

# Texas BUSINESS

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Research and Development Expenditures in Texas 233

Per Capita Income in Texas 237

Limited Partnerships in Texas Agriculture 240

Waco: Diversity in the Heart of Texas 244

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*Clayton Alred, David Edwards,  
Allisyn Gilbreath, and Lorna A. Monti*

**Per Capita Income in Texas 237**

*Charles P. Zlatkovich and Rita J. Wright*

**Limited Partnerships in Texas Agriculture 240**

*R. A. Dietrich, D. R. Levi,  
J. R. Martin, and Kenneth Roberts*

**Waco: Diversity in the Heart of Texas 244**

*Charles P. Zlatkovich*

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# Research and Development Expenditures

in Texas

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Research and development (R&D) expenditures lead to solar energy use, new drugs, synthetic fibers, airplanes, microcomputers, and educational methods. How important is R&D in Texas? This relatively small industry (2.4 percent of the gross national product in 1973) is held by some to be the key to future economic development and by others to be relatively unimportant. The valuation depends on which criteria are used; three are common: direct economic stimulus for job creation and local spending; short-term productivity of new processes, such as a new method for manufacturing a chemical; and long-term productivity, such as eventual use of solar energy.

Whatever the benefits of R&D to the state in which it occurs, Texas receives proportionately fewer of them than would be expected. The state ranked third in population but only tenth in total R&D expenditures in 1973 (the last year with complete data). California led with over \$5.3 billion and was followed by New York (\$2.4 billion) and Michigan (\$2 billion).

The two important determinants of the size of R&D in a state are the amount of manufacturing industry and the number of research centers attracting federal money. Manu-

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facturing industries spend perhaps twenty times as much on R&D as nonmanufacturing companies. Because manufacturing is a smaller component of the Texas economy than it is of the national economy, R&D expenditures in Texas have remained small.

R&D programs include basic research, which means discovering fundamental new knowledge (for example, new laws of physics and chemistry); applied research, which means using new knowledge to meet recognized needs (for example, applying laws of physics and chemistry to develop techniques for drilling geothermal wells that use natural hot water for energy); and development, which involves designing, engineering, and demonstrating new systems or models (for example, building and operating a geothermal well).

The direct economic stimulus of any of these activities is the amount of money spent initially for equipment and jobs plus subsequent expenditures by those who receive the first injection of money. R&D expenditures are equivalent to any other injection of funds into a state that has not previously received them.

## Federal Expenditures

The largest source of R&D in Texas is the federal government. Federal funds in Texas steadily increased from

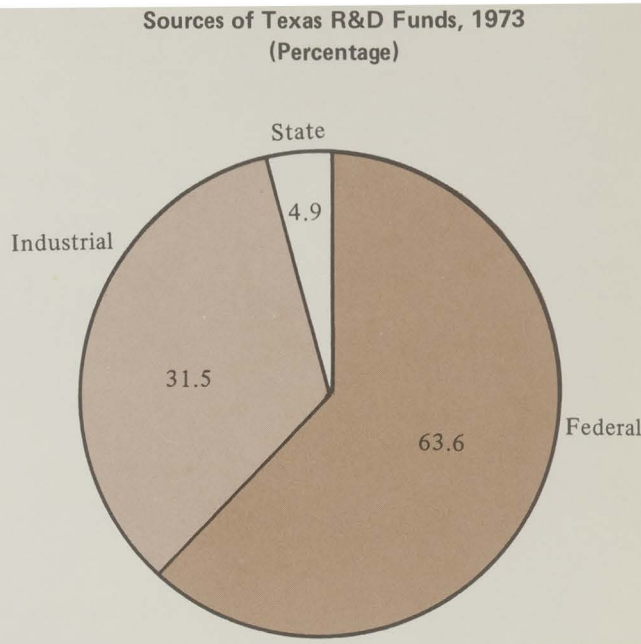
\$649.1 million in 1970 to \$651 million in 1973, after a decrease from 1965 to 1969. The high 1965 figure of \$731 million decreased to the lower 1973 figure predominately because of major government emphasis in 1965 on national defense and the NASA program.

Of the federal money allocated to Texas R&D in 1973, \$183 million was for NASA contracts and subcontracts. Universities and colleges in Texas received over \$83.5 million. State government agencies received \$6.38 million, while an additional \$52.74 million mainly went to industrial firms.

The Department of Health, Education, and Welfare contributed 51.4 percent of the total federal money to the state's colleges and universities. The major recipients of federal money were the University of Texas at Austin (\$16.4 million), Baylor College of Medicine (\$14.6 million), and Texas A&M University (\$11.2 million). These three institutions received approximately one-half of the \$83.5 million allocated to Texas colleges and institutions.

### State Expenditures

State support for R&D programs increased an average of 17.4 percent annually between 1964 and 1973. The total amount of state R&D expenditures for 1973 was \$10.7 million. Sixty percent of these were "pass through" funds from federal sources. The major researchers receiving these



expenditure for state-operated organizations in 1973 was 50.4 million.

### Industrial Expenditures

In 1973 industrial R&D expenditures in Texas were \$475 million. Industrial firms provided \$323 million and the federal government contributed \$152 million. The Department of Defense and NASA provided 86 percent of the federal R&D funds.

Federal and industrial contributions have increased from \$304 million in 1963. In 1968 industrial R&D peaked at \$607 million. After declining from 1969 to 1971, industrial R&D increased in 1972 and 1973.

Most industrial R&D funds were spent to develop new or improved products and processes. Applied research was conducted in such industries as communications equipment, aircraft, guided missiles, spacecraft, transportation equipment, and chemicals. Companies devoted only 3 percent of their R&D dollars to basic research in chemistry, engineering, life sciences, and physical sciences. All of these expenditures inject funds into the state's economy, but not all are equally productive in the short run.

Statistical studies by Edwin Mansfield in 1965 and Jora Minasian in 1969 arrived at marginal rates of return on R&D of 30 to 50 percent in the petroleum and chemical industries.<sup>1</sup> A 1974 study by Nestor Terleckyj has computed the rate for federally funded R&D and for R&D funded by industry. Terleckyj drew these conclusions about the impact of R&D upon productivity: "in the manufacturing industries, where most consistent results were generally obtained, the coefficient for government financed R&D was zero, while for company financed R&D it represented an 80 percent [indirect] rate of productivity return."<sup>2</sup> Terleckyj estimated that the effects of R&D ac-

*In 1973 the development phase of R&D received considerably more support in Texas than in most other states.*

funds were state agencies (43 percent), universities and colleges (28 percent), and local governments (27 percent). R&D programs in education were sponsored only by the Texas Education Agency. Occupational and career education programs and special education programs were emphasized. In support of the state's natural resources, the Parks and Wildlife Department conducted numerous wildlife studies and research pertaining to coastal and inland fisheries. There was considerably more support for the development phase of R&D in Texas than in most states. Most of the effort was in the areas of education, transportation, and communications.

State universities and colleges received \$27.29 million from the state. Other intrastate money to education came from local governments, foundations, state universities, and other funds. The intrastate contribution to the educational R&D effort amounted to \$18.83 million. The total R&D

counted for 23 percent of the rate of growth in output of the manufacturing industries mentioned in his study.

Arthur D. Little, Inc., investigated the effects of federally funded R&D efforts in five industries and concluded that no commercially feasible market exists for the information produced in federally funded projects, except in such cases as the defense and space programs where the government itself is the principal consumer. This conclusion is most immediately apparent in basic and applied research (the primary functions of academic research), but it is also true for development. The mere existence of a product does not mean it will be bought and used. For example, solar energy research has produced many good ideas that are not yet economically feasible. Although such information is interesting and perhaps may be useful in the future, the Little report points out that "countless examples show that R&D cost is a small part of the total cost of bringing technologi-

granted in this country declined 21 percent between 1971 and 1976, according to *Newsweek* (July 3, 1978).

### Total Impact of R&D in Texas

The total impact of R&D in Texas is difficult to determine. Although Texas is one of the top ten recipients of federal R&D funds, its per capita funding is not proportionate. A disproportionate amount of the federal money goes to the space center in Houston; and, although nationwide the percentage of federally funded R&D is 53 percent of total R&D, in Texas federal money accounts for 63.6 percent. Thus, according to the Terleckyj and Little studies, Texas' proportion of productive R&D (industrial R&D) is considerably less than that immediately suggested by the total figures on Texas R&D.

*Although Texas is one of the top ten recipients of federal R&D funds, its per capita funding is not proportionate.*

cal innovation into the marketplace."<sup>3</sup> This report further states that federal R&D support does not offset the problems of regulatory constraints, that the benefits "of federal policies toward civilian R&D . . . are elusive and of little significance for social and economic well being," and that "federal policies toward civilian R&D . . . do not take into account user needs and industry dynamics."<sup>4</sup>

Short-term productivity as a criterion for evaluation may erode the economy's ability to overcome such long-term constraints as energy shortages, environmental problems, and heightened awareness of health hazards without ultimate, large declines in productivity and standards of living. On the other hand, practitioners of basic research cannot guarantee that they will discover knowledge with eventual applications that will produce the hoped-for results. Long-term advantages of increased knowledge depend heavily on the judgment of the evaluators. A Harris poll indicated that, although 92 percent of people in this country think scientific research and technological development is necessary, only 44 percent think that technological advances can create jobs.

### Prospects for R&D Investments

National R&D spending hit its peak in 1964 (in constant dollars); as a percentage of the gross national product R&D has steadily decreased from 3.0 percent in 1964 to 2.2 percent in 1977. The National Science Board has found that the percentage of scientific literature produced by American scientists has been shrinking since 1965. Patents

Texas benefits from federal R&D money in employment and materials purchased for the research. Although Texas receives 3.3 percent of national R&D funds, 4.5 percent of all doctoral scientists and engineers in the country work in Texas. The real value of R&D, however, is in its potential for creating completely new jobs with new technology. This effect is what creates a lasting economic impact.

### Implications for Texas

Research and development expenditures within a state result from the presence of high-technology industries and well-developed research centers that the federal government supports. If state policy makers wish to increase research and development activity within Texas, they should attempt to increase the size of high-technology industries and research centers, such as NASA and the medical centers.

### Notes

1. Edwin Mansfield, "Rates of Return from Industrial Research and Development," *American Economic Review* 55 (May 1965): 310-322; and Jora Minisian, "Research and Development, Production Functions and Rate of Return," *American Economic Review* 59 (May 1969): 80-85.
2. Nestor E. Terleckyj, *Effects of R&D on the Productivity Growth of Industries*, Report no. 140 (Washington, D.C.: National Planning Association, 1974), p. 38.
3. Arthur D. Little, Inc., *Federal Funding of Civilian Research and Development* (Boulder, Colo.: Westview Press, 1976), p. 1.
4. *Ibid.*, pp. 24-25.

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# Per Capita Income in Texas

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One Texas standard metropolitan statistical area ranks among the top ten SMSAs in the nation in average per capita income; but, at the same time, the state has the three SMSAs with the lowest average incomes in the country, according to 1976 data from the Bureau of Economic Analysis. Eight SMSAs in the state are above the national average in per capita income.

In comparison with the rest of the nation Texas is below average in per capita income but is catching up. While in 1971 the per capita income in the state was less than 90 percent of the national average, it has climbed steadily since then. In 1973 the per capita average income in Texas was 92 percent that of the nation; in 1975, 95 percent; and in 1976, 97 percent. Despite this gain, many Texas SMSAs rank relatively low in average income when compared with areas of comparable size in other parts of the country. In 1976 average per capita income in Texas was \$6,201 and that for the nation, \$6,396.

## Income Ranking by SMSA

Midland is the most prosperous metropolitan area in Texas with a 1976 per capita income level of \$7,701. The Midland SMSA ranks ninth among all metropolitan areas in the country in per capita income. Houston is the next most prosperous SMSA in Texas with an average of \$7,617 per capita. Houston is ranked twelfth in per capita income among metropolitan areas nationwide. The Dallas-Fort Worth area, with a per capita income of \$7,096, ranks third among Texas SMSAs and thirty-sixth in the nation.

The next five metropolitan areas in Texas, in order of per capita income, are Galveston-Texas City, Amarillo, Wichita Falls, Beaumont-Port Arthur-Orange, and Odessa. These eight are the Texas SMSAs that are above the national average. The Tyler metropolitan area ranks just below the national average and just above the state average. Longview, San Angelo, Abilene, Waco, and Sherman-Denison are the next five metropolitan areas in relative prosperity, followed

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in order by Killeen-Temple, Lubbock, Corpus Christi, San Antonio, and Austin. Ranked twentieth among Texas metropolitan areas is Texarkana, trailed by Bryan-College Station and El Paso.

The Brownsville-Harlingen-San Benito, Laredo, and McAllen-Pharr-Edinburg areas rank last among Texas SMSAs in per capita income and also have the lowest levels of all metropolitan areas in the nation, according to the Bureau of Economic Analysis. Residents of Brownsville-Harlingen-San Benito averaged \$3,825; Laredo area residents, \$3,575; and McAllen-Pharr-Edinburg area residents, \$3,338.

## Income Ranking by County

When average per capita income is figured by county rather than by SMSA, the most prosperous parts of Texas include some of the state's largest counties and some of its least-populated areas. Eight Texas counties had per capita income levels of over \$7,500. Included among the eight are the two largest counties in the state and three of the state's five least-populated counties. The county with the highest per capita income is Loving, the least-populated county in the state, with fewer than two hundred residents. Loving County residents had income averaging \$15,710 in 1976.

Kenedy County, the home of the King Ranch, ranked second among Texas counties in per capita income with \$10,624. Kenedy County is number 252 in population size among the state's 254 counties. Kenedy County is the only county in far south Texas with an average income level of more than \$6,000.

Two Panhandle counties, Roberts and Carson, ranked third and fourth among Texas counties in income level with 1976 per capita income figures of \$9,629 and \$8,640. In population Roberts County is the fifth smallest county in Texas and Carson County is 187 among the state's counties.

Not all of the high-income counties in Texas are sparsely populated. Harris County, which contains most of the city of Houston and is the state's most-populated county, ranks fifth among all Texas counties in per capita income with its

residents averaging \$7,875. Midland County, which is also the Midland metropolitan area, ranks sixth among Texas counties in per capita income at \$7,701. The oil industry is the dominant factor in the economy of Midland and the Permian Basin region.

Dallas County, the second most populous county in Texas, ranks seventh in per capita income. Dallas County residents had incomes averaging \$7,522 in 1976. The only other Texas county with per capita income over \$7,500 is Glasscock County, just east of Midland. With about 1,100 residents, Glasscock County is the ninth smallest county in population.

Fifty-three Texas counties have average per capita incomes between \$6,000 and \$7,500; of these, nineteen are metropolitan counties. These nineteen plus Midland, Harris, and Dallas counties make a total of twenty-two metropolitan counties with average per capita incomes of more than \$6,000. Fifty-three metropolitan counties in Texas make up the state's twenty-five metropolitan areas.

### *High-Income Clusters*

The high-income counties of Texas are concentrated in five major clusters. The largest concentration is in the Panhandle, where sixteen adjacent counties surrounding Amarillo all have per capita income levels of over \$6,000, according to the 1976 data. The economy of the Panhandle region is characterized by concentrations of activity in agriculture and mining.

The second concentration of high-income counties is along the upper Gulf Coast and just inland from the coast. The high-income counties stretch from Orange and Jefferson counties on the Louisiana border down along the coast to Refugio County northeast of Corpus Christi. This coastal band of twelve high-income counties includes such major cities as Houston, Beaumont, Port Arthur, Orange, Galveston, Texas City, and Victoria.

The Dallas-Fort Worth area is the focal point of another cluster of six high-income counties, five of which are part of the eleven-county Dallas-Fort Worth metropolitan area. The sixth in the cluster is Cooke County on the Oklahoma border just up Interstate 35 from the Dallas-Fort Worth area. Cooke County includes Gainesville. Wichita Falls is the nucleus of a five-county cluster, including the two counties that make up the Wichita Falls SMSA. Midland, Odessa, and San Angelo are the major cities in a group of seven high-income counties that are in the Permian Basin region or just to the east of the basin.

These five clusters of high-income counties include forty-seven of the sixty-one counties with per capita income levels of over \$6,000. Two additional pairs of high-income counties are in northeast Texas. One pair consists of Gregg and Smith counties, which include the cities of Longview and Tyler, while the other pair consists of Morris and Titus counties, the locations of Daingerfield and Mount Pleasant.

Taylor County, which includes Abilene, and its northeastern neighbor Shackelford County, which includes Albany, are also among the state's most prosperous coun-

ties. A group of three relatively prosperous counties forms a band north of San Antonio from New Braunfels to Kerrville including Comal, Kendall, and Kerr counties. A short distance to the north, Mason and Llano counties are also among the more prosperous counties.

Four counties with per capita incomes of over \$6,000 are not included in any of these concentrations. Somervell County, southwest of Fort Worth, is currently the site of a major construction project—the Comanche Peak nuclear power plant. The other three are Cottle County, just south of the Panhandle, and the prosperous, but relatively unpopulated, counties of Loving and Kenedy.

### *Low-Income Clusters*

At the opposite end of the scale from the sixty-one relatively high-income Texas counties are sixty Texas counties with per capita income levels of \$4,500 or less. Most of these counties are in South Texas and far West Texas.

All of the counties along the Mexican border, except two, are in the low-income group. The two exceptions are El Paso County in far West Texas, with a slightly higher average income level of \$4,733, and sparsely populated Terrell County. Terrell contains the community of Sander-son and has a relatively high average income, \$5,835, for the region.

The largest group of low-income counties is made up of twenty contiguous counties in South Texas. The only counties in that general area that are not included in the group of twenty low-income counties are Nueces and San Patricio, which make up the Corpus Christi SMSA; Kenedy County; and Atascosa and McMullen counties immediately south of San Antonio. The twenty low-income counties include the three low-ranked metropolitan areas, Brownsville-Harlingen-San Benito, McAllen-Pharr-Edinburg, and Laredo. Other larger communities in the area are Del Rio, Eagle Pass, Crystal City, Alice, Kingsville, and Beeville. Farther up the Rio Grande is another group of six spatially large, but sparsely populated, counties with low-income levels. These counties include the communities of Pecos, Van Horn, and Alpine. A third cluster of seven relatively low income counties is located to the north of the Houston and Bryan-College Station metropolitan areas. Significant communities in this area include Hearne, Madisonville, and Huntsville.

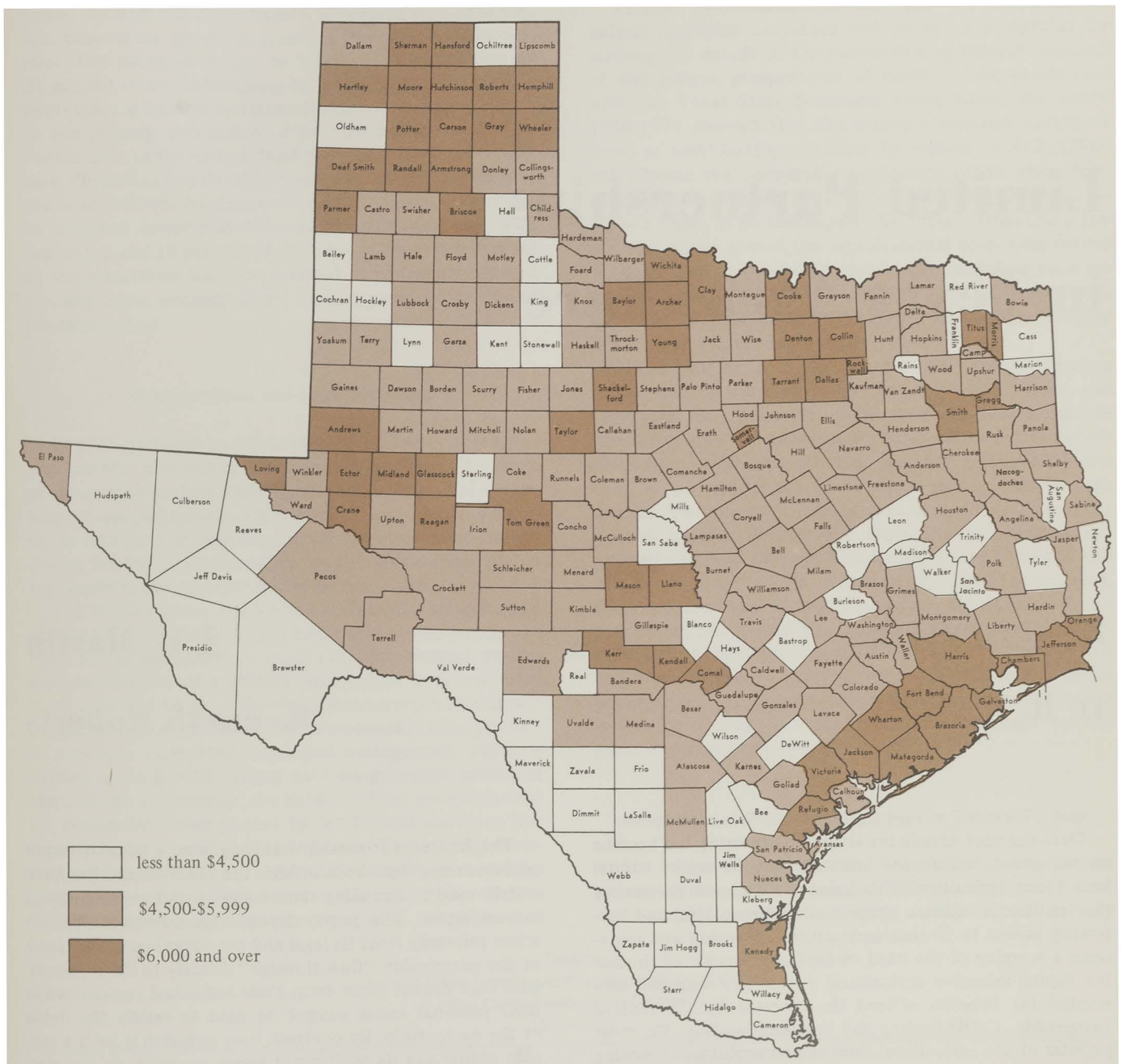
The remainder of the counties with per capita income of less than \$4,500 in 1976 are scattered around the state. Most of these counties are relatively small with economies based on agriculture; in other years, some have ranked among the state's more prosperous counties. Among these counties are Cochran and King (both in the South Plains) and Oldham (in the Panhandle), each of which had severe drops in income in 1976.

### **Note**

Additional information concerning the sources and amounts of personal income at the county level may be obtained from the Bureau of Business Research.



# Texas County Per Capita Income, 1976



# Limited Partnerships in Texas Agriculture

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Over the past decade the limited partnership has become an important vehicle for investing outside equity capital into Texas agriculture. This trend is a dramatic reversal of the traditional reliance upon the farmer's capital and borrowing power to finance agricultural expansion and represents a merging of the need to find new sources of finance for capital-intensive agricultural enterprises with the substantial tax benefits offered the investor by the limited partnership. Cattle-feeding and breeding funds are the most popular of the agricultural limited partnerships, accounting for 70 percent of the Texas funds established from 1966 to 1974 and attracting an estimated \$350 to \$400 million in equity capital into agriculture.

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The limited partnership has long been a popular means of investment for those in high tax brackets and has been widely used in financing ventures in oil and gas drilling and in real estate. The popularity of this investment vehicle arises primarily from its legal and tax advantages. The losses of the partnership "flow through" directly to the investors, who may deduct them from their individual returns, while their personal assets cannot be used to satisfy the debts of the partnership. By contrast, a corporation is itself a taxable entity and its profits and losses generally do not pass through to its shareholders.

## Investor Profile

The tax advantages of the limited partnership are reflected in the motivations of investors. A survey of subscribers to Texas cattle-feeding funds from 1972 to 1974 showed them to be high-income investors primarily seeking

tax deferral. They averaged fifty years of age and had an average gross income in excess of \$80,000 (see table 1).

According to their ranking of investment criteria, 63 percent of the respondents give primary importance to tax advantages, particularly deferral of income until a later period through the deductibility of prepaid feed expenses. The importance given this criterion increased with income level. The potential return on investment, ranked first by 31 percent of the subscribers, correspondingly decreased in importance as income levels increased.

The primary occupation of over 90 percent of the investors in a cattle-feeding fund was not related to agriculture. Physicians and dentists made up almost 20 percent of the total, followed by engineers and contractors, executives, banking and investment officers, and attorneys, each with between 6 and 10 percent of the total. More than 8 percent of the subscribers had also invested in real estate, oil and gas, and other nonagricultural limited partnerships during the same period.

### Organizational and Legal Structure

Limited partnerships are composed of one or more general partners and one or more limited partners. The assets of the general partner stand liable for the debts and obligations of the partnership, while each limited partner's liability is restricted to the amount of his investment. In exchange for this limited liability, he relinquishes the right to participate in the management of the partnership.

The taxable status of a limited partnership is determined on a case-by-case basis by the Internal Revenue Service. In order for an association to receive the flow-through or conduit tax benefits of a limited partnership, it cannot have more than two of the following four characteristics of corporations: continuity of life of the association after the exit of a partner; corporate centralized management, which is defined as the general partner not having invested sufficient assets in the partnership; the liability of the general partner for partnership debts limited by insufficient assets; or free transferability of partnership interests. The Internal Revenue Service has recently begun enforcing these guidelines more strictly, ruling that a real estate syndicate with ten limited partners and a citrus grove with forty-four had

enough of these characteristics to be taxed as corporations.<sup>1</sup> The partnership interests in these cases were sold like shares of stock and were transferable, and in both cases the general partner had not invested any money and so was in effect a hired manager for the limited partners.

Limited partnerships must be registered with state and federal securities exchanges and submit a prospectus describing the details of the partnership agreement. Analysis of thirty-three prospectuses of cattle-feeding funds filed with the Texas State Securities Board during the period 1970-1974 showed that the majority specified maximum levels of capitalization of from \$5 million to \$10 million but allowed the partnership to become active when total subscriptions reached \$250,000. This arrangement would allow a series of partnerships to be formed from one offering and would spread the organizational costs over several ventures. The predominant minimum subscription price per investor was \$5,000, with allowances for additional subscriptions in increments of \$1,000. The average specified life of these partnerships was six years.

Other provisions in the prospectuses covered leverage ratios, cash distribution terms, withdrawal provisions, and provisions for dissolution of the partnerships and distribution of profits. In most cases distribution of cash before dissolution of the partnerships was not anticipated, with over 70 percent of the funds either lacking specific cash distribution policies or leaving these to the discretion of the general partner. Withdrawal from the partnership was generally allowed only on annual anniversary dates and was commonly penalized 10 percent of the original investment. Most prospectuses stated that upon dissolution of the partnership the general partner was to participate in profits only after obligations had been met and the limited partners had received a share at least equal to their original contribution. Any assets remaining after this distribution would be shared in some specified percentage by the general and limited partners.

### Advantages and Disadvantages for the General Partner

The major advantage of the limited partnership for the general partner is its popularity with investors and, hence, the increased potential for raising equity capital for risky

Table 1  
Annual Gross Income and Primary Investment Criteria  
of Texas Cattle-Feeding Fund Subscribers  
1972-1974

Annual gross income	Percentage of subscribers	Primary investment criteria (percentage of subscribers)				
		Return on investment	Ability to pool capital	Tax deferral	Limited liability	Other
Under \$40,000	17	48	4	43	2	3
\$40,000-\$79,999	44	30	0	65	4	1
\$80,000-\$119,999	24	29	4	65	2	0
\$120,000-\$159,999	7	18	0	76	6	0
\$160,000-\$199,999	2	17	0	83	0	0
\$200,000 and over	6	6	0	87	0	7
Average		31	2	63	3	1

ventures requiring large amounts of capital. A lot feeding 30,000 head typically requires about \$8 million for cattle and feed for a six-month feeding period.<sup>2</sup> If the firm is able to borrow three dollars for each dollar of equity, it will need about \$2 million of equity capital to initiate business.

Of course, this reasoning implies that those agricultural operations that do not require large amounts of capital would not need limited partnerships to supply equity capital. For this reason, most limited partnerships in agriculture are involved in highly capital-intensive operations, such as cattle breeding and feeding, poultry production, or fruit and nut orchards.

An often-overlooked advantage of the limited partnership for the general partner is that the portion of the business owned by the limited partners is the major market for the management services of the general partner. In cattle-feeding funds, the operator charges the limited partners for the costs of cattle and feed, medication, and management. The general partner is thus assured a minimum income from these services, even when the partnership as a whole is losing money.

The major disadvantages of this legal form for the general partner are high organizational expenses and unlimited liability for the individual general partner. The legal expenses of qualifying offerings of Texas cattle funds with the relevant securities exchanges varied from \$40,000 to \$120,000 and required from six months to two years. An alternate legal form, which still allows the preferential tax treatment of the limited partnerships without such high initial fees, is the subchapter S corporation. The possibilities of raising large amounts of capital through this legal form, however, are limited by the requirement that the corporation initially contain ten or fewer shareholders. Therefore, the organizer of a limited partnership typically reduces organizational costs by marketing several partnerships under the same prospectus, as shown in table 1.

A common means of limiting the liability of the general partner is to form a corporation that is itself the general partner. Corporate assets may be used to satisfy partnership debts and obligations, but the personal assets of the corporate owners are protected. The only requirements are that the net worth of the corporate general partner be equal at all times to \$250,000 or 15 percent of the partnership's

total capital, whichever is less, and that the limited partners not control more than 20 percent of the stock of the corporate general partner. By forming a corporation to be the general partner, the organizer of a limited partnership may thus participate as both a stockholder in the corporation and a limited partner without the disadvantage of unlimited personal liability. Of the limited partnerships formed in Texas from 1966 to 1974, 41 percent had a corporate general partner, and of these corporate general partners, 65 percent also participated as limited partners.

#### Advantages and Disadvantages for the Limited Partner

Investors in limited partnerships generally have three major investment objectives: limited liability and management responsibility, a reasonable rate of return on their investment, and income-tax minimization. Limited liability and the restriction against participation in management by the limited partners have already been briefly discussed. With regard to rate of return, the situation is ambiguous. The investor in a limited partnership is presumed to benefit from the ability to pool capital and from management expertise. Historically, however, the record of publicly held shelters is less than outstanding in returning investors' dollars. An analysis of 150 limited partnerships found that very few, even over periods as long as fifteen years, had managed to distribute to investors as much as the individuals had put in.<sup>3</sup> The popularity of the limited partnership therefore lies primarily in its potential for manipulation of income taxes.

The major tax advantages of agricultural limited partnerships are related to one or more of the following features: deductibility of business expenses from personal income; deferral of income recognition until a later period, when it will be taxed at a lower rate; and the reduction of the effective tax rate either through conversion of ordinary income into capital gains or through deduction of capital items as current expenses. The first two features are common to all limited partnerships used as tax shelters, while the last, which is especially applicable to certain agricultural operations, was severely curtailed by the Tax Reform Act of 1976.

Table 2  
Cattle-Feeding Funds in Texas  
1970-1974  
(Percentage)

Maximum offering per prospectus	Distribution of total prospectuses	Minimum subscription to activate a fund			Minimum unit subscriptions			Organized for series of limited partnerships	
		Under \$250,000	\$250,000 to \$999,999	\$1 million to \$4 million	\$2,500 to \$4,999	\$5,000 to \$7,500 and over	Yes	No	
Under \$5 million	28.1	22.2	66.7	11.1	22.2	66.7	11.1	44.4	55.6
\$5 million to less than \$10 million	43.8	7.1	78.6	14.3	14.3	71.4	14.3	85.7	14.3
\$10 million to \$15 million	25.0	12.5	62.5	25.0	0.0	100.0	0.0	75.0	25.0
Over \$15 million	3.1	0.0	100.0	0.0	100.0	0.0	0.0	100.0	0.0
Total	100.0	12.5	71.9	15.6	15.6	75.0	9.4	71.9	28.1

The first advantage of the limited partnership for income-tax minimization arises from its conduit nature combined with a progressive tax system. Since the investor is a partner in the business, qualified business expenses are allocated to each partner in proportion to individual interests and are reported on individual tax returns. The tax savings on other sources of income resulting from partnership losses or other expenses effectively reduce the after-tax cost of the investment especially for investors in a high tax bracket. While such reduced cost of investment does not constitute a tax shelter, because the income earned from the investment is still taxed at ordinary rates, it does allow the investor to participate in "tax-loss farming" without a direct investment in a farm or ranch.<sup>4</sup> The conduit nature of the partnership also allows tax credits resulting from qualified business investments to be apportioned among the limited partners. This credit is currently set at 10 percent of the total cost of investment.

*Investors view  
the cattle-feeding fund  
primarily as a device  
for income-tax management.*

Closely related to allowing losses to flow through to individual investors are the advantages of deferring taxes until a later period. In a year when an investor's income and tax bracket are high, it will be advantageous to offset part of this income with losses from another venture. It is obvious that years of sustained losses without corresponding gains would not constitute a profitable venture. Only through deferral of income, with early losses in years of high taxes offset by later gains taxed at a lower rate, can such manipulation of the timing of income flows be justified. In essence, this deferral of taxes combines tax savings resulting from the lower tax rate with an interest-free loan to the investor from the Internal Revenue Service on the amount of taxes deferred.

The deferral of the recognition of income until a later period may also lead to substantial tax benefits if ordinary income is thereby converted into capital gains, but this procedure is not applicable to cattle-feeding operations. In this case the taxpayer has the option of excluding one-half of the gain, the balance to be taxable at ordinary rates, or of paying a maximum of 25 percent on the full amount of the gain (35 percent above \$50,000). These benefits provide a particularly strong incentive for investment in cattle-breeding funds; for, under section 1231 of the Internal Revenue Code, livestock held for breeding purposes qualifies for capital-gains treatment.

The special treatment accorded livestock breeding is one of the few tax advantages for agricultural enterprises that is still intact after the Tax Reform Act of 1976. This act

hit hard at limited partnerships as tax shelters and excluded them from many special benefits accorded agriculture by the tax laws. Since 1915 farmers had been allowed to use the cash method of accounting, under which they could expense all items purchased during the year, whether these were used during that period or not. Since this provision was abused by year-end purchases of expendable items to create artificial losses, it was eliminated for agricultural syndications, as was the ability to deduct rather than capitalize the costs of bringing an orchard or vineyard into production. In addition the act required that the high expenses of organizing a limited partnership be capitalized rather than expensed and that the limited partner only be allowed to show losses to the extent of the amount of capital that could potentially be lost in the enterprise. In general, these regulations removed the advantages accorded certain investments favored by limited partnerships as tax shelters, but they did not remove the tax advantages of the limited partnership itself.

In addition to the advantages of the limited partnership for the investor, there are several potential disadvantages. Management fees can run high, often to as much as 15 to 20 percent of the original investment. Given these costs, it would require a high rate of return for the investor to break even. Partnership interests are also extremely illiquid, for their sale is restricted both by legal arrangements and by the lack of an organized market. Finally, the lack of control over management decisions can become a serious disadvantage for an investor who perceives these decisions to be incorrect.

#### Future Prospects

Investors view the cattle-feeding fund primarily as a device for income-tax management. Consequently, the limitation on prepaid feed expenses for agricultural syndications in the Tax Reform Act of 1976 should have substantial impact upon future limited partnership investment in cattle-feeding funds. Nonsyndicated custom cattle feeders, however, continue to receive a tax deduction for prepaid expenses. The large commercial feedlots have survived the loss of equity capital from limited partnerships because they depend more on nonsyndicated custom-feeding clients. The potential investor in an agricultural limited partnership, on the other hand, will have to give more weight to economic return in choosing among investment alternatives.

#### Notes

1. *Wall Street Journal*, October 29, 1977.
2. William H. Scofield, "Nonfarm Equity Capital in Agriculture," *Agricultural Finance Review*, July 1972, pp. 36-41.
3. *Wall Street Journal*, March 6, 1978.
4. A 1970 study found that of 1.2 million tax returns showing farming losses, the 72,000 returns of taxpayers with nonfarm adjusted income of over \$25,000 accounted for more than one-fourth of the total losses. See W. Fred Woods, "Tax-Loss Farming," *Agriculture Finance Review*, July 1973, pp. 24-30.

# Waco

## Diversity in the Heart of Texas

### Charles P. Zlatkovich

Waco's central location is one of its major assets. Waco is within two hundred miles of the four largest SMSAs in Texas and is on the highway that links three of them. While widely known as the home of Baylor University and the birthplace of Dr Pepper, Waco is probably less well known as a diversified center of economic activity.

Most Texans who travel at all have been to Waco. Such early Texas trade routes as the Chisholm Trail and the Preston Road passed through the Waco area, and the city has always been a popular point for crossing the Brazos River. The suspension bridge across the Brazos near the heart of Waco was the longest such span in the world when it opened in 1870. Its builder later built the Brooklyn Bridge, among others. In later years, passengers on *The Texas Special* and other trains waited in Waco while their trains were switched and serviced. What motorist of the 1950s and early 1960s could forget "the circle" on the south side of Waco? Interstate 35 has now passed it by, but many travelers still negotiate it every day.

#### Population Growth

The Waco standard metropolitan statistical area, which consists of McLennan County, has grown less rapidly than the state of Texas in recent years. Population estimates for 1976 by the U.S. Bureau of the Census indicate that the population of the Waco SMSA increased 5.3 percent

between 1970 and 1976 while the state population increased 11.5 percent. The Bureau of the Census estimates the 1976 population of the Waco SMSA at 155,400. Local estimates put the 1978 population at approximately 160,000.

The Waco SMSA lost population during the 1960s, largely as a result of the closing of James Connally Air Force Base. Federal military employment in the area dropped from 3,800 in 1960 to less than 200 in 1970.

About 46 percent of the growth of the Waco SMSA since 1970 is attributable to the net migration of persons

#### Nonagricultural Civilian Payroll Employment Percentages Waco SMSA, Texas, and United States 1977 Annual Averages

Category	Waco SMSA	Texas	United States
Mining	0.2	3.2	1.0
Construction	5.0	7.0	4.7
Manufacturing	24.2	18.4	23.8
Transportation, communication, and public utilities	4.9	6.3	5.6
Trade	23.1	24.6	22.3
Finance, insurance, and real estate	5.7	5.6	5.5
Services	19.8	17.2	18.7
Government	17.1	17.7	18.5

Sources: Data for Waco SMSA and Texas obtained from Economic Research and Analysis Department, Texas Employment Commission; U.S. data obtained from *Employment and Earnings* (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics, April 1977-March 1978).

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into the area. The remainder of the increase is natural—the excess of births over deaths. Statewide, about 42 percent of the population gain since 1970 is a result of migration into Texas.

### Employment Structure and Sources of Income

The Waco metropolitan area has a more diversified economy than many areas of comparable size. The local economy resembles that of the state but includes some significant areas of contrast. Three economic sectors—mining, construction, and federal military activities—are much less significant in the Waco economy than they are in the state as a whole. Agriculture, once the mainstay of the Waco area economy, is also relatively low now as a direct contributor to personal income in Waco.

The federal civilian sector has a more significant concentration of economic activity in the Waco area than in either the state or the nation. The SMSA contains the regional office of the Veterans Administration and a major VA hospital.

Manufacturing makes a larger contribution to Waco personal income than it does at the state level. Waco is the thirteenth largest of the state's twenty-five metropolitan areas in population, but ranks eighth in manufacturing employment and ninth in the number of manufacturing plants.

The services sector also makes a relatively large contribution to the Waco area economy. Two important components of this sector are Baylor University and Hillcrest

Baptist Hospital, each of which employs more than 700 people. Current student enrollment at Baylor is about 9,300.

Waco is the headquarters of several insurance organizations, resulting in a larger-than-average share of income and employment in the finance, insurance, and real estate sector. The organizations headquartered in Waco include the American Amicable Life Insurance Company, the American Income Life Insurance Company, and two farm-oriented insurers, the Texas Farm Bureau and the Texas Farmers Union.

Waco is also the headquarters of the largest Texas intrastate motor freight carrier, Central Freight Lines, but the transportation, communication, and public utilities sector is less important than it is at the state or national levels. Income and employment for wholesale and retail trade in Waco are between the relative state and national shares. Several major companies have distribution facilities in Waco because of its central location. About two-thirds of the Texas population lives within two hundred miles of Waco.

Property income (dividends, interest, and rent) is a significantly larger contributor to area income than it is statewide or nationwide. Transfer payments (payments to individuals that are not for services currently rendered) are also relatively high, in part because of a concentration of retired people in the SMSA.

### Chief Manufacturing Industries

A wide variety of products are made in Waco. With the exception of the petroleum and chemical industries, almost

Percentage of Personal Income by Major Sources  
Waco SMSA, Texas, and United States, 1976

Source	Waco SMSA	Texas	United States
Agriculture	0.64	1.55	1.82
Mining	0.22	3.50	1.11
Construction	3.90	6.22	4.37
Manufacturing	16.89	15.32	19.74
Transportation, communication, and public utilities	5.28	6.08	5.69
Wholesale and retail trade	14.71	15.42	13.10
Finance, insurance, and real estate	4.12	3.95	4.01
Services	12.83	11.92	12.52
Other industries	0.15	0.26	0.27
Total private labor and proprietor income	58.74	64.22	62.65
Federal civilian	4.39	3.20	3.28
Federal military	0.22	2.17	1.34
State and local	7.87	8.05	8.92
Total government earnings	12.48	13.42	13.53
Total labor and proprietor income (place of work)	71.23	77.64	76.18
Less: Personal contributions for social insurance	3.57	3.89	4.00
Residence adjustment	-0.45	0.12	-0.02
Net labor and proprietor income (place of residence)	67.21	73.88	72.16
Dividends, interest, and rent	17.19	14.86	13.80
Transfer payments	15.60	11.26	14.05
Total personal income (place of residence)	100.00	100.00	100.00

Source: Developed from data compiled by the Regional Economics Information System, Bureau of Economic Analysis, U.S. Department of Commerce, 1978.

Manufacturing Plants with More Than 250 Employees  
Waco SMSA, 1978

Name of company	Primary products	Establishment date
Central Texas Iron Works	Fabricated metal products	1910
CertainTeed Products	Lumber and wood products	1968
General Tire & Rubber Co.	Tires	1945
Lacy Feed Co.	Livestock and poultry feed	1956
M&M/Mars	Candy	1976
Marathon Battery Co.	Batteries	1971
Owens-Illinois	Glass containers	1943
Plantation Foods	Turkey processing	1965
Sturdisteel Co.	Fabricated metal products	1912
Waco Apparel	Trousers	1971
Waco Tribune-Herald	Newspaper	1891
Wolf Manufacturing Co.	Jackets	1946
Word, Inc.	Books, recordings	1951
Young Bros., Inc.	Asphalt, concrete	1946
Hercules, Inc.*	Rocket motors, solid propellant fueled devices	1958

\*Plant located in McGregor. All others listed are located in Waco. Hercules, Inc., acquired the former Rockwell International plant in 1978.

Sources: 1977-1978 *Directory of Texas Manufacturers* (Austin: Bureau of Business Research, 1978); and *Directory of Waco Manufacturers* (Waco: Industrial Department, Waco Chamber of Commerce, 1978).

every type of industry that is common in Texas is represented in the Waco area.

The two largest manufacturers in the area both began their Waco operations during the 1940s. They are the General Tire & Rubber Company tire plant and a glass container plant operated by Owens-Illinois, which employ more than one thousand people each.

Other major Waco industries produce fabricated metal products, construction materials, food products, batteries, publications, apparel, and rocket motors. Smaller Waco industries specialize in portable buildings, mobile homes, air conditioning equipment, fasteners, church furniture, medical supplies, caskets, and many products also made by the largest industries.

*Quality of life  
and a central location  
are the major assets  
of the Waco area.*

Industrial development is continuing in Waco. The Waco Industrial Foundation, which describes itself as the largest community industrial foundation (in financing capability) in the Southwest, has about 1,100 acres still available from its original 2,000 acres. Negotiations are in process with one major company that would employ up to 1,200 people. Employee training and limited production are under way for a new Data Point plant that will make desk-top computers and is expected to employ about 500.

**Population and Income Profile**

Despite the presence of a sizable student population, Waco residents are, on the average, somewhat older than their fellow Texans. According to *Sales and Marketing Management*, the median age of females in the Waco SMSA is 33.4 years, while the state median age for females is 29.3. The median age of males is 30.3 years in the Waco SMSA and 27.0 years in Texas.

**Age Profile  
Waco SMSA, Texas, and United States  
(Percentage of population)**

Age group	Waco SMSA	Texas	United States
0-17	27.4	31.4	29.5
18-24	14.0	13.7	13.1
25-34	12.8	15.6	15.3
35-49	15.9	16.0	16.3
50 and over	29.9	23.3	25.8

Source: Sales and Marketing Management, *Survey of Buying Power Data Service*, 1978.

Income levels in the Waco SMSA are below the state average. The Bureau of Economic Analysis estimates that average per capita income in the Waco SMSA in 1976 was \$5,920, against \$6,201 for the state of Texas. *Sales and Marketing Management* estimates median household effective buying income (the income of all household members after taxes) in the Waco SMSA at \$12,398 for 1977. The comparable state figure is \$14,480. A relatively low cost of living in the Waco SMSA probably compensates for most of the difference in income levels.

**Metropolitan Area Characteristics**

The Waco SMSA is characterized by:

- A relatively diversified economy.
- Recent growth at a lower rate than that of the state of Texas.
- A concentration of federal civilian employment.
- Significant manufacturing activity in several industrial categories.
- A population older than the state average.
- Income levels below the state average.

**Significant Factors**

Located in the heart of Texas, the Waco area stands to benefit from the continued economic development of the state. Although its recent growth has been slower than that of some other parts of the state, Waco has advantages that point toward a bright future.

Waco is centrally located and is on one of the major arteries of the state. Almost anything not available in Waco can be found in the Dallas-Fort Worth area.

Quality of life is one of the major assets of the Waco area. The area has a favorable climate, room to spread out, and the benefits of a metropolitan area without the usual traffic jams. By Texas standards, water is plentiful. Lake Waco offers both a water supply and recreation near the heart of the city. The ongoing enhancement of the Brazos River waterfront will provide Waco with a watercourse combining many of the aesthetic features now found in Austin, San Angelo, and San Antonio.

**Household Effective Buying Income\* Profile  
Waco SMSA, Texas, and United States  
(Percentage of households)**

Income (in dollars)	Waco SMSA	Texas	United States
0-7,999	34.2	27.3	25.4
8,000-9,999	7.2	6.9	6.6
10,000-14,999	18.2	17.6	18.0
15,000-24,999	27.3	28.7	30.8
25,000 and over	13.1	19.5	19.2

\*Household effective buying income is the total income of all household members after taxes.  
Source: Sales and Marketing Management, *Survey of Buying Power Data Service*, 1978.



# Index: Texas Business Review

## Volume 52, 1978

### Author Index

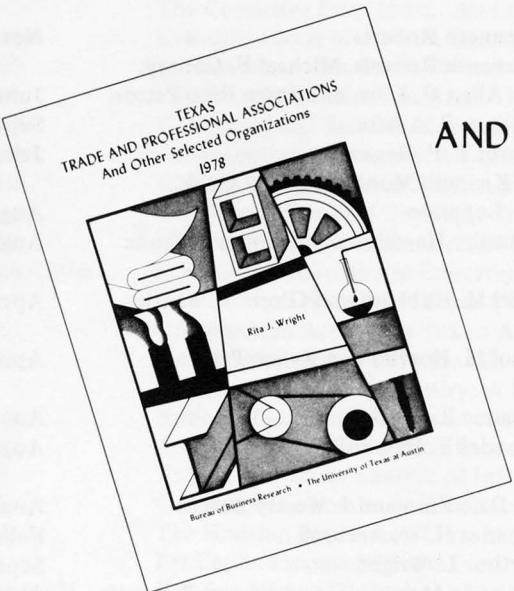
- Alred, Clayton  
Austin, Joanne P.  
Austin, Joanne P.  
Austin, Joanne P.  
Austin, Joanne P.  
Austin, Joanne P.  
Austin, Joanne P.  
Austin, Joanne P.  
Barkley-Booher, Janet  
Barnes, J. Wesley  
Bennett, Carol T. F.  
Bennett, Carol T. F.  
Bobo, James R.  
Brown, Richard D.  
Burghardt, John A.  
Conroy, Michael E.  
Corliss, Stephen  
Dameron, Charles F., Jr.  
Dietrich, R. A.  
Edgar, S. Michael
- Edwards, David  
England, Paula  
Evans, Thomas J.  
Fisher, W. L.  
Fleischmann, Arnold  
Gilbreath, Allisyn  
Hansen, Niles
- Hawkins, Murphy  
Helburn, I. B.  
Holt, Charles C.  
Horvitz, Paul M.
- Hubbard, Carl M.  
Jordan, Terry G.  
King, Allan G.  
Kothari, Vinay
- Research and Development Expenditures in Texas  
Abilene: Profile of a Resilient Economy  
San Angelo: Making the Transition from Agriculture to Manufacturing  
Texarkana: Working to Come Together  
Houston: Growth Center of the Southwest  
Galveston-Texas City: Industrial and Medical Center on the Gulf Coast  
Dallas-Fort Worth: The Southwest Metroplex  
Austin: Rapid Growth in the Hill Country  
CETA Manpower Programs in Texas  
Geothermal Energy: Heat and Power from beneath the Texas Coast  
An Economic Profile of the Texas Apparel Industry  
Sherman-Denison: A Center for Diversified Light Manufacturing  
Business Doctorates in Texas: A Study in Demand and Supply  
Collective Bargaining and Public Employee Strikes  
Major Trends in Population Growth in Texas  
Counting Illegal Mexican Aliens: Myths and Misconceptions  
Business Doctorates in Texas: A Study in Demand and Supply  
Geopressured-Geothermal Well Begins Operation  
Limited Partnerships in Texas Agriculture  
1976: An Improved Year for Bank Trust Departments in the Eleventh  
Federal Reserve District  
Research and Development Expenditures in Texas  
Texas Women in the Labor Force  
Energy for Industry  
Texas Energy Reserves and Resources  
Annexation and Population Growth in Texas Cities  
Research and Development Expenditures in Texas  
Alien Migration: Mexican Workers in the United States and European  
"Guest Workers"  
Energy for Industry  
Public Employee Unionization and Texas: A Critical Public Issue  
Commentary on the CETA Programs  
Financial Reporting and Disclosure: The Annual Reports of Bank  
Holding Companies in Texas  
Federal Reserve Membership and Bank Profitability in Texas  
Perceptual Regions in Texas  
Counting Illegal Mexican Aliens: Myths and Misconceptions  
Major Problems for Small Manufacturers
- December, p. 233  
May, p. 95  
June, p. 115  
July, p. 131  
August, p. 159  
August, p. 165  
September, p. 186  
October, p. 205  
May, p. 89  
August, p. 151  
January, p. 1  
February, p. 34  
February, p. 29  
September, p. 179  
June, p. 112  
June, p. 101  
February, p. 29  
August, p. 152  
December, p. 240
- April, p. 79  
December, p. 233  
May, p. 85  
August, p. 153  
August, p. 145  
September, p. 173  
December, p. 233
- June, p. 107  
August, p. 153  
January, p. 8  
May, p. 92
- April, p. 72  
April, p. 69  
November, p. 217  
June, p. 101  
May, p. 93

Lake, Linda	Texas Women in the Labor Force	May, p. 85
Levi, D. R.	Limited Partnerships in Texas Agriculture	December, p. 240
Lewis, John H.	Bank Holding Company Acquisitions in Texas	April, p. 75
Lopreato, Sally Cook	Energy Developments in Texas Communities	August, p. 155
McConnell, Suzanne	Texas Women in the Labor Force	May, p. 85
Marchesini, Roberto	Houston: Growth Center of the Southwest	August, p. 159
Martin, J. R.	Limited Partnerships in Texas Agriculture	December, p. 240
Meinershagen, Tim	A Comparison of Foreign and Texas Labor Costs: Implications for Foreign Direct Investment in Texas	February, p. 40
Monti, Lorna A.	The Relocation Misconception: Manufacturing Change in Houston and Dallas-Fort Worth	March, p. 58
Monti, Lorna A.	Industrial Location Decisions in Texas: People and Buildings, Planes and Trucks	July, p. 125
Monti, Lorna A.	Coincidence between Economic Areas and Perceptual Regions in Texas	November, p. 221
Monti, Lorna A.	Research and Development Expenditures in Texas	December, p. 233
Monts, J. Kenneth	Energy Developments in Texas Communities	August, p. 155
Morris, Robert B. III	A Comparison of Foreign and Texas Labor Costs: Implications for Foreign Direct Investment in Texas	February, p. 40
Mullendore, Walter E.	Regional Patterns of Industrial Growth in the Planning Regions of Texas	March, p. 53
Patel, Ranak	Financial Reporting and Disclosure: The Annual Reports of Bank Holding Companies in Texas	April, p. 72
Pollard, Robert F.	Industrial Location Decisions in Texas: People and Buildings, Planes and Trucks	July, p. 125
Raveed, Sion	A Comparison of Foreign and Texas Labor Costs: Implications for Foreign Direct Investment in Texas	February, p. 40
Rees, John	The Relocation Misconception: Manufacturing Change in Houston and Dallas-Fort Worth	March, p. 58
Render, Barry	Business Doctorates in Texas: A Study in Demand and Supply	February, p. 29
Richey, Bryan	The Consumer Price Index: An Improved Measure of Inflation	October, p. 197
Rizo-Patron, Jorge	Counting Illegal Mexican Aliens: Myths and Misconceptions	June, p. 101
Roberts, Kenneth	An Interview with Jess R. Totten	February, p. 31
Roberts, Kenneth	Counting Illegal Mexican Aliens: Myths and Misconceptions	June, p. 101
Roberts, Kenneth	Computers and Small Businesses: An Interview with Roy Harris	July, p. 128
Roberts, Kenneth	Counterstream Migration: An Interview with W. Thomas Anderson, Jr.	November, p. 225
Roberts, Kenneth	Limited Partnerships in Texas Agriculture	December, p. 240
Rostow, W. W.	The South: Regional Development and National Responsibility	August, p. 141
Shatto, Gloria M.	Federal Reserve Membership and Bank Profitability in Texas	April, p. 69
Sweeney, Jo Ann Cutler	Consumer Economics in Education	October, p. 201
Tandy, Janet K.	Construction Activity in Texas SMSAs	January, p. 14
Tandy, Janet K.	Construction Activity in Texas: A Boom in 1977	March, p. 60
Tandy, Janet K.	Austin: Rapid Growth in the Hill Country	October, p. 205
Todd, Jerry D.	The Texas Insurance Industry: A Decade of Growth	July, p. 121
Wagoner, William	Business Doctorates in Texas: A Study in Demand and Supply	February, p. 29
Watkins, Alfred J.	Annexation and Population Growth in Texas Cities	September, p. 173
Weber, Sandra S.	Texas Companies: Sources of Information	January, p. 22
Wiener, Diane S.	Consumer Economics in Education	October, p. 201
Wright, Arthur L.	The Housing Demand in Texas in 1985	September, p. 183
Wright, Rita J.	Per Capita Income in Texas	December, p. 237
Wurtz bach, Charles H.	Housing Market Outlook: 1978	February, p. 37
Ziegler, Lawrence F.	Regional Patterns of Industrial Growth in the Planning Regions of Texas	March, p. 53
Zinn, C. Dale	Geothermal Energy: Heat and Power from beneath the Texas Coast	August, p. 151
Zlatkovich, Charles P.	Sherman-Denison: A Center for Diversified Light Manufacturing	February, p. 34
Zlatkovich, Charles P.	Recent Texas Growth Patterns	March, p. 49
Zlatkovich, Charles P.	Abilene: Profile of a Resilient Economy	May, p. 95
Zlatkovich, Charles P.	San Angelo: Making the Transition from Agriculture to Manufacturing	June, p. 115
Zlatkovich, Charles P.	Bryan-College Station: An Education Center	October, p. 209
Zlatkovich, Charles P.	Wichita Falls: An Emerging Manufacturing Center	November, p. 228
Zlatkovich, Charles P.	Per Capita Income in Texas	December, p. 237
Zlatkovich, Charles P.	Waco: Diversity in the Heart of Texas	December, p. 244

## Title Index

- Abilene: Profile of a Resilient Economy  
 Alien Migration: Mexican Workers in the United States and European "Guest Workers"  
 Annexation and Population Growth in Texas Cities  
 Austin: Rapid Growth in the Hill Country  
 Bank Holding Company Acquisitions in Texas  
 Bryan-College Station: An Education Center  
 Business Doctorates in Texas: A Study in Demand and Supply  
 CETA Manpower Programs in Texas  
 Coincidence between Economic Areas and Perceptual Regions in Texas  
 Collective Bargaining and Public Employee Strikes  
 Commentary on the CETA Programs  
 A Comparison of Foreign and Texas Labor Costs: Implications for Foreign Direct Investment in Texas  
 Computers and Small Businesses: An Interview with Roy Harris  
 Construction Activity in Texas SMSAs  
 Construction Activity in Texas: A Boom in 1977  
 Consumer Economics in Education
- The Consumer Price Index: An Improved Measure of Inflation  
 Counterstream Migration: An Interview with W. Thomas Anderson, Jr.  
 Counting Illegal Mexican Aliens: Myths and Misconceptions  
 Dallas-Fort Worth: The Southwest Metroplex  
 An Economic Profile of the Texas Apparel Industry  
 Energy Developments in Texas Communities
- Energy for Industry  
 Federal Reserve Membership and Bank Profitability in Texas  
 Financial Reporting and Disclosure: The Annual Reports of Bank Holding Companies in Texas  
 Galveston-Texas City: Industrial and Medical Center on the Gulf Coast  
 Geopressed-Geothermal Well Begins Operation  
 Geothermal Energy: Heat and Power from beneath the Texas Coast  
 Housing Market Outlook: 1978  
 The Housing Demand in Texas in 1985  
 Houston: Growth Center of the Southwest  
 Industrial Location Decisions in Texas: People and Buildings, Planes and Trucks  
 An Interview with Jess R. Totten  
 Limited Partnerships in Texas Agriculture
- Major Problems for Small Manufacturers  
 Major Trends in Population Growth in Texas  
 1976: An Improved Year for Bank Trust Departments in the Eleventh Federal Reserve District  
 Perceptual Regions in Texas
- Charles P. Zlatkovich and Joanne P. Austin  
 Niles Hansen  
 Alfred J. Watkins and Arnold Fleischmann  
 Joanne P. Austin and Janet K. Tandy  
 John H. Lewis  
 Charles P. Zlatkovich  
 Barry Render, William Wagoner, James R. Bobo, and Stephen Corliss  
 Janet Barkley-Booher
- Lorna A. Monti  
 Richard D. Brown  
 Charles C. Holt  
 Sion Raveed, Tim Meinershagen, and Robert B. Morris III
- Kenneth Roberts  
 Janet K. Tandy  
 Janet K. Tandy  
 Jo Ann Cutler Sweeney and Diane S. Weiner
- Bryan Richey
- Kenneth Roberts  
 Kenneth Roberts, Michael E. Conroy, Allan G. King, and Jorge Rizo-Patron  
 Joanne P. Austin  
 Carol T. F. Bennett  
 J. Kenneth Monts and Sally Cook  
 Lopreato  
 Murphy Hawkins and Thomas J. Evans
- Carl M. Hubbard and Gloria M. Shatto
- Paul M. Horvitz and Ranak Patel
- Joanne P. Austin  
 Charles F. Dameron, Jr.
- C. Dale Zinn and J. Wesley Barnes  
 Charles H. Wurtzebach  
 Arthur L. Wright  
 Roberto Marchesini and Joanne P. Austin
- Robert F. Pollard and Lorna A. Monti  
 Kenneth Roberts  
 R. A. Dietrich, D. R. Levi, J. R. Martin, and Kenneth Roberts  
 Vinay Kothari  
 John A. Burghardt
- S. Michael Edgar  
 Terry G. Jordan
- May, p. 95  
 June, p. 107  
 September, p. 173  
 October, p. 205  
 April, p. 75  
 October, p. 209  
 February, p. 29  
 May, p. 89  
 November, p. 221  
 September, p. 179  
 May, p. 92  
 February, p. 40  
 July, p. 128  
 January, p. 14  
 March, p. 60  
 October, p. 201  
 October, p. 197  
 November, p. 225  
 June, p. 101  
 September, p. 186  
 January, p. 1  
 August, p. 155  
 August, p. 153  
 April, p. 69  
 April, p. 72  
 August, p. 165  
 August, p. 152  
 August, p. 151  
 February, p. 37  
 September, p. 183  
 August, p. 159  
 July, p. 125  
 February, p. 31  
 December, p. 240  
 May, p. 93  
 June, p. 112  
 April, p. 79  
 November, p. 217

Per Capita Income in Texas	Charles P. Zlatkovich and Rita J. Wright	December, p. 237
Public Employee Unionization and Texas: A Critical Public Issue	I. B. Helburn	January, p. 8
Recent Texas Growth Patterns	Charles P. Zlatkovich	March, p. 49
Regional Patterns of Industrial Growth in the Planning Regions of Texas	Walter E. Mullendore and Lawrence F. Ziegler	March, p. 53
The Relocation Misconception: Manufacturing Change in Houston and Dallas-Fort Worth	John Rees and Lorna A. Monti	March, p. 58
Research and Development Expenditures in Texas	Clayton Alred, David Edwards, Allisyn Gilbreath, and Lorna A. Monti	December, p. 233
San Angelo: Making the Transition from Agriculture to Manufacturing	Joanne P. Austin and Charles P. Zlatkovich	June, p. 115
Sherman-Denison: A Center for Diversified Light Manufacturing	Carol T. F. Bennett and Charles P. Zlatkovich	February, p. 34
The South: Regional Development and National Responsibility	W. W. Rostow	August, p. 141
Texarkana: Working to Come Together	Joanne P. Austin	July, p. 131
Texas Companies: Sources of Information	Sandra S. Weber	January, p. 22
Texas Energy Reserves and Resources	W. L. Fisher	August, p. 145
The Texas Insurance Industry: A Decade of Growth	Jerry D. Todd	July, p. 121
Texas Women in the Labor Force	Paula England, Linda Lake, and Suzanne McConnell	May, p. 85
Waco: Diversity in the Heart of Texas	Charles P. Zlatkovich	December, p. 244
Wichita Falls: An Emerging Manufacturing Center	Charles P. Zlatkovich	November, p. 228



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# Local Business Conditions

Standard metropolitan statistical areas (SMSAs) include one or more entire counties, as shown. All SMSAs are designated as such by the U.S. Bureau of the Census. Population figures are from the 1970 census and 1976 estimates by the Bureau of the Census.

Employment estimates include only wage and salary workers and are compiled by the Texas Employment Commission in cooperation with the U.S. Bureau of Labor Statistics.

Statistical data compiled by Mildred Anderson.

## Indicators of Local Business Conditions for Texas Standard Metropolitan Statistical Areas

Reported area and indicator	Percentage change from		
	Sep 1978	Aug 1978	Sep 1977
<b>ABILENE SMSA</b>			
Callahan, Jones, and Taylor Counties; population: 122,164 (1970); 131,500 (1976 est.)			
Nonfarm employment	48,100	**	4
Manufacturing employment	5,800	**	6
Unemployment (percentage)	3.6	- 8	-28
<b>AMARILLO SMSA</b>			
Potter and Randall Counties; population: 144,396 (1970); 154,300 (1976 est.)			
Nonfarm employment	71,780	**	3
Manufacturing employment	9,100	1	7
Unemployed (percentage)	3.6	**	-14
<b>AUSTIN SMSA</b>			
Hays, Travis, and Williamson Counties; population: 360,463 (1970); 461,300 (1976 est.)			
Nonfarm employment	212,300	1	6
Manufacturing employment	26,050	**	13
Unemployed (percentage)	3.5	- 5	-26
<b>BEAUMONT-PORT ARTHUR-ORANGE SMSA</b>			
Hardin, Jefferson, and Orange Counties; population: 347,568 (1970); 355,500 (1976 est.)			
Nonfarm employment	143,450	1	**
Manufacturing employment	41,600	**	1
Unemployed (percentage)	6.5	- 3	- 4
<b>BROWNSVILLE-HARLINGEN-SAN BENITO SMSA</b>			
Cameron County; population: 140,368 (1970); 179,500 (1976 est.)			
Nonfarm employment	52,540	**	4
Manufacturing employment	10,560	- 1	15
Unemployed (percentage)	9.5	4	-11
<b>BRYAN-COLLEGE STATION SMSA</b>			
Brazos County; population: 57,978 (1970); 73,000 (1976 est.)			
Nonfarm employment	30,020	3	- 1
Manufacturing employment	2,730	1	- 1
Unemployment (percentage)	3.3	27	-11
<b>CORPUS CHRISTI SMSA</b>			
Nueces and San Patricio Counties; population: 284,832 (1970); 298,400 (1976 est.)			
Nonfarm employment	107,150	1	3
Manufacturing employment	13,200	1	4
Unemployed (percentage)	5.8	- 2	-15

Reported area and indicator	Percentage change from		
	Sep 1978	Aug 1978	Sep 1977
<b>DALLAS-FORT WORTH SMSA</b>			
Collin, Dallas, Denton, Ellis, Hood, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties; population: 2,378,353 (1970); 2,585,300 (1976 est.)			
Nonfarm employment	1,254,400	1	5
Manufacturing employment	282,900	1	5
Unemployed (percentage)	4.1	-11	-16
<b>EL PASO SMSA</b>			
El Paso County; population: 359,291 (1970); 425,200 (1976 est.)			
Nonfarm employment	143,750	**	2
Manufacturing employment	28,450	**	2
Unemployed (percentage)	9.2	- 3	-21
<b>GALVESTON-TEXAS CITY SMSA</b>			
Galveston County; population: 169,812 (1970); 186,300 (1976 est.)			
Nonfarm employment	72,960	- 1	4
Manufacturing employment	11,920	**	**
Unemployed (percentage)	5.8	**	-15
<b>HOUSTON SMSA</b>			
Brazoria, Fort Bend, Harris, Liberty, Montgomery, and Waller Counties; population: 1,999,316 (1970); 2,392,100 (1976 est.)			
Nonfarm employment	1,244,100	**	5
Manufacturing employment	204,600	**	6
Unemployed (percentage)	4.0	- 5	-13
<b>KILLEEN-TEMPLE SMSA</b>			
Bell and Coryell Counties; population: 159,794 (1970); 204,600 (1976 est.)			
Nonfarm employment	51,260	**	3
Manufacturing employment	7,700	**	13
Unemployed (percentage)	5.2	- 2	-17
<b>LAREDO SMSA</b>			
Webb County; population: 72,859 (1970); 82,700 (1976 est.)			
Nonfarm employment	25,660	- 3	1
Manufacturing employment	1,960	1	- 9
Unemployed (percentage)	11.6	3	- 4
<b>LONGVIEW SMSA</b>			
Gregg and Harrison Counties; population: 120,770 (1970); 127,900 (1976 est.)			
Nonfarm employment	56,660	1	5
Manufacturing employment	18,330	**	5
Unemployed (percentage)	5.0	-14	-12

Reported area and indicator	Percentage change from		
	Sep 1978	Aug 1978	Sep 1977
<b>LUBBOCK SMSA</b>			
Lubbock County; population: 179,295 (1970); 199,600 (1976 est.)			
Nonfarm employment	86,440	3	2
Manufacturing employment	13,660	1	-1
Unemployed (percentage)	3.5	-15	-10
<b>McALLEN-PHARR-EDINBURG SMSA</b>			
Hidalgo County; population: 181,535 (1970); 230,300 (1976 est.)			
Nonfarm employment	60,170	2	6
Manufacturing employment	7,530	1	5
Unemployment (percentage)	14.5	11	5
<b>MIDLAND SMSA</b>			
Midland County; population: 65,433 (1970); 71,400 (1976 est.)			
Nonfarm employment	35,740	**	7
Manufacturing employment	3,450	5	**
Unemployed (percentage)	4.5	**	5
<b>ODESSA SMSA</b>			
Ector County; population: 92,660 (1970); 100,900 (1976 est.)			
Nonfarm employment	48,080	**	6
Manufacturing employment	6,350	**	3
Unemployed (percentage)	3.8	-7	-10
<b>SAN ANGELO SMSA</b>			
Tom Green County; population: 71,047 (1970); 77,200 (1976 est.)			
Nonfarm employment	32,650	2	7
Manufacturing employment	5,720	1	6
Unemployed (percentage)	3.7	3	-5
<b>SAN ANTONIO SMSA</b>			
Bexar, Comal, and Guadalupe Counties; population: 888,179 (1970); 987,200 (1976 est.)			
Nonfarm employment	356,200	**	4
Manufacturing employment	45,500	**	7
Unemployed (percentage)	6.5	-6	-12

Reported area and indicator	Percentage change from		
	Sep 1978	Aug 1978	Sep 1977
<b>SHERMAN-DENISON SMSA</b>			
Grayson County; population: 83,225 (1970); 81,900 (1976 est.)			
Nonfarm employment	34,030	1	8
Manufacturing employment	12,910	3	12
Unemployed (percentage)	5.3	-7	-18
<b>TEXARKANA SMSA</b>			
Bowie County, Texas; Little River and Miller Counties, Arkansas; population: 113,488 (1970); 117,800 (1976 est.)			
Nonfarm employment	43,910	**	4
Manufacturing employment	8,470	**	**
Unemployed (percentage)	7.3	-6	1
(Since the Texarkana SMSA includes Bowie County in Texas and Little River and Miller Counties in Arkansas, all data, including population, refer to the three-county region.)			
<b>TYLER SMSA</b>			
Smith County; population: 97,096 (1970); 108,900 (1976 est.)			
Nonfarm employment	46,710	**	3
Manufacturing employment	12,500	**	1
Unemployed (percentage)	4.6	-13	-4
<b>WACO SMSA</b>			
McLennan County; population: 147,553 (1970); 155,400 (1976 est.)			
Nonfarm employment	66,430	1	3
Manufacturing employment	16,050	**	1
Unemployed (percentage)	4.5	-8	-8
<b>WICHITA FALLS SMSA</b>			
Clay and Wichita Counties; population: 128,642 (1970); 129,200 (1976 est.)			
Nonfarm employment	49,440	1	3
Manufacturing employment	9,180	1	8
Unemployed (percentage)	3.9	5	**

\*\*Absolute change is less than one-half of 1 percent.

### Selected Barometers of Texas Business (Indexes—Adjusted for seasonal variation—1967=100)

Index	Sep <sup>p</sup> 1978	Aug <sup>p</sup> 1978	Year-to- date average 1978	Percentage change	
				Sep 1978 from Aug 1978	Year-to- date average from 1977
Crude oil production	93.8	96.1	97.1	-2	-6
Total electric power use	222.3	222.9	223.2	**	10
Residential	269.6	274.8	275.8	-2	12
Industrial	182.7	179.7	182.1	2	6
Total nonfarm employment	158.0	156.5	155.8	1	5
Manufacturing employment	142.8	141.9	141.6	1	6
Average weekly earnings—manufacturing	220.6	220.3	215.5	**	9
Average weekly hours—manufacturing	98.5	98.8	98.6	**	**
Total unemployment	166.6	174.9	164.4	-5	-5
Insured unemployment	234.0	244.6	218.8	-4	-15
Initial claims on unemployment insurance	186.4	195.3	184.5	-5	-4

<sup>p</sup>Preliminary.

\*\*Change is less than one-half of 1 percent.

# Barometers of Texas Business

(All figures are for Texas unless otherwise indicated.)

All indexes are based on the average months for 1967=100 except where other specification is made; all except annual indexes are adjusted for seasonal variation unless otherwise noted. Employment estimates are compiled by the Texas Employment Commission in cooperation with the Bureau of Labor Statistics of the U.S. Department of Labor. The symbols used below impose qualifications as indicated here: p—preliminary data subject to revision; r—revised data; \*—dollar totals for the fiscal year to date; †—employment data for wage and salary workers only.

	Sep 1978	Aug 1978	Sep 1977	Year-to-date average	
				1978	1977
<b>GENERAL BUSINESS ACTIVITY</b>					
Wholesale prices in U.S. (unadjusted index) . . . . .	212.3	210.4	195.3	207.0	193.2
Consumer prices in Dallas (unadjusted index) . . . . .	...	197.3	...	...	...
Consumer prices in U.S. (unadjusted index) . . . . .	199.1	197.7	184.0	193.1	180.3
Sales of ordinary life insurance (index) . . . . .	...	399.9	307.3	...	283.9
<b>PRODUCTION</b>					
Total electric power use (index) . . . . .	222.3 <sup>P</sup>	222.9 <sup>P</sup>	205.3 <sup>R</sup>	223.2	203.8
Residential electric power use (index) . . . . .	269.6 <sup>P</sup>	274.8 <sup>P</sup>	241.1 <sup>R</sup>	275.8	246.2
Industrial electric power use (index) . . . . .	182.7 <sup>P</sup>	179.7 <sup>P</sup>	172.1 <sup>R</sup>	182.1	171.5
Crude oil production (index) . . . . .	93.8 <sup>P</sup>	96.1 <sup>P</sup>	101.5 <sup>R</sup>	97.1	103.0
Average daily production per oil well (bbl.) . . . . .	16.5	16.9	17.7	17.1	18.0
Industrial production—total (index) . . . . .	...	145.9 <sup>P</sup>	142.7 <sup>R</sup>	...	139.6
Industrial production—total manufactures (index) . . . . .	...	156.3 <sup>P</sup>	151.7 <sup>R</sup>	...	147.5
Industrial production—durable manufactures (index) . . . . .	...	164.5 <sup>P</sup>	157.7 <sup>R</sup>	...	151.1
Industrial production—nondurable manufactures (index) . . . . .	...	149.9 <sup>P</sup>	147.0 <sup>R</sup>	...	144.7
Industrial production—mining (index) . . . . .	...	115.3 <sup>P</sup>	114.4 <sup>R</sup>	...	115.2
Industrial production—utilities (index) . . . . .	...	195.4 <sup>P</sup>	200.4 <sup>R</sup>	...	185.5
Industrial production in U.S. (index) . . . . .	147.5 <sup>P</sup>	146.7 <sup>P</sup>	138.5 <sup>R</sup>	143.3	136.3
<b>AGRICULTURE</b>					
Prices received by farmers (unadjusted index) . . . . .	234	231	188	220	195
Prices paid by farmers in U.S. (unadjusted index) . . . . .	222	220	201	216	202
Ratio of Texas farm prices received to U.S. prices paid by farmers . . . . .	105.4	105.0	93.5	101.9	96.5
<b>FINANCE</b>					
Bank commercial loans outstanding (index) . . . . .	264.3	266.9	212.7	250.3	203.3
Weekly condition report of large commercial banks, Dallas Federal Reserve District					
Loans (millions) . . . . .	\$ 16,824	\$ 16,667	\$ 13,599	\$ 15,871	\$ 12,704
Loans and investments (millions) . . . . .	\$ 23,465	\$ 23,284	\$ 20,130	\$ 22,390	\$ 19,061
Adjusted demand deposits (millions) . . . . .	\$ 5,638	\$ 5,386	\$ 5,193	\$ 5,197	\$ 5,139
Revenue receipts of the state comptroller (thousands) . . . . .	\$ ...	\$ ...	\$ 469.7	\$ ...	\$ 635.5
Federal Internal Revenue collections (millions) . . . . .	\$ 2,157.1	\$ 1,677.5	\$ 1,951.7	\$ 24,484.6	\$ 21,967.2
Securities registrations—original applications					
Mutual investment companies (thousands) . . . . .	\$ 145,361	\$ 295,754	\$ 120,136	\$ 145,361*	\$ 120,136*
All other corporate securities					
Texas companies (thousands) . . . . .	\$ 30,140	\$ 4,619	\$ 9,806	\$ 30,140*	\$ 9,806*
Other companies (thousands) . . . . .	\$ 30,961	\$ 21,989	\$ 14,913	\$ 30,961*	\$ 14,913*
Securities registration—renewals					
Mutual investment companies (thousands) . . . . .	\$ 88,974	\$ 49,156	\$ 21,321	\$ 88,974*	\$ 21,321*
Other corporate securities (thousands) . . . . .	\$ 0	\$ 0	\$ 0	\$ 0*	\$ 0*
<b>LABOR</b>					
Total nonagricultural employment (index)† . . . . .	158.0 <sup>P</sup>	156.5 <sup>P</sup>	150.7	155.8	148.9
Manufacturing employment (index)† . . . . .	142.8 <sup>P</sup>	141.9 <sup>P</sup>	135.8	141.6	134.2
Average weekly hours—manufacturing (index)† . . . . .	98.5 <sup>P</sup>	98.8 <sup>P</sup>	99.3	98.6	98.5
Average weekly earnings—manufacturing (index)† . . . . .	220.6 <sup>P</sup>	220.3 <sup>P</sup>	204.5	215.5	197.2
Total nonagricultural employment (thousands)† . . . . .	5,157.0 <sup>P</sup>	5,109.4 <sup>P</sup>	4,921.5	5,059.5	4,837.8
Total manufacturing employment (thousands)† . . . . .	953.8 <sup>P</sup>	949.2 <sup>P</sup>	906.5	938.7	890.0
Durable-goods employment (thousands)† . . . . .	546.5 <sup>P</sup>	542.3 <sup>P</sup>	506.2	533.5	493.3
Nondurable-goods employment (thousands)† . . . . .	407.3 <sup>P</sup>	406.9 <sup>P</sup>	400.3	405.2	396.7
Total civilian labor force in selected labor market areas (thousands) . . . . .	4,899.6 <sup>P</sup>	4,991.6 <sup>P</sup>	4,738.5	4,924.4	4,704.6
Nonagricultural employment in selected labor market areas (thousands)† . . . . .	4,373.9 <sup>P</sup>	4,351.4 <sup>P</sup>	4,191.5	4,305.5	4,106.3
Manufacturing employment in selected labor market areas (thousands)† . . . . .	806.2 <sup>P</sup>	803.0 <sup>P</sup>	766.7	712.7	752.1
Total unemployment in selected labor market areas (thousands) . . . . .	240.1 <sup>P</sup>	258.3 <sup>P</sup>	267.3	245.5	265.2
Percent of labor force unemployed in selected labor market areas . . . . .	4.9 <sup>P</sup>	5.2 <sup>P</sup>	5.6	5.0	5.7
Percent of total labor force unemployed . . . . .	4.8 <sup>P</sup>	5.1 <sup>P</sup>	5.5	4.9	5.5

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