

FACT SHEET

EMPLOYMENT CHANGES IN EXTENSION DISTRICT 4: 1970-1974

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Expansion of employment opportunities has long been a goal of rural Texas communities. To reach this goal, community leaders may find the abundant Texas employment data useful for tracing changes in employment and for planning a variety of economic development activities. The Texas Agricultural Experiment Station and the Texas Agricultural Extension Service have developed a series of reports which utilize a shift-share analytical method and Texas employment data to trace changes in local employment. This report provides the results of a shift-share analysis of Extension District 4 employment compared to statewide growth during 1970-74.

Shift-share analysis is essentially descriptive, but yields more information than normal trend analysis by identifying the contribution to district employment changes made by the region's specific industry mix. Hence, the analysis provides estimates of the district's employment compared to other districts and the state as a whole and indicates those industries for which the region may have competitive advantages.

Reasons for Employment Growth Differences Among Districts

Two major reasons explain why a district may grow at a different rate than the entire state or other regions within the state. First, a district is likely to have a different mix of economic activity. If the dis-

trict is dominated by a variety of rapidly growing industries, it may have above average employment growth. Districts with predominantly slow growth industries may be expected to have below average employment growth.

A second major reason for different employment growth among districts is more rapid growth of a specific industrial activity. While an industrial activity may experience statewide growth, decline or stagnation, that same industrial activity within a given district may manifest quite different local growth. For example, an industrial activity may be slow growing statewide but increase rapidly in a specific district because of locational advantages. Districts dominated by a local, rapidly-growing industrial activity may be expected to have an above-average employment growth (and vice versa).*

The Study Area

Extension District 4 consists of 18 counties in North Central Texas with a total population of 2,602,956 in 1970 (Table 1). The district contains three SMSA's; Dallas in Dallas County, Fort Worth in Tarrant County and Sherman-Dennison in Grayson County. The population within all three SMSA's increased from 1960 to 1970 (39.5% in Dallas County, 33.0% in Tarrant County and 13.9% in Grayson County). Eleven of the remaining fifteen counties also

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*Employment growth may not be reflected in rapidly growing industries where productivity increases are accompanied by declining employment such as agriculture. These industrial activities are "capital-intensive."

Table 1. District 4 Population and Employment by County

County	1970 ¹ Population	Percent Population ¹ Change 1960-1970	1970 ² Employment	Average Annual 1970 ² Rate of Unemployment
Clay	8,079	-3.3	3,470	2.5
Collin	66,920	62.2	28,350	3.2
Cooke	23,471	4.0	9,900	2.5
Dallas	1,327,321	39.5	617,200	3.1
Denton	75,633	59.5	32,250	2.0
Ellis	46,638	7.5	20,050	2.7
Fannin	22,705	-4.9	9,070	5.8
Grayson	83,225	13.9	33,200	2.9
Hunt	47,948	21.7	20,020	4.3
Jack	6,711	-9.5	3,020	2.3
Johnson	45,769	31.8	19,090	2.7
Kaufman	32,392	8.2	12,650	3.8
Montague	15,326	2.9	6,650	3.2
Navarro	31,150	-9.5	13,050	3.3
Parker	33,888	48.1	13,330	1.8
Rockwall	7,046	19.9	3,100	1.6
Tarrant	716,317	33.0	301,980	2.4
Wise	19,687	15.7	7,990	2.3
District 4	2,602,956	13.3	1,154,370	3.0
Texas	11,196,730	16.9	4,548,455	3.7

¹Bureau of Census: Number of Inhabitants — Texas, Table 9.

²Texas Employment Labor Force Estimates for Texas Counties, April 1970.

experienced population increases from 1960 to 1970 and the entire district population increased 13.3 percent during this period. The overall unemployment rate for District 4 in 1970 was significantly lower than state unemployment.

Employment Analysis for District 4

The employment data was provided by the Texas Employment Commission and was recorded by employee's place of employment rather than residence. Only employment covered by the Texas Unemployment Act was included. This excludes self-employed, unpaid family workers, employees covered by the Railroad Retirement Act and domestic service and farm workers.

Since broad economic trends are of interest, an analysis of the structure of the district's economy was considered at the Standard Industrial Classification Division level. Comparisons of the growth in the agriculture, forestry and fisheries division should be carefully reviewed because of the incomplete nature of this data. Also, it should be noted that the government division includes only federal employees.

Table 2 shows statewide employment growth rates for each employment division for the 1970-74 period. The agriculture, forestry and fisheries division and the services division grew fastest during this period, with rates of 121.9 percent and 83.9 percent respectively. Overall, the average growth rate for the Texas economy was 29.8 percent.

The growth rates shown in Table 2 provide a basis for comparison of growth of industrial divisions in District 4 with those throughout the state. If District 4

had exactly the same industrial composition as Texas and if each industry within the District had grown at the same rate as it did within Texas, employment in District 4 would have increased 29.8 percent. Thus, the growth rates shown in Table 2 can be considered expected growth rates for the District. However, the District 4 economy differed from the overall state economy and growth rates deviated from the statewide pattern during the 1970-74 period.

Column 2 of Table 3 shows the expected employment increase within each employment division for District 4. These expected increases were computed by multiplying 1970 reported employment levels in the district by the Texas 1970-74 employment division growth rates. Column 3 identifies growth resulting

Table 2. Texas Employment Growth Rates 1970-1974

Employment Division* (One-Digit S.I.C.)	Growth Rate 1970-1974
Agriculture, Forestry & Fisheries	121.9%
Mining	19.5%
Contract Construction	36.6%
Manufacturing	11.1%
Transportation, Communication & Utilities	19.2%
Wholesale and Retail Trade	29.2%
Finance, Insurance & Real Estate	37.8%
Services	83.9%
Government	.0%
Weighted Average	29.8%

*Includes only employees covered by the Texas Unemployment Compensation Act. Agriculture, Forestry and Fisheries does not include owner-operators and their families or hired farm workers.

Table 3. District 4 Employment Shifts 1970-1974**

Employment Division (One-Digit S.I.C.)	(1) Reported 1970 Employment	+	(2) Expected Employment Increase	+	(3) Employment Due to Specific Industry Growth Within District	=	(4) Reported 1974 Employment
Agriculture, Forestry & Fisheries	1,335		1,617		-176		2,776
Mining	11,357		2,217		-1,292		12,282
Contract Construction	49,077		18,471		-7,534		60,014
Manufacturing	268,742		29,892		-28,436		270,198
Transportation, Communication & Utilities	64,175		12,305		-2,948		73,531
Wholesale & Retail	237,381		69,344		-7,519		299,205
Financial, Insurance & Real Estate	63,175		23,683		-5,742		81,296
Services	99,930		83,847		-5,250		178,527
Government	25,600		341		3,018		28,958
Totals	820,772		241,894		-55,879		1,006,787

**Rounding errors may effect row totals.

from specific industries within the district and indicates the difference between reported 1974 employment and the sum of reported 1970 employment and the expected employment increases in each industrial division.

Given the 1970 industrial mix in District 4, the number of jobs within the district would have expanded by 241,894 if every employment division had grown at exactly the state average for that employment division. This would have resulted in an employment growth rate in District 4 of 29.4 percent, slightly below the Texas overall average rate of 29.8 percent (244,590 jobs). In absolute terms, the district was expected to generate 2,696 fewer jobs by having an unfavorable mix of industrial activities.

However, the district generated only 186,015 new jobs between 1970 and 1974 and actually grew at a rate of 22.6 percent rather than the expected 29.8 percent. The reason for this difference is that eight of the nine employment divisions located in the district did not keep pace with their counterparts throughout the state. The net result of this apparent loss in regional locational advantage relative to other districts was 55,879 fewer jobs than expected were generated in District 4.

Summary and Implications

Numerous factors determine location of industrial activity; sources of raw materials, availability of labor supply, nearness of product markets and transporta-

tion. Districts with a favorable industrial mix or a local, rapidly growing industrial activity have a "comparative advantage" — a relative efficiency in the production of these goods or services.

Shift-share analysis identifies employment changes which result from the region's industrial mix and specific industry growth within the district. Causes of employment shifts are not identified. Further research is needed to identify actual causes of employment shifts in the eight employment divisions which lag behind respective state growth. Expected employment increases not realized in District 4 may be the result of deliberate or other management decisions based on a number of factors including obsolete equipment, low labor productivity, geographic shifts in markets and inadequate availability of finances.

Additional research should explore the reasons for the district's industrial mix — why particular industries have located within the district. Also, the district's ability to compete for new industry should be examined. Of particular interest should be the ability of local rapidly growing industries to maintain their growth and the district's ability to further exploit its comparative advantage in these industrial activities.

To enable the reader to explore the district's employment shifts in greater depth, a more detailed employment analysis has been developed and is presented in Table 4.* Analyses of employment shifts at the county level are available. Contact your local county Extension agent for further information.

*District totals may differ from those presented in Table 3 as a result of disaggregation problems.

Table 4. District 4 Employment Shifts 1970-1974**

Industrial Sector (One-Digit S.I.C.)	(1)		(2)		(3)		(4)
	Reported 1970 Employment	+	Expected Employment Increase	+	Employment Due to Specific Industry Growth Within District	=	Reported 1974 Employment
Agriculture	1,335		1,592		-151		2,776
Forestry	0		0		N/A		0
Fisheries	0		0		N/A		0
Metal Mining	17		-7		-7		3
Oil and Gas Extraction	10,499		2,194		-1,311		11,382
Nonmetal Mining except Fuel	841		11		46		897
Contract Construction	49,077		18,471		-7,534		60,014
Food and Kindred Products	24,841		865		-2,171		23,535
Textile, Apparel	21,393		3,302		-1,017		23,678
Wood Products	16,249		1,946		-855		17,340
Printing, Publishing	15,772		2,717		-267		18,222
Chemicals and Allied Products	7,006		203		982		8,191
Petroleum, Coal Products	1,831		33		-62		1,801
Other Nondurable Manufacturing	14,468		4,015		218		18,702
Metal Products	21,471		4,446		1,932		27,849
Machinery Manufacturing	69,001		21,413		-14,045		76,369
Transportation Equipment	70,913		-17,972		-8,502		44,440
Instruments and Related Products	2,679		256		2,721		5,656
Miscellaneous Manufacturing	3,118		1,244		53		4,415
Railroad Transportation	0		0		N/A		0
Passenger Transit	2,807		-76		67		2,798
Trucking, Warehousing	19,758		4,868		-1,036		23,590
Other Transportation	15,448		3,844		-419		18,873
Pipeline Transportation	479		-53		88		514
Communication	15,093		2,851		-1,304		16,640
Utilities	10,590		1,572		-1,045		11,116
Wholesale and Retail Trade	79,719		16,517		344		96,579
Food Stores	23,694		6,817		-2,912		27,598
Eating and Drinking Places	34,494		16,606		-1,705		49,395
Retail Trade-General	99,474		28,682		-2,523		125,633
Financial, Insurance, Real Estate	63,175		23,863		5,742		81,296
Lodging Places	9,655		2,792		-130		12,318
Personal Services	14,922		990		-653		15,259
Miscellaneous Business Services	24,865		15,909		1,425		42,199
Repair Services	8,077		4,276		-986		11,366
Health Services	17,033		31,397		454		48,884
Legal Services	1,709		2,521		-217		4,013
Educational Services	2,560		5,833		2,180		10,573
Entertainment	9,123		2,319		-310		11,132
Nonprofit Organizations	2,825		8,070		-1,292		9,603
Private Household Services	0		0		N/A		0
Miscellaneous Services	9,161		6,207		-2,188		13,180
State Government	0		0		N/A		0
Local Government	0		0		N/A		0
Federal Government	25,600		341		3,018		28,958
Non-Classifiable	0		0		N/A		0
	820,772		230,871		-44,856		1,006,787

**Rounding errors may effect row totals.

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