
STATE POLICY & ECONOMIC DEVELOPMENT IN OKLAHOMA: 1992



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OKLAHOMA 2000, INC.

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STATE POLICY AND ECONOMIC DEVELOPMENT IN OKLAHOMA: 1992

**A REPORT TO
OKLAHOMA 2000, INC.
by**

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PREFACE

State economic policies are a culmination of many administrative procedures, legislative actions, regulatory rulings and court decisions. Sometimes the policy trends are clear, and sometimes they are not. The purpose of this publication is to examine and report on four of these policy issues that are important in 1992 and will be important in the longer-term. It is the intent of Oklahoma 2000, Inc. that these articles be informative, objective and address issues of potential strategic economic significance to the state.

The current project was performed by economists from Oklahoma's institutions of higher education and industry. As in previous years, the research team, in conjunction with members of the Board of Directors of Oklahoma 2000, Inc., selected the topics for the 1992 study. The views expressed herein are those of the authors and should not be attributed to the officers and directors of Oklahoma 2000, Inc.

INTRODUCTION

In early 1992, the United States is in a continuing recession. Policy makers and business leaders worry about expansion and the new problems of economic growth and competing in a restructured world. Those national and international concerns reflect on the economic development prospects at home and the efficacy of development program for the State of Oklahoma. Although the 1992 edition of the *State Policy & Economic Development in Oklahoma* is predicated upon the practical and domestic concerns about the state's development programs, readers will, perhaps unconsciously, review it in the context of the evolving development requirements.

The changing economic environment serves as a reminder to all planners that unpredictability is a certainty. And change forces analysts always to evaluate their previous studies and plans, built in an earlier environment, to see if the design still is appropriate for the new surroundings. In a review of the economic development programs, many of which have been put in place only in the past five years, Gerald Lage identifies the activities of these programs, compares their content to similar programs in surrounding states and attempts to evaluate Oklahoma's overall program competitiveness. Dr. Lage, in an unusual survey, asks the economic development professionals throughout the state how they view the various programs and whether or not Oklahoma's "package" is competitive. The results are most encouraging. Although financial incentives appear to be least competitive, generally the development specialists view the programs favorably. Of course, the professionals identified specific needs based on their practice and observations, but Dr. Lage points out, these needs are often special cases. Many are special requirements that would best serve particular industries or regions. He prescribes responding to these special needs by flexibly designing programs that we have.

In a related article, Alexander Holmes codifies and evaluates the tax expenditures, often in the form of special tax preferences, to support individual companies, for the purposes of furthering economic development. Dr. Holmes identifies the Sales and Use Tax abatement as the predominant form of tax preference by state government to attract company expansion in Oklahoma. He also identifies the increasing use of tax preferences, and reports that impact upon revenues and the state's tax base.

David Penn and Craig Knutson investigated the manner in which manufacturers in the State of Oklahoma learn of state financial assistance programs available to them. The authors recognized that the state receives the greatest economic benefits from financial assistance programs only by supporting the "best" possible programs from the standpoint of their impact on state economic development. The authors structured a research project that would disclose how manufacturing enterprises learn of the potential financial assistance at times when it is needed. Recognizing the loan officers of banks are a point of contact at the time manufacturers require financing, they also investigated the role of loan officers in this information process. To investigate the information process, they conducted telephone interviews of samples of manufacturers' financial officers and loan officers of banks. There were some surprises. As the authors stated, "it is astonishing to learn that 30 percent of these manufacturers are not at all aware that state government offers a variety of financial assistance programs to the private sector." Based upon the survey findings, the authors were also able to identify some mechanisms that may help get the most economically significant projects in the funded-project pool.

Kent Olson and Donald Murry reviewed a major federal program, the Clean Air Act Amendments of 1990, that will significantly affect Oklahoma businesses and state agencies both in the near-term and strategically. The authors detailed significant elements of the legislation and the emerging regulations and investigated their demands upon Oklahoma Government as well as the private sector. The legislation requires state government to provide a comprehensive permitting and monitoring program. The authors consider the compliance costs that Oklahoma City and Tulsa will face if either goes on the "dirty air" list. They also review some of the economic development implications. A major change in the economic environment of clean air regulations is the inclusion of businesses never before affected by clean air legislation. Some areas of the legislation are so complicated, such as the acid rain provisions, that the impacts are not yet clear, but the policy prescriptions are revolutionary. The authors note that there is another side to the CAAA also. Not all of the impacts will be negative to Oklahoma. The natural gas industry will, without doubt, benefit from some increased demand as a result of the legislation.

OKLAHOMA'S SPECIAL PROGRAMS FOR ECONOMIC DEVELOPMENT

INTRODUCTION AND PURPOSE

The long-run trends of Oklahoma's economic development are generally well known. Oil and agriculture dominated the resource-based development of the economy, for better or worse, and the population decline following the depression of the 1930s was finally reversed in the 1950s, but only in the late 1970s did the state finally increase its percentage share of the national population. The extraordinary energy-led growth after 1973 began to be taken for granted and the national recessions of 1980 and 1981-82 were barely noticed. Nonetheless, the end of easy growth without conscious public policy choices would soon become painfully obvious.

Almost any aggregate income or employment indicator will tell Oklahoma's economic story of the 1980s. The graph of real per capita personal income in Chart 1 displays the dramatic end of the energy boom in 1982. Just as most of the rest of the country came out of the recession that year, Oklahoma began its five-year economic slide. The state's relative income, which had virtually reached parity with the national average, fell to levels of 80 percent or less in the late 1980s. A turnaround was not to come until the spring and summer of 1987 when real incomes per person started to rise again. Perhaps ironically, that was also the time that several years of study and debate on Oklahoma's economic future culminated in legislation to stimulate growth and diversity, led by House Bill 1444 – the Economic Development Act of 1987.

The economic hardships caused by a decline in Oklahoma's growth rate spawned many studies dedicated to the determination of innovative economic development incentives. During the sum-

mer of 1986 Kent Olson opened his review of 93 such works, most written within the previous five years, with the observations:

The development of the state's economy may be the number one social issue today in Oklahoma. It was not always so. However, the economy has faltered badly only recently, and what becomes fashionable in social problems is often dictated by the sweep of history.¹

Other reports about the same time were by Beldon Daniels² and the Hudson Institute.³

The purpose of this chapter is to review special programs developed to encourage the formation, growth, and retention of private businesses in Oklahoma. The programs discussed here result from direct expenditures on various types of services that complement the broad classes of economic development incentives provided by tax and financing incentives, especially those that provide training, information and cost-reducing services that make firms more competitive in their markets and the state more profitable as a business location.

The plan of the chapter is to briefly review the logical framework justifying these economic development services as potentially desirable public policy.⁴ Individual programs are then described, and their performance is measured when data are available. Finally, a survey of local economic development professionals is described which reveals general satisfaction with the state's programs in comparison with those of surrounding states. A brief review of policy options for further enhancement of incentive programs concludes the chapter.

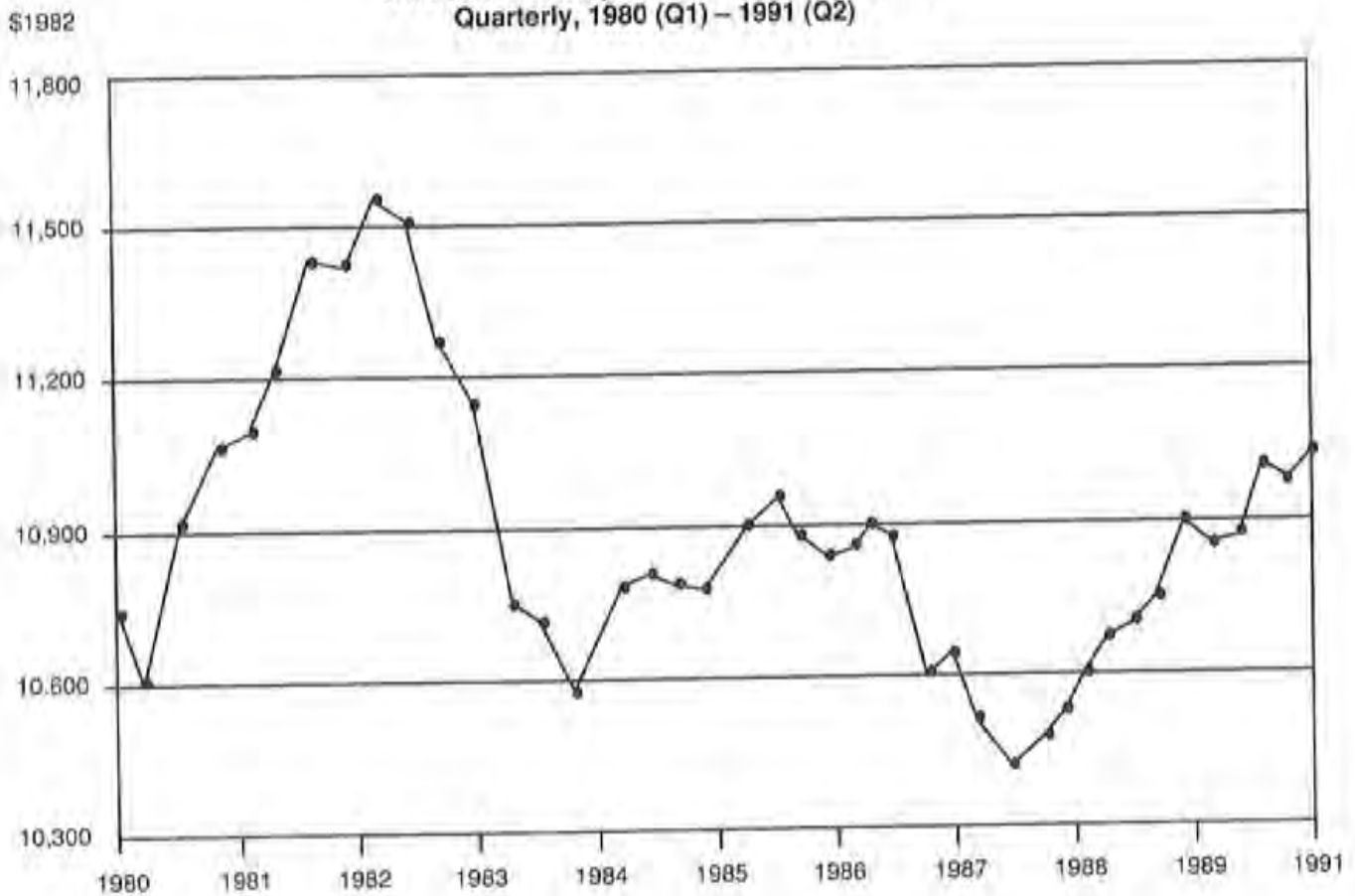
ECONOMIC DEVELOPMENT INCENTIVES OF NEIGHBORING STATES

To place in perspective the specific targeted economic development incentive programs of

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CHART 1

Oklahoma Per Capita Real Personal Income
Quarterly, 1980 (Q1) – 1991 (Q2)



Oklahoma that are the subject matter of this chapter, data comparing programs of tax incentives, financial assistance, and special programs for the states bordering Oklahoma are presented in Tables 1, 2 and 3. The data have been provided by researchers for the *Site Selection* publication, and represent the information that is "on the street" for professional economic developers to use in their consultations with firms seeking new locations. More detailed information on tax incentives is contained in the chapter by Alexander Holmes in this volume. Oklahoma's programs of financial assistance were described in last year's Oklahoma 2000, Inc. research report by Larkin Warner and Stephen Smith.⁵

A cursory review of these tables and the analysis to follow indicate that Oklahoma's incentive package should enhance the state's ability to compete. That, of course, is not to say that im-

provements cannot be made in existing programs or that yet-to-be developed new ones cannot be added.

THE ECONOMIC RATIONALE FOR STATE DEVELOPMENT INCENTIVES

On a national level there is considerable debate concerning the justification for economic development incentives that generally interfere with the free flow of market-determined economic decisions. It is recognized that money spent on, and taxes not collected from, individual businesses represent foregone opportunities to improve education, transportation facilities and others areas of infrastructure that might provide more general assistance to many business enterprises, rather than a select few.

TABLE 1
Financial Assistance for Industry

	OK	AK	CO	KS	LA	MO	NM	TX
State Sponsored Industrial Development Authority	Y	Y	Y			Y	Y	Y
Privately Sponsored Development Credit Corporation		Y	Y24		Y4	Y4	Y	
State Authority or Agency Revenue Bond Financing	Y	Y		Y	Y2	Y	Y	Y
State Authority or Agency General Obligation Bond Financing		Y			Y2		Y	Y26
City and/or County Revenue Bond Financing	Y	Y	Y	Y	Y	Y	Y	Y
City and/or County General Obligation Bond Financing	Y	Y		Y	Y	Y	Y	Y
State Loans for Building Construction	Y	Y	Y		Y25	Y	Y	Y
State Loans for Equipment, Machinery	Y	Y	Y		Y25	Y	Y	Y
City and/or County Loans for Building Construction	Y	Y	Y1	Y	Y26	Y		Y
City and/or County Loans for Equipment, Machinery	Y	Y	Y1	Y	Y26	Y		Y
State Loan Guarantees for Building Construction			Y		Y6	Y		Y
State Loan Guarantees for Equipment, Machinery	Y		Y		Y6	Y		Y
City and/or County Loan Guarantees for Building Construction			Y					
City and/or County Loan Guarantees for Equipment, Machinery			Y					
State Financing Aid for Existing Plant Expansion	Y	Y	Y	Y	Y2	Y	Y	Y
State Matching Funds for City and/or County Industrial Financing Programs	Y		Y		Y19			Y
State Incentive for Establishing Industrial plants in Areas of High Unemployment	Y	Y	Y	Y	Y	Y		Y
City and/or County Incentive for Establishing Industrial Plants in Areas of High Unemployment	Y		Y	Y	Y	Y		Y

Source: Site Selection, October 1990.

Notes:

Y1 = Permitted only in specified municipalities.

Y2 = State allows cities or counties to offer financial aid for existing plant expansions. In Louisiana, state financing aid is directly involved only in the case of those port authorities whose obligations are backed by the full faith and credit of the state.

Y4 = Authorized but none is active.

Y6 = Louisiana Economic Development Corp. can participate in or guarantee loans to banks for small business or socially or economically disadvantaged persons unable to obtain assistance through traditional means.

Y19 = Louisiana Economic Development Corp., through the Small Business Equity Program, can loan money to local community development corporations that qualify as a state licensee through the Office of Financial Institutions. LEDEC can also match private investment in qualified venture capital funds on a 1- to-2 basis up to \$2.5 million.

Y25 = State Market Commission makes loans for buying, building and improving agri-industrial plants.

Y26 = Economic and Industrial Development Corp. (EIDC) makes loans for new and/or existing businesses, construction, land, equipment, machinery, etc.

TABLE 2
Tax Incentives for Industry

	OK	AK	CO	KS	LA	MO	NM	TX
Corporate Income Tax Exemption		Y17	Y	Y2	Y32	Y		Y25
Personal Income Tax Exemption	Y			Y2,53	Y53	Y		Y25
Excise Tax Exemption			Y			Y24		
Tax Exemption or Moratorium on Land, Capital Improvements	Y8	Y11		Y30	Y33	Y	Y	Y58
Tax Exemption or Moratorium on Equipment, Machinery	Y	Y11	Y	Y30	Y	Y6	Y	Y58
Inventory Tax Exemption on Goods in Transit (Freeport)	Y	Y	Y	Y	Y	Y	Y	Y
Tax Exemption on Manufacturers Inventories		Y66	Y	Y5		Y	Y	
State/Use Tax Exemption on New Equipment	Y	Y	Y21	Y19		Y	Y	Y82
Tax Exemption on Raw Materials Used in Manufacturing	Y	Y	Y	Y6	Y6	Y	Y	Y
Tax Incentive for Creation of Jobs	Y	Y	Y	Y	Y13	Y		Y
Tax Incentive for Industrial Investment	Y	Y	Y	Y	Y	Y	Y	Y
Tax Credits for Use of Specified State Products		Y20						
Tax Stabilization Agreements for Specified Industries	Y14				Y			
Tax Exemption to Encourage Research and Development	Y			Y	Y			
Accelerated Depreciation of Industrial Equipment	Y59			Y59	Y59	Y	Y59	

Source: Site Selection, October 1990.

Notes: Y2 = An income tax credit (up to 50%) is allowed for a period of 10 years against the income taxes generated by the operation of a new business. The credit is \$100 per new employee over two, plus \$100 for each \$100,000 of new capital investment. Inside a state-designated Enterprise Zone, the credits are accelerated to \$350 per each new employee over two, plus \$350 for each \$100,000 of new capital investment.

Y5 = Merchants' and manufacturers' inventories are exempt from property taxes.

Y6 = Sales/use tax exemption.

Y8 = Five-year tax exemption (local option in Oklahoma) on new industrial building, construction and expansions.

Y11 = Negotiable using Act 9 bonds.

Y13 = All Enterprise Zone new job credits are \$25,000 per employee (\$5,000 for employees in the aircraft industry). Non-Enterprise Zone new job credits can range from \$100-\$225 and are taken in lieu of the 10-year ad valorem tax exemption.

Y14 = A gross production tax on textile mills in lieu of property tax.

Y17 = Enterprise program offers a \$2,000 state income tax credit per net job.

Y19 = Applicable to permanent or fixed property financed with industrial revenue bonds; applicable to machinery, equipment and certain other tangible property that is exempted within a state designated Enterprise Zone. Business qualifies for job and investment credits. Sales taxes on manufacturing machinery and equipment have been eliminated.

Y20 = 7-year ad valorem tax exemption on textile plants.

Y21 = Applies in enterprise zones.

Y24 = Delaware, Florida, Missouri, Nevada and New York do not collect an excise tax.

Y25 = Nevada, South Dakota, Texas, Washington and Wyoming do not tax corporate or personal income. Connecticut, Florida and New Hampshire do not tax personal income.

Y30 = City or county governing bodies may exempt all or any portion of buildings, land and associated tangible personal property used exclusively by a business for (a) manufacturing, (b) conducting research and development, or (c) storing goods or commodities which are sold or traded in interstate commerce. Applies to expansions if new employment created. An exemption up to 10 years is allowed.

Y32 = Allows full deduction of federal income tax paid from taxable income also.

Y33 = Exemption applicable to capital improvements only.

Y53 = Allows all federal exemptions and deduction of federal income tax paid. In Kansas, taxpayer has the option to deduct federal income tax liability.

Y59 = Allowable depreciation is similar or identical to that permitted under federal laws.

Y66 = Exempt if inventory destined for out of state.

Y82 = Phased in from 1990 through 1994.

TABLE 3

Special Services for Industrial Development

	OK	AK	CO	KS	LA	MO	NM	TX
State Financed Speculative Building		Y			Y2	Y		
City and/or County Financed Speculative Building	Y	Y	Y3	Y6	Y	Y20		Y30
State Provides Free Land for Industry			Y					
Cities and/or Counties Provide Free Land for Industry	Y	Y3	Y3	Y3	Y11	Y	Y3	
State-Owned Industrial Park Sites	Y					Y25		
City and/or County-Owned Industrial Park Sites	Y	Y	Y	Y	Y	Y	Y	Y28
State Funds for City and/or County Development-Related Public Works Project	Y22		Y	Y	Y	Y	Y	Y
State Funds for City and/or County Master Plans			Y		Y		Y	Y
State Funds for City and/or County Recreational Projects	Y	Y	Y		Y	Y	Y	Y
State Funds for Private Recreational Projects						Y		
State Program to Promote Research and Development	Y	Y	Y	Y	Y	Y	Y	Y
State Program to Increase Export of Products	Y	Y	Y	Y	Y	Y	Y	Y
University R & D Facilities Available to Industry	Y	Y	Y	Y7	Y	Y	Y	Y
State and/or University Conduct Feasibility Studies to Attract or Assist New Industry	Y	Y	Y	Y	Y	Y	Y	Y
State Supported Training of "Hard-Core" Unemployed	Y	Y	Y	Y	Y	Y	Y	Y
State Incentive to Industry to Train "Hard-Core" Unemployed			Y	Y	Y	Y	Y	Y
State Help in Bidding on Federal Procurement Contract	Y	Y	Y		Y	Y	Y	Y
State Science and/or Technology Ad Council	Y	Y	Y	Y		Y	Y	Y

Source: Site Selection, October 1990.

Notes: Y2 = State allows cities or counties to offer financial aid for existing plant expansions. In Louisiana, state financing aid is directly involved only in the case of those port authorities whose obligations are backed by the full faith and credit of the state.

Y3 = Provided only in rare instances. In California, Nevada and New Mexico, a few cities and counties will lease land they own at nominal rates.

Y6 = Carried out through local development corporations.

Y7 = Available to industry on a contract and/or consulting basis.

Y20 = May be occasionally offered on a selective and limited basis.

Y22 = For industrial access roads only.

Y25 = State-financed research parks. In Utah, the state owns the University of Utah's research park.

Y28 = Usually owned by nonprofit industrial corporations.

Y30 = In Texas, rates are based on the number of jobs industry will create.

That same debate does not seem as intense at the level of state policy formation. State governments have changed their roles in regional economic development from largely passive observers and infrastructure providers to active partners with individual firms in the free enterprise sector. This transformation is characterized by the general observations below.

Economic Development Changes. Economic development has changed from the activities of "smokestack chasing" to a more sophisticated set of activities balancing business attraction, retention, formation and growth.

"Managed Development." The role of the state in economic development, even if entrepreneurial, is now seen as a cooperating or partnership role where the public and private sectors work closely together for a common social objective.

The "correct social objective," however, is not necessarily easy to formulate, justify or explain. The working objective is frequently stated in terms such as job growth and relative per capita income improvement, and sometimes in more detailed objectives of some form of economic innovation, for example: "...encouraging small business start-ups and growth, technology development, and business modernization."⁶

The framework for judging appropriate government intervention which is most widely accepted by economists is that of using government to correct for private market failures of some sort. Failures are said to occur when freely operating markets fail to provide for economic efficiency in channelling resources to uses which provide the most highly valued economic goods and services.⁷ Familiar textbook examples of market failure include impediments to the efficient operation of markets, including shared public goods, monopoly elements in market structure, imperfect information on the part of market participants, externalities, and environmental spill-overs.

Whatever the form of market failure thought to exist, government incentive programs should meet some realistic criteria for their justification. In a world of uncertainty, investment "mistakes," when viewed with hindsight, are going to occur. The question is whether the public sector can improve upon the set of decisions made by the private sector in the absence of intervention.

Incentive Programs. One must not, of course, jump from the presumption of market failure to the antidote of government intervention without a great deal of thought.

Economic development incentives must be given to sound prospects for efficiency or productivity gains to be an effective tool for development. It is difficult to keep political considerations separate from economic efficiency decisions, however.

The problems with "picking the winners" to award selective abatements, grants and subsidies is considered by some to be self-defeating. Such selective policies might lead to fewer jobs created than would occur with expenditures made directly by the nonsubsidized private firms.

It is much more likely that general programs which tend to improve the economic environment for all firms will stimulate some growth without distortions. Programs with relatively little selectivity, like the general incentives of enterprise zones, specialized services for which firms pay at least some of the costs in user fees, and incentives with proven track records of effectiveness, are likely to be better received and supported by the general population.

All of this, however, is complicated by the current atmosphere of incentive negotiating in which organizations must predict the extent and form of competition and bidding that their development efforts will stimulate. Competitive giveaways by all interested parties might simply lower the level of public services available with no increase in the size of private investment nor any special attraction for a particular area.

DIRECT EXPENDITURE PROGRAMS FOR ECONOMIC DEVELOPMENT

The responsibility for implementing Oklahoma's economic development policies falls to several state agencies working in cooperation with many private and community organizations. The Department of Commerce is considered the "lead agency" in this field, along with the group of leaders serving on the advisory board of Oklahoma Futures. The review of programs presented below, however, shows that they are hardly alone in their efforts to stimulate the state's economy.

What is presented here is a description of selected state, community and private sector programs that constitute the special non-tax, non-finance programs for economic development. At the state level these programs are organized as those offering education and training; research,

technology transfer and information services; and facilities and infrastructure. International trade and investment services and the enterprize zone package are considered as additional special programs. A very limited selection of community incentives and assistance from the public utilities and community organizations concludes the section.

State Education and Training Programs

Training in Industry Program (TIP). One of the most widely acclaimed economic development incentives of the state of Oklahoma is its customized industrial training programs, especially those delivered through the state system of vocational-technical education.⁸ Nationally, such programs are offered by 44 states, making them the most common non-tax incentive in current use.

The Training in Industry Program provides customized training entirely free of charge for companies establishing new businesses in Oklahoma and as well as for companies expanding within the state.

The range of activities provided by the program includes planning for the most productive type of training to offer, training facilities for the instruction, instructors from the offering agency or under contract from business, training manuals, on-the-job training, training equipment and other training aids, supplies and materials, and supervisor training.

TIP pays no wages but it does reimburse companies for training costs. The "preemployment" training consists of 30-40 percent basic personal skills that are components in programs for most firms whether manufacturers, processors or service firms. The following, "preproduction" training for people chosen for the payroll of the employing firm is more individualized and specialized training for specific jobs.

A summary of the TIP provided by the State Department of Vocational-Technical Education is in Table 4.

Certainly the provisions of over 60,000 hours of instruction to 77 companies and 4,400 workers is a considerable incentive to both workers and employers.

Competing states also provide customized industrial training, with various kinds of programs and services offered. Table 5 illustrates primary program characteristics of Oklahoma and its

TABLE 4

Training in Industry Program Statistics

	FY 1987-88	FY 1988-89	FY 1989-90
Companies Served	54	76	77
Hours of Instruction	55,300	62,016	60,374
Number Enrolled	2,869	3,850	4,976
Number Completed	1,942	3,447	4,398
Hours per Completed Trainee	29.5	18.0	13.7

neighbors. Oklahoma's system appears to be more extensive, and provides services to a larger number of firms than do Oklahoma's neighbors. The reader is cautioned, however, that different accounting systems, definitions, and treatment of overhead expenses, make comparisons of cost information difficult. Also, comparative data for program expenditures are incomplete.

Job Training Partnership Act. The *Oklahoma Business Taxation and Investment Guide* describes the investment incentive of the Job Partnership Training Program (JTPA) as a 50 percent payment of on-the-job training costs and 100 percent of classroom training "...for qualified low income individuals."

The operative phrase for program qualification is "economically disadvantaged families and individuals who are faced with barriers to employment." Such barriers include workers thrown out of work from plant closings, school drop-outs, and those lacking basic educational skills needed in current occupations.

According to the latest available annual report for Oklahoma:

During program years 1988 and 1989, nearly 27,000 participants were served in the basic JTPA grant program. Of those, 18,932 completed the program and 18,700 found employment. The average cost per adult participant who became employed was \$2,887.60. Of the 11,179 youth served, over 4,356 successfully completed the program at an average cost of \$2,474.33. The total dollars expended for the Program Years 1988 and 1989 was \$81.957 million. Of these funds \$77.86 million went for direct services and \$4.10 million for administration.⁹

TABLE 5

Customized Industrial Training

	Program Begun	Program Administrator	Training Characteristics	Expenses Paid to Company	Eligibility	Volume
Arkansas Industrial Training Program	1969	VoTech Division of State Board of Education	Pre-employment or OJT intensive training for production operation personnel	Instructor time and materials	New or expanding manufacturing industries	FY 1988 42 companies 2,850 workers
Colorado First Customized Industrial Program	1980	State Business Development office and community college/ occupational educ. system	Pre-employment or OJT	Instructor time, materials and equipment	Only requires new job creation	1989 11 companies \$264,000
Colorado Existing Industry Training Program	1989	State Business Development office and community college/ occupational educ. system	Job-specific technical training for worker retention	Instructor time, materials and equipment	Permanent, non-seasonal non-retail sector jobs	1989 9 companies 558 jobs retrained \$250,000
Kansas Industrial Training Program	n.a.	Department of Commerce and State Dept. of Education	Pre-employed, OJT and classroom	All negotiated costs	Manufacturing, warehousing, distribution and regional services hiring 10 or more new employees	FY 1988 30 firms 2,561 persons \$1.5 million
Kansas Industrial Retraining Program	1988	Department of Commerce and State Dept. of Education	Pre-employed, OJT and classroom	Shared-cost basis with industry	Restructuring industries, no other apparent restrictions	No data
Louisiana Industrial Start-up Training	n.a.	Office of Commerce and Industry	Pre-employment and OJT	Company shares cost of consumables, state pays most expenses	New and expanding manufacturing only, min. 10 trainees	50 companies/ yr. 3,500 persons \$1.0 million
Missouri Customized Training Program	n.a.	Dept. of Economic Development and Dept. of Elem. & Sec. Industrial Education	Pre-employment, OJT and classroom	Company pays consumables. State pays most expenses. 50% wages of trainee paid for OJT	New and expanding manufacturing	n.a.

and

TABLE 5 (continued)
Customized Industrial Training

	Program Begun	Program Administrator	Training Characteristics	Expenses Paid to Company	Eligibility	Volume
New Jobs Training Program	n.a.	Includes J.C. Districts	Pre-employment, OJT and classroom	Company pays consumables. State pays most expenses. 50% wages of trainee paid for OJT	Apparently negotiable	n.a.
New Mexico Industrial Development Training Program	1972	Economic Development Department of Labor, Junior Colleges	Classroom and in-plant	Up to 1,040 hours allowed, 50% cost reimbursement to company	New on expanding manufacturer/producers and some non-retail businesses in service sectors.	19 companies \$934,550 (combined programs)
and						
Rapid Response Training Program					Use export or substitution criteria	
Oklahoma Customized Industrial Training	n.a.	State Department of Vocational and Technical Education	Pre-employment, classroom or OJT	Program pays all industrial costs. No stipends paid to trainees.	New to the state, expanding or changing production methods. All firms eligible, emphasis on manufacturing and some services	FY 1988 90 companies
Texas Industrial Development Training	n.a.	Dept. of Commerce, Work Force Development Division with Public Education system	Pre-employment classroom or on site	Program reimburses company costs	New and expanding manufacturing facilities creating at least 10 jobs	Sept. 88- July 1989 30 companies 3,712 trainees \$1,268,191

Source: NASDA, *Directory of Incentives for Business Investment and Development in the United States*, 3rd Edition, 1991.

Actual programs delivered in the various state regions are determined by individuals in the local communities but they generally fall into the following types of training activities: on-the-job training for eligible participants with fifty percent of wages paid by JTPA for the designated training time, job search training, classroom training (often combined with work experience or OJT), and various types of work experience for students, other youth and those facing employment difficulties. In addition, 15 percent or more of the dollars are available for "...supportive services necessary to enable a person to participate in a training program." This aspect of the program adds an element of social services to the employment enhancing aspects of job training.

As an economic development tool, training funds can be combined with service delivery institutions, especially public and private vocational-technical programs, and basic support payments to allow an individual some living expenses while obtaining training and skills that lead to productive employment in a new or expanding establishment. JTPA is undoubtedly best known as a human services program. But, when combined with other incentives and direct services, it can also become a way of enhancing the work force quality for business development.

Research, Technology Transfer, and Information Services

Oklahoma Bid Assistance Network.¹⁰ The Oklahoma Bid Assistance Network was established in September, 1986, to assist state businesses in the identification of, and successful bidding for, contracting opportunities within both the government and private sector markets. The system operates through Bid Assistance Centers in 23 area vocational-technical schools and receives additional financial support from the Department of Defense, the Oklahoma Department of Commerce, and JTPA funds distributed by local service areas.

The system connects firms to an electronic information network which provides prospective bidders daily notices which list government agencies that are currently buying the goods or services produced by the firms.

Each local center is supported by a State Center in Stillwater which maintains a technical information and resource library as well as updates the electronic information network. The State Center also performs the system's administrative, coordinating and training functions.

Bid notices are entered in the system from bids published in the *Commerce Business Daily* and additional sources for purchases under \$25,000. State of Oklahoma bid notices and other public and private sector opportunities are added to the electronic system.

Procurement specialists at each center work directly with client firms to provide technical assistance and training in marketing. Local personnel provide interested contractors with additional technical assistance in locating subcontracting opportunities, in identifying research and development sources, construction and services contracting opportunities, in new product introduction, and in developing quality assurance and inspection systems.

An additional service was formalized in October, 1989, with the development of the Center for Aerospace Contracting to help secure additional contracts with Tinker Air Force Base and other aircraft parts and maintenance employers. (These units include Tinker AFB, American Airlines, Rockwell International, McDonnell Douglas, and the Federal Aviation Administration.) This service targets small shops that once supplied manufactured goods to the oil industry.

By March 1, 1991, 42 firms had participated in the aerospace project in which local firms were determined to be potential suppliers of almost 400 of 760 parts reviewed. Nearly 1900 bidding opportunities were identified and seven companies received 33 contracts from Tinker AFB ranging up to nearly \$100,000 and totalling \$490,000.

Program reviews indicate that local personnel expect significant benefits from additional post-award bid analysis. A thorough knowledge of why a bid was unsuccessful is an important first step in adjusting expected profit margins, locating better sources of materials, linking with more suitable subcontractors, or improving product quality, all of which might increase probabilities of successful future bidding.

A second value-added service provided by the Bid Assistance Centers is specialized marketing assistance, especially for international exporting of manufactured products.

During 1989, a local pilot project provided marketing consultations with 75 new-to-export companies and 70 new-to-market firms. Under a 1991 reorganization, counsel was provided to 73 firms, and some efforts have been targeted in support of the Tulsa Bid Assistance Center and firms striving to sell manufactured aircraft spare parts

to commercial manufacturing contractors in foreign countries.

The general performance statistics provided by the State Center for the Bid Assistance Network indicate an active client list of nearly 1,900 businesses, 94 percent of which are small businesses. Through March, 1991, more than 3,400 Oklahoma businesses have utilized some degree of services from the network in the successful bidding for 5,190 contracts netting nearly \$1.0 billion in contracts, 68 percent being from the Department of Defense. Costs of the services are estimated to include about \$900,000 of support from the Department of Defense and \$4,500,000 of Oklahoma state and local government support.

Real Estate Information System.¹¹ The Oklahoma Department of Commerce has established a Real Estate Information System (REIS) to assist in the marketing of the state's business-related real estate as an aid to economic development. The system publishes a listing of available industrial facilities and building sites in the state, thus providing a centralized source of intra- and interstate comparative data for quick response to prospect inquiries.

Information in the REIS comes in two forms. First, a brief computer-generated listing provides a building name and address, total square footage, ceiling height, rail access, dock high loading facility, number of cranes (if any) and availability status. More detailed information is available on each listing regarding utilities, sale or lease price, site size, dimensions, zoning, office square footage, sprinkler and air conditioning descriptions, number of truck loading doors and contact procedures for the owner or agent. A listing compiled in early August, 1991, contained in excess of 1,100 industrial building sites organized by region of the state.

Oklahoma Center for the Advancement of Science and Technology (OCAST).¹² The Oklahoma Center for the Advancement of Science and Technology (OCAST) is a state agency created by the Economic Development Act of 1987 (H.B. 1444) to promote science and technology in the state, and to stimulate the discovery, development and marketing of new products and processes in Oklahoma. Activities are authorized in support of:

- * Scientific research and development which generates new ideas, and converts them into new products.

- * The transfer of new technologies from research laboratories into the marketplace.
- * The successful marketing and application of new products, processes and services.

The primary mission of OCAST has been implemented to this time through five main research programs and a professional resource networking service:

- * Centers of Excellence Program
- * Applied Research Program
- * Health Research Program
- * MOST Research Equipment Program
- * Small Business Innovation Research (SBIR)
- * Technical Resources Access Center (TRAC)

The *Centers of Excellence Program* supports basic and applied research centers which combine the efforts of universities and colleges, non-profit research organizations and industry. Instead of physical facilities, these centers coordinate research and development initiatives of a single, unifying theme by linking human and capital resources from several sites from the academic, business and government communities of the state. (Regulations require two or more Oklahoma institutions of higher education as well as business/industry partners before a Center may be approved.)

The Centers which are currently in operation are: the *Center of Excellence in Molecular Medicine*, the *Center for Integrated Design and Manufacturing*, and the *Center for Laser Development and Applications*.

The *Applied Research Program* supports collaborative projects involving Oklahoma institutions of higher education, private enterprises and non-profit research organizations which have the potential to develop marketable products, processes or services. Its purpose is the acceleration of technology commercialization, with funding of one to three years of up to \$100,000 annually on a one-to-one matching basis with non-state funds.

The *Health Research Program* helps the state recruit and retain outstanding health research scientists to increase the competitiveness of Oklahoma researchers for national research funds. The program supports research investigating the causes, diagnosis, treatment and prevention of human diseases and disabilities, and facilitates the development of health care products and services.

Most projects in this program are for \$25,000 to \$30,000 annually for up to three years. Scientists being recruited to the state may apply for up to \$75,000 to develop their research programs. No matching funds are required.

The *MOST Research Equipment Program* assists Oklahoma's higher education institutions in purchasing state-of-the-art research equipment in areas where they have achieved, or have promise of attaining, a national standard of excellence.

One-for-one matching funds must be provided by the applicant institution for projects generally costing \$50,000 or more.

The *Small Business Innovation Research (SBIR) Program* is an incentive program for businesses seeking research funds from the Federal Small Business Innovation Research grant program.

Phase I of the SBIR program will reimburse small Oklahoma firms 50 percent (up to \$3,000) of the costs involved in developing a federal proposal in which the local firm seeks to help meet the R&D needs of federal agencies while taking steps toward possible commercialization of new technologies.

Phase II of the SBIR program provides selected firms, which have won federal SBIR initial awards, matching money up to \$25,000 to help with operational expenses for the 18 months or so between the first federal award and the submission of federal Phase II proposals which could bring firms up to \$500,000 in research support. The program is seen as providing an incentive to submit federal proposals by providing gap financing between the steps of the federal process. This new program provided three awards for \$73,640 during FY 1990. The requested federal money in the three projects was \$648,845.

Finally, the *Technical Resources Access Center (TRAC)* assists interested parties to locate and access the specific in-state technical expertise required for their development objectives. The program is a computerized database of 1,600 profiles of faculty from four of the state's higher education institutions. Additional faculty and experts from the private sector are being considered for the second phase of the program. At present, no charge is made for use of the system.

Through June 1, 1991 OCAST awarded over \$40 million dollars with a nearly equal amount matched by non-state-appropriated sources. The agency had received over 1,250 applications and

made 441 awards. Seventy projects had been funded, in which 93 businesses participated. By program, the \$79 million of commitments generated by the OCAST programs are distributed as follows:

Centers of Excellence	\$30,496,889	(38.6%)
Health Research	\$22,205,443	(28.0%)
Applied Research	\$12,821,122	(16.2%)
MOST Eminent Scholars	\$ 8,585,750	(10.9%)
MOST Research Equipment	\$ 4,993,538	(6.3%)

Department of Commerce Site Selection Assistance. Companies considering a relocation or major plant investment in Oklahoma may receive site selection services through two major divisions of the Department of Commerce—the Business Recruitment Division for domestic companies and the International Division for foreign-based companies. Services are provided confidentially prior to location in the state as well as on a continuing basis over the longer-term.

The first step in the process is communication with the recruitment specialists to determine building/site requirements plus other special needs such as work force training, transportation and utility services, financing assistance, etc. Next, a group of interrelated specialists develop an individualized analysis of potential sites, including information on appropriate community incentives, as well as a detailed tax benefit analysis incorporating the incentive package. As firms arrive to visit site locations, recruiters make arrangements and introductions while continuing to provide information services as additional inquiries arise. Long-term assistance for those firms that do choose to locate in Oklahoma is provided by the ongoing programs of the Business Development Division.

Trucking Industry Self-Funded Research and Development. A 1987 piece of legislation known as the Trucking Industry Self-funded Research and Development Act created an agency of that name (TISRAD) to utilize new revenues from licensing motor carriers and equipment to conduct research "...on all facets of public and private strategy aimed at developing the state's trucking, warehousing, and distribution potential."¹³ Interested readers may find a complete analysis of that program in the Oklahoma 2000, Inc. research report of 1989.

Facilities and Infrastructure Industrial Access Road Program.¹⁴ The Industrial Access Road Program exists to assist local industrial development efforts by funding access facilities connecting a specific company or industrial area directly to the state or local road system. Such a road generally is one where the only justification for its construction or improvement is the existence of a viable industrial operation needing the transportation access.

The current foundation for this program is an appropriation in the Transportation funding bill (HB 143, Section 4, 1991) which states that the department should use a minimum level of the particular fiscal year's construction funding to encourage local industrial development with access roads when various criteria can be established.

Requests for funds must be submitted by a local unit of government having jurisdiction over the road. That unit must be willing to assume maintenance of the road following completion of a project since only authorization for construction is included in the legislation.

Local participation is generally required when a project is proposed. Most often this comes in the form of city or county funding of grading and drainage. Access road funds are used only for surfacing the road, typically with 3-4 inches of asphalt. Any special construction, such as curbs and gutters, must be paid by local authorities. Right-of-way, including any utility adjustments, must be furnished at no cost to the department and, of course, must be available to the public and cannot be on privately-owned land.

The economic development criteria of the legislation require that "the proposed access road must serve a new or expanding industry which will create a significant number of new jobs and/or generate a significant capital expenditure in the construction of plant facilities." To guarantee some degree of performance, whenever a new industry is involved a written notice of commitment to locate new facilities on a specific site and a timetable of construction must be on file with the project application at the Transportation Department. Most often the road construction is done along with initial construction of the private plant facilities.

Financial records for the program from 1978 through 1990 indicate that in most years the program expenditures are between \$2 million and \$3.5 million. In 1980 and 1986 expenditures exceeded \$6 million and in 1984 and 1987 they

dipped below the usual legislated amount of \$2 million. Funds for fiscal year 1992 have been increased to \$2.75 million.¹⁵

Some measure of impact of this program was developed in the "INDUSTRIAL ACCESS ROAD PROGRAM REPORT: January 1, 1987 through September 11, 1990" developed for the Governor's Achievement Report. This accumulation of 88 projects involved programmed funding of \$18 million, averaging \$200,000 per project. An estimated 11,700 jobs were associated with these projects.

Business Incubator Services. The incubator concept is one of dedicated facilities designed to accelerate the development and success of start-up and young existing businesses. The range of services typically provided in Oklahoma incubators include

- affordable office and light industrial space
- convenient, on-site support and office services
- access to experts in management and business development
- a limited state income tax exemption
- entrepreneurial skill-building programs.

By count of programs, the state of Oklahoma ranks seventh nationally with 15 operating incubator facilities, two under development and approximately 10 communities studying the feasibility of sponsorship.¹⁶

The statewide incubator industry is organized through the Oklahoma Business Incubator Association (OBIA) in McAlester. This voluntary association of managers, under the direction of a board of active incubator professionals and an ex-officio representative of the Department of Commerce, meets quarterly to discuss common problems, hear programs of mutual interest, and discuss case histories of incubator tenants.

The OBIA is associated with a national association of the state associations. Members are particularly active encouraging economic development in rural Oklahoma. Discussions are being held with the state vocational-technical education department to develop additional information on what is needed to make incubators a more effective economic development tool and, especially, on what are the most important services to provide. Alternative methods of raising and distributing venture capital with particular emphasis on rural enterprises are also being discussed.

It is not clear that tax credit incentives in the state law are particularly important in generating new incubators or encouraging tenants beyond the implicit recognition of the objectives of the program as a goodwill gesture. The incubators and the OBIA provide a network of business and social relations which help new entrepreneurs understand and deal with unfamiliar risks and provide the ideas and information that is often lacking in first stages of business development.

Statistical reports of incubator tenant growth and success often show small numbers of jobs generated at the sites. Practitioners feel that this is to be expected. In their view incubators are where new firms develop and test the initial product and posture themselves for growth that is likely to come after the firm has graduated and established its more permanent facilities.

A short statistical profile of the state's 15 operating incubators reveals that six of the incubators are certified and eligible for state tax exemptions; 22 businesses are located in the facilities, most engaged in light manufacturing and services, with 103 tenant employees ranging from 1 to 13 per business. The Department of Commerce and OBIA are organizing a study for an evaluation of the state's incubator program during the latter half of this fiscal year.

Industrial Park Certification.¹⁷ The Oklahoma Department of Commerce provides a voluntary certification program so that "...prospective occupants can be assured of minimal quality characteristics, services and amenities that an Oklahoma industrial park will provide."¹⁸ The eligible applicants for the program are developers whose industrial parks meet at least the following minimum requirements:

- (a) a park must be zoned for industrial use,
- (b) utilities must be reasonably accessible,
- (c) the community must have a governing board to oversee the park,
- (d) a preliminary plat must be prepared and approved,
- (e) the park must have a minimum of five acres, and
- (f) a paved all-weather road to the site must be provided.

Upon application and receipt of a statement of support by appropriate local sponsors, a certifying team inspects the area and certification documents are reviewed. If successful a Certification

is issued by the Oklahoma Department of Commerce and the designation is reviewed every three years thereafter. The parks certified as of fall 1991 are shown below:

Certified Industrial Parks	Location	Size/Acres
New Horizons Park	Ardmore	283
Ardmore Industrial Airpark	Ardmore	2500
Bartlesville Industrial Park	Bartlesville	160
Central City Industrial Park	Oklahoma City	55
Choctaw Business and Industrial Park	Choctaw	49
El Reno Industrial Park	El Reno	50
Eufaula Industrial Park	Eufaula	53
Henshaw Industrial Park	Broken Arrow	120
Henshaw Industrial Park South	Broken Arrow	55
Old Airport Industrial Park	Lawton	10
North Tulsa Industrial Park	Tulsa	60
H.C. Sullivan Industrial Park	Seminole	90
Adwan Industrial Park	Seminole	40
Sulphur Industrial Park	Sulphur	48
Tinker Business & Industrial Park	Midwest City	62
Woodward Industrial Park	Woodward	720

A parallel effort at certifying industrial parks has been undertaken by Oklahoma Gas and Electric Company. While the criteria and procedures differ, the basic objective of providing information on minimal standards to prospective tenants is the same.

International Activity Support Services

International Development. Investment in Oklahoma by foreign firms and exporting to international markets are two ways to create and retain jobs that must take their places along with traditional efforts to recruit firms from, and expand markets in, the rest of the fifty states.

The mission developed by the Oklahoma Department of Commerce for its International Division "...is to assist primarily small and medium-sized Oklahoma manufacturers and service firms to export for the first time or to expand international markets by providing export marketing information, assistance and consulting services, and through promotion of Oklahoma products and services in foreign markets. The Division also has the responsibility to assist and guide state, regional and local economic development corporations, committees and chambers of commerce in identifying and attracting foreign manufacturers, producers and distributors into the state."

The state's export promotion activities are delivered through a unit of the Department of Commerce called Oklahoma International Export Services (OIES). This unit combines the personnel and resources of the state DOC and the federal government's program through the U.S. Foreign and Commercial Service, International Trade Administration.

The principal activity of OIES is the provision of services to exporters including:

- Export education and assistance workshops
- Country market/industry sector seminars
- Overseas trade promotional events
- Individual and single firm counseling sessions
- Export trade promotion
- Coordination and networking of external export resources

The extent of international promotion activities can be gauged by the unit's listing of export promotion and development activities over the period of FY 1984 to FY 1990:

- 13,409 export counseling sessions
- 1,328 U.S. export regulatory controls counseling sessions
- 253 export workshops, seminars and conferences
- \$100 million in export sales reported by companies receiving export counseling
- 12 overseas export promotion events/catalog video shows (since FY 1987)
- 185 participants in catalog video shows
- 3,248 trade leads for participants of catalog video shows
- 603 instances of specific marketing assistance program use for locating agents and distributors, determining bonafide potential buyers, advertising products internationally, or providing export contact lists
- 84 monthly newsletters with a distribution list of 3,200
- 26 major seminars and conferences by country/industry sector

While the listing consists of input measures rather than outcomes, it does show considerable acceptance and usage of services by the private sector engaged in internationally exporting.

A group of business leaders and other interested professionals meet regularly in an advisory

capacity as a District Export Council to provide guidance to the Governor and Director of the Department of Commerce for policies in the export promotion field. A Governor's International Development Team provides a counterpart advisory group for reverse investment and oversight of Oklahoma's foreign offices. Through these bodies and several task forces that have existed over the decade, mechanisms exist for input into operations of this economic development program.

Foreign Trade Zones. A Foreign Trade Zone is a very specialized tool of economic development that has relevance and benefit to a few types of businesses using imported components in products for domestic use or re-export that require some modification or assembly.

The traditional benefits of the foreign trade zones include:

- (a) avoidance of customs duties (taxes paid on imported items only) on items re-exported, including the ability to avoid duties entirely on broken, damaged or returned items not usable in the assembly process,
- (b) deferral of both tariffs and domestic taxes until imported merchandise leaves the trade zone,
- (c) use of the zone to store goods before paying duties until time for a seasonal demand (e.g., Christmas inventory) or until quota rights can be issued—that is, for logistical advantages of better timing of deliveries and to guarantee a foreign producer's ability to deliver goods properly for "just in time" inventory systems.

The newest of the advantages of the FTZs allows firms to *avoid inverted tariffs*—a situation that arises when the duty on the finished good, say the assembled automobile, is lower than the rate on imported components, perhaps an engine, drive train or radio system. By applying for *subzone* status and acquiring all the rights of an FTZ, the automobile assembler can avoid paying the higher duty on the imported components by waiting and paying the lower rate applicable to the assembled automobile on the accumulated value of the imported components.

The use of these zones to defer or reduce tariff payments is, as one would expect, a controversial policy. The national administration has tried to allow subzones for situations that result as a by-product of years of trade negotiations, such as the situation in the automobile industry, and deny

access to a means of avoiding inverted tariffs due to conscious Congressional policy, such as occurs in bicycle and television manufacturing. More Congressional Hearings will undoubtedly be scheduled on these issues in the future.

Oklahoma has three foreign trade zones; one at the Will Rogers Airport in Oklahoma City, another at the Port of Catoosa near Tulsa, and a third at the Port of Muskogee.

Foreign Trade Zone 106 in Oklahoma City¹⁹ includes 866 acres at the Will Rogers International Airport, a warehouse at 3501 Melcat Drive in Lakeside Business Park and six acres nearby for construction of additional warehousing facilities.

The main activity of the Oklahoma City Foreign Trade Zone is organized around three operating programs and the information services, counseling and training provided by the zone staff. The programs include warehousing, land development and subzone sponsorship.

A private company, Meridian International Services, Inc., has contracted to manage a 106,000 square foot warehouse with associated import/export automated inventory and computer documentation programs within 1.5 miles of the air cargo facilities at Will Rogers. Facilities of this type are physically similar to traditional bonded warehouses used in international trade, however, their presence in a foreign trade zone provides additional technical advantages of value to certain types of importing and manufacturing businesses.

The land development program provides for the lease of land on sites near the airport to establish light manufacturing or assembly facilities for those intent on utilizing the benefits of the zone program. Two hundred thirty-six acres are currently available in this program for leases up to fifty years in duration.

Finally, the staff of this zone is available to help larger manufacturing and assembly firms apply for subzone status at the physical location of their existing facilities in order to secure certain rights and privileges of the full foreign trade zone with fewer complications in the application process. Currently the General Motors subzone at the site of its Oklahoma City assembly plant is the only one located in the state.

The Foreign Trade zones authorized at the Port of Catoosa and the Port of Muskogee are currently inactive.

Enterprise Zones.²⁰ Enterprise zones are perhaps most logically thought of as "location-spe-

cific tax abatements."²¹ They are general rather than specific tax abatements because their incentives are available to any qualifying company without governments having "to pick the winners" or otherwise make decisions on inadequate data known only to the private sector owners. Second, unlike specific tax abatements that might not have a particular rationale for the chosen companies, enterprise zone tax abatements can legitimately be seen as a cost-reducing offset to a reduced quantity or lower quality of public services in the zone. Thus, enterprise zones can be justified as a tool of economic development if designed and utilized responsibly.

The "Oklahoma Enterprise Zone Act" of 1983 and later amendments through House Bill 1759 passed in the 1991 Legislature defines an "enterprise zone" as either a *county* or an *area* within the corporate limits of a community which meet specified criteria.

A *county* may be designated as such a zone if it

- (a) has an average unemployment rate of over one and one-half times the state average for a twelve-month period as determined by the Oklahoma Department of Commerce based on data from the Oklahoma Employment Security Commission, or
- (b) ...is designated as a labor surplus area by the United States Secretary of Labor..., or
- (c) has for three consecutive months or more a fifty percent or greater increase over its average unemployment rate for the previous calendar year.; provided said increase results in an unemployment rate that exceeds the state average unemployment rate for the previous calendar year, or
- (d) those counties that have an unemployment rate that exceeds the state average unemployment rate for a twelve-month period ...and a net population out-migration of four percent or greater for the period of 1980 to 1988 as determined by the Department of Commerce, or
- (e) those counties that have an average population decrease of ten percent or greater between the latest two decennial censuses.

As of September 1991, twenty-four counties were designated as enterprise zones in the state of Oklahoma. Seven counties satisfied criteria (a) with high unemployment; 4 counties satisfied (d)

with high recent out-migration; 2 counties satisfied (c) with rapid increases in unemployment; and, 15 counties satisfied (e) with at least 10% population losses between census counts. Federally determined labor surplus areas were not yet announced.

An area within or contiguous to the corporate limits of any city or town of this state which the Oklahoma Department of Commerce approves, upon application, may be designated as an area of economic distress using guidelines which include the fact that a majority of the households within the specified area have an income of less than eighty percent of the median income of this state.

As of October 1991, forty-six cities had one or more enterprise zones designated within or adjacent to their city limits. Only the larger cities had multiple zones and none had more than three zones so identified.

The specific incentives provided by the Oklahoma enterprise zone law include:

- (a) Two times the amount of the investment tax credits as provided in Section 2357.4 of Title 68 of the Oklahoma Statutes, and
- (b) Low interest loans from an enterprise district loan fund as provided in the Enterprise Zone Act for a period of five years following the date of designation as an enterprise zone or until an area no longer qualifies as a zone.

Unfortunately, since the state has no funds available specifically for enterprise zone investments, two other sources of funds are advertised for zone application. First, zone investors are encouraged to make use of the small business and agricultural linked-deposit loan programs developed for general (nonzone) economic development objectives. Second, the possibility exists for three to six contiguous enterprise zones to form a cooperative "enterprise district" and sell general obligation bonds of the local counties, cities or towns for lending to qualified investors. To date, no such bonds have been sold for this purpose.

More recently, the law has been amended to allow a designation for targeted industrial areas within a county and/or portion of a community as a *priority enterprise zone*. These criteria generally relate to a median income less than 60 percent of the state's median household income in the last census, an area with less than 20,000 population, an unemployment rate 25 percent higher than the state average, out-migration of at least 5 percent

in the last five years, and evidence of a plan and commitment for development by local authorities. When applicable, a few additional benefits can be received.

Because of the advantages of this type of incentive there appears to be growing interest at both the federal and state levels. A review of programs in the neighboring states (as summarized by the National Association of State Development Agencies) reveals that all have programs with the exception of New Mexico. The nature of incentives, eligibility criteria and the number of designated areas all vary widely. Most, however, appear to offer a wider variety of incentives for job creation and major investments than Oklahoma.²²

Local Area Economic Development Incentives

Communities and substate regional organizations also provide economic development incentives. Table 6, reproduced from *Site Selection*, illustrates the range of incentives advertised for selected Oklahoma political entities.

Local chambers of commerce, regional development organizations, and other special purpose groups, form the front line of contact with businesses considering expansion or relocation. Generally speaking, they do preparatory research, write proposals, arrange tours of sites and facilities, and frequently add locally authorized incentives as they package and sell available incentives from other sources.

The types of local incentives that appear to be most common in Oklahoma are free or reduced-cost land, additional financing and special services.

With the state constitutionally prohibited from providing free land to potential investors, local governments have generally found ways to provide land for business investment, often through local industrial foundations or industrial parks, at reduced cost. Cases exist where land was given away; sold at a subsidy of, say, two acres for the price of one; or, provided with an economical long-term lease. These incentives are often mixed with other services provided by industrial parks, and perhaps incubator and training services provided close by.

A second main area of local competition is the area of additional or incremental financing. Communities can provide for industrial development bond issues under conditions controlled by state

TABLE 6

City and County Business Investment Incentives

	Ardmore	Cleveland County	Duncan	Edmond	Enid	Oklahoma County	Okmulgee	Tulsa	Washington County
Tax Incentives									
Tax Exemption or Moratorium on Land, Capital Improvements	Y	Y	Y		Y	Y	Y	Y	Y
Tax Exemption or Moratorium on Equipment, Machinery	Y	Y	Y	Y	Y			Y	Y
Inventory Tax Exemption on Goods in Transit (Freeport)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tax Exemption on Manufacturer's Inventories	Y	Y		Y				Y	Y
Sales/Use Tax Exemption on New Equipment	Y		Y	Y	Y		Y	Y	Y
Tax Increment Financing		Y			Y				
Financing Programs									
Revenue Bond Financing	Y	Y	Y	Y	Y	Y	Y	Y	
General Obligation Bond Financing	Y			Y	Y		Y	Y	
Loans for Building Construction		Y	Y	Y	Y		Y	Y	
Equipment, Machinery Loans		Y	Y	Y	Y		Y	Y	
Seed or Venture Capital	Y				Y			Y	
Special Inducements									
Publicly Owned Industrial Park Sites	Y		Y		Y		Y		Y
Publicly Provided Industrial Sites Below Cost	Y		Y		Y				Y
Publicly Provided Industrial Access Roads Below Cost	Y	Y	Y	Y	Y		Y	Y	Y
Publicly Provided Services?			Y	Y	Y	Y	Y		

Source: Site Selection, October 1990.

law and they can negotiate for private lending at a cost below commercial rates from credit agencies or public utility funds. Recent examples also indicate the occasional willingness of communities to add sales taxes to generate a fund to entice a business relocation. At the least, local developers monitor special funding opportunities like the state's linked-deposit financing or use of oil overcharge moneys for energy conservation and, in other ways try to help individual companies develop their proposals for whatever funding is available at reduced cost.

Finally, at this grass roots level, ingenuity and flexibility can be merged in new ways as opportunities arise. Relocation assistance, for example, is often personally provided by local volunteers who show housing and help find jobs for spouses. Moving expenses might be paid for key executives, and a truck driver training school may move a company to combine trainee experience and community inducement.

Private Sector Support

Public Utilities. One sector of the economy which has been exceptionally active in supporting state and community economic development efforts is the group of public utilities. In Oklahoma, programs and/or incentives are offered by

- Oklahoma Gas and Electric
- Oklahoma Natural Gas
- Public Service of Oklahoma
- Southwestern Bell Telephone Company
- Rural Electric Cooperatives
- Western Farmers Electric
- KAMO Electric.

The nature of economic development efforts offered by the utility sector was recently highlighted in an advertising supplement in *Forbes* magazine.²³ Utilities' historical knowledge of particular areas and inhabitants allows them to provide valuable informational services. Some companies have loan programs for construction, but more are inclined to offer some form of incentive rates for marginal energy use and stress low basic rates, and services to help companies implement new cost-saving technologies and equipment. At the community level, many utilities help conduct engineering and feasibility studies needed to develop industrial parks, sponsor national advertising and direct mail campaigns for regional business recruitment and, perhaps most impor-

tantly, supports local programs for business retention.

Business Roundtable. The Oklahoma Business Roundtable²⁴ is a recently formed private panel of CEOs or Presidents of state companies who have committed \$135,000 for an initial slate of activities including support of "...receptions, meetings, seminars and other national and international activities that are essential to business recruitment." Roundtable President Donald Paulsen, former Oklahoma Secretary of Commerce and Director of the Department of Commerce, reported plans for hosting "six or eight site selectors, the people generally on the East and West Coasts that work with the large companies to identify locations for new operations and new manufacturing plants." Other activities include support of business recruitment in Los Angeles, and the state's foreign offices, especially the new European office in Frankfurt, Germany.

RECENT DEVELOPMENTS IN INCENTIVE LEGISLATION

The 1991 State Legislature added several pieces to the state's incentive package in the areas of food processing, recycling, aircraft, economic innovations, information services, and financing. The last two are covered in the chapter by Holmes in this volume.

Food Processing

An attempt to encourage further food industry development was contained in legislation (SB 518) that would allow certain agricultural activities by large commercial corporations engaged in swine or poultry operations.

Oklahoma's law regarding corporate farming generally prohibits all foreign corporations from engaging in farming and ranching and in either land ownership or leasing for that purpose. Domestic corporations are generally allowed for "family farms" in which the majority (at least 65 percent) of corporate income is agriculturally-related and no more than 10 shareholders are involved unless they are related by birth or marriage. (Parenthetically, the 1991 act did increase the allowable number of shareholders to 25 for corporations formed for breeding horses!)

The 1991 legislature amended the corporate farming law to exempt either foreign or domestic corporations from state restrictions when the

corporation "engages in poultry and/or swine operations, including only directly related operations, such as operating hatcheries, facilities for the production of breeding stock, feed mills, processing facilities, and providing supervisory, technical, and other assistance to any persons performing such services on behalf of the corporation..."²⁵

Evidently the door has been opened for corporate "confinement production" and vertically integrated processing of these farm animals. Only political considerations would seem to explain why this deregulation is so limited.

Recycling

Several pieces of legislation dealt with incentives for waste disposal and industry development of recyclables.

House Bill 1540, the Oklahoma Waste Tire Recycling Act, allowed for the use of an indemnity fund to pay waste tire facilities up to 50 cents for processing any tire discarded in Oklahoma, provided that 25 percent of the tires processed were collected from designated dumps. An additional 35 cents per tire can be paid for statewide collection of tires from dealers with 1,000 discarded tires per site to clean up. Tire processing must result in particles less than four square inches for use in recycling, reuse or energy recovery to qualify for payments.

House Bill 1340 containing legislation known as the "Manufacturer Recycling Incentive Act" was evidently legislation drafted for immediate application to Fort Howard Paper Company's application for expansion of its Muskogee plant but its provisions obviously become available to any qualifying business.

This legislation allows an income tax credit of 15 percent of the investment cost of a recycling facility. To qualify, the finished products of the manufacturing industry must be composed of at least 90 percent of recyclable materials. The limiting features of the law provide that the credit shall be available only if the total cost of the facility exceeds \$10 million, and the combined cost of construction material, machinery, equipment and other tangible personal property exceeds \$50 million.

Note, however, that later language states that "The Oklahoma Tax Commission and the Department of Commerce shall inform manufacturing and processing industries, both within and outside the state, of this tax credit benefit, and in every

way possible gain the most favorable publicity and increased activity for Oklahoma resulting from this act." This would seem to imply an expectation of broader use than a single industry.

The Oklahoma Solid Waste Management Act does serve some notice that out-of-state waste management is considered to be a public issue. Previous law imposed a fee for use of waste disposal sites, sludge land application sites or commercial biomedical waste facilities if the waste is generated outside of Oklahoma.

Economic Innovations

Senate Bill 337 (1991) relieved the Department of Commerce of its "...power and duty to develop and manage an Economic Innovation System." Instead, the new legislation (under title of the "Economic Innovation Development Act") charged the department to establish "...a competitive process to encourage local economic development activities by public and private sector organizations in cooperation with the Department of Commerce's statewide economic development efforts."

The heart of the program is the charge to the Department of Commerce to contract for services with local economic development organizations servicing more than a single community and able to match state dollars with other public or private support. Such organizations must submit viable economic development action plans for an ensuing fiscal year and request reimbursement for only allowable expenditures approved as in the budget work plan.

The legislative intent is evidently to replace the current Economic Innovation Network (EIN) of public/private partnerships with a new approach to stimulating innovations.

Information Services

The development and dissemination of statistical data for policy analysis and program evaluation was addressed in House Bill 1444. It called for the development of a statewide electronic data network (ORIGINS) that could be utilized by computer software inexpensively from anywhere in the state. That system has been developed and other forms of information dissemination are also being authorized. The following two programs are examples of this activity.

Senate Bill 109 amends the OCAST legislation to authorize expenditures for meetings and

conferences relating to economic development and science and technology issues.

Also, the Oklahoma Capital Investment Board has been approved to cooperate with the Department of Commerce's Capital Resources Institute to provide seminars on "the techniques of identifying and packaging venture stage projects" for economic development professionals and incubator managers. More generally, the staff of the OCIB offer technical assistance to entrepreneurial companies in the preparation of plans, reports and presentations seeking equity capital from various sources.

A SURVEY OF ECONOMIC DEVELOPMENT PRACTITIONERS

An indication of perceptions held by the state's economic development professionals regarding the importance of various incentives, and the interstate competitiveness of Oklahoma's incentives, can be gleaned from a survey conducted during early fall of 1991.²⁶

According to the responses summarized in Table 7, the most important incentive in the Oklahoma arsenal was the state's customized industrial training, with its free instruction for potential employees of new and expanding businesses. The five-year exemption on ad valorem taxes and industrial park availability tied in the ratings as the second most important incentives. These programs were followed by equal ratings given to income tax credits for news jobs and investment, and the sales tax exemption for new manufacturing. Sixth in the ranking was the industrial road access program.

Perhaps not surprisingly, the top ten incentives thought to stimulate economic development mix the common elements of technical training, tax incentives, and assistance in arranging financing. Infrastructure developments, give-aways, the most specialized programs, and information services, appear to be generally perceived as relatively less strategic in the overall scheme of business development incentives. Yet, they do seem important enough to make some difference when circumstances are otherwise favorable.

Enough surveys were returned to get an inkling of perceptions about interstate competitiveness for only two states—Texas and Arkansas. These returns, as seen in Table 7, confirmed the writer's impressions from personal interviews and

the general business press that Oklahoma's incentives are equal or superior to those of the surrounding states.

Questions regarding incentives that development professionals would like to either improve or control were answered by just over half of the respondents. The most notable aspect of this invitation to comment was the extremely broad range of suggestions—over twenty in all. The two most common suggestions for improvements related to the customized industrial training and to some aspect of financing. Extensions of the ad valorem tax abatement to either increase the number of years or the types of industries that would qualify were also mentioned by a few practitioners. Beyond that, almost the whole range of incentives listed in Table 7 showed up on at least one person's list as an item to improve.

On the other side of the incentive issue, few Oklahoma practitioners went so far as to identify specific incentives to control or regulate. Many mentioned the general displeasure with the competition of "give-aways" and the drain on the tax base. A few individuals specifically mentioned their disagreement with local units that compete by giving away or subsidizing land for commercial use. Some also stated disagreement with individual businesses disclosing bids already laid on the table and negotiating specific inducements like moving expenses for executives, or outright gifts not tied to performance measures. Overall, however, this group appeared willing to argue for continuation, and even enhancement, of the traditional incentives of training, tax abatement, financing, and infrastructure development.

In a much more formal way, apparent satisfaction with the state's incentive package was forcefully expressed in the "Report of the Oklahoma Future's Economic Development Incentives Task Force" by Chairman Clyde C. Cole, Chairman, on September 1989.

The report and recommendations of the 33 listed members of the Task Force are briefly summarized below:

1. During the past several years, the Oklahoma Legislature has been especially supportive of legislation designed to stimulate and support the economic development efforts of our State.
2. Our Task Force met on several occasions. We have had a thorough discussion of Oklahoma's economic development incentives,

and based upon these deliberations we find that there are no major additions to our state's economic development incentives package that are required at this time.

3. In order to maintain our competitive situation, it may be necessary, in the future, to pursue other economic development incentive possibilities. At this time, we believe it to be imperative that any proposal include a cost/benefit analysis. This will be extremely important in securing legislative support.

4. We are convinced that the most effective incentives that can now be added to our "economic development package" would be an upgrading of Oklahoma's education system and meaningful worker's compensation reform. In our opinion, the inadequacies of our education system, both higher and common, and the deficiencies in our workers' compensation system are major deterrents to economic development efforts.

TABLE 7

Importance and Effectiveness of Oklahoma's Economic Development Incentives

	Importance Score 5 = most important n=24	Oklahoma Incentive Compared with	
		Texas n=15	Arkansas n=57
1. Industrial Finance Authority loans?	3.8	E	E
2. Industrial Revenue and General Obligation bond financing?	3.8	E	E
3. Small Business linked-deposit loans?	3.0	B	B
4. State Export Financing assistance?	3.1	B	B
5. Income tax credit for investment/new jobs?	4.5	B	E/B
6. Sales tax exemption for manufacturing investment	4.5	B	E
7. Income tax credit for recycling firms?	3.4	B	E
8. Small business incubator tax benefits?	2.9	E	E/B
9. 5-year ad valorem tax exemption on qualified property?	4.6	B	E
10. Customized industrial employee training?	4.8	B	B
11. Bid Assistance Centers for federal procurement?	3.2	B	B
12. Industrial Access Road funding?	4.3	B	E
13. Research & Development support (OCAST)?	2.9	E	E/B
14. Export Marketing Assistance?	3.0	E	B
15. Commerce Department Site evaluation assistance?	3.0	E	E
16. Enterprise Zone benefits?	3.5	E	E
17. Small Business Management Development Services?	3.2	E	E
18. Land given free or at a discount?	3.3	E	W
19. State school land leasing up to 55 years	2.1	B	W
20. Industrial Park availability?	4.6	E	B
21. Community Development Block Grants	3.9	E	E

Notes: Importance Score based on 5 responses with 5=essential for favorable decision to 1=rarely important. Response reported for state comparisons is most frequent of Better, Worse, or Equivalent.

ISSUES POTENTIALLY IMPACTING FUTURE LEGISLATION

Despite the apparent high degree of satisfaction with Oklahoma's incentive package, there remains the ever-present need for continual assessment of existing legislation and consideration of selected issues of relative current interest and importance. This section concentrates on a few selected issues for policy analysis.

Industrial coverage

One basic issue of any incentive package is always the proper definition of coverage—what businesses, industries or perhaps classes of owners qualify to receive the special inducements? The typical minimal answer appears to be the manufacturing industries as defined in the U.S. Standard Industrial Classification. Owners and workers in other sectors of the economy, and economic development professionals, often argue that this is too restrictive. They say that the arguments that justify incentives for manufacturing apply with equal justification in other areas producing for export beyond the region to national and international markets.

Technical language was drafted and debated during the last legislative session to extend the industrial coverage of the state's incentives related to abatement of sales taxes, income taxes and ad valorem taxes—House Bill 1657. That bill was not heard in committee but is evidently alive for discussion in the 1992 legislative session.

Current legislation affecting each of these taxes is primarily targeted at new or expanding *manufacturing* plants or facilities. This bill would broaden the base for tax abatement incentives by adding industries beyond the traditional SIC manufacturing codes 20 through 39 to include business service establishments classified as computer services and data processing under the following codes:

- SIC 7371 Computer Programming Services
- SIC 7372 Prepackaged Software
- SIC 7373 Computer Integrated Systems Design
- SIC 7374 Computer Processing and Data Preparation and Processing Services
- SIC 7375 Information Retrieval Services.

However, the act would not cover such services as Computer Facilities Management Services, Com-

puter Rental and Leasing, Computer Maintenance and Repair and Computer Related Services, Not Elsewhere Specified which are included in this chapter of the Code.

Analysis of the detailed SIC definitions reveals that the proposed industries appear to be inclusive of the higher-skill vocations involved in the computer programming and applications area, whereas the uncovered industries related to facility management and the processes of renting, leasing, repairing or maintaining equipment.

The recommendation of this bill would also expand coverage to include establishments engaged primarily in research and development as defined below:

- SIC 8731 Commercial Physical and Biological Research
- SIC 8732 Commercial Economic, Sociological, and Educational Research
- SIC 8733 Noncommercial Research Organizations
- SIC 8734 Testing Laboratories.

In this case the entire three digit grouping of "Research, Development and Testing Services" is included in the proposed additions.

Establishments meeting the general criteria of R&D work are classified in the SIC Manual as either commercial or noncommercial, and, for the commercial establishments, as those related to physical and biological processes versus the business, social and economic processes. In all cases, however, the industries are perceived to be closely tied to high-technology industries.

The expectation that the majority of sales be to out-of-state buyers is codified in language such as the requirement that a qualifying establishment must "...derive at least fifty percent of its annual gross revenues from the sale of a product or service to an out-of-state buyer or consumer."²⁷

The rationale for special treatment of manufacturing industries deriving from an export-base theory of regional economic development has long been accepted by many development professionals. Evidence for treating the service activities as an equally important component of a region's export-base was recently published in the *Oklahoma Business Bulletin*.³⁰ That study did show that the products of several service industries are highly exportable and that Oklahoma currently holds regional comparative advantage in very few of these services.

Regional Cooperation for Incremental Financing

A second issue concerns the authority and flexibility of local political units to determine targeted incentive packages for projects with particular local support. One of these techniques is incremental financing using a dedicated local tax increase for a particular length of time. The outline of such a measure proposed in the Oklahoma legislature is addressed below.

A bill introduced into the 1991 legislature as House Bill 1525 would address local area economic development incentives by encouraging local formation of areas such as enterprise zones, historical preservation areas, conservation areas and a specially defined concept of an "economic growth area" to be determined by local governing bodies desiring to enhance economic development. Districts formed to pursue development goals would be limited to land areas under 25 percent of the area of the political subdivision and have an assessed value under 15 percent of the region's total so as to limit any tax revenue losses.

These development districts would be encouraged to form development plans and goals which would ultimately increase the tax base of the city, town or county. Implementation of an approved plan could then proceed with various tax incentives or exemptions, tax increment bonds for raising capital, or use of other economic devices as delineated in the draft legislation.

The nature of limitations imposed on the ability to grant incentives would, for example, (a) restrict ad valorem exemptions or incentives "...only to the extent of new investment made;" (b) not allow such exemptions if a project was financed by tax increment bonds or if the property already benefits from the constitutionally allowed exemptions; and (c) limit exemptions in time to, say, five years or, in the case of enterprise zones, to six years.

The new incentive structure for project financing that is outlined within the draft is known as "tax increment financing." Basically, a taxing unit can define a certain base level of rates and assessed valuation and then adopt an increased portion of ad valorem taxes to be paid into a special fund to repay interest and principal on funds raised to implement the project plan. New authorization is evidently needed to protect the right of the taxing unit to make the desired divisions of funds for a specified period (8 years was suggested

in the draft), and outline requirements for altering the taxing scheme to protect the incremental project repayments.

The legislation would exempt tax increment bonds and resulting income from all state and local taxes, and usually limit the maximum period of time for repayment (25 years was used in the draft). Such bonds could not be general obligations of the taxing unit and should not be included when determining debt obligations of the city, town or county.

Incentive Controls, Competitive Giveaways and "Clawbacks"

One analyst has recently characterized incentive packages as "...economic steroids—in the short run, they strengthen communities in the race for new plants and expanded payrolls."²⁹ Not surprisingly, many are suggesting that incentive bidding is getting out of control and some regulation and controls must be adopted to ensure "fair competition."

Incentive packages are limited to certain types of firms, locations and/or activities. As such, they differ from other types of economic development programs affecting infrastructure, levels of education and other aspects of the business environment. These differences give rise to the main objections that have been raised against subsidies seen as "giveaways" by those not qualified to participate or those paying the bills.³⁰ Some of the arguments follow:

1. Because of the selectivity of the incentives, they are frequently allocated in a political environment—usually to the larger, more visible projects. In many cases the expenditure criteria are seen as ad hoc, favoring visible high-tech projects, or open to political pressures or other manipulations. Some question whether the expenditures "crowd out" investments that would have been undertaken by other local firms not qualifying for the subsidies.
2. Incentives, whether direct subsidies or tax breaks, represent lost government revenues that could be spent more broadly on programs benefitting a broader array of local industries. Money spent or not collected is not available for enhancing the general

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2. Incentives, whether direct subsidies or tax breaks, represent lost government revenues that could be spent more broadly on programs benefitting a broader array of local industries. Money spent or not collected is not available for enhancing the general

business environment or building infrastructure, enhancing education or adding informational services.

3. In most cases, there have been no implicit "contracts" to tie continued receipt of incentives to performance tests. Clearly, resentment can build if expected benefits are not forthcoming and no adjustments are required.

In short, incentive packages developed during a process of negotiation or in response to ongoing bidding wars might well be less than optimal in relation to other uses of public resources directed toward community economic development.

As to remedy, it does not appear that federal laws are being debated to control the incentive bidding, nor are interstate compacts filling the void. Enforceable penalties of some form do appear to be the most workable short-run solution for correcting mistakes of over-anxious bidders. In fact, some states and communities are beginning to develop careful monitoring systems and writing certain restrictions into the authorizing legislation. Some researchers have claimed that these actions may be the only viable, if second-best, solution to the incentive game. Overseas, such penalties are often called *clawbacks*, a comprehensive term for cancellation, reduction, and recovery of subsidies.³¹

Oklahoma, as is true for other states, is beginning to write some clawback features into the economic development laws, and probably more emphasis should be placed on this control mechanism in the future.³²

SUMMARY AND CONCLUSIONS

The dominant perception that is revealed by this review of special programs for economic development is one of satisfaction with the majority of activities, and a common feeling that Oklahoma's package is generally very competitive with those of neighboring states. That is not, of course, the same as claiming either perfection or complete contentment.

Individuals actively engaged in economic development work on a daily basis respond quickly to requests for new incentives to consider or old ones to modify or eliminate. Many can cite instances of the firm or industry that got away to another state because Oklahoma's incentives weren't authorized for that particular business, of

the bureaucratic problems with procedures or turf battles, of the inadequate levels of financing from either the public or commercial bank portions of an investment package, or of other cases where better laws or a more ethical environment might have given them the edge in the recruiting battles.

With the possible exception that financing might be the most uniformly perceived type of incentive where the state is least competitive, suggestions for modifying the state incentives are wide-ranging and frequently based on specific experiences and conditions somewhat unique to development objectives and targets of local communities. Recruiters seeking aircraft parts firms might want more favorable inventory tax laws, communities with dominant manufacturing plants may seek broader coverage for incentives for small firms providing supporting services, incubators may seek additional sources of venture capital, college towns may seek better incentives for research and development organizations, and so forth.

Most of these special interest requests deserve a hearing and objective analysis. Some have a good basis for support; others may have already been granted an incentive in other states and communities.

Oklahoma would appear to have a good institutional framework in which to have a public debate on the merits of incentive programs. The development of Oklahoma Futures and its processes for setting statewide objectives, the renewed charge of leadership to the invigorated Department of Commerce, the presence of standing committees for economic development in the state legislature, and the organizations of the private sector practicing in the field, are examples which point to a system of checks and balances where the general public interests can be debated against the specialized requests that support particular policy revisions. Oklahoma's incentive package is generally perceived to be competitive. New incentives ought to be carefully justified, tied to specific performance criteria, and frequently monitored, to provide the necessary data for the desired cost-benefit analysis of the legislative oversight process.

Finally, Oklahomans should recognize that the combination of a competitive set of incentive programs, a flexible institutional structure, and enhanced evaluation and monitoring will not guarantee economic development. Incentives are just one piece of the economic development puzzle;

they are probably necessary to create a level playing field, but they are probably not sufficient, by themselves, to stimulate widespread and prolonged development. That will take, in addition, abiding attention to the state's educational system, its physical infrastructure, its locational advantages, its image, and its regulatory climate.

NOTES

¹Olson, Kent W. "Economic Development in Oklahoma: A Synopsis of the Problem and a Review of the Literature," (Stillwater, OK: Oklahoma State University, College of Business Administration, July 1986): 1.

²Belden H. Daniels, "Oklahoma: Tools for a Global Competitor: A Report to the Joint Fiscal Operations Committee of the Oklahoma State Legislature," (Cambridge, Mass.: Counsel for Community Development, January 1987).

³Judy, Richard W. "The Future of Oklahoma: Final Report," (Indianapolis, Indiana: Hudson Institute, December 1987).

⁴For an excellent review of the issues see Peter K. Eisinger, *The Rise of the Entrepreneurial State: State and Local Economic Development Policy in the United States*, (Madison, Wisconsin: University of Wisconsin Press, 1988).

⁵Warner, Larkin and Stephen Smith, "State Government Provision of Business Finance in Oklahoma," *State Policy and Economic Development in Oklahoma: 1991*, (Oklahoma City: Oklahoma 2000, Inc., 1991).

⁶Bartik, Timothy J. "The Market Failure Approach to Regional Economic Development Policy," *Economic Development Quarterly*, 4(4), November 1990, pp. 361-370. This author uses the term, "new wave approach," to describe recent emphases of development policies.

⁷Failures can also occur in terms of undesirable income distribution and equity consequences of the market resource allocation.

⁸Appreciation is extended to Mr. D.E. Curtiss of the Oklahoma Employment Security Commission for providing information and the annual report for the JTPA programs. Mr. Mark Taylor generously provided his time and efforts to provide data on the TIP program.

⁹Oklahoma Employment Security Commission, *Annual Reports of the Job Training Partnership Act (JTPA) 1988-89 and 1989-90*, (Oklahoma City, 1991).

¹⁰Appreciation is extended to Ms. Denise Agee, Coordinator of the Bid Assistance Network, for information provided.

¹¹Information on REIS was provided by Ms. Mary Jane Maness, Oklahoma Department of Commerce.

¹²Appreciation is extended to Mr. Alan Leech of FOCAS for providing reference documents and statistics.

¹³Smith, Stephen and Larkin Warner, "State Policy for the Development of the Warehousing and Distribution Industry in Oklahoma," *State Policy and Economic Development in Oklahoma: 1989*, (Oklahoma City: Oklahoma 2000, Inc., 1989), pp. 49-56.

¹⁴Appreciation is extended to Mr. Monty Murphy, Deputy Director, Oklahoma Department of Transportation, for providing program information.

¹⁵A similar type of program for Lake Access Roads is also funded at about \$2.75 million per year.

¹⁶Appreciation is extended to Mr. Craig Felber of the Canadian County Commercial Incubator and Ms. Diana Russell of Rural Enterprises Inc. for information on Oklahoma incubator services.

¹⁷Appreciation is extended to Ms. Mary Jane Maness, Oklahoma Department of Commerce, for information regarding the Certified Industrial Park Program.

¹⁸This certification also qualifies designated parks to participate in the Oklahoma Small Business Linked Deposit program.

¹⁹Information on the Oklahoma City FTZ was provided by Ms. Carolyn Lyon, FTZ Administrator.

²⁰Appreciation for information used in this section is extended to Ms. Kathy Bowles, Oklahoma Department of Commerce.

²¹Bast, Joseph and Diane Bast, *Coming out of the Ice: A Plan to Make the 1990s Illinois' Decade*, (Chicago, Illinois: Heartland Institute, 1990), p. 39.

²²For a recent comparison of major incentives by state see the National Association of State Development Agencies, *Directory of Incentives for Business Investment and Development in the United States: A State-by-State Guide*. 3d Edition. (Washington, D.C.: The Urban Institute Press, April 1991).

²³Glick, David S., "Helping America Prosper," *Forbes*, June 24, 1991.

²⁴*Oklahoma Journal Record*, September 14, 1991.

²⁵Oklahoma Legislature, 1991, Senate Bill 518, Section 1.

²⁶A survey instrument was sent to 98 economic development officials across the state. Twenty-four were returned and summarized in the text table. Six personal interviews were conducted with local Chamber of Commerce staff professionals for a more indepth review of experiences by the respective cities and towns.

²⁷Current state law, 68 SS 2405.2, already allows ad valorem tax abatement on SIC 7374 if at least eighty percent of annual gross revenues are from the sale of a product or service to an out-of-state buyer or consumer.

²⁸Lage, Gerald M. "Service Sector Exports of Oklahoma's Metropolitan Areas," *Oklahoma Business Bulletin*, 59(9), September 1991, pp. 21-30.

²⁹Ledebur, Larry C. and Douglas Woodward, "Adding a Stick to the Carrot: Location Incentives with Clawbacks, Recisions, and Recalibrations," *Economic Development Quarterly*, 4(3), August 1990, 225.

³⁰ See Ledebur, *Ibid.*, for further discussion of these objections.

³¹ Ledebur, *Ibid.*, p. 226.

³² House Bills 1759 and 1525 contained specific clawback language for their respect incentives.

OKLAHOMA TAX EXPENDITURES FOR ECONOMIC DEVELOPMENT: POST HB 1444

INTRODUCTION

House Bill 1444, passed in the 1987 session of the Oklahoma Legislature, was hailed as a watershed piece of legislation that would cure the economic malaise in which Oklahoma's economy had existed since the oil bust of 1982. HB 1444 was a grab-bag of institutional changes creating a multitude of governmental agencies, advisory boards and commissions. Oversight of debt issuance was increased by codifying standing Executive Orders on the allocation of the Private Activity Bond Cap. The Oklahoma Center for the Advancement of Science and Technology was constituted as a stand-alone state agency elevating it from a unit of the existing Department of Commerce, and a variety of entities were created with the intent to address the alleged shortage of capital in Oklahoma for business formation. Other than the granting of loan guarantees by the newly constituted Oklahoma Development Finance Authority (previously the Oklahoma Development Authority) precious little has come of these other capital creating entities. But if institutional structural change was the problem with Oklahoma's economy, certainly HB 1444 more than met the challenge.

Since HB 1444, Oklahoma's economy has grown steadily, albeit at a moderate rate. Unemployment declined from a high of 8.1 percent in June of 1987 to 6.6 percent in 1991. State revenues grew at a rate of five percent annually, adjusted for tax rate increases and one-time revenue sources. Oklahoma's financial institutions stabilized, after nearly a decade of turmoil, and have

once again begun to show modest profits. One would be hard pressed, however, to attribute much of this economic growth to any of the institutional changes forged in the Economic Recovery Act of 1987 (HB 1444). Indeed, the date of the passage of HB 1444 coincides almost exactly with what is now considered the end of Oklahoma's oil bust recession: June, 1987.

HB 1444 is, nevertheless, noteworthy because its approach to economic development problems is one of restructuring governmental institutions rather than affecting the private sector through either tax abatement or direct expenditures targeted to immediate business needs such as roadways or employee training.

This approach is in sharp contrast to economic development efforts that followed HB 1444 and that reached their zenith with the special legislation to attract a United Airlines maintenance facility to Oklahoma City in 1991. The character of economic development legislation became much more industry specific and very closely tied to the needs and requests of particular projects. Broadly speaking, this approach to economic development can be classified as project driven, with the state reacting to requests for either direct expenditures or targeted tax abatement. Elsewhere in this volume the programs that the state has created to respond to requests for direct expenditures and financing to attract business projects are addressed.

This paper discusses the tax abatement legislation implemented since HB 1444. Tax expenditures are defined and current ones are enumerated. The relative merit of tax expenditures is discussed. Finally, a detailed discussion of newly created tax expenditures is provided with a critique of these as an economic development tool.

TAX PREFERENCES PRIOR TO HB 1444

Tax preferences, or tax expenditures, are created when the state grants, as an exception to

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general policy, tax relief to a citizen, class of citizens, or organization. The Oklahoma Constitution, in contrast to the U.S. Constitution and Congressional practice, provides that all taxes must be uniform on all entities in a given class. This is a prohibition on "private legislation" and has been interpreted to mean that all tax laws must be "general" in nature. Classes of taxpayers can and are narrowly defined, however, allowing the creation of tax preferences.

One difficulty in differentiating a tax preference or expenditure from an economic development incentive lies in the notion of what is the general tax policy of a state. Texas, for example, does not levy a corporate income tax based upon a firm's net revenues while Oklahoma does. Oklahoma, however, provides corporate income tax relief based upon investment and jobs created which is considered a tax preference. Narrowly defined, the lack of a corporate income tax in Texas is not considered a tax preference because as general policy there is no tax at all. It is, nevertheless, an economic development tool.

By contrast, Texas corporate franchise and property taxes exceed Oklahoma's by anywhere from three to five times. Again, unless there are specific departures from general tax policy there are no tax preferences created. This points to the problem of evaluating a state's economic development efforts solely on the basis of tax preferences. A state with low rates and no preferences may be more attractive than one with high rates and multiple preferences, all other things equal. Mindlessly counting of tax preferences provides no meaningful information on the attractiveness of a state for economic development from a tax burden perspective.

Analyzing the tax preferences of a state can, however, be very instructive in determining the thrust of economic development policy. Because by their very nature tax preferences are departures from the general tax law; they show the public policy priorities and business sectors targeted for special consideration. Much has been made of the "targeted industries" approach to economic development in Oklahoma and tax preferences are a potentially powerful tool to promulgate such a policy.

Tax preferences are nothing new to Oklahoma. Indeed, the first State Constitution provided for tax relief targeted to homeowners through the homestead exemption to the property tax. Further property tax relief is provided to

Veterans of Foreign Wars. Because Oklahoma's property tax is embodied in the State Constitution, unlike other Oklahoma taxes, any tax preference created must be approved by a vote of the people. This has occurred a number of times, providing relief to property in interstate commerce (the so-called "in transit" amendment), and a five-year property tax exemption on new or expanded manufacturing and tourism facilities.

Other significant tax preferences exist in Oklahoma's tax code. A study by the Oklahoma Office of State Finance estimated that for FY 88 some \$788 million dollars in tax preference existed on 132 separate exceptions to the general tax code.¹ The value of these tax preferences in FY 92 are, of course, significantly greater.

Table 1 displays the existing tax preferences by tax, and the estimated level of tax relief provided for FY 88, as well as the tax preference as a percent of the total revenue from the tax. As can be seen in Table 1, the vast majority of tax relief is provided through the sales tax. This is because of Oklahoma's policy of generally exempting services from the sales tax, designated as "Not Specified in Tax Code." Table 1 also points to the high level of tax preferences, as a percent of taxes levied, in the corporate income tax and motor fuel tax. Notably, the tax preference in the corporate income tax generating virtually all the tax relief is the solar energy credit, hardly a major economic development device. The motor fuel tax preference does, however, come from areas which could provide a true economic development incentive: fuel for aircraft engines operated on stands for training, testing, or research, and diesel fuel for non-highway use. Aircraft maintenance facilities, construction firms, petroleum exploration, production and distribution activities, and manufacturing using diesel as a fuel are the prime beneficiaries of these tax preferences.

Certain of the tax preferences existing in 1987 could be considered economic development tools, rather than general tax relief, as is the case for tax preferences on services. These are listed in Table 2. Of those listed, six were passed into law in 1987, the same year as the passage of HB 1444, indicating that these economic development tax preferences were being promoted simultaneously with the work on the restructuring of the state institutions charged with economic development.

Table 2 shows that, after deleting preferences after passed in 1987, economic development preferences were generally broadly based. Agriculture

as an industry received particular attention, but major tax preferences such as the ad valorem exemptions, the investment/new jobs corporate income tax credit, and exempting business services from the sales tax, provided relief regardless of size of firm or economic sector. The legislative history of most of these tax preference further confirms the impression that they were provided as part of a broad based economic development strategy, and were not simple responses to specific requests for special legislation.

TAX PREFERENCES POST-HB 1444

Beginning with the 1987 legislative session, nearly two dozen tax preferences were added to the tax code. These are displayed in Table 3. Many of these tax preferences were created and amended several times in their short history. The exemption of sales tax on building materials used

in constructing a new plant with employment of more than 100 new workers (known as the "Kimberly-Clark Bill" - HB 1637, 1988 legislative session) has been amended by four separate bills in its short life. Indeed, this tax preference was both the first passed after the passage of HB 1444 to attract a major business and a model for most of the tax preferences passed since 1987.

A number of general conclusions can be drawn from the material displayed in Table 3. First, with few exceptions, tax preferences created during the past five years were given to attract a particular project which had reduced its final site selection to a few (usually) unnamed other states and Oklahoma. These tax abatements were typically suggested by the corporation or a site selection firm hired by the corporation. These abatements were *explicitly* a quid pro quo for locating in Oklahoma. As such, these tax preferences were not part of a broader economic development strategy to target specific *industries*.

TABLE 1
Oklahoma Tax Preferences

Tax Preferences	Quantity	Estimate for FY-88 (\$ Millions)	Abatement as a Percent of Total Tax
Individual Income Tax	22	\$ 15.872	1.09
Corporate Income Tax	8	7.555	8.09
Sales and Use Tax			
Specified in Tax Code:	15	\$ 97.048	
Not Specified in Tax Code:	55	520.567	
Total Sales and Use Tax	70	617.615	82.00
Motor Fuel Tax	5	55.554	21.00
Gross Production Tax	1	0.188	0.05
Petroleum Excise	0	0.000	0.00
Conservation Excise	0	0.000	0.00
Ad Valorem Tax	9	83.900	9.03
Insurance Premium Tax	1	0.000	0.00
Alcoholic Beverage Excise Tax	3	NA	NA
Alcoholic Beverage Identification Stamps	0	0.000	0.00
Mixed Beverage Gross Receipts Tax	0	0.000	0.00
Cigarette Stamp Excise Tax	1	0.102	0.13
Tobacco Products Tax	1	0.015	0.02
Auto Registration and License Tax	8	0.781	NA
Truck Registration and License Fees	2	6.131	NA
Boat Registration and License Fee	1	0.000	0.00
Occupational, Health and Safety Tax	0	0.000	0.00
Total	132	\$787.713	

TABLE 2
Tax Preferences for Economic Development

	Estimate for FY-88 (\$Millions)	Estimate for FY-88 (\$Millions)
Corporate Income Tax		
Investment/New Jobs Credit		
Credit for investment in property that results in a net increase in the number of full-time-equivalent employees. Statutory Cite: 68 O.S. 1981 § 2357.4 as last amended by Section 10 of SB 36 of 1st Session of 41st Oklahoma Legislature (68 O.S. 1987 Supp. § 2357.4)	\$.764	
Credit for Investment in Qualified Venture Capital Companies*	NA	
A credit, not to exceed 25% of costs, invested in Qualified Venture Capital Companies. Statutory Cite: 68 O.S. Supp. 1986 Supp., Section 2357.4 as last amended by Section 10 of SB 36 of 1st Session of 41st Oklahoma Legislature (68 O.S. Supp. 1987 § 2357)		
Recycling/Destruction of Deleterious Substance Credit*	NA	
Credit for engaging in recycling, reuse or ultimate destruction of any Controlled Industrial Waste or Deleterious Substance. Statutory Cite: 68 O.S. Supp. 1986 Section 2357.16 as last amended 3 of HB 1086 of 1st Session of 41st Oklahoma Legislature (68 O.S. Supp. 1987 § 2357)		
Inventors Exemption*	NA	
Income earned from products developed under the Inventors Assistance Act shall be exempt for a seven-year period (effective 1 November 1987) Statutory Cite: 68 O.S. 1981 § 2359 as last amended by Section 11 of SB 36 of 1st Session of 41st Oklahoma Legislature (68 O.S. Supp. 1987 § 2359)		
Technology Transfer*	NA	
The royalty payment which a corporation receives for transferring technology to qualified small business is exempt from taxation. Statutory Cite: 68 O.S. 1981 § 2358 as last amended by Section 112 of HB 1440 of 1st Session of 41st Oklahoma Legislature (68 O.S. 1987 Supp. 2358)		
Sales Tax		
Advertising		\$13.758
Sales of advertising space in newspapers and periodicals and billboard advertising service, and any advertising through the electronic media, including radio, television and cable television. Statutory Cite: 68 O.S. 1985 Supp., 1357(E)		
Agricultural Products Sold From Farm to Consumer		\$. 207
Sales of agricultural products produced in this state by the producer directly to the consumer from a farm are exempt from sales tax. Statutory Cite: 68 O.S. 1985 Supp., 1358(A)		
Business Services		
(Not Specified in Tax Code)		\$34.386
(a) Advertising Services (Advertising other than by direct mail which is not taxed and not specifically exempted by 68 O.S. 1985 Supp., 1357(E))		\$ 2.670
(b) Services to Dwellings and Other Buildings		\$ 3.090
(c) Computer and Data Processing Services		\$ 4.966
(d) Management, Consulting, Public Relations Service		\$ 7.687
(e) Credit Reporting, Collection Agencies		\$ 1.451
(f) Direct Mail Advertising Services		\$.473
(g) Blueprinting and Photocopying Services		\$.295
(h) Stenographer Services and Reproduction Services, n.e.c.		\$.238
(i) Personnel Supply Services		\$4.008
(j) Research and Development Labs		\$.233
(k) Testing Labs and Facilities		\$ 1.669
(l) Detective Agencies and Protective Services		\$ 1.776
(m) Sign Painting Shops		\$.089
(n) Interior Designing		\$.446
(o) Telephone Answering Services		\$.389
(p) Other Business Services, n.e.c.		\$ 4.908
Professional Services		
(Not Specified in Tax Code)		\$57.431
(a) Legal Services		\$19.986
(b) Selected Educational Services		\$1.777
(c) Engineering, Architectural, Surveying Services		\$24.741
(d) Accounting, Auditing, Bookkeeping Services		\$10.927

TABLE 3

Tax Preferences, 1988-1991

Bill Number	HB 1637 (1988) ("Kimberly-Clark Bill") HB 1460 (1989), SB 163 (1991), HB 1517 (1991)
Cite	68 O.S. Supp. 1988, Section 1359, 1359.1 and 1404.1
Synopsis	Plants which create 100 new jobs with project cost of at least \$5 million will be allowed a sales tax exemption for materials used in construction of the facility on purchases made within 24 months of effective date of act. Effective date of act was 6/1/88.
Peculiar History	Set up sales and tax refund accounts for administering the exemption. HB 1637 (1988) was the first major piece of legislation meant to entice a major manufacturer to Oklahoma after HB 1444 (1987) was passed. The sequence of events, the cost of the facility and the increase in full-time employment (FTE) resulting from the construction narrowly focused the exemption. HB 1460 (1989) expanded sales tax exemption to tangible personal property purchased by a new or expanding tourism facility with 100 new FTE within 2 years of beginning date of employment. SB 163 (1991) makes the sales tax exemption permanent for purchase of construction materials for new and expanding manufacturing facilities by removing the expiration date of HB 1637 (1988). HB 1517 (1991) is a companion to SB 163 (1991). HB 1517 lowers the FTE requirement to 75 if cost of construction materials is greater than \$10 million and the total cost exceeds \$50 million.
Revenue Impact	See Table 4
Bill Number	SB 421 (1988) ("PAN-AM Bill")
Cite	68 Supp. 1988, Sections 1357, 1357.1 and 1404.2
Synopsis	Sales tax exemption for sales of computers, data processing equipment, and related telecommunications equipment to a new or expanding business. Sale of such items must equal or exceed \$2 million. Must add at least 100 new FTE. Effective for 36 months. Set up sales and use tax refund accounts which will be remitted with interest to purchaser of equipment at time FTE is certified.
Peculiar History	PAN-AM's financial difficulties precluded any new expenditures
Revenue Impact	See Table 4
Bill Number	SB 1 (1991 First Extraordinary Session) ("United Airlines Bill")
Synopsis	Set fee of \$250 per aircraft in process of manufacture in lieu of the personal property tax. Effective 1/1/92 with no expiration date. Provided sales tax exemption for sale of aircraft (no expiration date). For sales of computers, data processing equipment, related peripherals and telephone, telegraph or telecommunications service and equipment for use in a qualified aircraft maintenance or manufacturing facility (no expiration date), for sales to a qualified aircraft maintenance or manufacturing facility of tangible personal property consumed or incorporated in construction or expansion of a qualified aircraft maintenance or manufacturing facility (no expiration date), for sales repair machinery, equipment, etc. used in aircraft maintenance facility primarily engaged in repair, building or rebuilding with qualification of 2,000 FTE or construction costs exceeding \$5 million and 250 new FTE and which is owned or leased by aircraft facility employing at least 2,000 FTE. Extended the deadline for income tax credit for investment in depreciable property from 1955 to 2003. Corporate income tax liability was changed to be based on air miles traveled in Oklahoma divided by total air miles traveled. Must have 2 or more such facilities in state before this section is valid. Provided tax exemption of aircraft excise tax for aircraft manufactured in Oklahoma with a selling price in excess of \$5 million.
Peculiar History	The United Airlines announcement to construct a new aircraft maintenance center brought forth proposals from a number of large cities. Oklahoma City developed a package of incentives in 1990 and additionally a special legislative session was called in January 1991 to provide tax incentives. United did not pick Oklahoma City for its maintenance facility
Revenue Impact	None

TABLE 3 (continued)

Tax Preferences, 1988-1991

Bill Number	HJR 1015 (1990) Tax Increment Financing/Tax Credits for use at Local Level
Cite	Oklahoma Constitution Article X Section 6.
Synopsis	Legislature may grant cities, towns or counties the ability to provide incentives, exemptions and other forms of tax relief for historic preservation, reinvestment, or enterprise zones in areas that are exhibiting economic stagnation or decline.
Peculiar History	A totally new section of the Constitution. Authorizes tax increment financing and tax credits at the local level for the first time.
Revenue Impact	There must be legislative action to put this into force. This has not occurred yet.
Bill Number	HB 1176 (1987) ("State Farm" Bill)
Cite	O.S. 36, Supp. 1991, Section 625.1 and Section 625.2
Synopsis	Grants out-of state insurers who establish regional office or expand existing ones in Oklahoma after November 1, 1987 privilege to apply for credit on insurance premium taxes. Credit percentage from 15% (250-299 FTE) to 50% (more than 500 FTE). Exemption is continuous with annual certification of FTE by Insurance Commissioner.
Peculiar History	Used to entice State Farm to establish a regional office in Tulsa.
Revenue Impact	1988 through 1991 the Home office credits will total \$5,565,338. There are two firms qualifying: State Farm and Aetna; however, State Farm is the larger.
Bill Number	HB 1444 (1987) Sections 46 & 47, HB 2190 (1990) - CAPITAL INVESTMENT ACT
Cite	74 O.S. Supp. 1990, Section 5061.1 through 5061.11
Synopsis	State issued income tax credits and transferred to Oklahoma Capital Investment Board with total to equal \$50,000,000. Credits are transferrable. Can not be exercised before July 1, 1990, nor after July 1, 2015. Capital Investment Board shall determine the amount of individual tax credits to be transferred pursuant to this act. Capital Investment Board may negotiate for sale of such credits on behalf of Oklahoma Development Finance Authority.
Revenue Impact	Total cannot exceed \$10,000,000 per year
Bill Number	SB 534 (1990) and SB 552 (1990) HORIZONTAL DRILLING
Cite	68 O.S. Supp. 1990, Section 1001 (Horizontal drilling) 52 O.S. Supp. 1990, Section 87.1 (Spacing)
Synopsis	Exempts from gross production tax horizontally drilled wells for two years or until project payback.
Peculiar History	Oklahoma reportedly does not have the type of rock formations that make horizontal drilling cost effective.
Bill Number	HB 2169 (1990) as amended by HB 1193 (1991) COMPRESSED NATURAL GAS TAX CREDITS
Cite	17 O.S. Supp. 1990 Section 601-610 as amended by HB 1193 (1991)
Synopsis	"Oklahoma Alternative Fuels Conversion Act" provided for certain vehicles to be converted to compressed natural gas. Set up a fund as a source of revenue for conversion of school buses and other public sector vehicles. Provided for a 20% of cost income tax credit for conversion of private sector vehicles which was increased in 1991 to 50%. Also set up an "in lieu of motor fuel tax" to equal estimated motor fuel tax revenue.
Peculiar History	Strongly supported by natural gas industry in Oklahoma. Initial goal was to provide for cost of public sector vehicle conversion to compressed natural gas and to provide for a revenue source. In 1991 the natural gas industry was successful in amending the legislation to apply the income tax credit to cost of building fill stations.
Revenue Report	Increase in income tax credit to 50% is only effective for taxable years beginning prior to January 1, 1993, which may mean that the state will have a decrease in income tax that will not stimulate investment in compressed natural gas vehicles or fill stations above that which would have occurred without the increase.

TABLE 3 (continued)

Tax Preferences 1988-1991

Bill Number	HB 1444 (1987) HB 1907 (1988), HB (1989) ("Merrill Lynch" Bill)
Cite	68 Supp. 1988, Section 2357.7
Synopsis	20% tax credit is provided for investments in qualified venture capital companies. At least 55 percent of the capital must be invested in Oklahoma business ventures to receive the credit. Must provide at least \$5 million of initial capital.
Peculiar History	HB 1444 (1987) 20% income tax credit for venture capital. HB 1907 (1988) reduces required amount of investment in Oklahoma business ventures from 66% to 55% and increases time in which an investment can be made from 3 to 5 years. HB 1560 (1989) expands venture capital income tax credit to include investment in development of certain tourism facilities.
Revenue Impact	\$2.4 million for FY 89 but final amount unknown since Merrill Lynch Oklahoma Ventures Partners has not invested all of its funds.
Bill Number	SB 36 (1987) SMALL BUSINESS INCUBATORS INCENTIVES ACT
Cite	74 O.S. Supp. 1990, Section 5071-5079
Synopsis	Income earned by a sponsor from rental and service fees paid by a tenant is exempt from state income tax for 7 years. Tenants are exempt from paying state income tax for a 2-year period on income earned as a result of occupancy in an incubator.
Peculiar History	Not amended thru 1991 session.
Revenue Impact	Unknown
Bill Number	HB 1470 (1987), HB 1940 (1990), HB 1759 (1991) ENTERPRISE ZONES
Cite	62 O.S. Supp. 1990, Section 690.1 et seq.
Synopsis	Defines enterprise zones which may be in either depressed counties or inner cities. Provides double investment/new jobs tax credits, sales tax exemption for most manufacturing concerns, and low interest loans. Definition of eligibility of an area to be defined as an enterprise zone has changed over time through several pieces of legislation - HB 1470 (1987); HB 1940 (1990); and HB 1759 (1991).
Peculiar History	Primary purpose is to entice firms into areas of high unemployment.
Revenue Impact	Unknown
Bill Number	HB 1340 (1991) ("Fort Howard Paper" Bill)
Cite	68 O.S. Section 2357.51 et seq
Synopsis	15% income tax credit for investment cost of recycling waste paper facility. Credit only for \$10 million facility if combined cost of construction material and other tangible personal property exceeds \$50 million. No FTE requirement. Time limitation is on or after 1/1/92 and before 12/31/95.
Revenue Impact:	Not Applicable at this time
Bill Number	HB 1139 (1987) ENHANCED RECOVERY GROSS PRODUCTION TAX EXEMPTION
Cite	68 O.S. Supp. 1987, Section 1001
Synopsis	Incremental production resulting from enhanced recovery projects exempt from gross production taxes. Time period from project beginning to project payback, but not to exceed 36 months for tertiary enhanced recovery projects existing on effective date of July 1, 1988.

Second, while the original versions of the tax preferences typically had a sunset clause in order to close the tax abatement once the specific project qualified, they have become a permanent part of the tax code through later amendment.

Finally, building upon the form of the Kimberly-Clark Bill, the state requires some form of ac-

tual performance in terms of new jobs created in order to qualify for the tax abatement. Other than the investment/jobs corporate income tax credit, no previous form of tax preference had such a performance criterion. A salutary benefit of this requirement was the ability to determine just what the cost to the State Treasury was for the new jobs, because the

taxes had to be paid into an escrow account and then refunded upon certification of qualification by the state.

As can be seen from Table 3, it is too early to determine the full value of these tax preferences in terms of tax reductions. To an extent, this is because many of the sunset dates have been extended or removed, but it is also because many of the projects for which they were created have not had time to be built and expand the employment level to become qualified for the tax abatement. Only then can a thorough analysis determine both the benefits and costs of these economic development incentives.

Two tax preferences, exempting sales tax on construction material (HB 1637 - 1988 session) and telecommunications equipment (SB 421 - 1988 session) have had a long enough history to begin to develop figures on the magnitude of the tax preference provided. Table 4 displays the deposits to the Oklahoma Tax Commission refund account for state sales taxes under these two preferences. (City and county sales taxes are also forgiven under this program and the amount for FY92 through December, 1991 is \$1,445,010.)

TABLE 4

State Sales Taxes Escrowed for Refund*

FY-88	\$ 0
FY-89	49,000
FY-90	577,000
FY-91	709,000
FY-92 (through December 1991)	3,674,181

*Escrowed under 66 O.S., Supp. 1988 Section 1357, 1357.1, 1359, 1359.1, 1404.1 and 1404.2

Sources: Oklahoma Tax Commission Annual Reports FY 89-FY 90 and Apportionment Journal, Office of State Finance FY 91 and FY 92.

This form of tax preference is growing dramatically, providing \$935,000 in tax relief in November 1991, alone. Clearly this level of tax relief was unintended. One of the tax preferences was created for a project that failed to materialize, a reservation center for PAN-AM Airlines. Whether this level of tax relief is currently acceptable or necessary to induce the economic development projects qualifying under this program is an open question.

SUMMARY AND CONCLUSIONS

Tax preferences exist in all tax codes ever instituted. They may be provided to promote either general tax relief or specific social goals, such as homeownership. They may also form part of a carefully conceived economic development plan. When done in this fashion, they are proposed by policy makers as a package, after study, to determine those industries most sensitive to marginal tax changes and least likely to find Oklahoma an attractive site for other reasons. (It does not make economic sense to provide an economic incentive for projects that will likely locate in Oklahoma without one).

The use of tax preferences since the passage of HB 1444, and particularly in 1991, when seven such preferences were created or amended, is not part of such a package. These preferences have been project driven and thus created purely on an ad hoc basis. Further, these tax preferences significantly favor large enterprises rather than small businesses. This has been modified to some degree recently, as the quid pro quo for locating or expanding in Oklahoma in terms of new jobs has been reduced. Under most of the new tax preferences it requires from 50 to 100 new jobs to receive the tax preference.

Tax preferences are not costless from a public finance perspective. The most obvious loss is to the state treasury in terms of tax revenue required for the public services demanded by new and expanding business. The economic development programs described elsewhere in this volume are funded in large measure by general fund tax collections. A second cost of tax preferences is the effect they have in narrowing the tax base and a source of increased volatility of tax collections. They also raise questions of equity in the tax code and may increase administration costs in tax collections.² Whether the benefits of new jobs from specific projects are worth the cost in terms of foregone revenue and a narrower tax base is a debate that has not been resolved.

The opportunity for the creation of new tax preferences may, however, be severely limited if State Question 640 should be approved in a statewide election scheduled March, 1992. Under this proposed Constitutional Amendment, all "revenue bills" would have to receive approval by three-quarters of the members of both houses of the Legislature and the Governor to be put into effect

without a vote of the people. Even then, "revenue bills" would not take effect until 90 days after the end of the legislative session. Passage by a simple majority would require approval in a statewide election not sooner than 90 days from the end of the legislative session, which must conclude at the end of May.

A "revenue bill" has been defined many times by the Oklahoma Supreme Court and by Federal Courts in many jurisdictions.³ In many cases, a revenue bill includes not only revenue *raising* legislation but also revenue *reducing* legislation.

However specific litigation should finally settle the matter, the expense of a state-wide election (some \$900,000) the significant delay in enacting such a measure, and the uncertainty of the outcome of litigation on a specific tax preference, would work against the short time frame in which most of these economic development projects operate.

State Question 640, if passed, will take from the Legislature, for good or for ill, the ability to respond in a timely way with economic development tax incentives for projects that could mean new jobs quickly.

NOTES

¹"Tax Preference Report FY88" Pete Soule, Office of State Finance, State of Oklahoma, October 1987.

²These issues are treated in more detail in "Changes in Oklahoma's Tax Base in the 1980's: Implication for Economic Development" in *State Policy and Economic Development in Oklahoma: 1991*, A Report to Oklahoma 2000, Inc., February 1991, p. 53-60.

³"Words and Phrases" Permanent Edition, 37A, 1990 Cumulative Annual Pocket, West, p. 103.

MARKETING AND AWARENESS OF STATE FINANCIAL ASSISTANCE PROGRAMS

INTRODUCTION

Lack of awareness regarding state programs among potential lenders, such as bankers, and potential borrowers, such as manufacturers, will affect the mix of businesses that apply for and receive assistance from the state. The mix of applicants is important, since state financial assistance programs are sources of job and income creation in Oklahoma. Lack of information regarding these programs could result in a portfolio of projects that is sub-optimal from the perspective of long-term economic growth in Oklahoma. Since information is costly to produce and distribute, there will inevitably be projects that should receive funding from state agencies that go unfunded due to lack of awareness of the programs. While program managers probably do well in terms of selecting the best projects from the pool of applicants, the issue is whether the pool of applicants consists of the best potential projects. Businesses that are not aware of the programs cannot apply.

Businesses and financial institutions may have many reasons for not taking advantage of state financial assistance programs. Perceived high administrative costs of monitoring and financial documentation may discourage applications to the programs. Other reasons include the difficulty of satisfying eligibility requirements, costs related to traveling to agencies at the state capital, and perhaps even a disdain for government programs in general.

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State agencies and authorities have little control over some of these factors. They can greatly influence, however, the manner in which information regarding these programs is produced and distributed and therefore affect the level of awareness of the programs.

The purpose of this chapter is to examine the level of awareness among Oklahoma bankers and manufacturers regarding state financial assistance programs. First, the current strategy of marketing state programs is presented from the perspective of the agencies. The next portion of the chapter summarizes a survey of awareness of state financial programs among Oklahoma bankers and manufacturers. Finally, the last section offers some concluding comments.

CURRENT STATE PROGRAM MARKETING STRATEGY

The level of awareness of the programs is partially determined by marketing strategy. Thus, it is important to examine how state financial programs market their services and how from the perspective of the agency, given additional resources, they might be marketed differently. In-person and telephone interviews were scheduled with managers of each of four state programs that are involved in lending to manufacturers and/or small business firms within the state. These programs are: the Oklahoma Linked Deposit Programs (OLDP), Oklahoma Finance Authorities (OIFA & ODFA), Export Finance Program (EFP) at the Oklahoma Department of Commerce (ODOC), and the Community Development Block Grant - Economic Development Financing Program at ODOC.

Our questions to each of the managers were: (1) How do you currently market your program? and (2) If you could make any changes, how would you change the manner in which you currently market your program? A summary of these discussions follows.

Marketing the Linked Deposit Program

Mr. Dick Jones, Manager of the Linked Deposit Program, indicated that the current marketing strategy utilizes the Oklahoma Department of Commerce (ODOC), forums at local chambers of commerce, and banking institutions. According to Mr. Jones, the program reaches the "average" business person and most industrial classifications by utilizing these three primary avenues. However, eligibility under the Small Business Programs does place emphasis on businesses that could locate within any industrial park and any public trust involved in industrial development.

Mr. Jones says that the primary marketing focus is with bankers; of the three marketing avenues they have employed, bankers have been more successful in promoting the program. He states that demand has been quite high for the program (over 1,800 applications), despite a relatively conservative banking environment within which to operate. The programs have been more successful in some geographic areas than others but, he asserts, that is more a function of the local management philosophy of the bank than the lack of marketing. He also said there has been a misunderstanding, in particular within the media, as to what the program entails and what it hopes to achieve. A better educational awareness campaign is being considered to offset that problem.

Overall, the demand for the program has been strong and he expects the trend to continue. Emphasis by federal banking authorities on the Community Reinvestment Act should help stimulate even greater demand for the program. The only major change Mr. Jones would make involved increasing and improving the media's awareness of the program; with a better understanding of the program, the media would be a more positive influence in future marketing efforts.

Marketing the Oklahoma Finance Authorities Programs

According to Mr. Jay Casey, Director of the Oklahoma Finance Authorities (OFA), the OFA uses the ODOC and its Teamwork Oklahoma publicity campaign as its primary marketing tool. Mr. Casey says that ODOC publications, particularly those geared exclusively to business financing programs offered within the state, have been very effective in stimulating demand. In fact, the Oklahoma Industrial Finance Authority is currently nearing its maximum lending capacity.

Knowledge of and interest in the program continues to grow, especially with the tough banking environment brought on by non-performing loans and stricter regulatory oversight.

As to what changes he would make to market his programs differently, Mr. Casey would make only one suggestion. The OFA averages about \$20 million per year in new lending; currently the Authority is within \$26 million of its lending cap. With the lending limit of the program rapidly being approached, Mr. Casey suggests increasing that limit. Such a move would encourage more manufacturers to apply and allow the OFA to be even more visible. Mr. Casey argues that the use of local chambers of commerce across the state as well as the ODOC has proven to be a very effective approach to informing the manufacturing sector about financing both the expansions of their existing operations and new start-ups.

Marketing the Export Finance Program

The Export Finance Program, administered through the Capital Resources Division of ODOC, was developed to assist small- and medium-sized Oklahoma businesses in gaining access to short-term capital necessary for expansion into overseas market. Its intent is to increase the state's level of exports by diversifying the bases of current exporters. Mr. Robert Heard, Director of the Capital Resources Division, stated that the EFP is promoted in several different ways, but primarily and most effectively through staff interaction with banks. The Oklahoma Bankers Association has been a primary target for promotional material and personal contacts. The ODOC, as with the other financing programs previously discussed, prepares press releases and articles about the EFP, and the EFP Director, David Wantland, has made numerous presentations before civic, professional, and banking organizations to promote the program.

Mr. Heard feels that demand in the EFP is quite strong and continues to build. As to how the program could be marketed better, Mr. Heard believes that it is vital to inform the financial network of packagers, bankers, and other financial institutions about the value and workings of the program before any large scale marketing program is developed for Oklahoma businesses. Explaining the benefits of providing working capital to Oklahoma businesses to private lenders while,

at the same time, providing them with the protection against non-payment is the most critical step in successfully developing this program, according to Mr. Heard.

Marketing the Economic Development Financing Program (CDBG)

The final program analyzed was the Community Development Block Grant Programs, also administered out of ODOC. Mr. Gary Miller, Director of Planning and Development, states that the federal programs are designed "to assist start-up and expanding companies in the creation of jobs for rural areas and small towns." While units of government make application, companies primarily involved in manufacturing are eligible to participate.

Mr. Miller cited several examples of how the CDBG-Economic Development Financing Programs have been effectively used across the state. In some instances, the community has an infrastructure need that must be met in order to either attract and/or retain an industrial prospect. Cities such as Jenks (Kimberly Clark), Miami (U.S. Marine/Bayliner Corporation), and Fairland (Simmon Industries Inc.) are just a few examples of how CDBG grant monies allocated to small Oklahoma communities created and/or retained local employment. The grants to communities cannot be speculative; they must be tied to employment retention and/or expansion.

The most common use of CDBG monies under Mr. Miller's program is for the purpose of business financing in the Economic Development Financing (EDF) program. Funds used for this purpose outweigh infrastructure grants by a ratio of 3 to 1. The CDBG Program is not a primary lender and has used the gap financing concept with local banks quite effectively. Thus, having an effective working arrangement with private sector lenders becomes critical to securing qualified applicants.

Mr. Miller reports that the program is marketed primarily through a monthly newsletter, speeches given by staff in local communities, and personal contact with private sector lending institutions. Since they are not a primary lender, the CDBG programs seek to stimulate greater interest from the private sector, so that more "capital blending" can take place.

They have two primary markets: local communities and private lenders. The programs mar-

ket the strategic planning process to local communities and the benefits of participation with CDBG to financial lenders. Mr. Miller's primary focus has been to minimize regulatory problems and to build long-term credibility with both constituents.

Thus, current programs are marketed a variety of ways including presentations at meetings, newsletters, pamphlets, and through financial intermediaries. In addition, the managers of the programs stated that demand for their product, in most cases, outstripped their ability to supply additional capital. Given this imbalance, the agencies have little planned in the way of expanded marketing of those programs.

AWARENESS OF PROGRAMS AMONG BANKERS AND MANUFACTURERS

The importance of the banking sector to the state's economy typically is measured in terms of loans, deposits, and assets. Indeed, the sector's current portfolio of more than \$29 billion in loans, including \$7 billion in commercial and industrial loans, is a major source of liquidity and capital formation in the Oklahoma economy.

But supplying capital for growth is not the only potential contribution of the banking community. Bankers can also provide important information to business customers regarding not only opportunities for bank loans but also alternative financing mechanisms such as state government financing programs. That is, bankers can act in an intermediary role, as a broker of information between the state program and the ultimate business participant.

Of course, bankers can only function in this role to the extent they are willing to act as intermediaries and also to the extent that they are knowledgeable of the financial assistance programs. Willingness to act as an intermediary will probably be motivated by a mix of both self-interest and a sense of responsibility to the community; self-interest in the sense that the banker may be able to secure a part of the project for the bank; responsibility in the sense that the banker may perceive a longer-term goal of assisting business and economic development efforts by passing along information to potential beneficiaries of state programs.

It is equally important for the beneficiaries of the programs, the businesses themselves, to have at least a minimal level of knowledge of state

financial assistance programs. Businesses should be aware of the alternative forms of financing available and also where to receive more information concerning these programs.

Survey Methodology

Just how aware are bankers and businesses of state financial assistance programs? A telephone survey was conducted in October 1991 by the Center for Economic and Management Research at the University of Oklahoma in order to address this question. Interviewers asked to speak with financial officers of Oklahoma manufacturing establishments and loan officers at Oklahoma banks. Manufacturers were singled out in this study because they are the most likely recipients and the targets of the state programs.

Access to state financial assistance programs may not be critical for survival or future expansion for many manufacturing establishments that are large enough to tap into national markets for capital.¹ On the other hand, very small firms may not be able to generate net income sufficient for loan repayment; many of these firms may not satisfy the requirements of the loan programs. Firms for which these programs are probably most useful and relevant are those that are not too large and not too small.

This issue of relevant size of the target firm was addressed by choosing manufacturers that have approximately 10 to 400 employees. Each of the firms in this group was given an equal probability of selection. From a sample of 467 firms, in this size range, 64 refused to be interviewed, an acceptance rate of 86 percent. The 403 firms consist of 249 durable goods and 153 nondurable goods manufacturers; these establishments account for roughly one-fourth of the manufacturing establishments in Oklahoma between 10 and 400 employees in size.

The sample of banks was drawn in a somewhat different manner. For the purposes of this study, banks are viewed as a channel of information—a link between state financial assistance programs on the one hand and manufacturing firms on the other. The more loan officers at a bank, the greater the potential flow of information to client businesses, including manufacturers. Therefore, banks with several loan officers should be given a higher probability of selection in the sample than those with few loan officers.

Asset size of the bank was used as a proxy, or substitute measure, for the number of loan officers

at a particular bank. Banks with relatively large assets were given a high probability of selection and smaller banks were given a smaller probability. From a sample of 224 banks, 207 loan officers agreed to interviews, an acceptance rate of 92 percent. The number of loan officers agreeing to an interview represent nearly half the operating banks in Oklahoma and 65 percent of the assets of all banks in the state.

Expectations for the Future

Both bank loan officers and financial officers in manufacturing establishments are reasonably optimistic about the future, as indicated by expected volumes of bank loans and sales (Chart 1 and Chart 2). Approximately one-third of loan officers expect to increase the dollar volume of loans during the coming year, with nearly half (48.8 percent) indicating that they will approve about the same dollar amount of loans as in the previous year. Only 18.4 percent of loan officers expect a decline. Loan officers in larger banks, with assets of \$60 million or more, are somewhat more optimistic: 36.6 percent expect to increase the dollar volume of loans, compared with 29.0 percent of their counterparts at smaller banks.

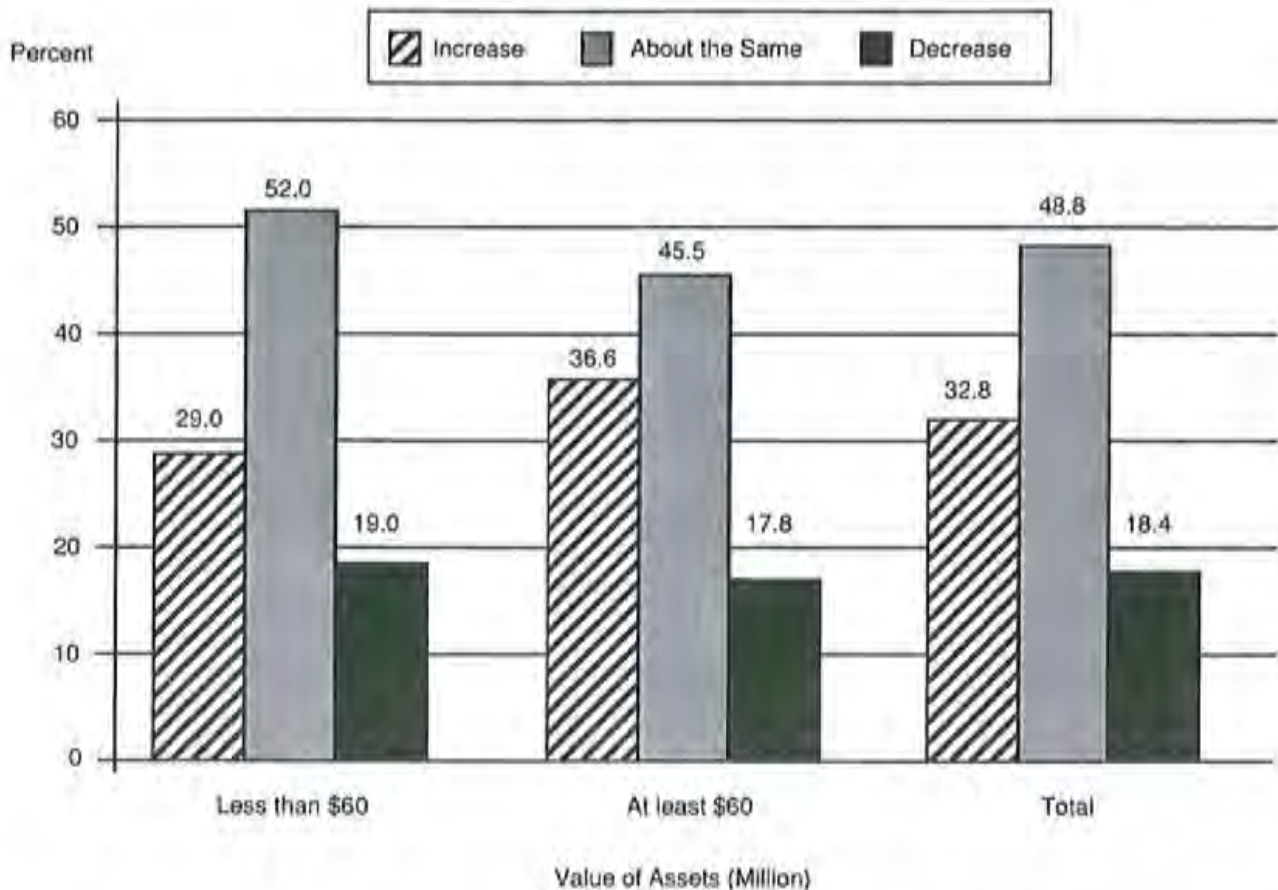
As for manufacturers, more than half the financial officers at Oklahoma manufacturing establishments expect to increase the dollar volume of sales during the next twelve months, with approximately one-third expecting sales to remain about the same. Little difference can be distinguished between small and larger manufacturers, but establishments that produce nondurable goods are somewhat more optimistic than durable goods manufacturers.

The availability of loans and credit is very important for the current operations and expansion plans of Oklahoma manufacturers.² As for the availability of credit in Oklahoma, 27.6 percent of manufacturers in the sample believed that credit is very scarce; with more than one-third perceiving credit as somewhat scarce (Table 1). The greatest concern regarding availability of credit appears to be in the smaller firms with 10-25 employees; 30.4 percent of the firms perceive credit as very scarce compared with 24.9 percent in the larger establishments with 25-400 employees.

Thus, nearly two-thirds of manufacturers perceive credit as at least somewhat scarce in Oklahoma. These establishments could potentially benefit from state financial assistance programs.

CHART 1

Bank Loan Officers' Expectations Regarding Twelve Month Loan Volume
(Beginning October 1991)



Awareness of State Financial Assistance Programs - Summary of Survey Findings

Loan officers and financial officers were asked to indicate their level of awareness of several state financial assistance programs. Choices for the respondents included "Very Aware", meaning that the person has knowledge of some of the details of the program; "Somewhat Aware", defined as aware of the existence of the program; and "Not At All Aware", indicating no knowledge, or awareness, of the program.

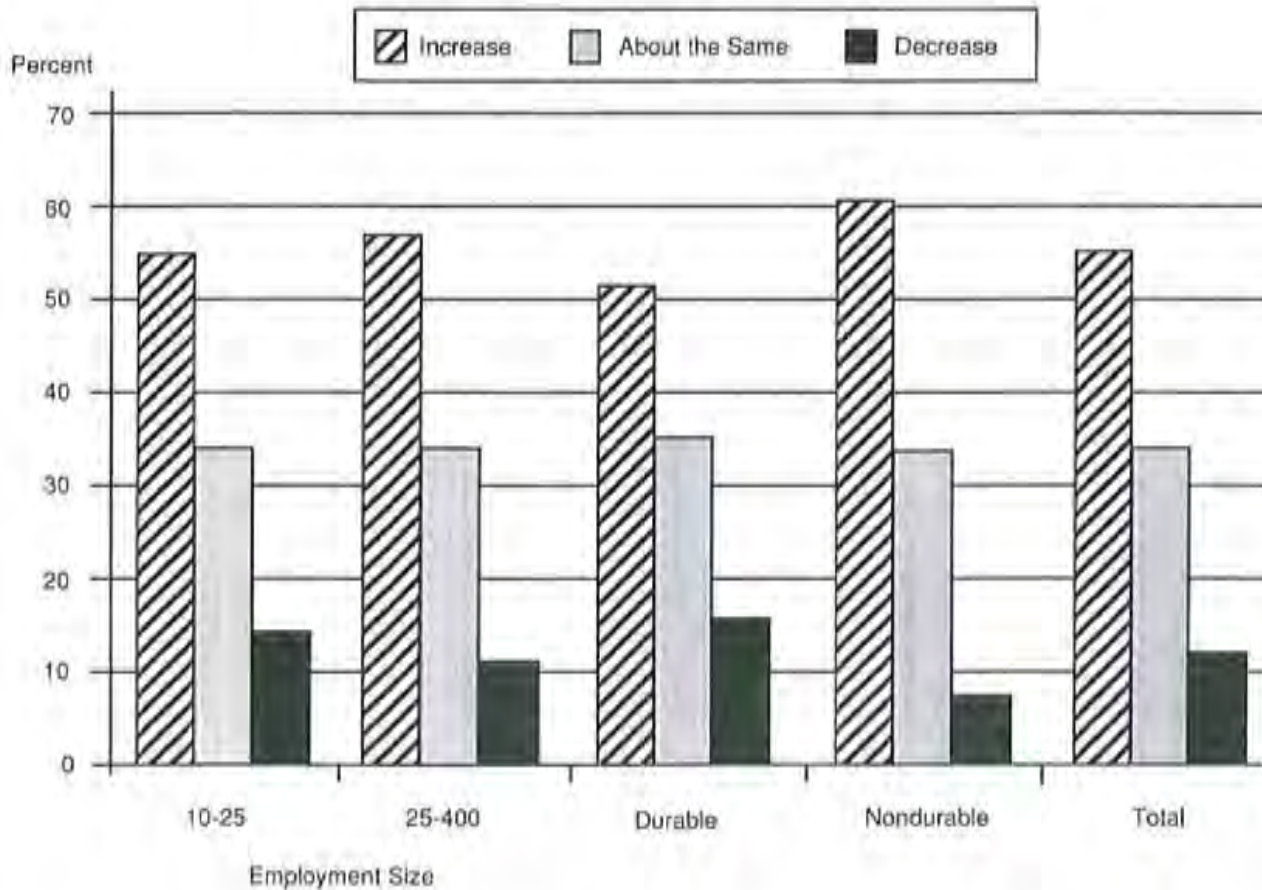
Nearly all bankers (92 percent) contacted by the survey team are either very aware or somewhat aware of the existence of state financial assistance programs. Just 36 percent, however, indicated that they are very aware (Chart 3).

By contrast, awareness of the existence of state government financial assistance programs is far lower among manufacturers: only 69 percent are "Very Aware" or "Somewhat Aware" (Chart 4). Very few (21.4 percent) consider themselves very aware of the programs. Remarkably, 31 percent of manufacturers responded "Not At All Aware" of the existence of these programs. The relatively low level of awareness holds true for both small and large manufacturers of both durable and non-durable goods (Chart 4).

Awareness levels of individual programs vary considerably. More than half the loan officers are very aware of the Linked Deposit Program, with 20-40 percent very aware of the Oklahoma Industrial Finance Authority (OIFA),

CHART 2

Manufacturing Financial Officers' Expectations Regarding Twelve Month Sales
(Beginning October 1991)



Oklahoma Development Finance Authority (ODFA), and the Economic Development Finance Program. Fewer than 11 percent of the loan officers are very aware of either the Export Financing Program or the Capital Resources Institute.

In contrast, fewer than 25 percent of the financial officers in Oklahoma manufacturing establishments are very aware of any of the individual programs (Chart 4). The financial officers are least familiar with the Linked Deposit Program and the Capital Resources Institute and most familiar with the OIPA and Economic Development Financing Program.

The following sections detail the level of awareness of bank loan officers and financial officers in manufacturers to various programs

TABLE 1

Manufacturing Financial Officers' Regarding the Scarcity of Credit (percent)

Response	Manufacturer Size by Employment		Type		Total
	10-25	25-400	Durable	Non-durable	
Credit very scarce	30.4	24.9	28.9	25.5	27.6
Credit somewhat scarce	33.3	39.8	36.9	35.9	36.8
Credit available	36.3	35.3	34.1	38.6	35.8

including the Oklahoma Industrial Finance Authority, Oklahoma Development Finance Authority, Linked Deposit Program, Economic Development Finance Program, Export Financing Program, and the Capital Resources Institute.³

Oklahoma Industrial Finance Authority

Established in 1960, the Oklahoma Industrial Finance Authority (OIFA) offers loans to manufacturers, agricultural processors, and recreation and mining businesses. Loans to businesses are made through local agencies typically for a fifteen year period. Interest rates are based on the agency's cost of borrowing and may vary according to market conditions subject to a minimum of 8 percent and maximum of 14 percent. Loans from the OIFA are limited to a total portfolio of \$90 million; this limit will probably be reached within the next year.

A general level of awareness of the Oklahoma Industrial Finance Authority is very widespread among bank loan officers in Oklahoma: 37.8 percent are very aware of the OIFA loan program and 49.8 percent somewhat aware. Of those who are very aware, 59 percent had participated in projects funded by the OIFA during the past five years.

More loan officers at the larger banks are aware of the OIFA than those at smaller banks: 48 percent are very aware compared with just 27.3 percent of those at the smaller banks (Table 2).

In order to determine the level of knowledge of some of the details of the program, the 86 loan officers who are somewhat aware of the OIFA were asked two additional questions. Of these, just 29.7 percent are very aware that the OIFA provides real estate and equipment loans through industrial development agencies to manufacturers, agricultural processors, and recreation and mining facilities.

CHART 3

Loan Officers' Awareness of State Financial Assistance Programs

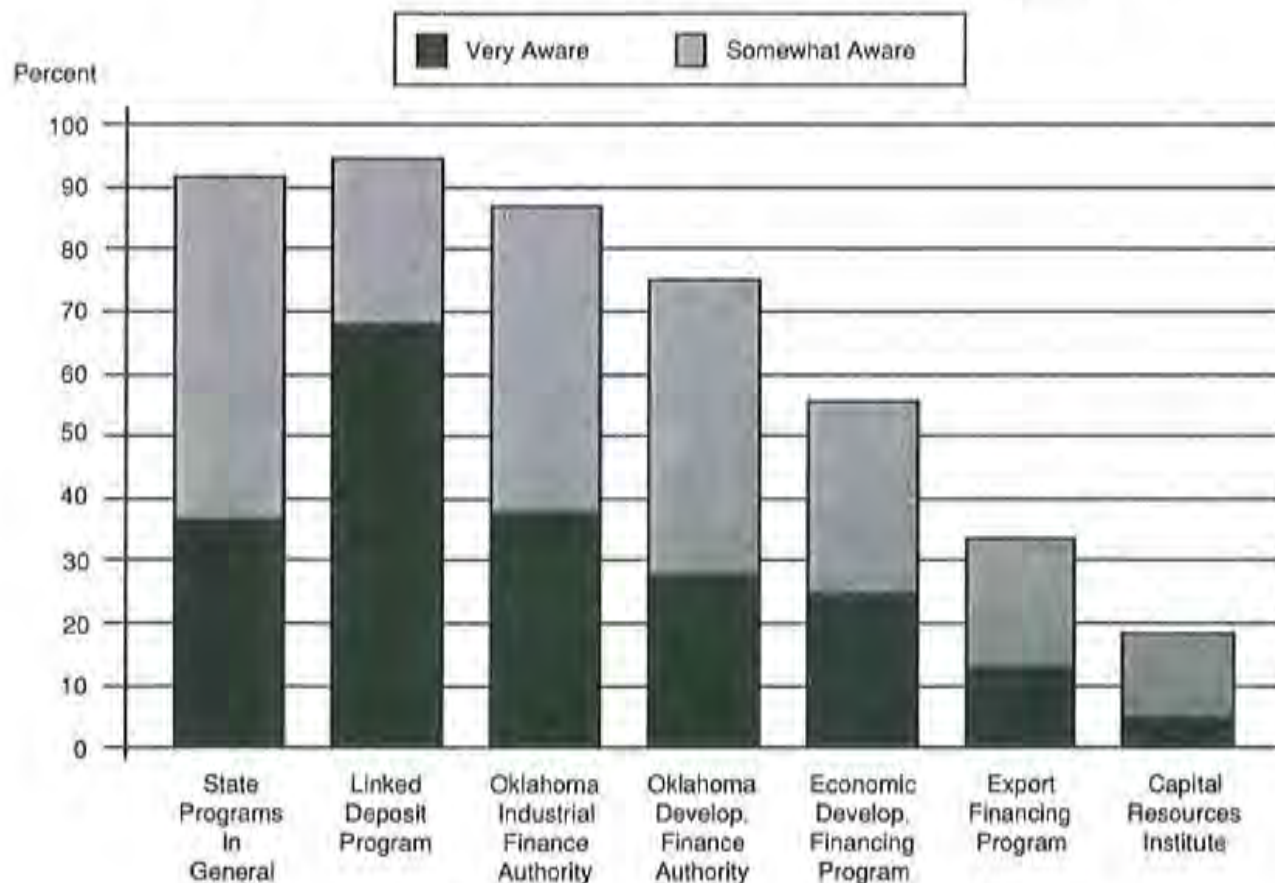
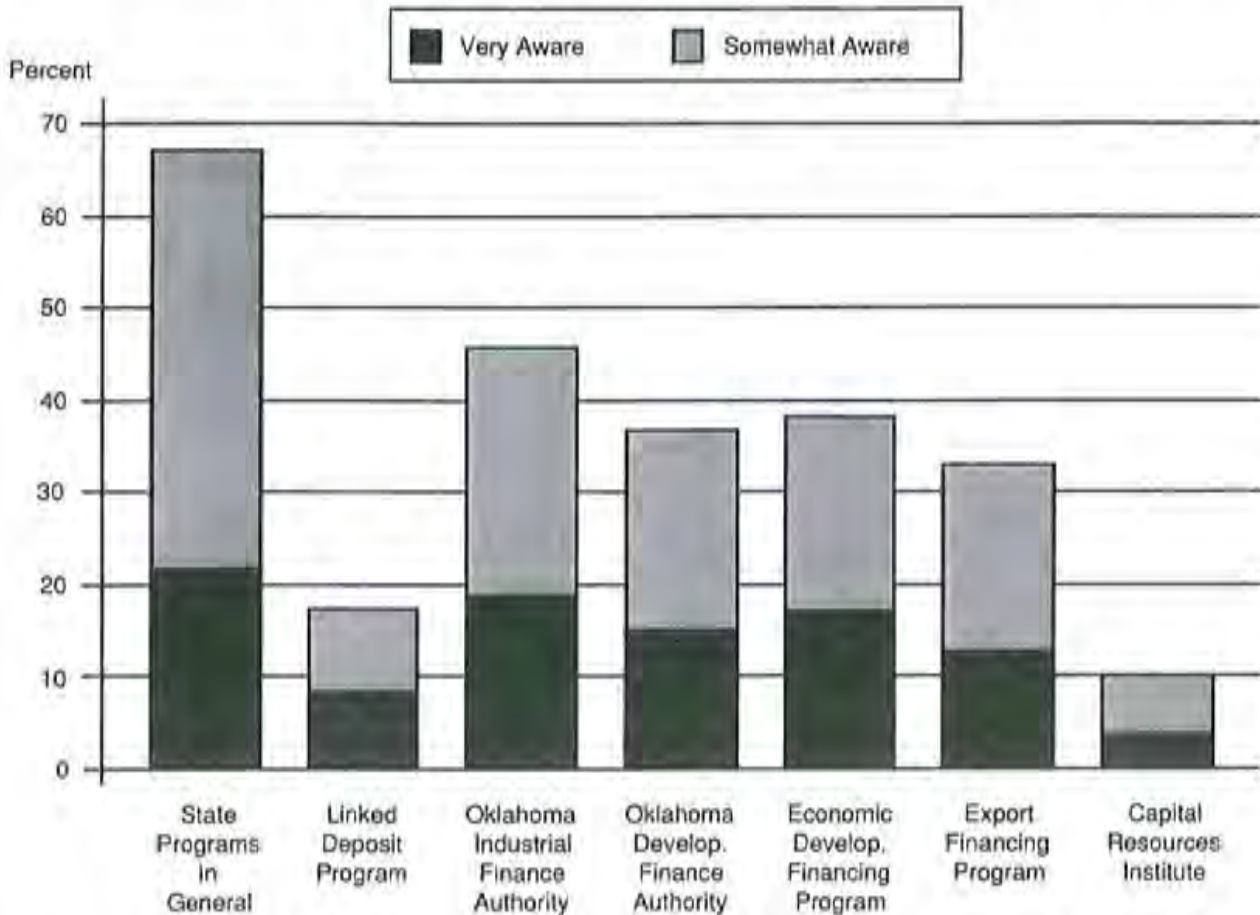


CHART 4

Manufacturing Financial Officers' Awareness of State Financial Assistance Programs



Notably, 7.9 percent of bankers were not at all aware of this aspect of the OIFA.

A similar proportion of these loan officers are very aware with the fact that the OIFA offers first and second mortgage loans and also parity loans with banks. However, 24.8 percent indicated that they were not at all aware of this detail of the program.

The results of these additional questions confirms that those who responded somewhat aware of the OIFA loan program indeed are not certain of the details of the program. Thus, we may conclude that the majority of those who are only somewhat aware of the program probably do not have a clear grasp of what the program does or how it works.

Manufacturers are much less aware of the OIFA relative to bankers: just 47.8 percent of finan-

cial officers in manufacturing companies are either very aware or somewhat aware of the OIFA loan program, compared with 82 percent of bankers. Restated differently, 32 percent of the loan officers contacted by the survey team indicated that they were Not At All Aware of the OIFA loan program.

Follow-up questions to the manufacturers who are somewhat aware of the OIFA loan program reveal that approximately two-thirds are at least somewhat aware of the general focus of the loan program (real estate and equipment loans to manufacturers, agricultural processors, and recreation and mining facilities). However, fewer than half (45 percent) of this group were at least somewhat aware that the program offers first and second mortgage loans (Table 3).

TABLE 2
Loan Officers' and Manufacturing Financial Officers' Awareness
of the Oklahoma Industrial Finance Authority
(percent)

	Response		
	Very Aware	Somewhat Aware	Not at All Aware
Banks (Loan Officers)			
Asset Size			
Less than \$60 million	27.3	64.6	8.1
Greater than \$60 million	48.0	35.3	16.7
Total	37.8	49.8	12.4
Manufacturers (Financial Officers)			
Employment Size			
10 to 25	22.2	27.1	50.7
25 to 400	17.6	28.8	53.7
Total	19.8	27.9	52.2

TABLE 3
Awareness of OIFA Program Details
Among Bankers and Manufacturers¹
(percent)

	Bankers	Manufacturers
General Focus of Program		
Very Aware	29.7	18.6
Somewhat Aware	62.4	47.8
Not At All Aware	7.9	33.6
First and Second Mortgage Loan Program		
Very Aware	26.7	12.4
Somewhat Aware	48.5	32.7
Not At All Aware	24.8	54.9

¹Among Those "Somewhat Aware" of the OIFA.

OKLAHOMA DEVELOPMENT FINANCE AUTHORITY

Private sector financial assistance programs at the Oklahoma Development Finance Authority consist of two general types: credit enhancement programs and conduit financing programs. The credit enhancement program applies the ODFA credit rating to cover a non-rated borrower; bond-

holders are guaranteed repayment by the ODFA in the event that the business defaults on the loan. Credit enhancement helps non-rated businesses obtain credit when none would otherwise be available. In addition, the reduced risk to the lender may have the effect of reducing borrowing rates.

In the second type of program, the ODFA provides funds to borrowers by acting as a conduit. The Authority sells bonds to the financial community, then uses the proceeds to lend to Oklahoma businesses.

Bankers and manufacturers are less aware of the Oklahoma Development Finance Authority (ODFA) than they are of the OIFA: 76 percent of bankers and 37 percent of manufacturers are either somewhat aware or very aware of the ODFA, compared with 88 percent and 48 percent aware of the OIFA, respectively (Table 4). Three factors may explain some of the difference in awareness between the OIFA and ODFA. First, the ODFA is a relatively new agency compared with the OIFA. The ODFA was created from the old Oklahoma Development Agency (ODA) in 1987; by contrast, the OIFA has been in existence since 1960. Second, the mission of the ODFA and, historically, the ODA, is much more diffuse than that of the OIFA. Most of the dollar amount of activity by the ODFA (and ODA) has consisted of raising funds for capital spending by state government agencies. Far

TABLE 4

**Loan Officers' and Manufacturing Financial Officers' Awareness
of the Oklahoma Development Finance Authority
(percent)**

	Response		
	Very Aware	Somewhat Aware	Not at All Aware
Banks (Loan Officers)			
Asset Size			
Less than \$60 million	24.0	52.0	24.0
Greater than \$60 million	34.6	40.6	24.8
Total	29.4	46.3	24.4
Manufacturers (Financial Officers)			
Employment Size			
10 to 25	14.8	19.3	65.8
25 to 400	15.6	24.4	60.0
Total	15.2	21.9	62.9

fewer resources have historically been placed in private sector programs, while the financial resources of the OIFA are focused entirely on private sector financing. Third, new private sector financing programs by the ODFA are not yet well established as compared with the OIFA.

Knowledge of ODFA program details does not seem to run deep among bankers and manufacturers. For example, just 29.4 percent of bankers and 15.2 percent of manufacturers are very aware of the ODFA. In addition, the vast majority of those responding that they are somewhat aware of the ODFA were not at all familiar with the Credit Enhancement Program and Conduit Financing Program, the mainstays of the ODFA program offerings for the private sector (Table 5).

LINKED DEPOSIT PROGRAM

The Oklahoma Linked Deposit Program consist of two programs, one tailored to small business and the other tied to the agricultural industry. Each program has its own separate eligibility requirements in terms of both the type of business that qualifies and the amount of capital that can be borrowed.

Administered by the Office of the State Treasurer, the Linked Deposit Program maintains deposits of State funds at participating financial institutions at below market interest rates. The

lender may then add up to 5.5 percentage points on loans of these funds to borrowers; the result is a below-market interest rate loan to farmers and small businesses in Oklahoma.

Not surprisingly, the Linked Deposit Program is very widely known among Oklahoma bankers. More than 60 percent of bankers are very aware of this program, with 75.8 percent of loan officers in the larger banks very aware. All but 6.5 percent of bankers are at least somewhat aware of the Linked Deposit Program (Table 6).

TABLE 5

**Awareness of ODFA Program Details
Among Bankers and Manufacturers¹
(percent)**

	Bankers	Manufacturers
Credit Enhancement Program		
Very Aware	10.5	11.2
Somewhat Aware	31.6	28.1
Not At All Aware	57.9	60.1
Conduit Financing Program		
Very Aware	8.4	12.4
Somewhat Aware	39.0	33.7
Not At All Aware	52.6	53.9

¹Among those "Somewhat Aware" of the ODFA.

TABLE 6

Loan Officers' and Manufacturing Financial Officers' Awareness of the Linked Deposit Program (percents)

	Response		
	Very Aware	Somewhat Aware	Not at All Aware
Banks			
Asset Size			
Less than \$60 million	61.4	32.7	5.9
Greater than \$60 million	75.8	17.2	7.1
Total	68.5	25.0	6.5
Manufacturers			
Employment Size			
10 to 25	8.3	6.3	85.4
25 to 400	10.9	10.4	78.7
Total	9.6	8.4	82.1

Awareness of the program is much less prevalent among manufacturers. More than 80 percent of financial officers at Oklahoma manufacturing establishments, both small and large, are not at all aware of the Linked Deposit Program. Very few manufacturers are very aware of this program.

Both bankers and manufacturers who are somewhat aware of the program appear to have a good understanding of its basic purpose. For example, roughly half of these respondents are very aware that the State Treasurer, through the linked deposit program, offers reduced interest loans through participating banks (Table 7).

TABLE 7

Awareness that the Linked Deposit Program Offers Reduced Interest Loans through Participating Banks¹ (percent)

	Bankers	Manufacturers
Very Aware	51.9	47.0
Somewhat Aware	44.4	35.5
Not At All Aware	3.7	17.6

¹Among those "Somewhat Aware" of the Linked Deposit Program.

ECONOMIC DEVELOPMENT FINANCING (EDF) PROGRAM

The Economic Development Financing Program, part of the Small Cities Community Development Block Grant at the Oklahoma Department of Commerce, has provided financing for businesses in Oklahoma since 1987. In fiscal year 1990, the program provided \$2.7 million in loans and equity to the private sector. Manufacturers often participate in this program, and bankers are becoming participants in EDF program projects more frequently.

Awareness of this program among bankers and manufacturers is significantly smaller compared with that of the OIFA program. Still, given the fact that the program is relatively new and little has been done in the form of active marketing, the current level of awareness of the EDF Program among manufacturers is notable.

Those responding 'Somewhat Aware' of the program were asked whether they know that the EDF provides gap financing in the form of loans and convertible debt. Just 15.6 percent of these loan officers and 7.0 percent of these financial officers were very aware of this fact (Table 9), indicating sparse knowledge of the details of the program.

TABLE 8

**Loan Officers' and Manufacturing Financial Officers' Awareness
of the Economic Development Financing Program
(percent)**

	Response		
	Very Aware	Somewhat Aware	Not at All Aware
Banks			
Asset Size			
Less than \$60 million	17.0	43.0	40.0
Greater than \$60 million	33.3	29.4	37.2
Total	25.2	36.1	38.6
Manufacturers			
Employment Size			
10 to 25	14.4	19.8	65.8
25 to 400	20.6	24.0	55.4
Total	17.5	21.9	60.6

EXPORT FINANCING PROGRAM

Also managed by the Oklahoma Department of Commerce, the Export Financing Program provides assistance to exporters in the form of insurance against non-payment by foreign accounts. The existence of insurance against the risk of non-payment may assist business in securing financing from a local bank or other financial entity. To be eligible, exporters must have annual sales of \$2 million or less during the previous two fiscal years. In addition, the exportable product must have been manufactured in the U.S. with 50 percent domestic content by value.⁴

TABLE 9

**Awareness of Gap Financing
in the Form of Loans and Convertible Debt¹
(percent)**

	Bankers	Manufacturers
Very Aware	15.6	7.0
Somewhat Aware	52.0	43.0
Not At All Aware	32.5	50.0

¹Among those "Somewhat Aware" of the Economic Development Financing Program.

The export financing program offers attractive advantages to manufacturers desiring to expand sales in foreign markets. Unfortunately, only about one-third of Oklahoma manufacturers are at least somewhat aware of the existence of the program (Table 10). Interestingly, loan officers in larger banks are much more likely to be very aware of the export financing program than are loan officers in smaller bankers.

This modest level of awareness of the program probably overstates the level of knowledge among bankers and manufacturers. For example, those who responded "Somewhat Aware" were asked whether they are aware that the program offers insurance for accounts receivable for overseas sales. Only about 14.6 percent of this group of bankers are very aware of this additional fact, compared with 11.9 percent of manufacturers (Table 11).

CAPITAL RESOURCES INSTITUTE

Although not a source of financing for businesses, the Capital Resources Institute (CRI) provides training to those desiring to learn about economic development finance in general, and Oklahoma financial assistance programs in particular. According to Oklahoma Department of Commerce literature, the CRI

TABLE 10

Loan Officers' and Financial Officers' Awareness of the Export Financing Program
(percent)

	Response		
	Very Aware	Somewhat Aware	Not at All Aware
Banks			
Asset Size			
Less than \$60 million	4.0	27.0	69.0
Greater than \$60 million	18.6	17.7	63.7
Total	11.4	22.3	66.3
Manufacturers			
Employment Size			
10 to 25	13.9	16.8	69.3
25 to 400	13.2	23.9	62.9
Total	13.5	20.4	66.1

TABLE 11

Awareness of Export Financing Program
for Accounts Overseas Receivables¹
(percent)

	Bankers	Manufacturers
Very Aware	14.6	11.9
Somewhat Aware	45.8	38.1
Not At All Aware	39.6	50.0

¹Among those "Somewhat Aware" of the Export Financing Program.

...is designed to enhance the skills of those currently involved in economic development, small business assistance programs, SBA [Small Business Administration] development companies, and chambers of commerce. The program is also designed for accountants, financial consultants and loan officers in banks, S & L's and government agencies that are searching for creative ways of participating in projects, and for better ways of meeting the capital needs of their clients.⁵

Developed and managed by the Oklahoma Department of Commerce, the Capital Resources Institute offers a core curriculum on:

- Economic development finance
- Business credit analysis
- Real estate finance, and
- The art of negotiation and deal structuring.

These courses are each one week in length. Students who successfully complete these course and pass a written review will receive certification as an Economic Development Finance Professional (EDFP), a designation sponsored by the National Development Council.

These four core courses are supplemented by a weeklong course on financial assistance programs in the state called the Oklahoma Curriculum. This course covers a wide variety of topics, including business plan writing and market research, and many financial assistance programs available in Oklahoma, including most of the programs treated in this article. The course also offers an overview of state tax incentives available for business, what to expect when applying for a bank loan, and information regarding inventors assistance programs.

Awareness of this program is very limited: only 19.4 percent of bankers and 11.0 percent of manufacturers are at least somewhat aware of the Capital Resources Institute (Table 12). Very few responded that they are very aware of the Institute, less than 3.9 percent of manufacturers and 5.5 percent of bankers.

TABLE 12

**Oklahoma Bankers' and Manufacturers' Awareness of the Capital Resources Institute
(percent)**

	Response		
	Very Aware	Somewhat Aware	Not at All Aware
Bankers			
Asset Size			
Less than \$60 million	2.0	16.0	82.0
Greater than \$60 million	8.9	11.9	79.2
Total	5.5	13.9	80.6
Manufacturers			
Employment Size			
10 to 25	4.5	8.4	87.1
25 to 400	3.4	5.8	90.7
Total	3.9	7.1	88.9

SOURCES OF ECONOMIC DEVELOPMENT PROGRAM INFORMATION

Information regarding business assistance programs may be distributed and obtained in a variety of different manners, both formal and informal. Informal channels for the distribution of information include word-of-mouth communications from persons who have participated in a program; those who have attended a seminar or conference regarding a program; those who read about the program in the newspaper; and those who recall the program from a brief item on the television or radio. More formalized channels include newsletters; periodic mailings to businesses

who may potentially benefit from the program; and other regular communication and outreach activities for targeted businesses and financial intermediaries.

Currently, roughly 30 percent of loan officers and 14 percent of financial officers receive information concerning these programs on a regular basis. Size of the bank or manufacturer seems to play no role in explaining who does or does not receive information (Table 14).

TABLE 13

**Awareness of Capital Resources Institute Training in Business Credit Analysis, Deal Packaging and Government Programs¹
(percent)**

	Bankers	Manufacturers
Very Aware	20.7	10.3
Somewhat Aware	58.6	55.2
Not At All Aware	20.7	34.5

¹Among those "Somewhat Aware" of the Capital Resources Institute.

TABLE 14

**Banks and Manufacturers Regularly Receiving Information Regarding State Financial Assistance Programs
(percent)**

	Regularly Receive Information?	
	Yes	No
Banks		
Asset Size		
Less than \$60 million	32.0	68.0
Greater than \$60 million	27.7	72.3
Manufacturers		
Employment Size		
10 to 25	15.4	84.6
25 to 400	13.4	86.6

Receiving information on these programs on a regular basis seems to be an important factor in promoting awareness. Nearly half the manufacturers who responded Very Aware of the existence of state financial assistance programs also indicated that they receive information on a regular basis.

Among those who do regularly receive information regarding financial assistance programs, the Oklahoma Department of Commerce, Oklahoma State Chamber of Commerce and Industry, and the Oklahoma Bankers Association are the most often-cited sources (Table 15). The Oklahoma Department of Commerce and State Chamber of Commerce and Industry are particularly important information sources for manufacturers; together, they were identified by 73 percent of the 58 manufacturers that regularly receive information.

TABLE 15

Information Sources Among Bankers and Manufacturers Regularly Receiving Financial Assistance Information (percent)

Source	Bankers	Manufacturers
Local Chamber of Commerce	11.3	14.5
State Chamber of Commerce	16.9	33.9
Local Council of Government	4.0	0.0
Community Bankers Association	15.3	8.1
Oklahoma Bankers Association	32.3	3.2
Oklahoma Department of Commerce	20.2	40.3

Of the 60 bankers who regularly receive information regarding financial assistance programs, the Oklahoma Bankers Association was cited by 32.3 percent, following by the Oklahoma Department of Commerce (20.2 percent), State Chamber of Commerce and Industry (16.9 percent), and Community Bankers Association (15.3 percent).

Seminars and meetings are an important means of acquiring information, making new contacts, and solidifying existing contacts. Nearly half the bankers responded that they had participated in seminars or meetings during which one or more of these programs were discussed. Nearly 30 percent of these 97 bankers recall discussions of

the ODFIA, 20 percent recall OIFA, and 11 to 16 percent recall discussions of the Economic Development Financing Program or CDBG.

With 26 percent of responses, more manufacturers recall discussions of the OIFA program than any other. Almost 19 percent recall learning about the Export Finance Program and 13.5 percent the Economic Development Financing Program.

TABLE 16

Participation in Seminars and Meetings Regarding Financial Programs (percent)

	Participate in Seminars?	
	Yes	No
Banks		
Asset Size		
Less than \$60 million	46.0	54.0
Greater than \$60 million	50.5	49.5
Total	48.3	51.7
Manufacturers		
Employment Size		
10 to 25	17.9	83.1
25 to 400	13.9	86.1
Total	15.9	84.1

TABLE 17

Programs Discussed at Seminars or Meetings Attended by Bankers and Manufacturers (percent)

Program	Bankers	Manufacturers
Oklahoma Industrial Finance Authority	20.0	26.0
Oklahoma Development Finance Authority	29.8	11.5
Economic Development Financing Program	11.0	13.5
Community Development Block Grant	16.1	10.6
Capital Resources Institute	4.3	2.9
Export Finance Program	5.9	18.3

IMPORTANCE OF BANKERS FOR THE OKLAHOMA MANUFACTURING SECTOR

Capital expenditures by Oklahoma businesses, particularly manufacturers, are critically important in improving productivity, maintaining the competitiveness of the Oklahoma firms in national and international marketplaces, and generating growth of employment and income in the Oklahoma economy. In Oklahoma, manufacturers rely heavily on loans for both capital expenditures and also for current operations expenditures (Table 18). Results from the survey show that manufacturers rely on loans somewhat more for future expansion (equipment, structures) than for current operations.

Not surprisingly, banks are a very important source of this financing. Banks are very important sources of financing for 65 percent of manufacturers. Smaller manufacturers, with fewer than 25 employees, rely more heavily on banks as a source of financing than do the larger manufacturers (Table 19).

Even though many manufacturers depend heavily on banks as a source of financing, few rely on bankers for information regarding alternative financing mechanisms, such as government financial assistance programs. As shown in Table 20, only 13.6 percent of manufacturers are heavily reliant on banks as a source of this information;

with just 18.4 percent are moderately reliant. The remaining 68 percent of manufacturers do not depend at all on banks for information regarding these state financial assistance programs.

We may include that this potentially important channel for information on state financial assistance programs, Oklahoma bankers, is far from well utilized. Few manufacturers are receiving information on these programs when they discuss their financing needs with bankers. There remains the question of why does the flow of information appear to break down at this point?

Several answers to this question are possible. First, bankers may not themselves be familiar enough with state financial assistance programs to offer advice to a business regarding a particular program. We have seen that only about one-third of bankers are very aware of state financial assistance programs in general.

Second, bankers may feel that their role is to evaluate projects on the basis of potential risks and rewards from the perspective of the financial goals of the bank, not to act as an information broker regarding government financial assistance programs. According to this perspective, taking time to learn about state government programs and devoting effort to assisting a business explore government financing options may not result in direct benefits to the bank and uses time that could be put to better use elsewhere.

TABLE 18
Importance of Loans to Manufacturers
(percent)

Response	Manufacturer Employment Size		Total
	10-25	25-400	
Financing Current Operations			
Very Important	41.8	49.0	45.4
Somewhat Important	22.9	12.4	17.6
Not At All Important	35.3	38.6	37.0
Financing Future Expansion			
Very Important	59.2	51.2	55.2
Somewhat Important	18.4	15.9	17.2
Not At All Important	22.4	32.8	27.6

TABLE 19
Importance of Banks as a Source of Financing for Manufacturers (percent)

Response	Manufacturer Employment Size		Total
	10-25	25-400	
Very important	68.8	61.9	65.3
Somewhat important	11.4	14.4	12.9
Not At All Important	19.8	23.8	21.8

Third, manufacturers may simply not ask bankers to explain alternative financing sources to them or to refer to someone who does know. As we have seen, 30 percent of manufacturers responded that they are not at all aware of these programs. A financial officer in a manufacturing firm who does not know that these programs exist most likely will not ask a banker to explain the programs. Thus, manufacturers may not be asking bankers to provide this information.

All three of these possible explanations of the breakdown of information flow between banker and manufacturer has some validity, but none on its own offers a complete picture. A combination of the three may bring us closer to the truth.

STRUCTURING STRONGER INFORMATION LINKAGES

We know that a general level of awareness of certain financial assistance programs is wide-

TABLE 20
Reliance on Banks as Sources Regarding Financing Alternatives (percent)

Response	Manufacturer Employment Size		Total
	10-25	25-400	
Heavily Reliant	16.4	10.9	13.6
Moderately Reliant	16.9	19.8	18.4
Not At All Reliant	66.7	69.3	68.0

spread among bankers and manufacturers. Most bankers and manufacturers are at least somewhat aware of the OIFA, for example. In addition, relatively large proportions of bankers and manufacturers are at least somewhat aware of the ODFA, Economic Development Financing Program (CDBG), and the Export Financing Program.

We also know that the level of awareness of the details of these programs is much less widespread. Fewer than 21 percent of manufacturers, and with the exception of the Linked Deposit Program, 40 percent of bankers, are very aware of these programs.

In addition, we know that only a small proportion of either bankers or manufacturers regularly receive information regarding these programs. However, of those who receive information, the Oklahoma Department of Commerce, Oklahoma State Chamber of Commerce and Industry, and the Oklahoma Bankers Association are most often mentioned as the sources.

We may conclude that the breadth of awareness of these programs is respectable, but the depth, or degree, of knowledge of these programs needs improvement. More bankers, especially, should be very aware of the details of these programs, since they are an important point of contact for businesses seeking credit and assistance.

In addition, a mechanism for regular direct communication with bankers and manufacturers regarding these programs should be established. Direct telephone calls or letters to targeted bankers and manufacturers would be useful for the purpose of soliciting the top potential projects. This type of direct communication would also serve as an important signal to bankers and businesses that the state government is serious about improving communications.

A federal program that assists businesses that have been affected by import competition has used this direct contact technique in Oklahoma with some success. The Southwest Trade Adjustment Assistance Center (TAAC) provides a wide variety of technical assistance to businesses that have been impacted by competition from imports. The TAAC mailed brief two-page questionnaires to a targeted set of manufacturers in Oklahoma in order to locate businesses that may qualify for their services. To date, the TAAC is working with two-dozen businesses in Oklahoma that were identified in this manner.

Bankers are an important potential channel of information regarding state financial assistance

programs. Bankers are in a position to help manufacturers structure the type of financial packages best suited to the needs of the business. Of course, this facilitating role only succeeds to the extent that bankers are well-informed regarding financial assistance programs and to the extent that manufacturers rely on bankers as a source of information.

Bankers must be more involved in the process of the distribution of information regarding these programs. It is quite likely that lack of knowledge of state financial assistance programs effectively discourages some bankers from offering advice or referrals regarding these programs.

Such intermediary and referral services may not necessarily result in direct benefits to the bank but could help promote economic growth in the longer term and, indirectly, improve the strength of the bank. It is true that time used to assist a client explore alternative financing strategies may not always result in business for the bank. However, improving the quantity and quality of information available to a client will improve the chances that the best projects are considered and funded by the state government financial assistance programs. A good project that goes unfunded due to a breakdown in the flow of information is a loss of jobs and income, constituting an inefficient use of public financial resources.

Finally, the manufacturer must bear a portion of the burden for any breakdown in communication. It is astonishing to learn that 30 percent of these manufacturers are not at all aware that the state government offers a variety of financial assistance programs to the private sector. Occasional coverage of these programs in the business sections of the local newspapers provides a modest degree of exposure even for an irregular newspaper reader.

NOTES

¹The authors are indebted to David Hinkle, Oklahoma Development Finance Authority, for this point.

²Evidence on this point from the manufacturers questionnaire is discussed below.

³A very brief explanation of these programs is offered in the following sections. Readers desiring more information regarding the details of the programs are referred to Larkin Warner and Stephen Smith, "State Government Provision of Business Finance in Oklahoma," *State Policy and Economic Development*, 1991.

⁴Oklahoma Department of Commerce, *Export Finance Program*, circular.

⁵Oklahoma Department of Commerce, *The Oklahoma Capital Resources Institute 1990 Curriculum*, 1990.

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THE 1990 CLEAN AIR ACT AMENDMENTS AND THEIR IMPACT ON OKLAHOMA

On November 15, 1990, President Bush approved the Clean Air Act Amendments (CAAA) of 1990, ushering in sweeping changes in the nation's plans to clean up its air. No state will be left untouched by this action, but the impact of these amendments will not be uniform across the various states. Thus, there is a need for studies focused on particular states.

This study focuses on how Oklahoma is likely to be affected by certain portions of the CAAA:

- new provisions for changes in motor vehicles and fuels,
- revised regulations for ground-level ozone and carbon monoxide,
- new regulations for toxic air pollutants,
- new approaches to control emissions (sulfur dioxide and nitrogen oxides) that cause acid rain, and
- a new program for operating permits.

The CAAA also contain provisions for controlling particulates, offshore sources of air pollution, stratospheric ozone, and tough new sanctions for those who fail to comply with the Clean Air Act, as amended. We omit these features because they are relatively unimportant problems in Oklahoma or that they will have little impact on the state's chances for economic development.

We have organized this paper in sections corresponding to principal provisions of the CAAA. Each section contains a brief description of the problem or problems addressed by the CAAA and the problem-solving strategy provided in the amendments, the relevance of the problems and strategies for Oklahoma, and state policy options.

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MOTOR VEHICLES AND FUELS

The Problem

Motor vehicles contribute heavily to a variety of air pollution problems. In 1986, they accounted for over 70 percent of the carbon monoxide (CO) present in urban air sheds. They also produced 43 percent of the country's airborne nitrogen oxides (NO_x) and one-third of its volatile organic compounds (VOCs). NO_x and VOCs combine in the presence of sunlight to produce ozone, a bluish gas that is harmful to people, plants, and physical substances when present in excessive amounts near the earth's surface. NO_x is a precursor of acid rain, and VOCs contribute to over half of the nation's toxic air pollutants.

The discouraging aspect of this problem is that it still exists after more than two decades of governmental efforts to reduce pollutants attributable to the internal combustion engine. Between 1970 and 1987, however, the volatility of gasoline increased by more than 20 percent as refiners substituted various chemical compounds for lead to keep octane ratings at acceptable levels. These compounds significantly increased emissions of VOCs and CO. In the meantime, researchers discovered major losses of VOCs from refueling and from gas tank heating which occurs during vehicle operation. EPA studies also showed that catalytic converters deteriorate rapidly after 50,000 miles, and that existing vehicle inspection and maintenance programs often are ineffective. Finally, there was a steady growth in the number of vehicles, vehicle miles traveled, and urban congestion.

Cleaner Vehicles. To address these problems, the 1990 CAAA require both cleaner vehicles and cleaner fuels. Starting in 1994, new cars must emit about 30 percent fewer hydrocarbons and 60 percent less NO_x than they do today. The useful life of emissions control equipment, such as the catalytic converter, must increase from 50,000 to

100,000 miles. Vehicles must also be equipped to recycle vapors that now escape from the gas tank during refueling and to prevent evaporation of gasoline from vehicles on hot summer days.

Cleaner Fuels. In the fuels area, refiners are required to achieve reductions in gasoline volatility beyond those achieved since the volatility reduction program was initiated in 1987. Starting with the winter of 1992-93, oxygenated gasoline must be sold in cities with excessive CO, and further gasoline reformulation is required starting in 1995. Finally, the nation's most polluted cities must slowly increase their reliance on alternative fuels, such as methanol, compressed natural gas (CNG), liquid petroleum gas (LPG), and electricity.

The Oklahoma Connection

The average new car owner in Oklahoma will pay an additional \$200 or so for the increased durability of catalytic converters and vapor recovery system modifications.¹ Motorists will pay one to three cents more per gallon for gasoline with lower volatility² plus an additional nickel if they buy oxygenated fuel.³ The CAAA does not require gasoline retailers in Oklahoma to sell oxygenated fuel, but the state has the authority to require such sales as a means of reducing wintertime CO emissions and summertime ozone.

Oxygenates. Currently, only two percent of the nation's gasoline supply contains oxygenates. Over a fourth of the gasoline supply must be oxygenated by October, 1992, simply to meet the demand in cities required by the CAAA to sell oxygenated fuel.⁴ Chances are that state legislatures will add other cities to this list and further increase the demand for both oxygenated gasoline and methyl tert-butyl ether (MTBE) and other fuel oxygenates. Industry experts believe that this will spur some modification of existing refineries and the construction of new MTBE production facilities.⁵ Oklahoma will benefit from this activity to the extent that new in-state refining capacity is built to serve the growing market for oxygenated fuels especially in other states. A quick expansion is out of the question though; new projects will probably take several years from inception to operation.⁶

CNG. Oklahoma is not a major locus of refining activity, however, and its best hope for economic development stimulated by fuels production lies with alternative fuels, especially with CNG.

CNG has some distinct environmental advantages over gasoline and other alternative fuels such as methanol and methanol blends⁷ and Oklahoma has the resources and expertise to be a major supplier of this fuel. There are significant impediments, however, to widespread and rapid conversion to CNG. Engines must be retrofitted, CNG tanks require more space than gasoline tanks, refueling is significantly slower, and there is no network of refueling stations. Still, many in Oklahoma, including gas company officials and politicians are bullish on the state's long-run prospects for CNG as stimulus to gas consumption and development of the necessary infrastructure.⁸

Unfortunately, the CAAA will do very little to speed the adoption of CNG as a motor fuel. In fact, the rush to meet the legislation-created demand for oxygenated fuels may divert research talent and financial capital that would otherwise aid CNG development.

State Policy Options

Refinery Permits. Given the strong demand for fuels oxygenated with octane-enhancers such as MTBE, special financial assistance by the state seems unnecessary. Perhaps the chief need may be for state regulatory authorities to facilitate the permitting process associated with refinery modification and expansion necessary to meet this demand.

CNG Assistance. With the Governor's and legislative support, Oklahoma as a state is investing in the development of CNG as an alternative fuel.⁹ The Oklahoma legislature provided tax credit incentives for the private sector and no interest loans for the public sector for the conversion of gasoline vehicles. There are four firms that specialize in vehicle conversion, three retail CNG outlets operated by major gasoline companies, a CNG refueling station on the Turner Turnpike, twenty private fleet refueling stations, the nation's largest CNG-fueled school bus fleet (Tulsa), and a leading manufacturer of public vehicles (garbage trucks and school buses) powered by CNG only. The state vo-tech system provides training for CNG technicians, and the state provides a tax credit for expenses associated with converting vehicles to CNG and for refueling compressors. State government may wish to reinforce the development of this fledgling industry by converting a large part of its own fleet of vehicles to CNG or to gasoline plus CNG.

Reportedly, Senators Boren and Nickles will be pushing for federal tax credits to encourage investments in clean fuel (CNG, LPG, and liquid natural gas) conversions, clean fuel dispensing facilities, and new vehicles made to run on these fuels.¹⁰ These credits may help to offset the artificial advantage created for oxygenated fuels by the mandates in the CAAA. Governor Walters has argued for a large increase in the federal excise tax on gasoline. Such an increase would be an effective means of making motor vehicle users pay for the environmental damage they create; it would also make CNG (which produces lower environmental costs) more competitive with gasoline.

The conversion to CNG will increase the demand for Oklahoma's natural gas benefitting all sectors of the domestic gas business. The American Gas Association has estimated that the increase in natural gas demand as a result of the CAAA's stimulation of the use of CNG could be only 4.3-5.4 billion cubic feet by 1995, but, more importantly, it could reach 1,030 billion cubic feet by 2005.¹¹

URBAN AIR QUALITY

The Problem

Sixty percent of the U. S. population lives in areas that fail to meet national ambient air quality standards (NAAQS). Ninety-six cities have excessive levels of ozone, 41 fail to meet the carbon monoxide (CO) standard, and 72 violate the standard for particulate matter.

Ozone, a primary precursor of smog, is a poisonous form of pure oxygen created by sunlight acting on NO_x and VOCs. Thirty percent of VOCs come from point sources (large stationary sources that use hydrocarbons in processing or production), 20 percent from area sources (small emitters, such as dry cleaners, print shops, and surface coaters), and 50 percent from motor vehicles.

Seventy percent of CO comes from motor vehicle emissions, and over 70 percent of particulates comes from power plants, industrial boilers, and other industrial processes. CO interferes with the oxygen carrying capacity of blood and may threaten fetal growth and development. Particulates can carry heavy metals and cancer-causing organic compounds into the most sensitive areas of the lungs, increasing the incidence and severity of respiratory diseases.

Government regulatory agencies focus their efforts on areas that do not meet the NAAQS - the so-called nonattainment areas. The CAAA of 1990 distinguish several categories of nonattainment, according to the degree to which the NAAQS are violated. More stringent control strategies are required for areas in more serious violation of the federal standards. States are given more time, however, to solve the more severe noncompliance problems.

Ozone. The CAAA specify five nonattainment categories for ozone: marginal, moderate, serious, severe, and extreme. These areas are located primarily east of the Mississippi River and in California. The exceptions are Kansas City and Lake Charles, Louisiana (marginal), Dallas and Salt Lake City (moderate), Beaumont, Texas and El Paso (serious), and Houston (severe).

Attainment deadlines range from November, 1993, for marginal areas, to November, 2010, for Los Angeles - Riverside - Anaheim, the only area in the extreme category. While in nonattainment status an area must satisfy certain "offset" provisions: for each permitted unit of additional emissions (from, say, new facilities or expansion of existing facilities) existing emissions must be reduced to a greater extent. This "offset ratio" ranges from 1.1 to 1 for marginal areas to 1.5 to 1 for Los Angeles-Anaheim-Riverside. New sources must also satisfy technology standards reflecting the lowest achievable emission rate (LAER).

"Major" sources of VOCs and NO_x in nonattainment areas must install reasonably available control technology (RACT). Prior to the CAAA of 1990 a major source was one that emitted 100 tons per year or more. The 1990 amendments keep this definition for marginal and moderate areas, but require RACT for smaller sources in the other nonattainment categories.

Specific additional requirements pertain, depending on the ozone nonattainment category, as set forth below for Oklahoma.

Carbon Monoxide. There are only two categories for CO nonattainment areas: moderate and serious. The attainment deadlines for these areas are December, 1995, and December, 2000, respectively. Given that motor vehicle emissions are the primary sources of CO there are no offset and LAER provisions - both of which apply to stationary sources of VOCs and NO_x . All moderate areas must inventory emissions, set up vehicle inspection/maintenance programs, and make

oxygenated fuels available. Some moderate areas may have to prepare forecasts of vehicle miles traveled and adapt enhanced inspection/maintenance programs. Serious areas must take all the actions required for moderate areas and institute transportation control measures that offset growth in vehicle miles traveled.

The Oklahoma Connection

There are no areas in Oklahoma currently on the nonattainment lists for ozone, CO or particulates. The EPA removed Tulsa and Oklahoma City only in 1990, however, from the ozone and CO nonattainment lists. Tulsa came very close to making the ozone list last summer, and Oklahoma City also experiences significant levels of ozone¹² although Tulsa's problem has been better publicized. Oklahoma City officials seem more concerned that their area will slip back on the CO nonattainment list.

Compliance Requirements. Should these cities become marginal ozone nonattainment areas, they will be required to take several actions. First, they will have to provide for more thorough vehicle inspection and maintenance programs. Second, local gas stations would probably be required to install vapor recovery equipment on all gas pumps. Third, many stationary sources of VOCs could be required to install RACT. Among these sources are printers and publishers, dry cleaners, hydrocarbon storage facilities, chemical manufacturers, oil refineries, rubber and plastics manufacturers, and surface coating operations. Fourth, new firms or existing firms planning to expand or change processes would have to obtain offsets in a 1.1 to 1.0 ratio, and meet LAER standards, as well. Finally, should the areas fail to achieve attainment within three years, they would be bumped into the "moderate" category where even more stringent regulations apply.

Should Oklahoma City become a CO nonattainment area, an enhanced vehicle inspection/maintenance program will be required, and gas stations will have to install vapor recovery equipment on pumps. Failure to comply on schedule would land the city on the "serious" list, triggering the application of more restrictions, including trip reduction ordinances.

Compliance Costs (Ozone). Going back on the dirty air list could be costly. Tulsa officials estimate that the city would need at least five new vehicle inspection stations. These would cost \$3.4

million to build and \$6.4 million annually to operate.¹³ Motorists would have to pay as much as \$38 for each inspection, up from the current \$5.¹⁴ Between 20 and 35 percent of the vehicles inspected would require repairs averaging from \$70 to \$100 per vehicle.¹⁵ In addition, the CAAA would require gasoline stations in the Tulsa area to install stage-two vapor recovery equipment at a cost of \$2,000 per pump, or \$12.25 million for the entire area.¹⁶ Such equipment increases the time, and thus the real cost, to motorists of refueling.

A return to nonattainment status would also mean that stationary sources of NO_x and VOCs would have to install RACT. A detailed study would be required to accurately determine the cost of RACT for Tulsa (or Oklahoma City). Estimates of the effectiveness of RACT in removing VOCs, relative to inspection/maintenance and stage-two recovery equipment, and the cost of each technique per ton of VOCs removed,¹⁷ indicate the cost of RACT, alone, would be as much as inspection/maintenance and stage-two recovery equipment combined.

Perhaps the biggest concern of all is that a return to nonattainment status would hamper each city's ability to attract new industry. Tulsa officials claimed in the summer 1991 that the city could lose 750 potential new jobs from three firms that had put the city on their short list, and that nonattainment could put Tulsa out of the running for the McDonnell Douglas plant.

It is difficult to ascertain if nonattainment really is a barrier to location. There are only a few studies of the effect of environment regulations on business location decisions,¹⁸ and only one study in which nonattainment is examined as a location determinant.¹⁹ The findings reported in the literature to date indicate that nonattainment, *per se*, does very little, if anything, to discourage new business entrants. These findings are limited, however, and they differ so much from the experiences cited by local officials, that it would be premature to reject the possibility that nonattainment affects business recruiting.

Compliance Costs (CO). The costs associated with CO nonattainment are similar in some respects to those associated with ozone nonattainment. For example, a study of Denver's effort to reduce wintertime CO indicates inspection/maintenance costs close to those outlined above for Tulsa.²⁰ Costs of service station modifications to reduce CO should also be comparable to those associated with ozone reduction.

The CAAA of 1990 impose no technological requirements such as RACT to achieve CO compliance; the CO problem is created by mobile sources, and RACT applies to stationary sources. CO compliance may eventually require trip reductions or modifications, however. Such modifications cost 4-5 times as much per ton of CO removed as inspection/maintenance and stage-two vapor recovery devices.²¹

Any compliance costs are less objectionable to the degree that the required controls are really needed. There is some question that they are, however.

First, there is a good chance that Oklahoma's ozone problem will diminish as the motor vehicle fleet turns over to include more "clean" vehicles and as the vapor pressure of gasoline is reduced further. In fact, the Office of Technology Assessment²² forecasts that reduced volatility of gasoline, alone, should be sufficient to put most cities in the "marginal" ozone nonattainment category back in attainment by 1994. Thus, if Tulsa or Oklahoma City slip into ozone nonattainment, they should be there for such a short period of time that the capital expenditures required by the CAAA of 1990 are unlikely to be a sound investment from their perspective.

A better case could be made for these investments if they were effective in reducing pollutants, and these reductions were a source of significant benefits. The combined effect of RACT, inspection/maintenance, and stage-two vapor recovery will reduce VOC by less than eight percent.²³ According to a recent study in *Science* reductions of this magnitude are likely to have only a very small impact on people's health.²⁴

State Policy Options

In view of these facts, it is probably in the state's best interests to reduce the likelihood that either Tulsa or Oklahoma City will slip back into nonattainment provided that there are relatively cost-effective means of doing so.

Volunteerism. One approach is to solicit the voluntary cooperation of owners of mobile and stationary sources to change their behavior during periods when conditions are especially favorable to the buildup of ozone and CO. Tulsa has an "Ozone Alert" program which asks people under these conditions, to do things such as minimize "cold starts," ensure a tight seal on vehicle gas caps, limit driving to essential trips, car-pool wherever

possible, avoid peak hour trips, and refuel carefully. The Oklahoma City area has a "Clean Air Committee" that is currently spearheading a similar effort to reduce the likelihood of acute episodes of excessive CO.

Experience with Denver's Better Air Campaign indicates that efforts such as these may have limited success in reducing pollutants.²⁵ To reduce the risk of this outcome the state may want to undertake additional programs short of those prescribed by the CAAA.

Oxygenated Fuel. The most promising alternative at present may be requiring the sale of oxygenated gasoline in the summer in Tulsa and in Oklahoma City in the winter. The principal costs of this alternative is an increase in gasoline price and a small fuel economy penalty. Estimates based on Denver's experience with oxygenated fuels indicates that these costs can be quite small.²⁶ In Denver they ranged from 0.45 cents to 1.6 cents per gallon, including the price equivalent value of the impact on fuel economy. More widespread demand for oxygenated fuels will probably drive up these costs. Still, this alternative may compare favorably on the basis of costs with the voluntary action alternative when all the costs of the latter are considered, e.g., the costs of alternative transportation, inconvenience, the value of "free" public-service announcements, and the corporate costs of getting employees to participate. There is little doubt that oxygenated fuels is a more certain route to reducing actual pollutant emissions.

AIR TOXICS

The Problem

Industrialized economies produce and use large quantities of chemicals, chemical compounds, and metals. Many of these are toxic to humans and/or the natural environment. The Clean Air Act of 1970 required the EPA to list each toxic or hazardous pollutant that was likely to cause an increase in deaths or serious illnesses, and to establish emission standards for each source of the listed pollutant. In 20 years, the EPA issued standards for only eight toxic pollutants: mercury, beryllium, asbestos, vinyl chloride, benzene, radio-nuclides, inorganic arsenic, and coke oven emissions.

The 1970 law required a very stringent health standard for toxics. The EPA was unable,

or unwilling, to find many toxics that would meet this standard, and also withstand a legal challenge to the underlying risk-benefit assessment required of the agency.

Total Releases. In 1988, manufacturing facilities reported 6.2 billion pounds of environmental (air, land, water) releases and off-site transfers of chemical wastes in the Toxics Release Inventory²⁷ required by Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986. Thirty-nine percent, or 2.4 billion pounds, were air toxics.

As large as these releases may appear, they are only the tip of the iceberg. The Office of Technology Assessment estimates that the Toxics Release Inventory amounts for 95 percent of toxic chemical releases because of noncompliance, underestimates, and limitations on the chemicals and facilities subject to reporting requirements.²⁸

Toxics Threat. The 1990 CAAA specify a much less exacting standard for identifying and listing air toxics than was provided in the 1970 Clean Air Act. The latter required the EPA to list those substances that caused or contributed to an increase in mortality or an increase in serious irreversible or incapacitating irreversible illness. Under the 1990 CAAA a substance may be listed if the EPA determines simply that it presents a threat to human health or the natural environment.

Toxics List. In addition to providing the EPA with a less exacting—and presumably less litigious—standard for air toxics, the 1990 CAAA contain a list of 189 toxic substances which must be regulated by the EPA according to a fixed timetable. This list will be the focus of air toxics regulatory efforts for years to come.

Major Sources. EPA regulation of these toxics begins with identification of the "major" sources; a major source emits more than ten tons per year of a single toxic or more than 25 tons per year of any combination of toxics. The EPA must then develop technology-based emissions limits for each source category. The emissions allowable for existing major sources will be those achieved by the cleanest 12 percent of the sources, or the cleanest five sources if a category contains 30 or fewer sources. These standards are normally referred to as MACT standards, where MACT stands for Maximum Achievable Control Technology. In setting these standards, the EPA must consider not only the pollution control equipment used by existing sources, but also pollution pre-

vention methods such as changes in processes, inputs, or products.

New major sources will be subject to more exacting standards. They will be required to limit emissions to those achievable by the adoption of LAER (Lowest Achievable Emission Rate) technology.

Area Sources. Existing and new "area" sources—smaller sources in an area that combined emit more than ten tons per year of a single toxic or more than 25 tons per year of any combination of toxics—will also eventually be regulated. They will have to limit emissions to levels achieved by sources employing GACT—Generally Available Control Technology. Presumably, this is a less exacting standard than those based on MACT and LAER technology.

States' Role. The states will have the primary responsibility for implementing EPA regulations, including operation of the new permitting system (discussed below) inspired by the air toxics provisions of the 1990 CAAA. States may adopt their own toxics standards, provided that they are tougher than the federal standards.

Advance Compliances. The CAAA attempt to provide an incentive for sources to reduce their toxic emissions even before the EPA sets standards. Sources that reduce toxics releases by 90 percent or more below baseline year releases, or enter into enforceable commitments to achieve such reductions by January 1, 1994, will be given a six-year extension from compliance with MACT standards. Congress is hopeful that this provision will induce an immediate reduction in air toxics.

One should not confuse this advance compliance feature of the 1990 CAAA to reduce industrial toxics with an effort underway before the act. That EPA initiative, known as the "33/50 Program", would reduce by one-third the total releases, transferring 17 target chemicals by the end of 1992 and cutting them in half by 1995. During the first six months of this program, 236 organizations, including 77 chemical producers, signed voluntary commitments to achieve these goals.²⁹ Among the companies are giants such as Bayer USA, Dow Chemicals, DuPont, Eastman Kodak, and Hoechst Celanese.

Other Provisions. The 1990 CAAA also call for (1) studies by the National Academy of Sciences and EPA to identify improved techniques for estimating risks to public health from air toxics exposure, (2) a program to assess the health risk from combinations of "area" sources (for example,

dry cleaners, print shops, auto paint shops), (3) a program for prevention of accidental releases of air toxics by industrial plants, and (4) a study of air toxics emitted from electricity generating plants. Finally, since the effects of air toxics on health, and the effects on air toxic levels of the application of MACT standards are uncertain, the 1990 CAAA require an assessment by 1996 of the residual risk remaining after the applications of the provisions in the amendments. The findings of this assessment could lead to new, possibly stricter, regulations.

TRI Air Toxics. Table 1 lists the top 20 air toxics, in terms of volume of air emissions, according to the federal government's 1988 Toxics Release Inventory (TRI). These 20 account for nearly two-thirds of all air toxics reported in the TRI.

The TRI covers only toxics produced in manufacturing. Thus it does not include all air toxics, or even a full accounting of the toxics it does report. Some significant underreporting occurs³⁰ with respect to the following:

- benzene and toluene - total emissions from all sources, including motor vehicles, exceed the total quantity of *all* air emissions reported in the TRI,
- chloroform-water treatment plants emit five times the amount emitted by chloroform manufacturers,
- tetrachloroethylene (perchloroethylene)-only about one-third is reported in the TRI, and

TABLE 1
Air Emissions of Twenty Toxic Chemicals
1988

Chemical	Total Air Toxics Released (Millions of Pounds)	Percent of Total Air Toxics Released
Toluene	263.448	10.85
Methanol	215.368	8.87
1, 1, 1-Trichloromethane	161.675	6.66
Xylene (Mixed Isomers)	140.265	5.78
Chlorine	132.567	5.46
Methyl Ethyl Ketone	126.121	5.20
Dichloromethane	114.812	4.73
Carbon Disulfide	82.280	3.39
Hydrochloric Acid	56.216	2.32
Trichloroethylene	46.396	1.91
Glycol Ethers	45.654	1.88
Styrene	33.616	1.38
Tetrachloroethylene	31.017	1.28
Methyl Isobutyl Ketone	29.996	1.24
Benzene	28.289	1.17
Chloroform	22.710	0.94
Carbonyl Sulfide	19.125	0.79
Ethylene Glycol	13.229	0.54
Formaldehyde	12.332	0.51
Hydrogen Fluoride	11.568	0.48
	1586.684	65.36

*denotes carcinogen

Source: EPA, *Toxics in the Community*, 1990, Appendix D.

- formaldehyde—total emissions from all sources are around 1.25 billion pounds, versus the 12.332 million pounds reported by manufacturers.

Actually, the TRI includes only 173 of the 189 air toxics specified in the 1990 CAAA. For example, the 1988 TRI omitted coke oven emissions which was about 105 million pounds.

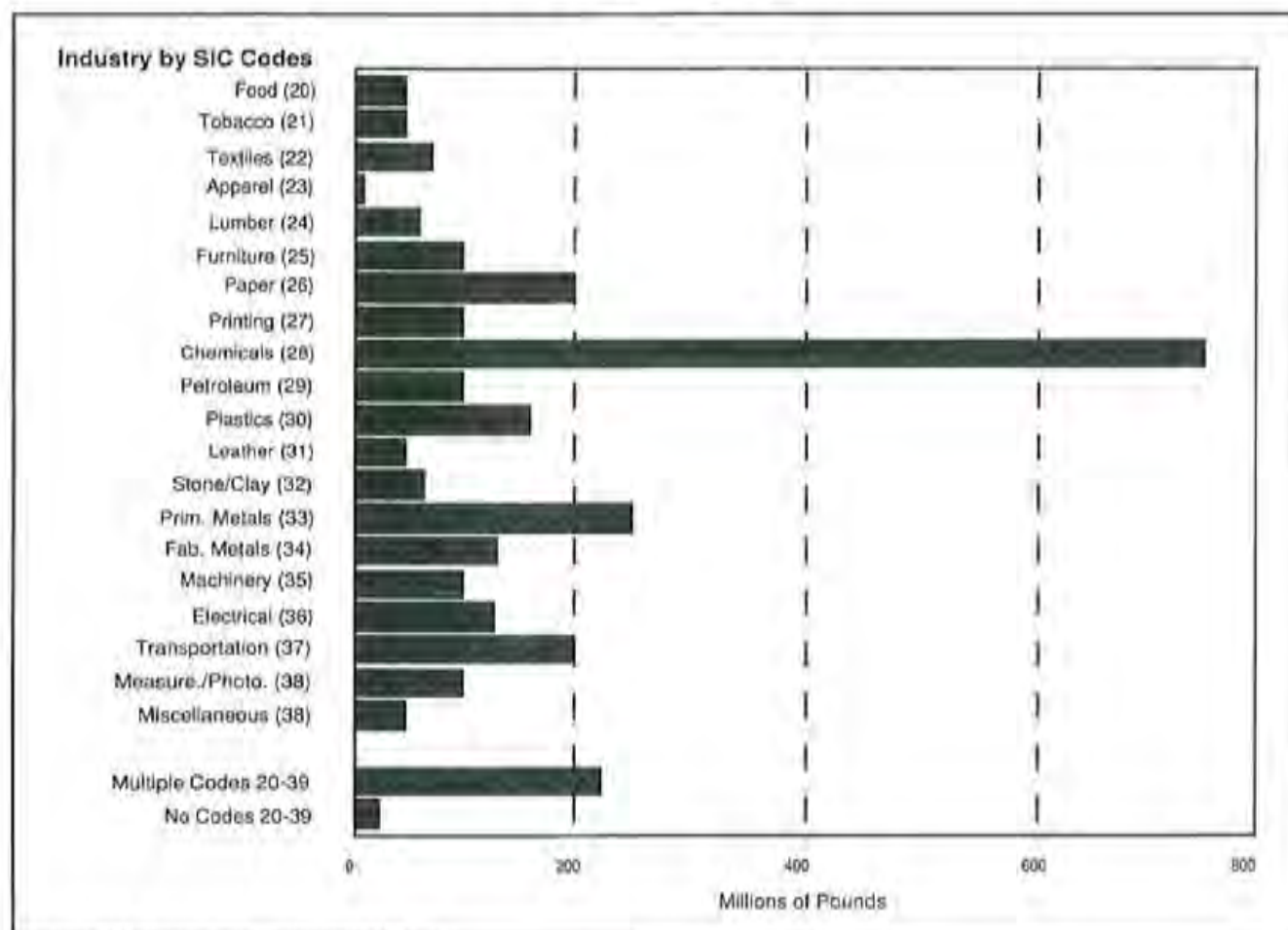
Figure 1 shows the heavy concentration of TRI air emissions in four manufacturing industries: Chemicals (SIC 28), Primary Metals (SIC 33), Paper (SIC 26), and Transportation Equipment (SIC 37). The chemical industry alone accounted for 31 percent of all TRI air emissions.

Other Toxics. The EPA's regulation of air toxics will extend far beyond these four industries;

indeed, it extends far beyond the nation's manufacturing sector. Air toxics are produced also in agriculture, mining, construction, transportation, public utilities, wholesale trade, retail trade, services, medicine, education and research. The EPA's draft of its air toxics source list³¹ includes processes and activities from all of these sectors, with special emphasis on the sectors outside of manufacturing that are listed in Table 2. There is no inventory at present of the air toxics releases associated with these sources.

Table 3 shows an alternative way to organize the full scope of air toxics sources. These are the categories used by the EPA in developing the source list of the 189 air toxics which must be regulated according to the 1990 CAAA.

FIGURE 1
TRI Air Emissions by Industry



Source: EPA, Toxics in the Community, 1990, 158

TABLE 2

Principal Sources of Air Toxics Outside Manufacturing by SIC Code

SIC Code	Industry
1721	Painting and Paper Hanging
4228	Special (Truck) Warehousing and Storage, N. E. C.
4581	Airports and Airplane Services
47	Transportation Services
4911	Electricity Generation
4941	Water Supply
4953	Refuse Systems (Incinerators, Landfills)
516	Chemicals and Allied Products-Wholesale Trade
517	Petroleum and Petroleum Products-Wholesale Trade
554	Gasoline Service Stations-Retail
598	Fuel Oil Dealers-Retail
721	Laundry, Cleaning, Garment Services
7532	Automobile Top, Body, Upholstering, Paint Shops
7534	Tire Retreading and Repair Shops
806	Hospitals
8221	Colleges and Universities

Regardless of how the sources are organized, it is clear that many types of economic activity produce air toxics. Thus, the air toxics portion of the 1990 CAAA requires the EPA to greatly extend its regulatory efforts. The exact shape that this regulation will take is not yet clear.

The Oklahoma Connection

Oklahoma manufacturing firms provide data on their releases and transfers of toxic pollutants, including air toxics, as part of the EPA's Toxics Release Inventory. State-level data on sources outside manufacturing are not available, however.

Total Releases. Tables 4 and 5 provide information on total and average toxics released and transferred in Oklahoma during 1988—the last survey year for which data have been published by the EPA. They also list Oklahoma's ranking relative to all the other states in the nation. These data suggest that Oklahoma's manufacturing sector is somewhat toxics-intensive relative to the rest of the states. However, without further study, that observation is inconclusive. In any event, the data suggest that Oklahoma will have many manufacturing facilities subject to new environmental

regulations under the air toxics provisions of the 1990 CAAA.

Much of this regulation is likely to be focused on the Tulsa and Oklahoma City areas. Tulsa and Oklahoma counties top the state in terms of total releases and carcinogenic releases, respectively. In fact, Tulsa County is among the 100 counties nationwide with the largest total releases, and Oklahoma County is among the top 100 of carcinogenic releases.

Releases by Industry. Table 6 shows the distribution of total releases and transfers by industry in Oklahoma and the U. S. in 1988. Although not identical, the distributions of the U.S. and Oklahoma releases are similar in many ways. In general, the more important industrial sources in the U. S. tend to be the more important sources in Oklahoma. This suggests that the impacts of the 1990 CAAA air toxics regulations on the manufacturing sector may be similar in both Oklahoma and the U. S.

The impact of the air toxics provisions of the 1990 CAAA on the national or state economy is difficult, if not impossible, to estimate because of the large number of source categories and the lack of detailed data on the sources. Neither the EPA nor the state regulatory agencies has a profile of existing technologies complete enough to write the regulations to govern each source. Thus, the impacts will be known only after progress in reducing pollution through mandatory measures is assessed.

Compliance Costs. The EPA estimates that the costs of complying with the air toxics provisions of the CAAA will be approximately \$7 billion per year by 2005 when the provisions are in full force.³² The EPA has not allocated the costs to the states, however, because source data are relatively incomplete. As a first approximation, the state's share of compliance costs could reflect its share of total TRI air toxics releases and transfers. For example, the 31.1 million pounds of air toxics reported by Oklahoma manufacturing firms in 1988 constitutes 1.28 percent of the 2,427.6 pounds reported nationwide.

Adjusting this percentage in order to account for Oklahoma's somewhat more toxics-intensive manufacturing sector, shows in Table 5 a high ranking in terms of releases per worker and releases per dollar of value added in. Separate calculations indicate a higher ratio of releases to earnings for Oklahoma in eight of the ten most toxics-intensive industries: chemicals, petroleum,

TABLE 3
Sources of Air Toxics

Industry Group	Selected Specific Sources
Fuel Combustion	Boilers, Heaters, Turbines, Engines, Fireplaces, Wood Stoves
Metallurgical: Nonferrous Metals	Smelting, Refining, Battery Manufacture
Metallurgical: Ferrous Metals	Foundries, Coke Ovens, Steel Pickling
Mineral Products Processing and Use	Brick, Cement, Glass, Asbestos
Petroleum Refineries	Petroleum Refining
Petroleum and Gasoline Production/Marketing	Hydrocarbon Transportation and Storage
Surface Coating Processes	Printing, Coating of Fabric, Paper, Appliances, Buildings, Autos, Furniture
Waste Treatment and Disposal	Incinerators, Landfills, Water Treatment
Agricultural Chemicals Production and Use	Insecticides, Fungicides, Fumigants, Herbicides
Fibers Production Processes	Acrylic, Nylon, Rayon, Triacetate
Food and Agriculture Industry	Bakers Yeast, Coffee Roasting, Cotton Ginning
Pharmaceutical Production Processes	Pharmaceutical Production
Polymers and Resins Production	Butyl Rubber, Cellophane, Nylon Plastics
Production and Use of Inorganic Chemicals	Production of Use of 28 Chemicals/Compounds
Production of Synthetic Organic Chemicals	Production of 404 Chemicals
Radionuclide Emitters	Coal Combustion, Dept of Energy Facilities, Uranium Mines
Miscellaneous	66 Processes or Uses
Production and Use Activities (TRIS)	Producers and Users of 72 Toxics Reported by Toxics Release Inventory System

Source: Environmental Protection Agency, 1990, *Documentation for Developing the Source Category List*, Preliminary Draft, Office of Air Quality Planning and Standards, Research Triangle Park, NC.

TABLE 4
Total Toxic Releases in Manufacturing in Oklahoma 1988

Measure	Amount Released (Millions of Pounds)	Rank Among the 50 States
Total Releases and Transfers (Air, Water, Land)	51.720	31
Total Releases	39.605	30
Total Carcinogens Released	n.a.	27
Total Air Releases	31.101	27
Total Point Source Air Releases	22.453	26
Total Fugitive Air Releases	8.648	26

Source: Calculated from data in EPA, 1990, *Toxics in the Community*. n.a. Not available in *Toxics in the Community*.

plastics, stone/ clay /glass, fabricated metals, machinery, transportation equipment and measurement/photo equipment. Given these factors, the state's share of compliance costs may be as high as two percent, or \$140 million per year out of \$7 billion.

In recent years, compliance costs have been less than four percent of total new investment in manufacturing. Outlays of \$140 million would account for a larger share, probably in the eight-ten percent range.

Productivity Effect. Oklahoma outlay still a small share of investment spending. Investment spending is such a critical determinant of productivity, however, and the growth in productivity is so important to long-run growth in real income, that it deserves a closer look.

There are several reasons why regulation would reduce productivity. First, it may reduce

TABLE 5
Average Toxic Releases in Manufacturing in Oklahoma
1988

Measure	Amount Released (Pounds)	Rank Among the 50 States
Total Releases and Transfers Per Reporting Manufacturing Facility	284,178	21
Total Air Releases Per Capita	9.5	25
Total Air Releases Per Square Mile	445	36
Total Air Releases Per Worker in Manufacturing	310	12
Total Air Releases Per Dollar of Value Added in Manufacturing	0.0035	9

Source: Calculated from data in EPA, 1990, *Toxics in the Community*.

TABLE 6
Distribution of TRI Total Releases and Transfers in Oklahoma and U. S.
1988

Industry	Total Releases/Transfers in Oklahoma (Pounds)	Percent of Total Transfers/Releases in Oklahoma	Percent of Transfers/Releases in U. S.
Food (SIC 20)	220,991	0.39	1.17
Tobacco (21)	0	0.00	0.24
Textiles (22)	11,000	0.02	0.95
Apparel (23)	0	0.00	0.03
Lumber (24)	54,761	0.11	0.53
Furniture (25)	464,318	0.90	1.01
Paper (26)	2,707,430	5.23	5.93
Printing (27)	20,360	0.04	0.97
Chemicals (28)	18,521,243	35.81	46.20
Petroleum (29)	3,610,698	6.98	1.67
Plastics (30)	2,566,031	4.96	3.03
Leather (31)	0	0.00	0.61
Stone/Clay/Glass (32)	488,734	0.94	0.88
Primary Metals (33)	4,575,740	8.85	13.75
Fabricated Metals (34)	3,177,738	6.14	3.45
Machinery (35)	2,694,835	5.21	1.21
Electrical (36)	744,725	1.44	2.92
Transportation (37)	4,889,754	9.45	4.18
Measure/Photo (38)	3,391,653	6.56	1.03
Miscellaneous (39)	35,414	0.07	0.58
Multiple SIC Codes	3,528,690	6.82	9.29
No SIC Codes	36,194	0.07	0.37

Source: EPA, 1990, *Toxics in the Community*, Tables 6-1 and D-8.

the productivity of inputs used in production. For example, when a pollution control device on a smokestack limits the flow of air out of an industrial heater, that reduces the heater's efficiency.

Second, regulation could reduce productivity by reducing new investment, or capital per worker. Uncertainty about the exact dimensions of regulation—a likely response to the 1990 CAAA air toxics provisions—might reduce willingness to invest in new production equipment, or lead to postponement until the regulations are clarified. Also, firms that have to invest in pollution abatement equipment to meet regulations may do so by taking away funds from investment in new production equipment.

Third, firms may have to devote resources to ensuring and demonstrating compliance with regulations that they could use for production, including the diversion of management effort.

Christainsen and Haveman found that observed increases in total federal regulation over the 1948-1977 period explained from 12 to 21 percent of the 1970's labor productivity slowdown in manufacturing.³³ In a more recent study, Gray determined that EPA regulation alone was responsible for 12 percent, or .17 percentage points, of the productivity slowdown in this sector that occurred in the 1970s.³⁴ In other words, real output in the manufacturing sector would have grown .17 percent faster in the absence of EPA regulations.

Although this may not sound like much impact, with a large base level of output and the cumulative effect of several years, it is significant. For example, real U. S. manufacturing output was about \$658 billion in 1980 and \$858 billion in 1989. The average growth rate over this period was three percent. Had this rate been .17 percentage points higher, or 3.17 percent, real U. S. manufacturing output in 1990 could have been \$871 billion, or \$13 billion higher. In Oklahoma, real manufacturing output grew at an annual rate of 3.4 percent over the 1980-89 period, from \$6.534 billion to \$8.859 billion. Assuming that this rate continues until 1994, when the first of the air toxics regulations are in place, and for ten years thereafter, real manufacturing output would be \$14.628 billion in 2005. If the rate falls to 3.23 percent because of air toxics regulations, real manufacturing output would be only \$14.39 billion or \$238 million lower. The cumulative reduction in output over the 1994-2005 period would be \$1.194 billion.

These illustrations should be sufficient to make the point that small reductions in productivity matter. They do not prove, though, that the air toxics regulations will reduce productivity.

Gray points out that regulation can positively affect productivity by stimulating the development of new production techniques, providing a "shock" to management and forcing inefficient plants to close.³⁵ He clearly believes, however, that these effects will not outweigh the negative effects of regulation on production.

The most serious challenge to the view that air toxics regulations will reduce productivity comes from those who point out that firms will satisfy air toxics provisions of the 1990 CAAA largely by applying known technology.³⁶ This is different from many environmental regulations in the past that promulgated standards forcing the development and adoption of new technology. If this is the case, the findings of Christainsen and Haveman³⁷ and Gray³⁸ overstate the negative effect of the air toxics provisions of the 1990 CAAA.

Business Opportunities. Finally, the CAAA create significant business opportunities in the cleanup. The new legislation will increase the demand for pollution abatement equipment and design of pollution abatement and prevention strategies. Michael R. Deland, Chairman of the President's Council on Environmental Quality cites a preliminary estimate of a \$228 billion worldwide market for environmental technology annually, growing at five-six percent per year.³⁹ Consultants at Arthur D. Little predict that the market for hazardous waste incineration services could grow at 20-25 percent a year in the foreseeable future.⁴⁰ Only a few Oklahoma firms, such as John Zink Company of Tulsa, are key participants in this market, but there will be room for new entrants to make an impact.

State Policy Options

The air toxics provisions of the CAAA ensure that for the first time thousands of small businesses will be affected by clean air legislation. Initially, air toxics sources will be regulated if they emit as little as ten tons per year of a single toxic pollutant or 25 tons of all toxic pollutants combined. Some small businesses are sure to be included in this group. Eventually, the EPA will issue regulations for area sources — stationary sources of air toxics that in sum are major

sources—bringing a large number of small businesses under the regulatory umbrella.

Small Business Assistance. Congress anticipated that these firms would often lack the in-house personnel needed to deal with the coming regulations and wrote provisions into the CAAA requiring the states to provide small business assistance. Under the amendment the states must establish a Small Business Stationary Source Compliance Assistance Program. This program, funded by fees levied for air pollution source permits, will be evaluated by a Compliance Advisory Panel also established pursuant to the CAAA.

Legislation containing such provisions will be introduced in the 1992 session of the Oklahoma Legislature. A draft of this legislation asks also for the authority to establish a State Ombudsman Office for small business in the Oklahoma Health Department.

The Council of Environmental Quality (CEQ) specifies factors pertinent for an effective state assistance program:⁴¹

- An articulated philosophy or approach;
- Strategies to engage senior managers and workers at companies;
- An array of information services including a database, publications, and training;
- Capability to conduct on-site audits;
- Partnerships with key research institutions, universities, and community colleges; and
- Positive incentives such as awards.

University Partnerships. The CEQ recognizes that state resources for such programs are generally limited, and they suggest extending them through partnerships with local universities. For example, Tennessee and Rhode Island have developed successful partnerships.

Toxics Legislation. The states must establish (as explained in a later section), a system that issues permits to toxics sources. The level of public awareness of the air toxics problem will grow over time, however, and, as it does, there will be a growing demand for more state action. According to the CEQ at least 14 states have passed legislation to limit the use of toxic substances and/or reduce hazardous waste generation.⁴² For example, Louisiana now has a law mandating a 50 percent reduction in toxic air emissions by 1994. If Oklahoma is swept along by this wave, there will be pressure to do something in a hurry.

Better Information. Currently, Oklahoma's information on air toxics releases is limited primarily to what is submitted as part of the TRI. As already noted, this inventory contains many gaps, and Oklahoma may wish to join states, such as Massachusetts and Minnesota, which now require reporting from many non-manufacturing sectors, identified by SIC code. Alternatively, it may wish to require all major sources of toxics to file release reports. The key criterion should be that a release occurs, not whether it occurs through production or use or some particular type of action.

Better information also has more than one dimension. In addition to total volume, policy-makers should know when peak releases occur and for how long, and how much is typically released during these periods.

More complete information will be needed to satisfy the public's growing awareness of its "right to know" more about toxic pollutants. It will also be valuable in helping public and private entities identify priorities for regulatory review and enforcement. Over time, the data can be used to track emission trends; the present data are of insufficient duration for this purpose. State agencies can use the data base to identify priorities for review, to set strategies for controlling releases of specific substances, and to focus generally on sources of concern for further investigation, enforcement action, or both.

One outcome of an expanded data collection process will be to help management focus its attention on both identifying opportunities and setting priorities for pollution prevention or source reduction.

Risk Assessment. The obligation on the part of the state to ensure the provision of better air toxics information carries with it an obligation to determine and communicate the significance of that information. The public can easily misunderstand toxics release information. However, there is not necessarily a correlation between pounds of releases, actual exposure, and the effects on the environment or human health. That is, the raw quantity of emissions, by itself, says little about the resulting risk to health or the natural environment. To determine the potential risk, one must match ambient concentrations with the toxicity of individual substances and the magnitude and duration of exposure.

Warnings such as these become even more important in an atmosphere conducive to quick political decisions. The approach of the CAAA

makes good sense; e.g. to require the adoption of existing prevention and abatement technology, and then, after this is done, to conduct an assessment of residual risk remaining. New policies are appropriate only if they appear necessary according to such an *ex post* assessment.

Although the abiding stance should be that of waiting until after the EPA implements federal regulations before launching significant state initiatives, the possible existence of air toxics problems may require more immediate attention. Thus, the state should be ready to do its own risk assessment.

State Facilities. State government services and activities are also important. Florida, for example opted to convert state buildings to energy-efficient lighting, to join EPA's "Green Lights" program. This action will reduce electricity demand in Florida by 200 million KWH each year, reducing the state government's electric bill and sulfur dioxide emissions by 2.5 million pounds.⁴³

Recruiting Targets. The growing interest in air toxics should influence the state's industrial recruiting targets. Given the prospects for growth of the pollution prevention and abatement industry, firms associated with this industry look like good targets. Alternatively, prospects likely to be significant sources of air toxics look like more questionable targets.

State Input. One final area deserving immediate attention is that of influencing yet-to-be-written federal regulations. The EPA is far from issuing specific air toxics regulations, and has shown a new desire to consider input from affected parties in developing these regulations. The state should take full advantage of the opportunity to provide such input.

ACID RAIN

The Problem

Sulfur dioxide and nitrogen oxides emissions cause acid precipitation which damages buildings, hurts vegetation, limits the wildlife that can survive in and around lakes, and may affect human health. Title IV of the Clean Air Act Amendments sets forth a revolutionary approach to the reduction of the levels of SO₂ and NO_x. As its overall objective, the legislation targets SO₂ emission reductions by over 50 percent, approximately a ten million ton per year reduction, that will im-

pact electric utilities primarily; it also sets a national ceiling level (at 8.9 million tons annually) and defines a program to maintain that level for the future.⁴⁴ The legislation targets NO_x emissions for a two million tons per year reduction. As a secondary objective, the legislation will encourage energy conservation, use of renewable energy sources, and development and installation of pollution control technologies.

With the mandated emissions ceiling, in the future, economic development activity that produces SO₂ emissions can expand only when existing emissions are offset. These limits may hamper future economic growth, either by placing physical limits on production, or impacting operating costs because of compliance costs. These impacts are particularly important to a state if the standards disproportionately impact that state relative to others.

The permissible emission standards apply, of course, to all states, although the economic impacts will not be equivalent. The levels of required reductions differ among industries and states. The ease and cost of compliance differs among states. The potential for growth in emitting industries differs. It is very apparent that there are regional differences in the impacts of Title IV. It is not very clear, at this time, exactly what these differential impacts will be. Surprisingly, there is, to date, little evidence of governmental review, at any level, of the regional effects.

From the mechanics set forth in the legislation and the emerging regulations, it is apparent that the CAAA will change abruptly the methods of dealing with SO₂ and NO_x emissions, and that the potential economic effects are fairly sizeable. Moreover, the compliance requirements under Title IV are complicated, especially as they apply to SO₂ emissions.⁴⁵ Thus, although the legislation is entirely federally mandated, there will be impacts upon state utilities, businesses and citizens, and there will be an important involvement by state government.

SO₂. During Phase I of the program which will begin in 1995, 110 of the highest emitting power plants in 21 states, but not Oklahoma, must reduce their SO₂ emissions to 2.5 pounds per million BTUs (lbs./MMBTUs). Affected by the age of the generating plants and the fuel used, these plants are mostly concentrated in ten states east of the Mississippi. This standard will lower the overall emissions in the U.S. by ten million tons per year below 1980 levels.

Phase II of the program will begin in the year 2000 for all existing units greater than 25 megawatts capacity. The legislation requires a reduction in SO₂ emissions to a level that is equivalent to 1.2 lbs/MMBTU. In addition, other emitters, such as industrial facilities, may elect to participate in the acid rain program if they choose to do so. Naturally, the more stringent standards will catch many additional plants in Phase II including plants in Oklahoma.

A utility can comply with this requirement by installing flue gas desulfurization equipment (scrubbers), by switching to lower sulfur fuel, such as natural gas, by reducing the offending units level of production, by retiring the unit, by petitioning the Environmental Protection Agency (EPA) to assign the SO₂ limitations to another unit, or by acquiring allowances through trading with another company.⁴⁶

NO_x. The NO_x emissions program will affect all coal-fired units affected by the Phase II SO₂ standards. EPA will issue guidelines and limitations for the NO_x emission program prior to its effective date in the year 2000.

CEM. The program also requires affected utilities to install continuous emissions monitoring (CEM) systems for SO₂, NO_x and other related pollutants to track progress, ensure compliance, and to assure that the administration of the program is creditable.⁴⁷

Allowances. The EPA will allocate "allowances" to Phase I and II affected units in amounts that correspond to the emission limitations. These allowances permit the emission of the proscribed level of SO₂. Of course, in reality the affected companies may fail to have enough allowances for their level of emission, or they may reduce emissions sufficiently that they have more allowances than emissions. Consequently, the affected companies that exceed the required reduction in emissions will generate excess allowances. These excess allowances may be banked for future use, traded, sold, or leased to another company, and the second company can use these allowances to justify emissions that exceed the limits for its SO₂ emissions. Through this allocation mechanism, either within the same firm or between firms, the overall emission target is met.

At the end of the calendar year, all affected units must hold allowances equal to the level of SO₂ emitted during the year. To bring the level of emissions and the allowances into balance, the units have until January 30 of the following year

to complete all transactions and submit them to the EPA for recording.⁴⁸ The EPA will bank the excess allowances for the following year. If there is an allowance deficiency, the unit must pay a penalty and submit a plan to the EPA for meeting the standard in the new year.

With allowance trading, a firm still has all of the methods used previously under a command and control policy to meet emission standards, plus it also can now avoid meeting the standard by acquiring allowances from another of its plants or from other firms.

Benefits of Allowance Trading. The allowance trading mechanism will free each of the affected firms so they can seek the most economical method to meet both Phase I and Phase II standards. The affected companies can set their own rate of emission and then choose the lowest cost method of meeting that requirement.⁴⁹

Firms with lower costs of emission control will choose to exceed the standard and generate additional allowances which may be banked for future expansion or sold. The firms with the highest costs of control will find it cheaper to acquire allowances from the lowest cost firms. In this way, the legislation, as its drafters intended, will assure the meeting of the standard, but at the lowest cost to all of the affected firms.

The value of an allowance should be at least equal to the cost of generating the allowance for the lowest cost seller. The buying firms will be attracted to purchasing allowances so long as the allowance price, plus the present value of the discounted future allowance prices, is less than the cost of the cheapest alternative means of abatement.

Incentives provide further important advantage to allowance trading over the previous command and control method. Since the emitters may generate excess emission savings for future use or to sell them, that encourages companies to exceed the standards. It, in turn, encourages firms to always seek the most efficient manner to control emissions, even beyond the meeting of the principal standard. That is, the trading policy will encourage firms to install new technologies, even if the firm is in compliance, and it will encourage investment in R&D of control technologies by the affected firms and their suppliers.

The Allowance Market. If the market for the buying and selling of allowances is controlled by a small number of the participants in the market, the cost or availability of allowances may be unfair to firms desiring allowances. Firms, including

cogenerators, and states that do not have direct access to newly generated allowances have been a concern for planners of this provision from the beginning. And there are reasons to believe that the trading of allowances may proceed less efficiently than hoped. For example, firms with excess allowances may hoard them for future development needs, thereby foreclosing them from firms seeking allowances. Regulators in states with excess allowances may encourage the withholding of allowances for the domestic development needs of those states. There remains an uncertainty regarding the efficacy and the fairness of the allowance market, and there is a possibility that some parties, states or firms, will develop an unfair advantage over other states or firms.

As one preventive measure in the legislation, the EPA will withhold 2.8 percent of the total allowances and sell them through a government sponsored auction. That will create a bench mark pricing mechanism and a small market, perhaps of "last resort", for both buyers and sellers. Still the functioning of that provision is unclear.

The Oklahoma Connection

Presently, Oklahoma is in compliance with the requirements under the legislation for Phase I (until the year 2000), but perhaps more importantly, Oklahoma utilities will not be impacted as heavily as utilities in other regions. One estimate for the beginning of Phase II predicts 87,223 tons of emissions and 104,667 allowances for Oklahoma.⁵⁰ If this optimistic estimate should prove correct, Oklahoma will not have a net deficiency in SO₂ allowances until future expansion, sometime beyond 2000, causes a short-fall. Of course, estimates concerning emissions into the next century are problematical, and even if accurate they may differ among the various utilities in the state.

There are at least three areas of importance to Oklahomans in Title IV. First, there are important administrative and regulatory requirements for state governments. Second there are potential economic development effects. And third, the natural gas producing sector in Oklahoma could benefit, but probably only by a relatively small amount.

Regulatory Responsibility. Under the legislation, the states, including Oklahoma, will take over the responsibility of issuing acid rain permits during Phase II, and must develop a program to do so.

During Phase I of the program, EPA's Regional Offices are responsible for issuing

acid rain permits. For Phase II, states are required to develop and implement permit programs for approval by EPA pursuant to the general permitting requirements specified under Title V of the Clean Air Act.⁵¹

The permitting process will provide a uniform accounting of the emissions and controls and promote more effective administration of the Clean Air Act Amendments.⁵² Uniform accounting is critical to the functioning of an effective market in allowances and any evaluation of the effectiveness of this market.

As discussed more thoroughly in the next section, Title V requires the states to develop general permit programs by November 1993. Thus, Oklahoma officials will have several years of experience with permitting when it becomes necessary to permit public utility emissions of SO₂ and NO_x.

The Oklahoma Corporation Commission (OCC) has an important responsibility to implement policies that assist, and at least do not exacerbate, the national environmental policies, and that serve Oklahoma's broader interests. On the one hand, the Title IV policies should improve and prevent degradation of the air quality in Oklahoma. On the other hand, the OCC has an important role to play in seeing that Oklahomans do not inordinately subsidize the air clean-up in other states.

There are two important issues here. First, there may be a conflict between state economic development and environmental objectives and national environmental objectives. Second, unless the various state commissions handle the regulatory treatment of the effects of the CAAA uniformly, Title IV will work to the detriment of some states relative to others. The OCC has as an important role in determining the impact of this portion of the legislation in Oklahoma.

Importantly, there may be a conflict between the state objectives and the national policies, and at least some observers have noted that potential conflict. For example, Bohi and Burtraw have noted that the ratemaking treatment by commissions will affect the utilities' incentives for complying with Title IV.⁵³ Decisions by the Corporation Commission, as to the levels of return on the investment in control equipment will determine the relative attractiveness of abatement and allowances. The Commission also will determine the treatment of purchased allowances. If allowance purchases are expensed by a utility, that will reduce the utility's investment because that practice

avoids recovering the investment over time. If the OCC allows a rate of return for abatement investments that is less than the company's cost of capital, a utility will seek allowances rather than abatement.

The Commission's treatment of capital gains and losses from the holding of allowances may be most important. If allowances appreciate in value, that gain can flow through to stockholders or it can offset the revenue requirements that would otherwise be collected from ratepayers. The same is true for capital losses from the holding of allowances.

Although these types of state-agency decisions affect the willingness to generate and hold allowances, it is, at this time, virtually impossible to discern the policies in Oklahoma's best interest. If the Oklahoma utilities do not have the incentives to exceed the standards when it is cost effective to do so, they will not generate allowances that may be needed for expansion.

Economic Development. As the standards are tightened and if Oklahoma falls out of compliance, Oklahoma utilities and industries will have to invest in abatement equipment to meet the standards or to buy allowances. Although it is still hard to predict the cost and availability of allowances, the excess allowances in Phase II are likely to come from the creation of allowances by the affected firms in Phase I. The latter will install up-to-date abatement technology, and many observers expect excess allowances to result.⁵⁴ Of course, these firms will be from outside the State of Oklahoma.

The actual economic effect for Oklahoma is hard to predict. If the regulatory commissions in other states induce the holding of allowances for anticipated expansion in those states, those policies will adversely affect Oklahoma.⁵⁵ A happier outcome would be a flood of low-priced allowances available early in the next century.

Natural Gas Impact. All of the Title IV effects upon Oklahoma's economy are not so ambiguous, however. Even in the near-term, Oklahoma's gas producing and gas transportation sectors will benefit from the inevitable fuel switching from high sulfur coal and fuel oil to natural gas.⁵⁶ With the plentiful supplies of natural gas at favorable prices natural gas will capture a larger market share when the standards become effective.

The Gas Research Institute advocates gas reburning, where natural gas is injected and ig-

nited downstream of the main combustion zone. When building new plants, natural gas will have an enhanced position because of the SO₂ standards. Although the increase in gas consumption is certain, the volumes may be relatively small. Gas must compete with all of the alternative ways to meet the standards which includes promising clean coal technology. For example, one estimate is that Phase I will add only 14 bcf to national gas market demand, and Phase II will add 200 bcf.⁵⁷

PERMIT PROGRAM

The Problem

SIPs. Since 1970, the core of the Clean Air Act has been the State Implementation Plan (SIP). The typical SIP identifies the state's significant emissions sources and, through mathematical modeling, specifies what emission reductions are needed from each source, and the measures necessary to achieve them, in order to meet federal ambient air quality standards.

SIP's have grown, in most cases, to be very detailed, complicated, and difficult to access. They have also been difficult to change, requiring both state and federal approval - often received only after lengthy delays. Thoughtful observers have long favored a permit program for air pollutants as a means of addressing these problems.

Permits. Proponents of permits point to a highly successful model, the National Pollutant Discharge Elimination System (NPDES) program under the Clean Water Act. In NPDES, the regulatory requirements of the Clean Water Act are specified in a permit for each source. The permits and source reports are available for inspection in EPA regional offices.

Title V of the 1990 CAAA provides for a permit program that incorporates the best features of NPDES and focuses on environmental results. Its major features are as follows:⁵⁸

- Operating permits are required for all major air pollution sources.
- Permits must be renewed every five years.
- Permits specify all requirements of the Clean Air Act that apply to each source.

The states are given the responsibility of developing the permit program, although EPA retains the authority to establish a program if a state fails to do so and to veto permits that do not comply with federal law. The 1990 CAAA require

the states to levy a permit fee to support their programs. The states must secure authorization from their legislatures to establish these programs and to levy permit fees if state statutes do not already permit these actions.

The Oklahoma Connection

The Oklahoma statutes do not currently provide the authority necessary for the Oklahoma State Health Department's Air Quality Service to establish, operate, and finance (through permit fees) a permit program. Legislation will be introduced in 1992, however, seeking such authority.

The state has until November, 1993, to submit its permit program to EPA for approval. Although there is room for state-level choice, a state must design the program to conform with lengthy and detailed EPA guidelines. For example, the initial draft of these guidelines required 70 pages in the *Federal Register* of Friday, May 10, 1991.

Oklahoma's Air Quality Service is already at work on the design of the new permit program. In fact, this feature of the 1990 CAAA accounts for most of the claims on state resources attributable to its passage.

State Policy Options

It seems appropriate to devote a large share of any new agency resources to the permit program. In a practical sense, permits will provide the mechanism for applying regulations to individual sources, and they will establish the operating benchmarks against which regulatory authorities and source managers will measure compliance.

If they work well, permits will resolve uncertainties regarding which regulations are applicable to each source and clarify the nature of each regulation. They will promote a clearer understanding of requirements at the operating level—for both operators and regulators. That will facilitate monitoring and compliance.

If they work poorly, permits could be a severe handicap to Oklahoma industry. To avoid this outcome, several program features are critical.

First, the state authorities must approve permits promptly, both for existing sources and prospective new sources. Second, permits must allow for aggregation of the many emission points often present in a single facility or source. Third, the permits must allow sources to change their operations to deal with the changes inherent in a

dynamic economy without seriously jeopardizing environmental quality. Fourth, the regulation authorities must clarify a "complete and timely" permit application removing doubt whether an applicant can continue to operate pending permit approval. Fifth, the state must spell out clearly the relationships between the permit and the SIP, in as much as the SIP will continue to be a guide for regulatory authorities. Sixth, the state must provide technical assistance to small businesses, many of which will be subject to permitting requirements of any kind for the first time.

State regulatory authorities are fully aware of these requirements. Developing a permit program that provides them, however, is difficult. It will undoubtedly require additional resources to do the job and communication with potentially affected parties and the public-at-large.

CONCLUSIONS

Late in 1990, after nearly a decade of debate, Congress approved extensive amendments to the federal Clean Air Act. Although the legislation is federal, impacts from the amendments will be felt by businesses and citizens in every state, including Oklahoma.

There is little doubt that the nation's, and the state's, air will be cleaner as a result. However, cleaner air is not costless. State motorists will pay more for cleaner vehicles and fuels. If Tulsa or Oklahoma City go back on the "dirty air" list, they will be hit with significant compliance costs and probably lose some of their attractiveness as sites for new businesses. Emitters of air toxics could face significant increases in pollution prevention or abatement costs. Costs, in terms of lost productivity and growth, could mount over time. Electric power plants could experience cost increases from the implementation of the new acid rain provisions, and Oklahoma firms will have to underwrite the costs of a new permit program to be administered by state pollution control officials.

Although some of these costs can be estimated, existing information is not good enough to support an accurate determination of all of the costs of the 1990 CAAA. This is due partly to the fact that many of the key administrative regulations necessary to implement the act have not yet been written. But the bigger difficulty is that of determining how decision-makers will respond to

the incentives and disincentives created by the act. This seems especially true for both the air toxics and acid rain provisions.

Not all of the impacts of the CAAA will be negative, however. Oklahoma refineries could benefit from increased demand for reformulated gasoline. Oklahoma gas producers could see greater demand for CNG, and the producers of pollution control equipment should prosper.

In a market economy, costs of regulation will be minimized and benefits maximized, if private parties are free to choose among alternative processes, products, and technologies. Environmental laws and regulations have often erected roadblocks to free choice. The acid rain provisions of the 1990 CAAA are a notable exception; if markets in emissions permits are competitive, costs of complying with the new acid rain provisions will be minimized. Still, governmental oversight and assistance will probably be needed to make this market function well.

Beyond this, state governments have some responsibility to reduce the costs associated with, and enhance the opportunities provided by, the CAAA. What is needed most are policies that:

- enhance the competitiveness of CNG,
- promote voluntary efforts to reduce ozone and carbon monoxide,
- facilitate the production and use of oxygenated fuels,
- provide assistance to small businesses affected by the new air toxics regulations,
- facilitate university-government partnerships in pollution reduction and control,
- tackle the air toxics problems not covered by federal regulations,
- provide better information on the nature of the air toxics threat to Oklahomans, and
- produce an effective permit program.

As we learn more about the regulations and impacts spawned by the CAAA, this list will undoubtedly grow.

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