

DALLAS FED

DISTRICT HIGHLIGHTS

Federal Reserve Bank of Dallas June 1986

Assessing the Effect of Falling Oil Prices on Texas Employment

How will the drop in oil prices affect Texas employment? The industries most directly influenced either produce or consume energy. But other export industries will also be affected, as lower oil prices alter economic conditions in the United States and Mexico. All things considered, with each \$5 drop in oil prices, Texas employment will be some 86,000 to 136,000 jobs lower than it would otherwise be.

Oil Prices and the Texas Economy

Chart 1 illustrates the ways in which oil prices influence the Texas economy. The top two lines flowing from the oil prices block represent the direct effects of the prices on industries most sensitive to the price of oil. These include industries that are involved in energy production and industries that make intensive use of oil and gas as production inputs. The lower two lines from the oil prices block show how the prices influence Texas industries through their effect on national economic conditions. The national economies to which Texas is most closely tied are those of the United States and Mexico. Finally, the chart also depicts the ripple effects generated by the four basic industry groups. These effects are represented by the lines feeding into the block on the far right side of the chart.

Price Effects

Although many Texas industries are directly affected by oil prices, four stand out as particularly important to the state. Two are associated with the production of energy: oil and gas ex-

traction and oil field machinery. The other two are heavy users of energy: petroleum refining and petrochemicals. Chart 2 shows our estimates of the long-run employment effects in each of these industries of a \$5 drop in oil prices.

Findings reported in the April 1986 *Energy Highlights* indicate that

employment in each of the two energy-producing industries will fall 10 percent with a 10-percent drop in oil prices. Given the respective sizes of these industries, this means an average loss of 43,000 extraction jobs, and 8,000 jobs in oil field machinery, for every \$5 drop in the price of oil.

(Continued on back page)

Texas Unemployment Rate Rise Likely to Be Sustained

In early 1986 the quarterly unemployment rate in Texas rose above the U.S. rate for the first time since 1966. The gap between the two rates has closed steadily since 1982 (Chart 4). Although problems in the energy industry have increased the unemployment rate in Texas, other factors, such as slower growth in service-sector employment and reduced migration to the state, have also affected this indicator. Sluggish service-sector growth will likely exacerbate the rise in unemployment, while reduced migration will mitigate it. The trend in the Texas unemployment rate remains upward, however, even if service-sector growth rebounds.

Diminished Service-Sector Stimulus

Growth in the service-producing sectors in Texas helped counter the effect on the state's unemployment rate of declines in the energy-dependent sectors of its economy. Falling oil prices began to induce problems in mining and manufacturing in the early 1980s. Service-sector growth in Texas, which exceeded such growth nationally for most of this period, was able to prevent the Texas and U.S. unemployment

rates from converging more rapidly. More recently, however, Texas service-sector growth has diminished, falling behind national service employment gains. Job losses in the goods-producing sectors likely will be serious enough in the near future to prevent any renewed service-sector growth from offsetting further unemployment rate rises.

Offsetting Effect of Slower Migration

Until recently, job growth continued in Texas, even after problems developed in the energy sector. As a result, jobseekers still migrated to the state, although at a much slower rate after 1982. Now that the gap between the unemployment rates in Texas and the nation as a whole has closed, migration is likely to slow even further. Reduced migration will inhibit labor force growth in the state, thereby dampening the rise in the unemployment rate. Nevertheless, slower service-sector growth and declining employment in mining and manufacturing will continue pushing up the Texas unemployment rate in the near future.

—William T. Long III

Chart 1
HOW OIL PRICES AFFECT
THE TEXAS ECONOMY

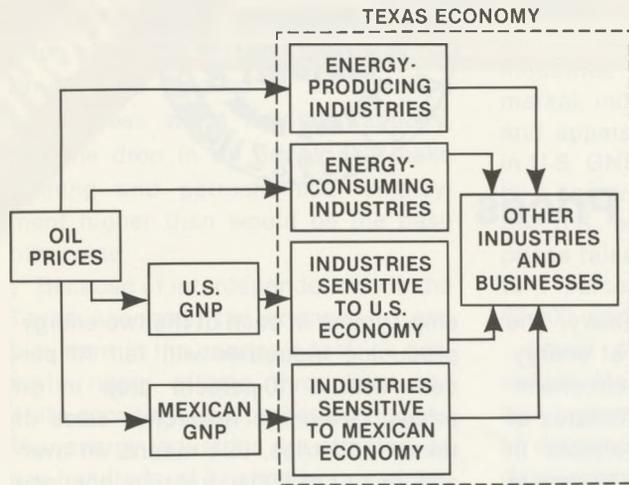
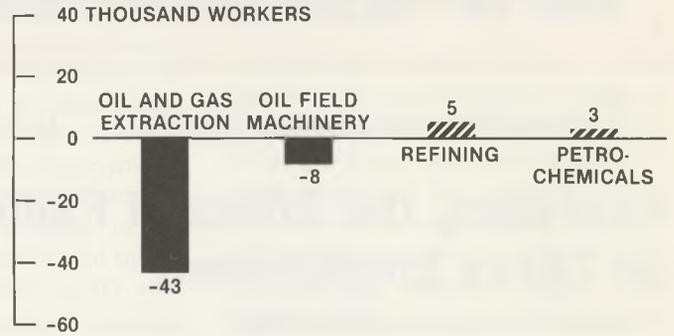
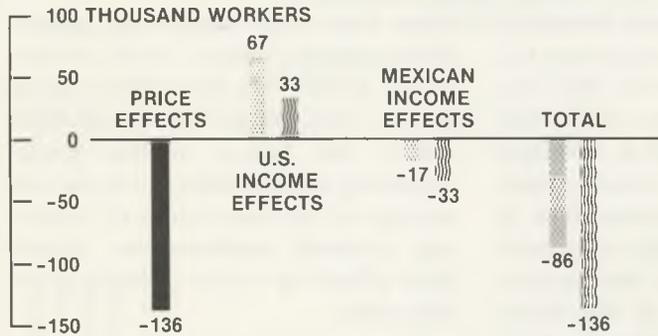


Chart 2
EFFECT ON TEXAS ENERGY EMPLOYMENT
OF A \$5 DROP IN OIL PRICES



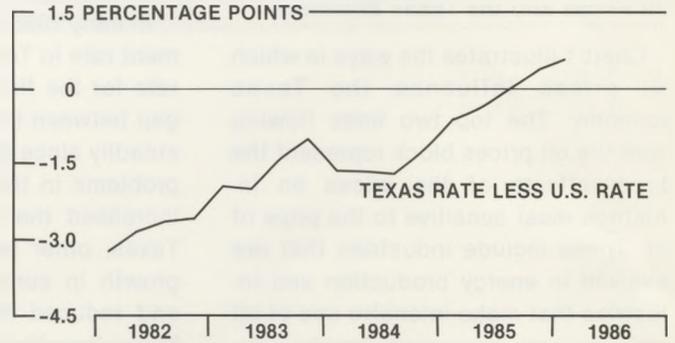
SOURCE: Federal Reserve Bank of Dallas.

Chart 3
SUMMARY OF EFFECTS ON TEXAS
EMPLOYMENT OF A \$5 DROP IN OIL PRICES



SOURCE: Federal Reserve Bank of Dallas.

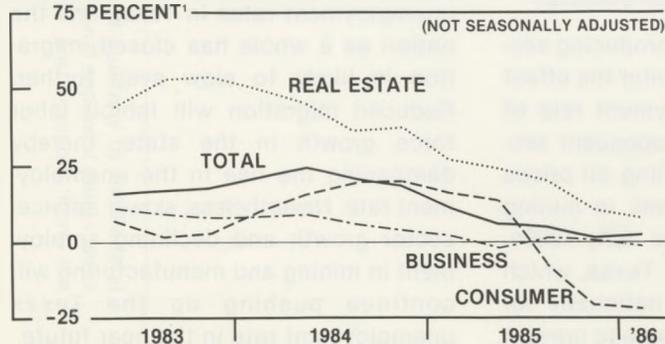
Chart 4
TEXAS AND U.S. UNEMPLOYMENT RATE
DIFFERENTIAL



SOURCES: U.S. Department of Labor.
Federal Reserve Bank of Dallas.

LOANS—LARGE WEEKLY REPORTERS

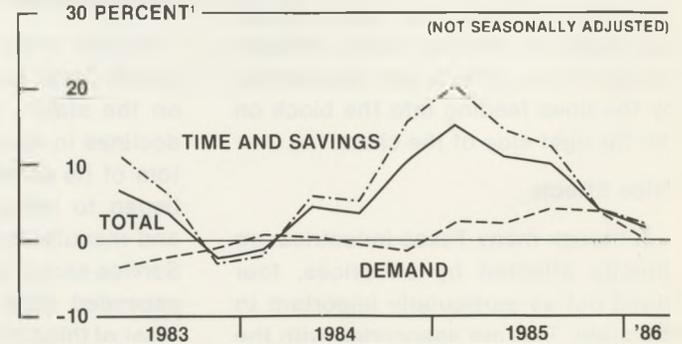
Eleventh Federal Reserve District



1. Percent change from same quarter in previous year.
SOURCE: Federal Reserve Bank of Dallas.

DEPOSITS—LARGE WEEKLY REPORTERS

Eleventh Federal Reserve District

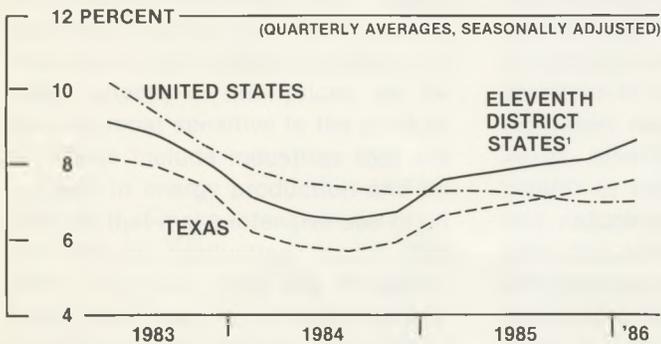


1. Percent change from same quarter in previous year.
SOURCE: Federal Reserve Bank of Dallas.

DISTRICT BRIEFS

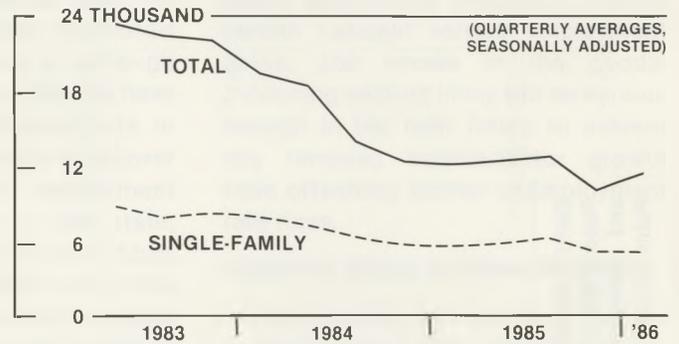
- The rapid deterioration of the energy sector is leading to widespread weakness in the Eleventh District economy. Total nonagricultural employment fell in every District state in the first quarter, and preliminary April figures show a continuation of this trend. The largest percentage decline has been in Louisiana.
- Despite the slow economy and signs of previous overbuilding, the value of total construction contracts rebounded in April, although the overall trend has been one of decline. Nonresidential construction contracts showed the largest gain in value but were still significantly below the average for 1985. Employment in construction and construction-related manufacturing has been fairly steady because current construction activity has not yet followed the decline in contract values.
- Continuing uncertainty over oil prices has pushed the drilling rig count down throughout the District. In early May the count was 55 percent below a year before. The decline in oil and gas extraction employment has been accelerating. Leading indicators of drilling show no signs of reversing their decline or leveling off.
- Manufacturing employment is falling, mostly owing to the weakness in energy. The largest decline has been in durable goods, chiefly oil field machinery.
- Virtually all the new jobs in the last 18 months have been provided by the service-producing sectors of the District economy. These sectors are now beginning to share the weakness in the rest of the economy. On a three-month moving-average basis, total service-producing employment declined in April for the first time since 1982.
- Agriculture is still suffering from falling prices and worsening credit conditions. The fall in energy prices will help many farmers, but overall income of farmers and ranchers is expected to drop because of the decline in oil and gas royalties.
- Weakening economic activity in the District is reflected in slowing asset and liability growth at the large banks. The volume of total loans has registered consecutive monthly declines thus far this year.

UNEMPLOYMENT RATE



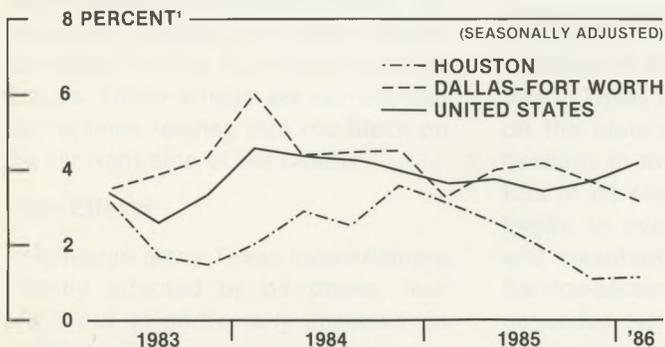
1. Louisiana, New Mexico, and Texas.
 SOURCES: Texas Employment Commission.
 U.S. Bureau of Labor Statistics.
 Federal Reserve Bank of Dallas.

HOUSING PERMITS IN TEXAS



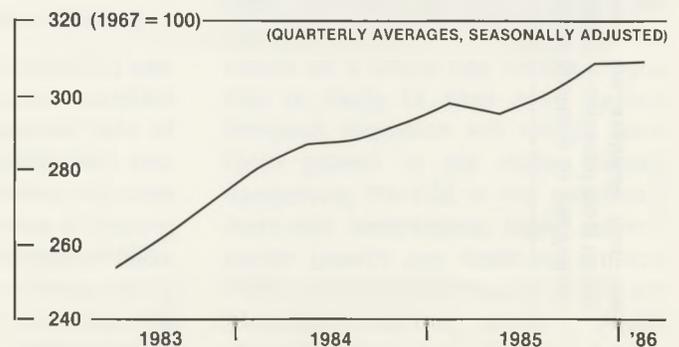
SOURCES: U.S. Bureau of the Census.
 Federal Reserve Bank of Dallas.

CONSUMER PRICE INDEX



1. Percent change from same quarter in previous year.
 SOURCES: U.S. Bureau of Labor Statistics.
 Federal Reserve Bank of Dallas.

TEXAS INDUSTRIAL PRODUCTION INDEX



SOURCE: Federal Reserve Bank of Dallas.

Falling Oil Prices (cont.)

A statistical analysis of energy-consuming industries indicates that an additional 5,000 jobs in refining and 3,000 jobs in petrochemicals will be available as a result of a \$5 drop in the price of oil. These industries may continue to be plagued by deregulation and excess world refining capacity. But the drop in oil prices will make refining and petrochemical employment higher than would be the case otherwise.

Because of interdependencies in the Texas economy, the changes in employment in the energy industries generate ripple effects throughout the state economy. Companies serving the four energy industries are affected, as are hundreds of businesses providing consumer goods and services. When these multiplier effects are included, the above changes in energy employment are responsible for a net loss of 136,000 jobs.

National Income Effects

As a net importer of oil, the United States is expected to benefit eventually from lower oil prices. Each \$5 drop in oil prices raises U.S. gross national product (GNP) by $\frac{1}{2}$ to 1 percent. As the U.S. economy grows, so will Texas industries that serve the national market, industries such as electronics and apparel. Each 1-percent increase in U.S. GNP raises Texas employment by 1 percent. So, by operating through the U.S. economy, a \$5 drop in oil prices raises Texas employment by $\frac{1}{2}$ to 1 percent, or between 33,000 and 67,000 workers.

Lower oil prices are expected to reduce Mexican income and production by some $2\frac{1}{2}$ to 5 percent for each \$5 decline in oil prices. This will have a depressing effect on Texas industries that are sensitive to economic conditions in Mexico—much of the retail trade along the border, for example. A 1-percent decline in Mexican output lowers Texas employment by one-tenth

of 1 percent. By operating through the Mexican economy, a \$5 drop in oil prices is seen to reduce Texas employment by $\frac{1}{4}$ to $\frac{1}{2}$ percent, or between 17,000 and 33,000 workers.

Summing Up

Chart 3 collects all of the employment effects associated with lower oil prices. Depending on whether an optimistic or a pessimistic assumption is made regarding the indirect effects from the U.S. and Mexican economies, a \$5 drop in the price of oil results in a loss ranging between 86,000 and 136,000 jobs. To put this loss in perspective, Texas nonfarm employment increased 132,000 in 1985. If comparable growth would have occurred without the oil price collapse, then as much as one year's employment growth is erased by each \$5 drop in oil prices. If oil prices stabilize at \$15 a barrel, little if any employment growth can be expected in Texas over the next two years.

—John K. Hill

The views expressed are those of the authors and do not necessarily reflect the positions of the Federal Reserve Bank of Dallas or the Federal Reserve System.

District Highlights is published quarterly by the Federal Reserve Bank of Dallas. Additional copies of most issues and subscription information are available from the Public Affairs Department.