

# the Southwest ECONOMY

THE FEDERAL RESERVE BANK OF DALLAS

NOVEMBER 1990

## Oil Prices and the Economic Outlook

Events in the Middle East have propelled oil prices to highs not seen since 1981. September prices represent several factors: the shortfall in world oil supply caused by the loss of Iraqi and Kuwaiti exports, increased production in other countries and fears of a greater disruption in oil supplies. The outlook for oil prices will depend on the length of the Middle East crisis and the nature of its resolution.

Higher oil prices come at a time when both the national and Southwest economies are weak. If higher oil prices are sustained, they will weaken the national economy while strengthening the Southwest economy. Just how much they hurt the national economy and help the Southwest economy will depend on how much oil prices increase and how long the increase is sustained.

### World Oil Prices Today

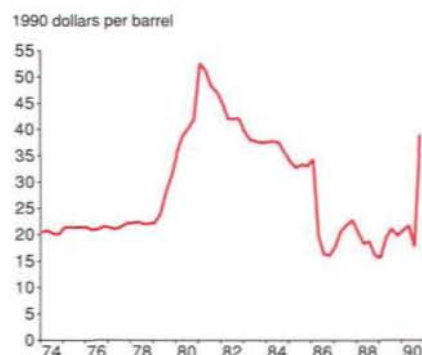
Iraq's invasion of Kuwait and the subsequent embargo more than doubled the price of oil over a two-

month period. By the last week of September, the price of West Texas Intermediate crude rose to nearly \$40 per barrel—a price not seen since March 1981. Adjusted for inflation, the September high was only 70 percent of the 1981 peak price (*Chart 1*).

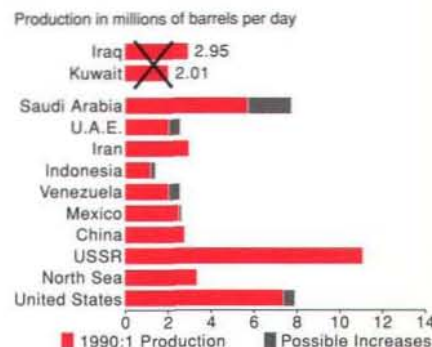
Before Iraq invaded Kuwait, the two countries together exported 4.3 million barrels of oil per day, which is about 8 percent of free-world oil consumption. By September, Saudi Arabia, Venezuela and the United Arab Emirates (UAE) increased their production by an estimated total of 2.6 million barrels per day, reducing the shortfall from the loss of Iraqi and Kuwaiti oil to 3 percent. Had Saudi Arabia, Venezuela and the UAE not increased production, prices probably would have reached almost \$50 per barrel.

Over time, more of the shortfall could be made up by increased pro-

**Chart 1**  
Real Oil Price  
West Texas Intermediate Crude



**Chart 2**  
Petroleum Supply



duction in Saudi Arabia, Venezuela, the UAE, Indonesia and Mexico (*Chart 2*). Together, these countries could sustain production of an additional 0.8 million barrels of oil per day. That extra production would reduce the shortfall to 0.9 million barrels—less than 2 percent of free-world oil consumption. The United States could also add another one-half million barrels per day, but only if environmental restrictions in California and Alaska are overcome.

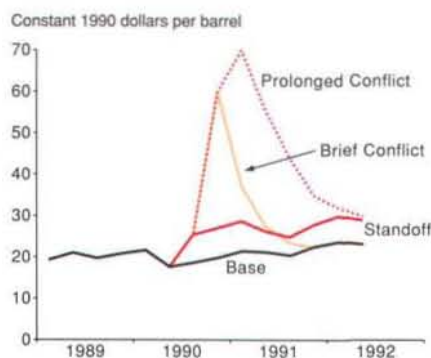
In the authors' judgment, continuation of the political standoff in the Middle East would support oil prices no higher than \$30 per barrel. In the last week of September, however, the spot price of West Texas Intermediate crude was much higher, reflecting market fears that military conflict in the Middle East would further disrupt oil supplies and push prices much higher.



## Oil-Price Outlook

The outlook for prices over the next few years depends on how long the Middle East crisis lasts and how it is resolved. The authors forecast prices for West Texas Intermediate crude under three scenarios that represent a wide range of possibilities: a prolonged Middle East standoff, a brief conflict with minimal damage to Iraqi, Kuwaiti and Saudi Arabian oil fields and a prolonged conflict with extensive damage to oil fields in these three countries (*Chart 3*). We contrast these scenarios to the base case, which represents our opinion about probable prices if no disruption of oil supplies from the Middle East had occurred. In the base case, we assume that the world economy and energy demand grow at an anemic pace through early 1991, then strengthen by 1992. We also

**Chart 3**  
West Texas Intermediate Crude Price—  
Base Case and Three Supply-Shock  
Scenarios



assume normal seasonal patterns in oil demand—unlike the abnormally warm winter of 1989–90, which greatly reduced demand for heating fuel.

As the crisis in the Middle East is resolved, we expect prices to gravitate toward the base case. The actual price path will depend on the structure of the Organization of Petroleum Exporting Countries (OPEC). If OPEC is more effective in restraining its production than it was before the Middle East crisis, prices will be higher than those in the base case. If OPEC is less effective than it was before the crisis, prices will be lower than those in the base case.

**Case 1.** In the first scenario, we assume

that the September 1990 standoff is prolonged and that oil production lost in Iraq and Kuwait is partially made up by increased production from countries with excess capacity. In this case, the price of West Texas Intermediate crude can be expected to range from \$25 to \$30 per barrel. If market fears of military conflict prevail throughout the standoff, the price could range from \$30 to \$45 per barrel.

As the standoff continues, the shortfall in production will increase because demand will rise faster than production. The growing shortfall will exert continuing upward pressure on price. Prices from \$25 to \$30 per barrel should reduce consumption sufficiently to close the shortfall. Higher prices will reduce oil consumption in several ways: through switching from petroleum products to other energy sources, through energy conservation, through a slowing world economy and through a shift in the composition of output from those goods whose production is energy-intensive to those goods whose production is not. Given the possibility of military conflict that could further disrupt the oil supply, we assume that crude oil inventories will not play much of a role in the first scenario. (*See the box, "Inventories of Crude Oil."*)

**Case 2.** For the second scenario, we assume that a brief military conflict results in moderate damage to the oil fields in Kuwait, Iraq and Saudi Arabia. Under this scenario, the conflict begins in the fourth quarter of 1990 and is resolved by 1991. Repairs to the fields occur over the next six months. In this case, we expect the price of oil to soar to about \$60 per barrel in the fourth quarter of 1990 before declining toward the base-case prices. In the scenario, we assume fears that the conflict could be prolonged will prevent extensive use of strategic and commercial inventories of crude oil.

**Case 3.** For the third scenario, we assume a prolonged conflict that lasts up to nine months and results in extensive damage to the oil fields in Saudi Arabia, Iraq and Kuwait. Again, we assume that the conflict begins in the fourth quarter of 1990. In this case, the initial oil-supply shortfall would be

about 9.3 million barrels per day—a little less than 20 percent of free-world oil consumption.

As with the brief conflict, prices would rise to near \$60 per barrel in the fourth quarter of 1990. As the conflict continues into the first quarter of 1991, oil demand would hit its seasonal peak and prices could climb to more than \$70 per barrel. Private and strategic stocks would likely be drawn down to cushion the price shock. Without a draw-down of inventories, prices much higher than \$70 per barrel would prevail. After the conflict ends, prices would fall as fields are gradually restored to production. Prices in this scenario remain above those in the base case because the time needed to restore fields and rebuild inventories extends beyond our forecast horizon.

## Oil Prices and the National Economy

Higher oil prices come at a time when national economic growth has been sluggish, but inflation has continued to increase. Had oil prices not been driven upward, growth would have remained slow through early 1991, but the United States probably would have avoided a recession. An easing of inflationary pressures would have accompanied somewhat higher unemployment rates.

Higher oil prices will push the national economy toward recession while providing a temporary stimulus to inflation. The depth and duration of any national economic slowdown will depend on how high oil prices rise. But, in any case, higher oil prices will lead to greater inflation through the end of this year and into 1991.

## A Weakening National Economy

Revised data from the U.S. Department of Commerce reveal that gross national product (GNP) growth slowed dramatically in 1989, compared to its pace in 1987 and 1988 (*Chart 4*). Growth remained sluggish into 1990. Thus, the economy grew at a 1.7-percent annual rate in the first quarter of 1990 and at only a 0.4-percent



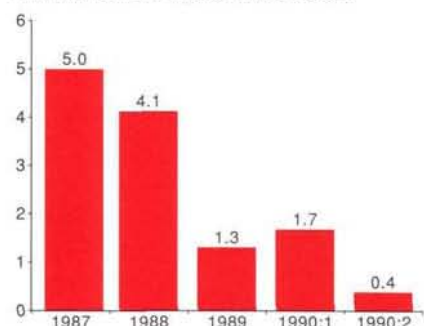
annual rate in the second quarter.

Despite the economy's slow growth from the beginning of 1989 through June 1990, the unemployment rate held steady at a low level. This behavior is not unusual; in the initial stages of a slowdown, employers, uncertain about the economic outlook, often hesitate to lay off employees.

One consequence of the continued

**Chart 4**  
Growth in Real GNP

Percent (annual rate) adjusted for 1988 drought



tightness in labor markets has been substantial upward pressure on wages and benefits (*Chart 5*). In the broad measures of output prices, too, there has been little, if any, indication that inflation has been brought under control.

In the authors' judgment, the economy would not have fallen into a recession had oil prices not increased.

**Chart 5**  
The Rate of Inflation

Percent change from four quarters before



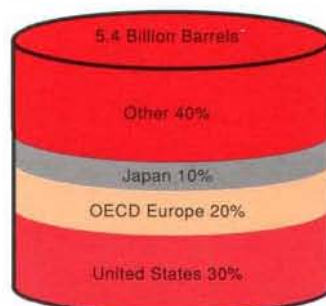
## Inventories of Crude Oil

As of March 1990, the International Energy Agency estimated the total amount of crude oil inventories (also known as *stocks*) held by the world market economies to be 5.4 billion barrels. This estimate includes both commercial and government stocks. As of September, inventories of crude oil played little role in offsetting oil production lost in Kuwait and Iraq. That situation could change if the United States has a colder-than-normal winter or if the oil-supply disruption worsens.

The United States holds 30 percent of world oil stocks, with more than 1 billion barrels in privately held stocks and 582 million barrels in the government-owned Strategic Petroleum Reserve (*Chart 1A*). Japan holds the second-largest amount of stocks, with about 10 percent. Together, the European members of the Organization for Economic Cooperation and Development (OECD) hold about 20 percent of total world stocks.

With inventories of about 3 billion barrels needed to maintain refining operations, the stocks available to

**Chart 1A**  
Market Economies' Oil Stocks,  
First Quarter 1990



meet a supply shortfall are only 2.4 billion barrels. Given the September shortfall in production of 1.7 million barrels per day, stocks would support consumption at predisruption levels for nearly four years. If all countries other than Kuwait and Iraq increased their oil production to capacity, stocks would support consumption at predisruption levels for about seven years. Given expected increases in demand, stocks would have to be depleted more rapidly than these estimates suggest if the loss of Kuwaiti and Iraqi oil is to be completely offset.

Thus, our base-case forecast—the path we feel the economy would have taken had Iraq not invaded Kuwait—calls for weak, but positive, real GNP growth over the near term (*Chart 6*). Growth returns to normal levels toward the middle of 1991.

Even before the increase in oil prices, firms were beginning to limit expansion of their work forces in anticipation of continued sluggish growth in demand. Even without higher oil prices, labor-market slack would probably have developed, putting downward pressure on the rate of inflation. Accordingly, our base-case forecast calls for gradual reductions in the rate of inflation during the remainder of 1990 and into 1991 and 1992 (*Chart 6*).

Thus, had Iraq not invaded Kuwait, the economy would probably have achieved the soft landing that many analysts were predicting. GNP growth would have stabilized at about 2.5 percent without first dropping to recession levels, and inflation would have begun to ease.

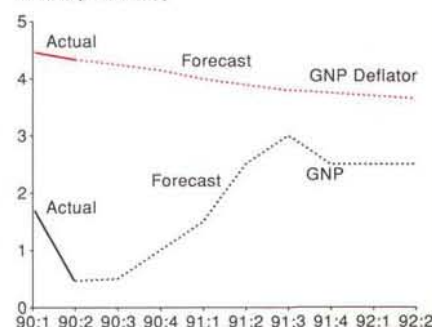
## Higher Oil Prices and the Revised National Outlook

Given the reality of the invasion and the subsequent hikes in the price of oil, how has the outlook for the national economy changed? *Chart 7* depicts the impact of oil prices on the economy's growth rate in each of the three oil-price scenarios described earlier.

In the first scenario, where a prolonged standoff in the Middle East occurs, the economy just manages to maintain its forward momentum. The

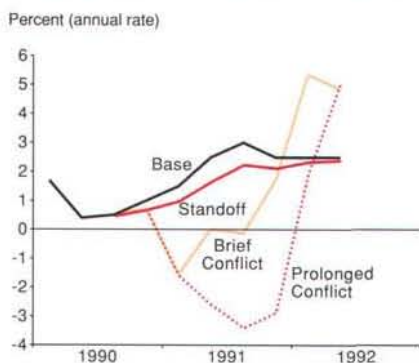
**Chart 6**  
Base-Case Scenarios for Real GNP Growth and Inflation

Percent (annual rate)





**Chart 7**  
Effects of Higher Oil Prices on the Growth Rate of Real GNP—Alternative Scenarios

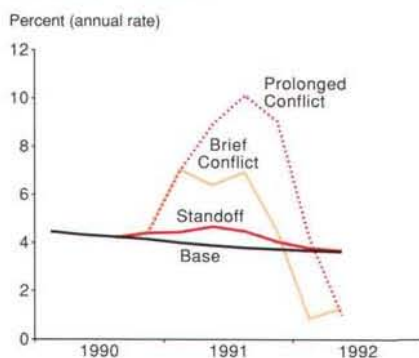


incremental slowing that the economy experiences in this case is roughly comparable to that which resulted from the 1988 drought. Oil prices at \$25 or \$30 per barrel would have had disruptive effects greater than those depicted here were the economy not still adjusting to the 1986 oil-price decline.

In the second and third scenarios, where hostilities escalate, the impact of higher oil prices on economic growth is substantially greater and would almost certainly result in a recession. The recession is mild if the military conflict is brief (Case 2) but quite severe if the conflict is prolonged (Case 3).

The effects of higher oil prices on the GNP price deflator (a measure of inflation) are expected to be roughly equal in magnitude but opposite in direction to the effects of higher oil prices on output (Chart 8). In Case 1, the standoff scenario, inflation peaks at an annual rate between 4.5 percent and 5 percent in the second quarter of 1991. In the second and third scenarios, inflation rises to 7 percent and 10 percent, respectively. By way of com-

**Chart 8**  
Effects of Higher Oil Prices on Inflation—Alternative Scenarios



parison, the inflation rate rose by almost 10 percentage points in response to the tripling of oil prices between 1973 and 1974.

Even if the standoff in the Middle East continues, the *threat* of war may keep oil prices above their Case 1 levels. Should this occur, output growth would lie somewhat below the standoff scenario depicted in Chart 7. Similarly, the actual inflation path would lie somewhat above the standoff scenario depicted in Chart 8.

### Oil Prices and the Southwest Economy

Higher oil prices come at a time when the Southwest economy reflects a slowing national economy. During the second quarter of 1990, private non-agricultural employment showed anemic growth across the Southwest.

As with the national forecast, higher oil prices alter the outlook for the Southwest economy. As an energy-producing and energy-exporting region, the Southwest will fare somewhat better than the nation in the face of rising energy prices. Just how much better depends on how high oil prices rise and how long higher oil prices continue.

### A Slowing Southwest Economy

While growth of total nonagricultural employment in the Southwest has remained fairly strong in 1990, much of the recent growth occurred in the government sector (Chart 9). Since March, private nonagricultural employment has increased at an annual rate of about 0.5 percent. That figure is down from the nearly 2-percent average rate that characterized the recovery that began in the second quarter of 1987.

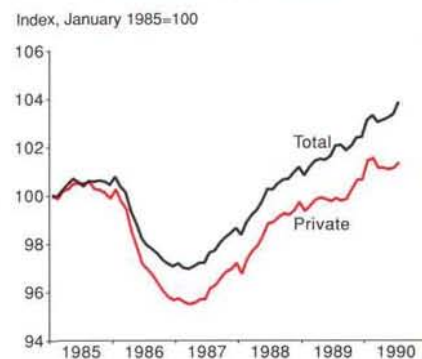
In the first quarter of 1990, all sectors of the Southwest economy were expanding simultaneously for the first time since the recovery began. Growth was also apparent across the region, with most subregions of Texas, as well as Louisiana and New Mexico, showing employment gains.

In the second quarter, the slowdown became broadly evident across the

Southwest and its industries. Much of the recent weakness originated in declines in the goods-producing industries. Manufacturing employment in the Southwest has declined sharply since the first part of the year. The declines were widespread across manufacturing industries. Growth remained strong only in the chemicals and refining industries.

In construction, employment fell in the second quarter after growing earlier in the year. The energy industry showed growth despite slipping oil prices. The private service-producing sector reported slower growth. Growth slowed in wholesale and retail trade and in business and personal services. Transportation and public utilities showed strong growth throughout the first seven months of the year.

**Chart 9**  
District Nonagricultural Employment



Economic conditions in the Southwest and the outlook for continued weakness in the national economy suggest that the region's economy was headed for several quarters of weak but positive growth before Iraq invaded Kuwait. The Texas Index of Leading Economic Indicators provides a similar reading (Chart 10). In the second half of 1989, the index flattened. That pattern has generally continued into 1990.

### Higher Oil Prices Strengthen the Southwest Economy

As an energy-producing and energy-exporting region, the Southwest should benefit from higher oil prices. Higher oil prices affect the Southwest economy through several channels. The Southwest economy will participate in a



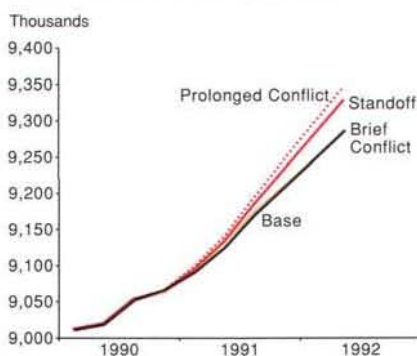
slowing of the national economy. The Southwest's energy-producing sectors will expand while its energy-using sectors, such as refining, petrochemicals and transportation, contract. These adjustments will have both positive and negative multiplier effects in the Southwest economy. The Mexican economy, strengthened by higher oil prices, also will exert a positive influence on the region's economy.

On the whole, higher oil prices can be expected to stimulate employment in the Southwest. The extent of employment gains depends on the size and duration of the price increase. Over a two-year period, each \$1 increase in the price of oil that is expected to continue indefinitely would boost Texas employment by 17,200 jobs—0.25 percent of total nonagricultural employment in the state. Similarly, each \$1 increase in the price of oil would boost employment in Louisiana by 4,800 jobs—0.32 percent of its nonagricultural employment—and in New Mexico by 800 jobs—0.14 percent of its nonagricultural employment.<sup>1</sup>

In total, nine energy-producing states—Alaska, Colorado, Louisiana, New Mexico, North Dakota, Oklahoma, Texas, West Virginia and Wyoming—will benefit from sustained higher energy prices. The other 41 states and the District of Columbia will be hurt by rising energy prices. Wyoming and Oklahoma show the largest percentage gains in employment. Delaware could see the biggest losses; nearly 10 percent of its employment is in the petrochemicals industry.

During 1990, however, higher oil prices could reduce employment in the

**Chart 11**  
Total Nonagricultural Employment  
Louisiana, New Mexico and Texas



energy-producing states. Growth in the national economy has slowed, but the oil industry has not yet responded to higher oil prices by increasing exploration and development. Oil producers are not sure that high oil prices will be sustained. In addition, a shortage of drilling equipment and qualified personnel prevents a quick response. Furthermore, half of current drilling is for natural gas, and natural gas prices remain depressed. A surplus of natural gas and high inventories of residual fuel oil, the primary substitute for natural gas in industrial applications, are holding down natural gas prices.

As shown in Chart 11, the temporary price increases that are likely to result from the Middle East crisis will provide only a slight stimulus to employment in the Southwest. And although the three scenarios considered are likely to generate regional employment gains during the disruption, some temporary price increases could actually reduce the growth of employment in the Southwest. While all the negative effects of a slowing national economy will be realized, only small gains will be made in the energy-producing sectors, given the temporary nature of the oil-price hike.

Furthermore, any employment gains resulting from temporarily higher oil prices will be lost as prices fall back to the base case. For the brief conflict scenario, this happens by the end of the forecast horizon. For the other two scenarios, the temporary employment gains are lost after the forecast horizon.

## Summary

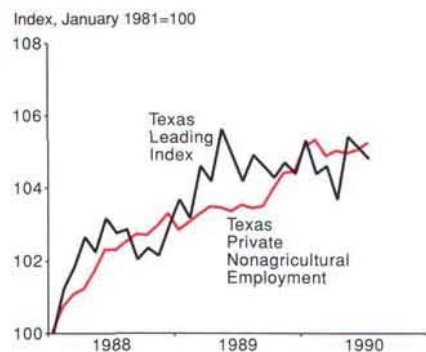
Before the oil-price disruption, the national and Southwest economies were showing weak growth, with growth in the nation converging toward the sluggish growth rates that characterized the Southwest during the past three years. In the absence of higher oil prices, national economic growth would have remained slow over the next few quarters, but the United States probably would have avoided a recession. Somewhat higher unemployment rates would have been accompanied by an easing of inflationary pressures.

Higher oil prices will slow national economic growth. A recession may be avoidable, but just barely so. Inflation, on the other hand, is likely to rise through the end of this year and into 1991.

Temporarily higher oil prices will provide only a slight stimulus to economic growth in the Southwest, and only while they are sustained. As the crisis in the Middle East is resolved and oil prices retreat, the employment gains resulting from higher oil prices will be reversed. In any case, the benefit of higher oil prices to the Southwest economy may not be evident until 1991.

—Harvey Rosenblum  
Stephen Brown  
Evan Koenig  
Keith Phillips  
Mine Yücel

**Chart 10**  
Texas Economic Indicators



<sup>1</sup> A \$1 change in the price of oil now has a smaller effect on the Southwest than previously estimated (S.P.A. Brown and John K. Hill, "Lower Oil Prices and State Employment," *Contemporary Policy Issues*, July 1988). Since the earlier analysis, the Southwest economy has become more closely tied to the national economy. In addition, the Southwest's energy-producing sectors have become smaller and its energy-using sectors have become larger.