricultural Workers	17,374	16,895	103%
45-4000	Forest, Conservation, and Logging Workers	29,470	27,247	108%
47-1000	Supervisors, Construction and Extraction Workers	42,880	49,435	87%
47-2000	Construction Trades Workers	28,197	35,661	79%
47-3000	Helpers, Construction Trades	21,745	23,315	93%
47-4000	Other Construction and Related Workers	24,074	33,551	72%
47-5000	Extraction Workers	27,301	29,213	93%
49-1000	Supervisors of Installation, Maintenance, and Repair	43,790	48,511	90%
49-2000	Electrical/Electronic Equipment Mechanics, Installers, and Repairers	35,798	38,656	93%
49-3000	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	29,220	32,792	89%
49-9000	Other Installation, Maintenance, and Repair Occupations	29,383	32,868	89%
51-1000	Supervisors, Production Workers	40,760	44,741	91%
51-2000	Assemblers and Fabricators	24,012	24,785	97%
51-3000	Food Processing Workers	19,428	21,989	88%
51-4000	Metal Workers and Plastic Workers	26,940	29,810	90%
51-5000	Printing Workers	23,844	29,640	80%
51-6000	Textile, Apparel, and Furnishings Workers	16,638	19,536	85%

**Table 5.3 (continued)**

**OES Program Estimates of 2001 Average Salary, Oklahoma and US**

<b>SOC Code</b>	<b>Title</b>	<b>OK</b>	<b>US</b>	<b>Ratio</b>
51-7000	Woodworkers	23,020	23,932	96%
51-8000	Plant and System Operators	34,132	41,193	83%
51-9000	Other Production Occupations	24,471	25,767	95%
53-1000	Supervisors, Transportation and Material Moving Workers	38,183	41,641	92%
53-2000	Air Transportation Workers	96,843	82,619	117%
53-3000	Motor Vehicle Operators	24,800	28,341	88%
53-4000	Rail Transportation Workers	35,139	46,083	76%
53-6000	Other Transportation Workers	21,614	19,991	108%
53-7000	Material Moving Workers	19,983	21,846	91%

**Table 5.4**

**OES Program Top 10 Highest Paying Occupations in Oklahoma, 2001**

<b>SOC Code</b>	<b>Title</b>	<b>OK</b>	<b>US</b>	<b>Ratio</b>
53-2000	Air Transportation Workers	96,843	82,619	117%
23-1000	Lawyers, Judges, and Related Workers	75,938	89,355	85%
19-2000	Physical Scientists	63,721	57,274	111%
17-2000	Engineers	62,471	65,684	95%
11-0000	Management Occupations	58,081	74,836	78%
29-1000	Health Diagnosing and Treating Practitioners	57,947	58,637	99%
17-1000	Architects, Surveyors, and Cartographers	50,344	52,175	96%
11-9000	Other Management Occupations	47,214	60,005	79%
29-9000	Other Healthcare Practitioners and Technical Occupations	45,555	43,984	104%
15-2000	Mathematical Scientists	45,390	61,779	73%

Evidently, Oklahoma is a good place for airline pilots to reside. Nothing much beats having your wage determined in national labor markets while being able to reside in low cost of living states. Similarly, engineers and many health occupations score near national levels of pay. Lawyers are at only 85 percent of national salaries, but remember that the self-employed are not included in this analysis. Management occupations are at only 78 percent of national earnings levels. The 10 lowest paying occupations in Oklahoma are shown in Table 5.5. Note that aside from the transportation, tourism and lodging attendants category, the pay ratios tend to average in the mid 80 percent range.

OES data are available for all states and the District of Columbia. Thus, it is possible to utilize the methodology discussed above and detailed in the appendix to estimate to what extent average occupational earnings differentials for any state are attributable to general wage level or occupational distribution effects. Table 5.6 shows the Value index of the state average occupational wage to the national average occupational wage, Fisher wage and Fisher employment indices, and the additive partition of total percentage differential into wage and employment distributional effects. The 93 OES occupational classification scheme was utilized in these computations.

**Table 5.5**

**OES Program 10 Lowest Paying Occupations in Oklahoma, 2001**

<b>SOC Code</b>	<b>Title</b>	<b>OK</b>	<b>US</b>	<b>Ratio</b>
25-9000	Other Education, Training, and Library Occupations	16,902	21,656	78%
51-6000	Textile, Apparel, and Furnishings Workers	16,638	19,536	85%
31-1000	Nursing, Psychiatric, and Home Health Aides	16,379	19,568	84%
37-2000	Building Cleaning and Pest Control Workers	15,708	19,010	83%
39-9000	Other Personal Care and Service Workers	15,643	19,201	81%
39-6000	Transportation, Tourism, and Lodging Attendants	14,968	30,742	49%
39-3000	Entertainment Attendants and Related Workers	14,778	16,309	91%
35-2000	Cooks and Food Preparation Workers	14,573	17,172	85%
35-9000	Other Food Preparation and Serving Related Workers	13,691	15,214	90%
35-3000	Food and Beverage Serving Workers	13,688	15,303	89%

Review of Table 5.6 reveals examples of states that benefit from both high wage levels and favorable occupational distributions of employment. Connecticut, for example, enjoys a wage level that is 18.2 percent above the average US occupational wage, comprised of a 14.9 percent wage effect and a 3.2 percent favorable employment distribution effect. Massachusetts has a comparatively strong employment distribution effect of 5.8 percent, which combined with its slightly lower wage effect places its average occupational wage differential about on par with Connecticut. The District of Columbia is a definite outlier with a 12.8 percent wage effect and a 28.6 percent employment effect, yielding an overall 41.4 percent occupational wage differential.

Among states with low levels of average occupational earnings, the principal reason has little to do with its employment distribution by occupation being skewed toward lower paying jobs. Oklahoma, Louisiana, and West Virginia's average occupational earnings are about 15-16 percent lower than the nation's, but these three states score near the 100 percent mark on the employment distribution measure. Arkansas, Mississippi and South Dakota have both weak wage and employment distributional effects, placing them at the bottom rungs of average

occupational wage ratios. Their employment distributional effects are in the neighborhood of -4.0 percent while their wage effects are 16-18 percent below the nation's, leaving them 20 percent or more below the national average occupational wage level. Among the 50 states (exclusive of District of Columbia), Nevada has the least favorable occupational distribution effect (-8.2%) while Maryland has the most favorable one (+6.1%). All of these results are derived from OES survey information, and, therefore, do not include agricultural or self-employment.

Table 5.7 shows the occupational wage differential for Oklahoma and its surrounding states. Colorado stands out among these states in terms of positive wage and employment distributional effects. This leads to 5.8 percent positive wage differential in comparison to the nation. Arkansas is at the bottom in this region with both the most negative wage and employment components. Oklahoma, Kansas, Louisiana, and Missouri have neutral employment distributional effects. New Mexico and Texas have employment distributions that slightly favor higher average occupational earnings. It is noteworthy that the largest share of differential earnings among the several states is attributable to variation in average wage levels, not to differences in employment distributions by occupation.

Table 5.6

## Decomposition of Average Occupational Wage Differentials

State	Value Index	Fisher Wage Index	Fisher Employment	Additive Wage Component	Additive Employment Component
Alabama	86.2	87.6	98.4	-12.3%	-1.5%
Alaska	115.1	111.1	103.6	11.3%	3.8%
Arizona	93.8	93.8	100.0	-6.2%	0.0%
Arkansas	79.0	82.7	95.4	-16.8%	-4.2%
California	110.9	110.8	100.1	10.8%	0.1%
Colorado	105.8	103.0	102.6	3.1%	2.7%
Connecticut	118.2	114.7	103.0	14.9%	3.2%
Delaware	104.8	102.6	102.1	2.7%	2.1%
District of Columbia	141.4	111.1	127.2	12.8%	28.6%
Florida	91.7	93.6	98.0	-6.4%	-1.9%
Georgia	94.9	95.0	99.8	-4.9%	-0.2%
Hawaii	97.1	103.2	94.1	3.1%	-6.0%
Idaho	87.8	87.8	99.9	-12.2%	-0.1%
Illinois	104.2	101.4	102.8	1.4%	2.8%
Indiana	91.5	94.8	96.5	-5.1%	-3.4%
Iowa	86.8	89.0	97.4	-10.8%	-2.4%
Kansas	91.3	91.2	100.1	-8.8%	0.1%
Kentucky	87.8	89.5	98.1	-10.4%	-1.8%
Louisiana	85.1	85.5	99.5	-14.5%	-0.5%
Maine	88.6	89.6	98.8	-10.3%	-1.1%
Maryland	107.5	101.4	106.1	1.4%	6.1%
Massachusetts	117.7	111.5	105.5	11.9%	5.8%
Michigan	103.9	106.7	97.4	6.6%	-2.7%
Minnesota	103.7	103.9	99.8	3.9%	-0.3%
Mississippi	77.8	81.3	95.6	-18.2%	-4.0%
Missouri	93.4	93.6	99.9	-6.4%	-0.1%
Montana	81.4	82.0	99.2	-17.9%	-0.7%
Nebraska	88.3	88.9	99.4	-11.1%	-0.6%
Nevada	91.7	99.9	91.8	-0.2%	-8.2%
New Hampshire	96.6	96.5	100.1	-3.5%	0.1%
New Jersey	114.5	113.8	100.6	13.9%	0.6%
New Mexico	87.8	86.9	101.1	-13.2%	1.0%
New York	115.0	113.8	101.0	13.8%	1.1%
North Carolina	92.6	93.9	98.7	-6.1%	-1.3%
North Dakota	80.7	82.3	98.1	-17.5%	-1.8%
Ohio	96.6	97.7	98.9	-2.3%	-1.1%

**Table 5.6 (continued)**

**Decomposition of Average Occupational Wage Differentials**

<b>State</b>	<b>Value Index</b>	<b>Fisher Wage Index</b>	<b>Fisher Employment</b>	<b>Additive Wage Component</b>	<b>Additive Employment Component</b>
Oklahoma	84.7	84.6	100.1	-15.4%	0.1%
Oregon	99.3	101.5	97.9	1.4%	-2.1%
Pennsylvania	98.1	97.5	100.6	-2.5%	0.6%
Rhode Island	100.9	102.8	98.1	2.8%	-1.9%
South Carolina	87.9	89.6	98.1	-10.3%	-1.8%
South Dakota	79.8	83.7	95.4	-16.0%	-4.2%
Tennessee	88.8	90.3	98.4	-9.6%	-1.5%
Texas	95.6	94.0	101.7	-6.1%	1.7%
Utah	91.1	91.4	99.8	-8.6%	-0.2%
Vermont	92.8	97.1	95.6	-2.9%	-4.3%
Virginia	101.5	98.4	103.1	-1.6%	3.1%
Washington	110.6	110.2	100.4	10.2%	0.4%
West Virginia	82.3	83.1	99.0	-16.8%	-0.9%
Wisconsin	94.8	97.2	97.6	-2.8%	-2.4%
Wyoming	86.5	86.8	99.6	-13.1%	-0.4%

**Table 5.7**

**Wage Differential Decomposition, Oklahoma and Surrounding States**

<b>State</b>	<b>Value Index</b>	<b>Fisher Wage Index</b>	<b>Fisher Employment</b>	<b>Additive Wage Component</b>	<b>Additive Employment Component</b>
Oklahoma	84.7	84.6	100.1	-15.4%	0.1%
Arkansas	79.0	82.7	95.4	-16.8%	-4.2%
Colorado	105.8	103.0	102.6	3.1%	2.7%
Kansas	91.3	91.2	100.1	-8.8%	0.1%
Louisiana	85.1	85.5	99.5	-14.5%	-0.5%
Missouri	93.4	93.6	99.9	-6.4%	-0.1%
New Mexico	87.8	86.9	101.1	-13.2%	1.0%
Texas	95.6	94.0	101.7	-6.1%	1.7%

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## Implications and Summary

The results of this study reveal some deterioration of Oklahoma's occupational stature vis-à-vis the national economy. Census data show that Oklahoma has failed to increase high-level professional and technical jobs at the same pace as the US economy. Roughly speaking, the US economy expanded these higher-education content jobs by 15 percent between 1990 and 2000. Oklahoma, meanwhile, could muster only a 5.0 percent improvement.

These results contrast, to a degree, with the point-in-time examination of the comparative occupational position of the state for year 2001 in the OES data. The empirical evidence suggests that the source of Oklahoma's low earnings has little to do with how skewed its occupational distribution is. Indeed, the state scores very near the 100 percent mark on the occupational distribution measure. It scores an index value of only 84.6 on the wage effect, however. This signifies that, in general, the average occupational wage level stands 15.4 percent below the nation's. The statistical measures developed and used here show no particular skew in the state's occupational distribution. It cannot, then, be the cause of the deficiency in average occupational earnings.

The Census results indicate some minor deterioration in Oklahoma's occupational structure. The OES results do not. How can these results be reconciled, if at all? If we had OES results for 1990, would they show a similar decline? We need to remember that the OES data refer only to the world of the non-farm, non-self-employed, wage and salary worker. Private sector entrepreneurs, doctors, lawyers, consulting engineers, management specialists, architects and the like are not covered in this survey system. But industry statistics reveal significant increases in high-level services, business and professional services in the 1990s. Thus, it is quite possible that there was some slippage in the Oklahoma occupational structure when considered in this context of all workers, whereas, for the wage and salary worker, the occupational structure was relatively constant. The slippage in occupational structure in Oklahoma may have been concen-

trated in private sector, entrepreneurial and professional practice.

The significance of this slight slippage, however, pales in comparison to the implications of having a wage level that is only 85 percent of the national average. Labor seems to be continually on sale in states such as Oklahoma, Louisiana, New Mexico, North Dakota, Wyoming, Montana, Mississippi, and Arkansas. Several possibilities could account for this deficit. Perhaps the comparatively low cost of living accounts for some of this. The greater buying power of a dollar in these states leads to an overstatement of the true gaps in compensation. Perhaps the workers in these states are simply not as productive as workers in other states, even among those who have similar educational backgrounds and credentials. Perhaps a higher quality of life, or the particular features of local quality of life, leads workers to accept less pay. Or perhaps the occupational classification system is flawed, resulting in the placement of dissimilar workers in the same category.

Studying productivity differentials is probably the most fruitful avenue for understanding the nature of these persistent wage differentials. The author has collected considerable data on Gross State Product (GSP) in an effort to discern whether weak output per worker lies behind these wage differentials. The US Bureau of Economic Analysis (BEA) has recently updated the GSP series and provides some discussion as to how the estimates are spliced together.

Conceptually, these publications note, GSP for any state is the sum of the value of output for that region minus the cost of material inputs from other states. The BEA, typically, doesn't have value of output data by state with the possible exception of manufacturing, agriculture, and some energy industries. Because output must by definition be equal to incomes, GSP is in practice measured from the income side. Consequently, BEA calculations of GSP are very dependent upon wage and salary disbursements data. *Thus, any state with a lower than average wage bill automatically has a lower GSP.*

Using the available GSP information to calculate worker productivity is, therefore, circular reasoning. If one were to take GSP for a given

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state, divide it by the number of workers to get GSP per worker, and then further divide that value by GDP per worker to obtain relative productivity, the resulting numbers quite closely resemble the average wage ratios. The author has done calculations such as these with the results seeming to be essentially circular. We simply lack independent measures of the value of output per worker by region.

It is hard to imagine that Oklahoma workers are 15 percent less productive than workers in other states and regions. Anecdotal evidence from Oklahoma employers who also have plants in other states indicates quite the opposite. Certainly some costs, such as housing, are lower in Oklahoma than in other regions. Thus, the real wage differential is not as great as the nominal differences. Although regional price level information is scarce, more work can and should be done to determine the true region-wide real wage.

The occupational classification system could, conceivably, be responsible for generating some of the depressed earnings levels. Occupational classification entails the grouping together of workers who perform the same types of tasks at similar skill levels. Classifying all of the types of work found in an advanced industrial nation into 23 or even 96 categories will naturally cause some problems. Even very detailed occupational categories frequently have job incumbents with widely varying educational backgrounds. Management job categories are notorious in this regard. To illustrate this, Table 5.8 shows detailed-level occupations for management jobs from the 2001 OES. The jobs in Oklahoma seem to pay even less than the 85 percent rate that the data analysis uncovered. Wage ratios in the 75 percent range are not uncommon and on average pay only 78 percent of the national average.

It is not clear that these jobs in Oklahoma are the functional equivalent of their national counterparts. What we do know is that the share of adults who possess a bachelor's or higher degree is smaller in Oklahoma than it is in the nation as a whole. This has been true for some time. There is a strong correlation between state per capita personal income and the share of the state's adult

population, aged 25 years and over, who have bachelor's or higher degrees. Oklahoma's share was 20.3 percent in the 2000 census. The share with bachelor's or higher for the nation was 24.4 percent. The adult population in Oklahoma in 2000 was 2.2 million, approximately. Thus, Oklahoma's deficiency represents 91,000 adults. While not all of these individuals would be members of the labor force, a significant share would. These individuals would then, presumably, have higher earnings. Though Oklahoma's percentage of the adult population with college degrees has been climbing, it continued to slip further behind the national average throughout the 1990s.

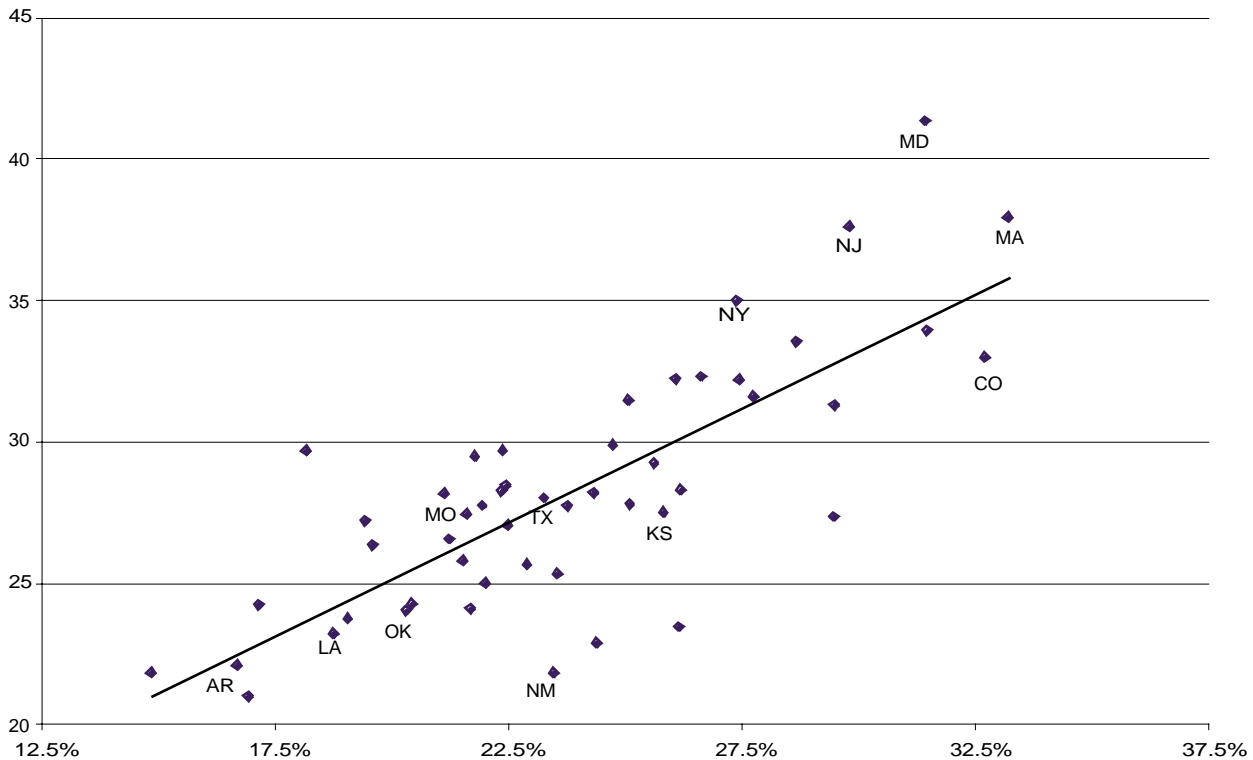
Figure 1.2 provides a scatter diagram for the 50 states for per capita personal income relative to the share of the adult population who have bachelors or higher degrees. The observations for Oklahoma and surrounding states are labeled in the graphic. As can be seen, there is a fairly strong correlation between these two variables, indeed, a 78 percent linear correlation. Each percentage point increase in college degrees is associated with a \$914 increase in per capita personal income. Per capita personal income can, of course, be divided into its contributing components, such as transfer payments; dividends, interest, and rents; social security contributions, and earnings by industry. It is then possible to identify which of those variables provides the greatest contribution to the overall correlation.<sup>4</sup> The top four variables turn out to be high-level services (Services II); finance, insurance and real estate (FIRE); transfer payments; and dividends, interest, and rents. Among the 19 variables involved in the partitioning of per capita personal income, these four variables accounted for three-quarters of the 78 percent correlation. One can easily make too much of these simple correlations. A full-scale econometric examination of state per capita personal income determination is a difficult task, and a subject area that, in this author's opinion, needs more attention. Still, the persistence of this education/income nexus through time underscores its importance. This is not a spurious relationship.

**Table 5.8**

**Employment and Earnings in Detailed Management Categories in Oklahoma, 2001**

<b>Code</b>	<b>Title</b>	<b>Employment</b>	<b>Annual Mean Salary</b>	<b>Annual Mean Salary Ratio OK/US</b>
11-0000	Management Occupations	87,820	55,470	78%
11-1011	Chief Executives	6,260	82,770	77%
11-1021	General and Operations Managers	29,590	57,540	78%
11-1031	Legislators	540	21,180	75%
11-2011	Advertising and Promotions Managers	740	47,200	73%
11-2021	Marketing Managers	1,390	61,020	78%
11-2022	Sales Managers	3,670	63,270	82%
11-2031	Public Relations Managers	650	46,350	72%
11-3011	Administrative Services Managers	5,920	39,740	72%
11-3021	Computer and Information Systems Managers	2,130	62,740	75%
11-3031	Financial Managers	5,890	58,790	78%
11-3040	Human Resources Managers	2,620	51,910	78%
11-3051	Industrial Production Managers	2,190	57,360	84%
11-3061	Purchasing Managers	1,280	52,350	85%
11-3071	Transportation, Storage, and Distribution Managers	1,420	53,510	87%
11-9011	Farm, Ranch, and Other Agricultural Managers	100	40,420	87%
11-9021	Construction Managers	1,700	51,630	78%
11-9031	Education Administrators, Preschool and Child Care Center/Program	790	28,830	78%
11-9032	Education Administrators, Elementary and Secondary School	2,700	53,550	75%
11-9033	Education Administrators, Postsecondary	1,370	52,590	79%
11-9041	Engineering Managers	2,180	77,770	87%
11-9051	Food Service Managers	4,150	29,230	76%
11-9061	Funeral Directors	370	40,470	84%
11-9071	Gaming Managers	50	32,950	56%
11-9081	Lodging Managers	230	28,870	78%
11-9111	Medical and Health Services Managers	3,110	57,950	90%
11-9121	Natural Sciences Managers	440	56,730	68%
11-9131	Postmasters and Mail Superintendents	570	44,190	94%
11-9141	Property, Real Estate, and Community Association Managers	1,380	31,080	71%
11-9151	Social and Community Service Managers	1,000	32,300	73%

**Figure 1.2**  
**State Per Capita Personal Income v. Share of Adult Population with Bachelor's Degrees or Higher**



Despite this, it is not a “build it and they will come” relationship either. Mere production of college graduates does not guarantee use. What the data are likely saying is that certain states have been more successful in integrating college-educated personnel into their work environments. These college-educated personnel are, on average, more productive than non-college educated personnel. This has enabled firms to pay higher wages and salaries than would otherwise be justified. The result is a persistent and positive education/income relationship among states.

A state seeking to improve on its economic fortunes should strive toward *usage strategies* of college-educated personnel in its work settings. Greater emphasis on internships for college students is a practical way to demonstrate the value that college graduates can bring to a com-

pany. Continuing education is also an area worthy of greater attention. Working to improve real and effective ties between businesses and universities is also an important avenue. Support for science and technology research is especially useful in that regard. Finally, deficiencies in income among the self-employed might be remedied by a college and university-wide emphasis on entrepreneurship and family business operations.

What is clear from all of this data analysis is that the Oklahoma economy is well balanced relative to the nation on both the industry and occupational fronts. Of concern is not what we are doing, but the intra-occupational level at which we are doing it. In other words, Oklahoma needs higher human-capital content in its jobs within each occupation and industry.

## Appendix

This appendix discusses the techniques for partitioning occupational wage differentials into general wage effects and job distribution effects. Detailed examples are provided. Consider a percentage distribution of occupations for, say, the nation. Let  $e_{in}$  represent the number of jobs in the  $i$ -th occupation with the “n” subscript signifying the nation. Then  $\epsilon_{in} = e_{in} / \sum e_{in}$  is the proportion of employment in the  $i$ -th occupation. Each  $i$ -th occupation has an average wage,  $w_{in}$ . Notice that the estimated average wage across all occupations for the nation is  $w_n = \sum w_{in} \epsilon_{in}$ . Similarly, the proportion in the  $i$ -th occupation in the  $j$ -th state can be written as  $\epsilon_{ij} = e_{ij} / \sum e_{ij}$  and the estimated average occupational wage for the  $j$ -th state is  $w_j = \sum w_{ij} \epsilon_{ij}$ . Clearly, this region-wide average occupational wage depends on the general level of wages and the distribution of jobs among occupations.

The average wage in a given state can differ from the nation's because it has a generally higher or lower wage level, because its occupational distribution is inclined or disinclined towards managerial and professional jobs, or combinations of the two. The methodology has as its objective the partitioning of these wage differentials into that part attributable to differences in wage levels and that part that results from differences in occupational structure. Taking Alaska in the 2001 OES data as an example, its average wage across all occupations was \$35,564. The average wage in the OES data for the nation was \$33,493. The ratio of these two forms what we will call the value index, indicating that the average occupational wage in Alaska is 15.1 percent higher than the nation's. If we multiplied Alaska's occupational distribution by average US wage rates per occupation and summed the results, we would obtain a value of \$34,824, a hypothetical value useful for decomposing the wage ratio into its component parts of wage and occupational distribution effects. If we multiplied Alaska's wage rates per occupation by the national percentage distribution of occupational employment, we would obtain a value of approximately \$37,325.

These two actual and two hypothetical values provide two systematic bases for estimating the separate wage and employment distribution effects, for which there are two methods: Laspeyres and Paasche indices. The Laspeyres approach uses the actual US data in the denominator of its two indices. In the numerator of the Laspeyres wage index is the hypothetical value of wage rates in the  $j$ -th state times the US occupational distribution. In the numerator of the Laspeyres jobs index is the hypothetical value of wage rates in the US times the state's occupational distribution. The Paasche approach uses the actual state data in the numerator of its two indices. The denominator for the Paasche wage index is the wage rates in the nation times the occupational distribution in the state. For the Paasche jobs index, the wage rates are from state data while the occupational distribution are from national data. Note that in the specifications of the various indices below for the Laspeyres and Paasche formulations for Alaska, one variable is being held constant in the numerator and the denominator. The variable that is not being held constant is, therefore, the effect that is being measured.

$$\text{Value Index (V): } \sum w_{ij} \epsilon_{ij} / \sum w_{in} \epsilon_{in} = 1.151$$

$$\text{Laspeyres Wage Index (L}_w\text{): } \sum w_{ij} \epsilon_{in} / \sum w_{in} \epsilon_{in} = 1.114$$

$$\text{Laspeyres Jobs Index (L}_e\text{): } \sum w_{in} \epsilon_{ij} / \sum w_{in} \epsilon_{in} = 1.040$$

$$\text{Paasche Wage Index (P}_w\text{): } \sum w_{ij} \epsilon_{ij} / \sum w_{in} \epsilon_{ij} = 1.107$$

$$\text{Paasche Jobs Index (P}_e\text{): } \sum w_{ij} \epsilon_{ij} / \sum w_{ij} \epsilon_{in} = 1.033$$

Note from the above table that  $V = L_w * P_e = L_e * P_w$ , and in this manner the Value index can be said to be decomposed into differential wage effects and occupational distribution effects. Because the two indexes are multiplied by one another to yield the Value index, this classical approach is referred to as the multiplicative decomposition. The 15.1 percent favorable wage

advantage of Alaska (the Value Index, V) can be thought of as an 11.4 percent generally higher level of wages (the Laspeyres Wage Index,  $L_w$ ) and a 3.3 percent generally more favorable occupational distribution (the Paasche Jobs Index,  $P_e$ ).

One difficulty with the multiplicative approach is that the decomposition does not cleanly split into separate additive components. In reference to the Alaska example above, the 11.4 percent positive wage effect and the 3.3 percent occupational distribution effect do not sum to the 15.1 percent overall effect. The greater the differential, the more pronounced will be this discrepancy. The author has developed an additive approach to decomposition to correct for this problem. Consider the following:

Form I:

$$\sum w_{ij} \epsilon_{ij} - \sum w_{in} \epsilon_{in} = \sum \epsilon_{ij} (w_{ij} - w_{in}) + \sum w_{in} (\epsilon_{ij} - \epsilon_{in})$$

The left-hand side of this equation is the difference in average occupational earnings between the j-th state and the nation. The first term on the right-hand side is the sum of the j-th state's occupational distribution times the difference in average wage levels by occupation between the state and the nation, a measure of the wage effect. The second term is the sum of the national wage times the difference in occupational shares between the state and the nation, a measure of the employment distribution effect. The average wage differential can also be written as:

Form II:

$$\sum w_{ij} \epsilon_{ij} - \sum w_{in} \epsilon_{in} = \sum \epsilon_{in} (w_{ij} - w_{in}) + \sum w_{ij} (\epsilon_{ij} - \epsilon_{in})$$

Here the wage effect uses the national occupational distribution while the employment distribution effect uses the state's wage levels as the

weighting factor. Thus, there are, again, two methods of obtaining the decomposition. Dividing all terms on each side by the average national wage,  $\sum w_{in} \epsilon_{in}$ , produces the percentage change form of the additive decomposition, for example, for Form I:

$$\frac{\sum w_{ij} \epsilon_{ij}}{\sum w_{in} \epsilon_{in}} - 1 = \frac{\sum \epsilon_{ij} (w_{ij} - w_{in})}{\sum w_{in} \epsilon_{in}} + \frac{\sum w_{in} (\epsilon_{ij} - \epsilon_{in})}{\sum w_{in} \epsilon_{in}}$$

Using Alaska, again, as an example, the 15.1 percentage change partitions cleanly into 11.2 wage effect and a 3.9 distribution effect, using Form I. For Form II of the additive approach, estimates are for an 11.4 and 3.7 percent partition. The additive approach, in percentage format, can be shown to be related to the Laspeyres method:

$$\frac{\sum \epsilon_{ij} (w_{ij} - w_{in})}{\sum w_{in} \epsilon_{in}} + \frac{\sum w_{in} (\epsilon_{ij} - \epsilon_{in})}{\sum w_{in} \epsilon_{in}} = (V - L_e) + (L_e - 1), \text{ and}$$

$$\frac{\sum \epsilon_{in} (w_{ij} - w_{in})}{\sum w_{in} \epsilon_{in}} + \frac{\sum w_{ij} (\epsilon_{ij} - \epsilon_{in})}{\sum w_{in} \epsilon_{in}} = (L_w - 1) + (V - L_w), \text{ for Form II}$$

Because  $V = L_w * P_e = L_e * P_w$ , these formulas implicitly contain relations to the Paasche indices, as well. When the Laspeyres and Paasche indices are close to unity, the natural log of the index approximates the percentage change, i.e.,  $\ln(L_e) = L_e - 1$ , when  $L_e$  is close to unity. When the percentage changes are much greater than one, the Additive approach appears to provide a much cleaner view of the decomposition. While two methods are available in either the classical index number approach or the additive components

approach, in practice averages are utilized. The Fisher technique finds the geometric mean of the Laspeyres and Paasche indices. In tables below, the two methods of the additive approach are also averaged.

## Endnotes

<sup>1</sup>Robert Dauffenbach, "Growth of the Oklahoma Economy: The Roles of Wages and Jobs," State Policy and Economic Development in Oklahoma: 2002, Oklahoma City, OK, Oklahoma 21st Century, Inc., 1-24.

<sup>2</sup>Additional information is available from the OES homepage at <http://stats.bls.gov/oes/>

<sup>3</sup>State wage breakdowns can be found at [http://stats.bls.gov/oes/2001/oes\\_dl.htm](http://stats.bls.gov/oes/2001/oes_dl.htm)

<sup>4</sup>The sample correlation coefficient is defined as

$$r_{XY} = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum (X_i - \bar{X})^2 \sum (Y_i - \bar{Y})^2}}$$

where the bar over the X or Y variable signifies the arithmetic mean. Consider the case where the variable X can be written as the sum of other

variables, such as is true with per capita personal income, which is the sum of per capita transfer payments; per capita dividends, interest and rents; etc. Then,  $X_i = X_{i1} + X_{i2} + \dots + X_{ik}$  and

$$\bar{X}_i = \bar{X}_{i1} + \bar{X}_{i2} + \dots + \bar{X}_{ik}$$

Therefore, the numerator of  $r_{xy}$  can be written as:

$$\sum (X_{i1} - \bar{X}_{i1})(Y_i - \bar{Y}) + \sum (X_{i2} - \bar{X}_{i2})(Y_i - \bar{Y}) + \dots + \sum (X_{ik} - \bar{X}_{ik})(Y_i - \bar{Y})$$

Each of these terms, when divided by the value of the numerator, provides the contribution to the overall correlation of the respective variable. Some of these terms may well be negative even though the correlation of the sum of the variables is positively related to the Y variable. In this manner, the contribution of each of the components of personal income to the overall correlation with the share of the adult population who have bachelor's or higher degrees can be examined.



## The Potential Impact Of The “Standardized Market Design” On Oklahoma’s Electric Power Infrastructure

The aftermath of the price spikes in California’s wholesale power market in 2000 dampened political interest in deregulation of power markets in the U.S. In addition, the bankruptcy of Enron and the ensuing events discouraged potential investors and lenders in generation and transmission projects, setting high hurdles for power projects of all types. In the face of this environment, in July 2002, the Federal Energy Regulatory Commission (FERC) issued a policy proposal in the form of a Notice of Proposed Rulemaking (NOPR) to smooth the transition to a national competitive wholesale power market.<sup>1</sup> This NOPR describes a plan and prospective policies, known as the Standardized Market Design (SMD), for developing a competitive, integrated national wholesale power market.<sup>2</sup>

In describing the proposal, Pat Wood, III, Chairman of the FERC stated, as follows:

“Our goal is to promote economic efficiency in electricity for the benefit of all Americans. Standard market design and standard transmission service lets sellers transact easily across geographic boundaries, cuts costs to customers and improves reliability. We want solid infrastructure, just and reasonable rates, and balanced market rules so investors and competitors see some stability and opportunity in all aspects of the bulk power business. These clear rules and vigilant oversight under a uniform system will replace the obsolete patchwork that we have today.”<sup>3</sup>

Oklahoma has several distinct constituencies that the implementation of the SMD could affect significantly, but, as might be expected from such a sweeping proposal, the potential benefits and costs to individual groups undoubtedly differ. Of course, the implementation of these proposals will impact electric power customers, but even for this group the effects between large and small customers will differ.<sup>4</sup> The electric utilities purchase wholesale power to meet their service obligations

to their retail customers. They also are sellers of wholesale power from their generating facilities, and they are likely to be equity owners of affected transmission systems. The benefits and costs to even these different functional components of an electric utility will differ. Independent power generators rely on the wholesale power market for the sale of their products. Builders of facilities and their workers and suppliers are interested in the location of and prospects for new facilities. Private parties and public officials concerned about economic development are concerned about the role of low-cost power, which has been an attraction to some companies considering Oklahoma as a site for a facility.

The Oklahoma interests are even more complicated than those in many states; natural gas fuels most of the new generation being built in the U.S. Because broader power markets will encourage displacing older generation with new more efficient units, Oklahoma gas producers and royalty holders also have a vested interest in the implementation of the SMD policies. If implemented, this policy is likely to increase the demand for natural gas regionally and nationally.

In short, the proposed federal policy with the objective to promote “...genuine wholesale competition, efficient transmission facilities and demand reduction, and more customer options...”<sup>5</sup> in the power sector will touch virtually all sectors of the state’s economy. Assessing the implications for Oklahoma power customers, electric utilities, power generators, and gas producing interests is the focus of this report.

### Standardized Market Design

In stating the need for the Standardized Market Design, the FERC acknowledged that previous policies had failed to prevent providers

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of transmission service from favoring their own generated electricity when providing access to the transmission system.<sup>6</sup> The SMD provides a framework for furthering and maintaining competition in the wholesale electric power markets, and, in the process, it specifically attempts to remedy undue discrimination in transmission service while improving competition in the wholesale markets.

FERC designed key components of the market structure of the SMD to provide competitive spot markets for energy and ancillary services.<sup>7</sup> Features of the SMD that are important to the functioning of markets cover such provisions as transmission access and tariffs, locational marginal pricing, congestion management, reliability and resource planning, spot market design, market power mitigation and market monitoring.<sup>8</sup>

### **Transmission Access and Tariffs**

An economically efficient national wholesale power market will not develop without equal access to the transmission system for market participants, that is the buyers and sellers of wholesale power. The SMD identifies two issues, price discrimination in the provision of transmission services and access to the system. If not addressed, either can inhibit power from flowing on the basis of locational value and marginal costs.

**Price Discrimination.** FERC proposes to remedy discrimination among customers using transmission service simply by specifying that all customers taking similar service be offered that service under the same terms, conditions and rates.<sup>9</sup>

**Locational Marginal Pricing.** In order to link transmission service rates more closely to the cost of power supplies, FERC has proposed locational marginal pricing. This will afford different prices for service at various locations on the transmission grid, depending upon the system constraints. In this way the costs associated with congestion on the transmission system will be closely linked to the service demand that causes cost incurrence.<sup>10</sup>

### **Congestion Management**

The SMD proposes to develop a more flexible transmission system with congestion management designed to control congestion during periods of peak demand. The objective of this provision is to lower costs of power delivered in the wholesale market by improving physical efficiencies in the transmission system and reducing congestion costs and line losses.<sup>11</sup>

### **Reliability**

There are two significant reliability issues addressed in the NOPR. One of these addresses the mechanism for maintaining operational reliability of the transmission system. The other is a vehicle for resource planning and for determining the future needs of the system.

**Transmission System Reliability.** Under the proposal, the regional transmission organization will be responsible for the assurance of system reliability through day-ahead and real-time administered constraints on regional markets.

**Resource Planning.** The SMD proposes that the independent transmission providers should implement and administer procedures for planning and oversight within each region of the country. The NOPR envisions a planning process to coordinate and integrate the power infrastructure needs and project development within each of these regions.

### **Power Markets**

From the description of the spot market design, it is clear that FERC anticipates that most energy will continue to be sold through long-term bilateral contracts; however, the spot markets for energy and ancillary services will be the principal mechanism for allocating the remaining power resources. The SMD specifies rules for operating these markets, setting day-ahead and real-time prices for these services. An important feature, because of the potential of price spikes during periods of resource shortages, is the proposed imposition of bid limits and price caps in the spot markets.

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## Market Power Mitigation

In order to prevent market abuses resulting from possible market power on the part of the suppliers of electric power services, the NOPR has three main recommendations. These are: separating the ownership of transmission and generation, reducing market entry barriers, and monitoring the power market.

**Separation of Transmission and Generation Ownership.** Because of the obvious conflicts if owners of the regional transmission system also are users of the system, the NOPR sets forth a number of provisions to assure the independent operation of the transmission system. Given the economies of scale and virtually natural monopolies in transmission, this clearly is an essential provision for developing competitive power markets. In its public comments concerning the NOPR, the Federal Trade Commission called the separation of transmission and generation “critical” to developing competitive power markets.<sup>12</sup>

**Reduction of Market Barriers.** The FERC expects the SMD to reduce market barriers-to-entry facing new generators. It proposes policies to make it easier for generators and their customers to arrange both bilateral contracts and short-term power sales. By attempting to link the market demand to cost causation and reducing the price inelasticity of demand, the FERC proposes that this will provide market discipline and mitigate the potential abuses of market power.

**Market Monitoring.** The SMD provides for an independent market monitor to work with the FERC to provide real time monitoring and assessment of market behavior.<sup>13</sup> The purpose is to reduce the likelihood of market manipulation by surveillance of market behavior. The SMD is notably silent, however, regarding what the monitoring group will monitor, and how they will identify market abuses if and when they occur.<sup>14</sup>

## SMD Limitations and State Concerns

Because the proposed Standardized Market Design is so broad and the power industry is such an important component of a state’s economic

infrastructure, it is not surprising that officials from a number of states have taken positions, pro and con, in response to the announced NOPR.<sup>15</sup> Some concerns are similar across many states. Not surprisingly, however, given their varying circumstances relative to the national grid, spokespersons from various parts of the U.S. have raised a range of issues. Similarly, many of these issues are of special importance to constituencies in Oklahoma.

## Reliability

A common interest to all power customers is system reliability. The reliability of the power system under the proposed SMD is important in terms of both the allocation of existing power supplies and the adequacy of power resources. As elsewhere, these concerns are important to Oklahoma power suppliers and customers.

**Capacity Allocation.** Under the proposed SMD, the spot market for power resources must meet the real-time requirements for scheduling energy and ancillary services and effectively managing congestion and imbalances. This presumes, of course, that there is a functioning and efficient liquid spot market for these services, with many buyers and sellers.

Although seemingly a formidable task, it is not an impossible one. Whether the spot market will be efficient and will effectively allocate capacity is a legitimate concern, especially in light of the catastrophic example of the power market failure in California. Nevertheless, the spot markets for power services apparently work effectively in some areas of the country.<sup>16</sup> There is a realistic expectation that, during periods of market shortage, a functioning spot market will place a value on these resources effectively and allocate them to their highest-valued usage.

Even if the markets are competitive, prices will fluctuate. Prices in competitive markets fluctuate, perhaps even violently at times, and prices may reach relatively high levels during periods when demand exceeds available supply. This is, of course, how markets work, and prices are what make markets clear. This fluctuation may trigger bid limits or price caps to contain it. If so, this will impede the functioning of the

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market. Fluctuating prices may be undesirable to consumers, but temporary high prices signal scarcity to consumers, and this allocates capacity to the customers who value it the most.

**Resource Adequacy.** The SMD must provide for the effective expansion of generation and transmission assets, and, hopefully, avoid the “booms and busts” of periods of excess capacity and capacity shortfalls.

Even to an official from the state of New York, from which there is official support for the SMD proposal, the issue of resource adequacy under the SMD remains unsettled.<sup>17</sup> Others have expressed concern about long-term resource adequacy, as well.<sup>18</sup> Resource adequacy requires that the power system should connect new sources of power in a timely response to price signals in order to avoid large excesses or shortages in power generation. This requires time sufficient for planning, permitting and constructing new generation and transmission facilities. Ultimately, achieving longer-term resource adequacy requires that investors and lenders make timely commitments. However, with the lead time required to bring new power assets on line and the uncertainty about future prices and costs over the 20-30 year life of an asset, it is not surprising that there will be over and under investments.

In considering whether the spot market will perform efficiently and encourage and discourage timely investment, it is important to consider also the role that bid limits and price caps may play. The imposition of price regulations will prevent the placing of a true scarcity-value on critical resources during shortage periods. Although these limits will prevent price fly-up, they are a discouragement to potential investors considering capacity expansion, and also to new market entrants. Achieving resource adequacy may require some form of mandated subsidy of generation and transmission capacity.<sup>19</sup> However, subsidizing capacity expansion is direct market intervention and will inhibit, at least to a degree, the allocative benefits of the market.

## Effective Competition

There are two structural problems addressed by the SMD that are likely to induce significant market power problems in the resulting wholesale market. In fact, these are probably the factors which led, either directly or indirectly, to federal regulation of the wholesale power market. The first is the lack of sufficient demand-side price response, or a very inelastic demand. The second derives from the economies of scale and a virtual monopoly in the transmission system that is complicated by physical limitations of the system. Either of these problems can lead to market failure and inefficient non-competitive markets. The SMD addresses both.

Respondents to the NOPR, of course, have noted the potential market power problems that may exist with the SMD. California, which as a state suffered more than any other from poorly structured markets and power market abuses, has taken a strong public stand against FERC’s SMD.<sup>20</sup> Loretta Lynch, President of the California Public Utilities Commission stated, for example, “We will fight it with our last dying breath. FERC’s one-size-fits-all policy just will not work for California. It doesn’t have strong enough market controls....”<sup>21</sup>

**Demand-Side Price Responses.** In order for markets to provide the short-term allocation of capacity to its highest valued end-uses, they must be at least workably competitive. However, there is only a fragile link in today’s retail electricity markets between the purchasing and sale decisions in the wholesale power market. The demand for wholesale power supplies is the combined demands of the retail customers, but the retail customers in most cases have very little opportunity to respond to changes in the prices for electric services. That is, the providers of retail power combine the production of many generators and transmission resources. Incremental price changes to customers will reflect the incremental cost of these power supplies only in rare circumstances. Indeed, most customers taking power-on-demand service will calculate the true costs of

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power supplies only after receiving an invoice which, of course, may come long after the decision to consume. In fact, most customers' meters record monthly consumption and do not even record hourly consumption.

Recognizing this structural problem, the SMD proposes that a cap on bids is a substitute for an inadequate demand-side response. Of course, this will limit the potential for price spikes, but as noted previously, it is a form of regulation. In contrast, a principal feature of a competitive market is a price elastic demand with the market discipline that it implies.

**Localized Market Power.** Because of the economies of scale of the transmission system, there will be a single, least-cost provider of transmission services in the various regional markets. Although FERC has proposed separating ownership of the regional transmission organizations from the ownership of generating facilities using the system, there will still be problems of localized market power in pockets within the grid. This is a prevailing structural market problem inherent in the physical limitations of the transmission system. That is, constraints in the transmission system can create local pockets where certain market participants have effective market power, and the structure and the proscribed operations of the regional transmission organization probably will not prevent their occurrence.

## Regional Power Transfers

Creating a standardized national wholesale market will facilitate and stimulate the transfer of power among regions and states, and the FERC has recognized that the SMD will stimulate the movement of power from the low-cost power regions to high-cost power regions. In fact, in the press release announcing the NOPR, the FERC acknowledged that the SMD may be disadvantageous to states that have low cost power:

Standard market design will give all load-serving entities access to low-cost power. Most energy sales will still be conducted through long-term bilateral contracts. So if a region with cheap electricity costs wishes to ensure

that local customers continue to enjoy the benefits of that low-cost power, its load-serving entities should sign long-term contracts with power producers to "keep that power at home", rather than losing it through exports.<sup>22</sup>

The export of power is, of course, a concern for many states that have low-cost power. For example, at one point FERC cited complaints filed by southern and western states as the reason for delaying SMD implementation for further study.<sup>23</sup> In at least one such case, the President of the Alabama Public Service Commission challenged FERC's authority to mandate the export of low-cost power. He stated, "We will gladly share our electric surpluses with others, but there is no justifiable excuse for FERC to edict what we do not freely give."<sup>24</sup>

In Oklahoma, support or concern about interregional power transfers probably will depend on whether one is a consumer and concerned about the export of low cost power or a power exporter. Interestingly, persons interested in economic development for the state may find it difficult to decide whether Oklahoma will be better or more poorly served by the SMD. They must weigh the merits of expansion in the state's natural gas and power generation industries with the relative attractiveness of maintaining low power costs relative to other states.

## Generation in Oklahoma

A number of generating facilities were initiated in Oklahoma in the period before the failure of the wholesale power market in California. From the evolving pattern of permits and construction prior to the cooling down of electric deregulation over the past two years, there is a significant generation sector emerging in Oklahoma. As the table illustrates, a recent tabulation of newly operational or planned generation in the state reveals a total of 26 plants in process, of which 22 are large combined-cycle plants. In the aggregate, this group of plants, which are all natural gas fired, has the capability to produce over 13,000 megawatts of peak capacity.

## NEW GENERATION UNITS IN OKLAHOMA

	Combined Cycle	Peaking	Total
Operational	5	2	7
Permit Issued	17	2	19
Total	22	4	26

Of course, it is unrealistic to expect the owners to complete all of these plants in the near term, but this is a measure of a level of interest. If the FERC implements the policies of the SMD, there will be more plants completed and placed into operation in Oklahoma than otherwise.

### Conclusions

The Standardized Market Design for the wholesale power market set forth in a Notice of Proposed Rulemaking by the Federal Energy Regulatory Commission has important implications for a number of constituencies in Oklahoma. For example, a move to decentralized wholesale power markets will stimulate the building of gas fired generation facilities in the state for the export of power. At the same time low-cost power in Oklahoma will tend to flow out of the state and probably raise the cost of power in Oklahoma relative to many other states. If the proposed market design succeeds in producing a more efficient wholesale power market nationally, Oklahoma customers will share in those efficiency benefits. Alternatively, if the proposed SMD is unsuccessful, there are dangers of market power abuses and unreliable power supplies.

The SMD is a national policy proposal with important Oklahoma implications, but those implications are as diverse as the many affected constituencies in the state. Whatever one's perspective, the potential effects of the SMD seem to be too important for Oklahomans to ignore.

### End Notes

<sup>1</sup> Federal Energy Regulatory Commission, Notice of Proposed Rulemaking, RM01-12-000, "Remedying Undue Discrimination Through Open Access Transmis-

sion Service and Standard Electricity Market Design," July 31, 2002. In Federal Energy Regulatory Commission, "News Release," July 31, 2002, the FERC summarized that the NOPR's purpose was to set rules for a "New Foundation for Bulk Power Markets with Clear, Standardized Rules and Vigilant Oversight." See also, Federal Energy Regulatory Commission, "Working Paper on Standardized Transmission Service and Wholesale Electric Market Design," Spring, 2002.

<sup>2</sup>Wholesale power is power bought and sold for resale. Wholesale power, for example, includes power sold by independent power producers to the electric utilities providing electric service to retail customers. Individual states retain the authority to regulate or mandate the extension of competition to the retail markets for electric power.

<sup>3</sup>Federal Energy Regulatory Commission, "News Release," *op. cit.* p. 1.

<sup>4</sup>Large customers may buy power directly in the wholesale power markets or their rates for electric power may be based directly on prices in the wholesale market. This is not likely to be the case for small customers. Large industrial customers have expressed concern that they are likely to pay an inordinate amount of the costs of transmission system expansion.

<sup>5</sup>FERC, "News Release" *op. cit.*, p. 1.

<sup>6</sup>In characterizing the need for the policies set forth in the SMD, FERC documents have explained that FERC Order No. 888 (1996), which contains provisions for Open Access Transmission Tariffs failed to provide sufficient incentive for non-discriminatory access to the transmission system. In the case of both existing generation and the connection of new generation, incentives for a transmission provider to favor its own generation remain. FERC Order 2000 (1999) established regional transmission management, but the development of Regional Transmission Organizations ("RTOs") has been slow and limited geographically. For example see, Federal Energy Regulatory Commission, "Working Paper..." *op. cit.*

<sup>7</sup>Ancillary services are such specialized power supply products as voltage support or stand-by service that can permit unit specific power generation to be converted to firm power on demand.

<sup>8</sup>The NOPR, which is 600 pages long, is very encompassing, and its scope is broader than the issues raised in this report.

<sup>9</sup>The FERC is currently processing cases to establish Regional Transmission Organizations and has stated that it intends for independent transmission providers to be operating across the U.S. in 2003.

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<sup>10</sup>One of the proposed benefits of the SMD proposal is that the locational marginal pricing will reduce the risk of market participants “gaming” the market as occurred in the wholesale power market in California during the summer of 2000.

<sup>11</sup>In an analysis of the operations of the New York Independent System Operator, congestion costs represented 14 percent of total retail costs and the line losses represented 4.5 percent of total retail costs. See, Federal Energy Regulatory Commission, “Working Paper...” *op. cit.*, p. 4.

<sup>12</sup>In comments submitted to the FERC by the Federal Trade Commission (“FTC”) concerning the NOPR, the it emphasized that the governance of the regional transmission organizations are likely to be critical as to whether the spot markets need to be regulated, and how they will perform. See Federal Trade Commission, “FTC Comments on FERC’s Efforts to Develop Standard Market Design for Wholesale Electric Power,” July 29, 2002.

<sup>13</sup>The FERC has formed a new Office of Market Oversight and Investigations to monitor the behavior of energy markets.

<sup>14</sup>During periods of high demand, prices will be high because of scarcity of the services from the power resources. These same periods are also when market manipulation is most likely to occur because system congestion may create regional pockets of localized market power. Distinguishing between these two causes of high prices will be a difficult analytical task.

<sup>15</sup> The FERC has received comments from a diverse group of parties, including 15 states responses.

<sup>16</sup> The three northeastern independent system operators (PJM, New York ISO and New England ISO) have operated wholesale power markets without the disastrous market failures that occurred in California.

<sup>17</sup> Maureen O. Helmer, Chairman, New York Public Service Commission, stated, “...an issue that is going to be very controversial is that of long-term resource adequacy.” See, *Public Utilities Fortnightly*, November 15, 2002, p. 28.

<sup>18</sup>See for example, Chandley, John D. and William W. Hogan, “Initial Comments on the Standard Market Design NOPR”, in FERC Document No. RM01-12-000, November 11, 2002. See also, Ruff, “Assuring Resource Adequacy: Concepts, Options and the SMD,” presentation at the Massachusetts Electricity Restructuring Roundtable, Boston, October 18, 2002.

<sup>19</sup>See Hirst, Eric, “Long-Term Resource Adequacy: the Role of Demand Resources,” Harvard Energy Policy Group, January, 2003, pp. 3-4.

<sup>20</sup>California has suffered from a large public debt incurred by purchasing high priced power supplies, bankruptcy of its leading utilities, unreliable power supplies with rolling blackouts, extremely high price spikes and adverse impacts on some industries in the state.

<sup>21</sup>*Public Utilities Fortnightly*, *op. cit.* p. 25.

<sup>22</sup>Federal Energy Regulatory Commission, “News Release,” *op. cit.*

<sup>23</sup>*Reuters*, “U.S. FERC bows to pressure, starts new study of rules,” January 14, 2003.

<sup>24</sup>*Public Utilities Fortnightly*, *op. cit.* p. 21.

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