

Lower Oil Prices Weaken Prospects for Job, Economic Growth in Texas

By Michael D. Plante

ABSTRACT: Although the relative importance of oil and gas to the Texas economy has grown in recent years, lower energy prices are unlikely to halt net job growth statewide.

The oil and gas sector in Texas has boomed in recent years due to high oil prices and surging production from new drilling technologies. However, with prices down sharply since last summer, the sector's outlook has dimmed (*Chart 1*). The economic fallout is especially important in Texas, the leading producer of crude oil in the U.S. and home to the nation's major oil and gas companies.

Lower oil prices are a boon and a bane for oil-producing economies. Falling prices reduce the cost of energy, generally viewed as a positive for economic activity. Conversely, lower oil prices negatively affect economic activity in oil-producing states as drilling activity is cut back, royalty payments are reduced and government revenues are adversely affected. Whether the overall effect of lower oil prices is positive or negative depends on the relative importance of the energy sector to the economy.

While several metrics suggest the Texas economy is less reliant on the oil

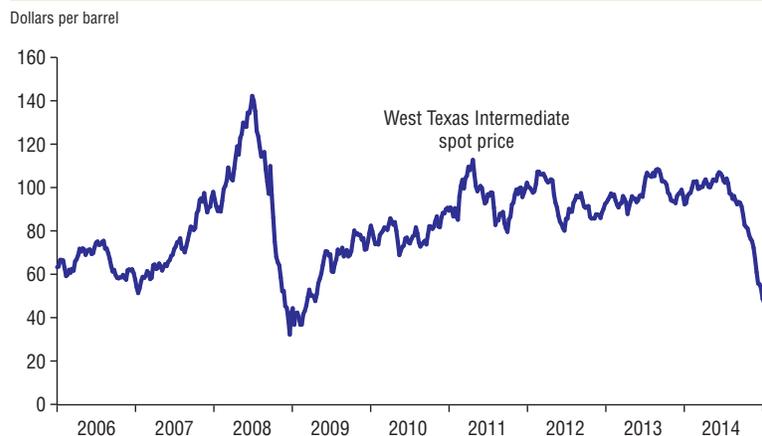
and gas sector than in the early 1980s, research suggests that the decline in oil prices will depress net job growth in the state. The effects by themselves are not expected to halt job creation in Texas in 2015, but will, nonetheless, be felt in areas heavily dependent on oil production and employment related to the sector. (See *"Texas Metros' Rapid Growth Likely to Slow Following Energy Price Drop,"* page 16.)

Oil and Gas Riding High

The oil and gas sector's relative importance to the Texas economy has varied dramatically as oil prices and production have evolved. By several metrics, the sector's heyday occurred in the late 1970s and early 1980s, a period of extremely high prices. The sector crashed as oil prices subsequently plunged, contributing to a statewide banking crisis. Years of stagnation followed, with a seemingly irreversible decline in production.

Over the past decade, Texas—and more generally, the Eleventh Federal Reserve District—has greatly benefited

Chart 1 Oil Prices Plummet in Second Half of 2014



SOURCES: Energy Information Administration; CME Group.

from the shale boom. The district is home to four major basins where hydraulic fracturing and horizontal drilling have been successfully applied (Chart 2). These new technologies have revitalized oil and natural gas output. Crude production exceeded 3.4 million barrels per day in late 2014, up from 1.1 million in 2008, and natural gas production is at levels not seen since the 1970s.

Booming production and high prices have increased the oil and gas sector's relative importance to the state economy. The proportion of all jobs in the state attributable to the sector has been growing, reaching about 2.5 percent in 2013, up from a low of 1.4 percent in 2000 (Chart 3).¹ The current high remains well below the peak in 1982, when almost 4.7 percent of all jobs were in the oil and gas sector.

The share of total income generated in the state due to the sector has also grown.² As of 2013, the share was estimated to be about 13 percent, up from the recent low of 4.1 percent in 1998. Like employment, the share of income remains well below its boom-era peak, 19.1 percent in 1981.

Government Revenue Source

For many oil-producing economies, the government revenue the sector generates is particularly important. Falling prices may have additional negative economic impacts because officials are often forced to raise taxes or reduce spending to make up for budget shortfalls.

In recent years, oil and gas taxes have provided a boon to Texas coffers. Oil- and gas-related taxes provided about 3 percent and 1.5 percent, respectively, of total state revenue in 2013. Their total share of 4.5 percent is up from 2 percent in 2010 and more than double the recent low of 1.5 percent in 1999. Because Texas taxes oil on its market value, recent price declines will reduce this source of revenue and could crimp government spending.

However, the state is significantly less dependent on these funds than before. For example, in 1982, oil and gas taxes provided over 17 percent of total state revenue. Texas is also not as reliant

on this source of funding as are many other oil producers—states and nations where it can provide one-third or more of total funding (Chart 4).

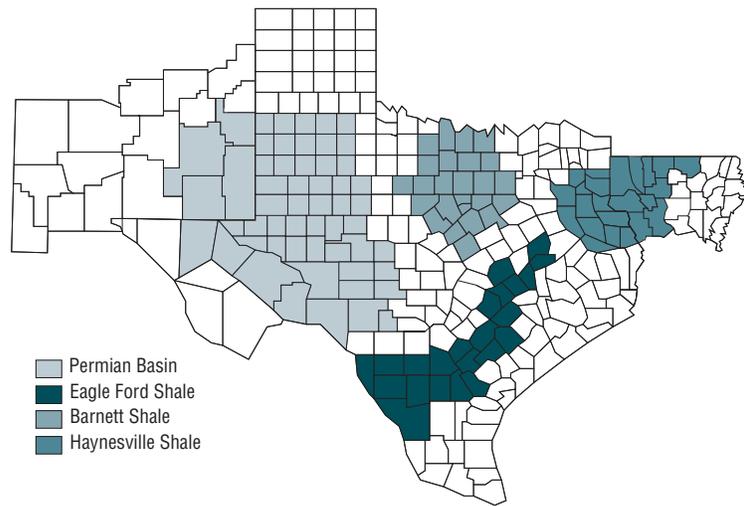
Different States, Job Impacts

A model developed for a recent Council on Foreign Relations report provides some predictions on how oil price changes affect employment in

each state. The model takes into account a state's overall exposure to the oil and gas sector as of 2012. It also makes other assumptions, such as how responsive employment in various sectors is to changing oil prices.³

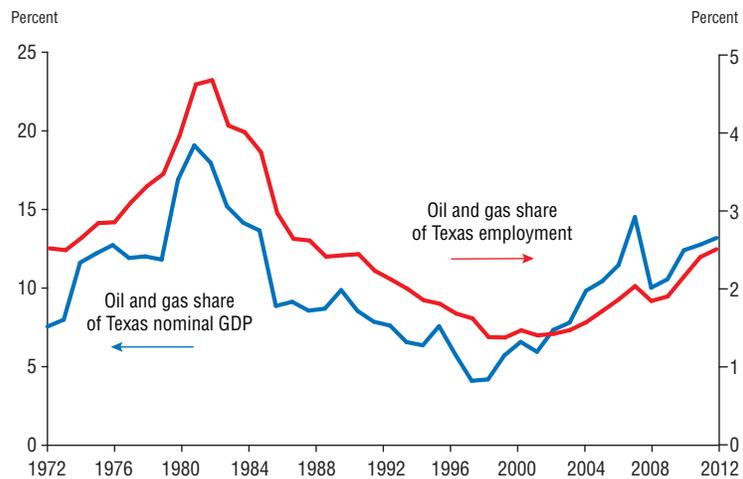
The model predicts that an oil price decline would negatively affect total employment in eight states and positively influence jobs in 42. The

Chart 2 | Four Shale Plays Dominate Eleventh District Production



SOURCES: The counties in the Permian Basin, the Eagle Ford Shale and the Haynesville Shale are identified based on Energy Information Administration guidelines; the counties in the Barnett Shale are identified based on Texas Railroad Commission guidelines.

Chart 3 | Importance of Oil and Gas Sector in Texas Varies over Time



NOTES: Standard Industrial Classification used for 1972–96. North American Industry Classification System used for 1997–current.

SOURCES: Bureau of Labor Statistics; Bureau of Economic Analysis; author's calculations.

percentage impact on total employment from a 50 percent oil price drop varies across the states (*Chart 5*). For Texas, the model predicts that the number of jobs eliminated by such a decline would equal 1.2 percent of total nonfarm employment, which averaged about 11.7 million in fourth quarter 2014. That translates to about 140,000 jobs at risk.

Interpreting the Number

The 140,000 job-loss forecast estimates the number of jobs that currently

exist but would disappear because of lower oil prices. It includes cuts in both oil- and gas-related and non-oil sectors. The latter losses can occur, for example, because employees who lose their jobs in the oil and gas sector may reduce spending on other goods and services such as restaurants, which can lead to reductions in local service sector employment.

The number should not be viewed as a forecast of a jobs contraction in Texas in 2015. Rather, putting the

number into context requires considering the contributions to employment growth from non-oil sectors. In recent years, the state has produced a significant number of jobs across all sectors. For example, the state added 373,000 jobs in 2012; 300,000 in 2013; and more than 380,000 in 2014.

While the disappearance of 140,000 jobs is significant, it pales relative to the number created in recent years. As a result, if one takes the model literally, the prediction suggests that falling oil prices alone will lower the rate of net job growth but will not be detrimental enough to bring employment expansion to a halt. This is in line with a recent forecast produced by Dallas Fed economist Keith Phillips, who anticipates that Texas employment will grow 1 to 2 percent, compared with 3.4 percent growth in 2014. This forecast is based on a model totally unrelated to the one in the Council on Foreign Relations report, though it tells roughly the same story.

Varying Impacts in Texas

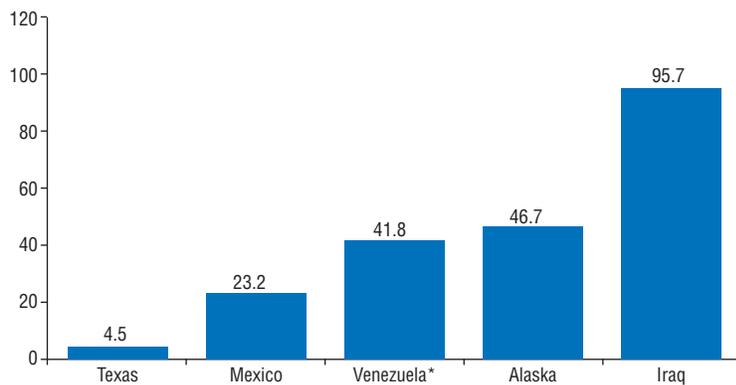
Negative effects of the price decline will probably not be evenly spread across Texas, for at least three reasons. First, oil production is not evenly distributed across the state. Second, some areas are more profitable to drill in than others. Third, the importance of oil- and gas-related employment also varies across metropolitan areas of the state.

Even though Texas has four major basins where production has boomed, oil-related activity is concentrated in the Permian Basin in West Texas and the Eagle Ford in South Texas (*Chart 2*). These two areas account for more than 80 percent of the oil produced in Texas. The Barnett and Haynesville regions, on the other hand, produce primarily natural gas. Low oil prices, therefore, will more significantly impact drilling activity in West and South Texas. They will also negatively affect royalty payments to landowners more significantly in those areas, affecting local residents' incomes and, potentially, reducing spending in the area.

Break-even prices—estimates for what oil prices must reach to provide a reasonable return on investment—also

Chart 4 | Some Governments Rely Heavily on Oil Revenues

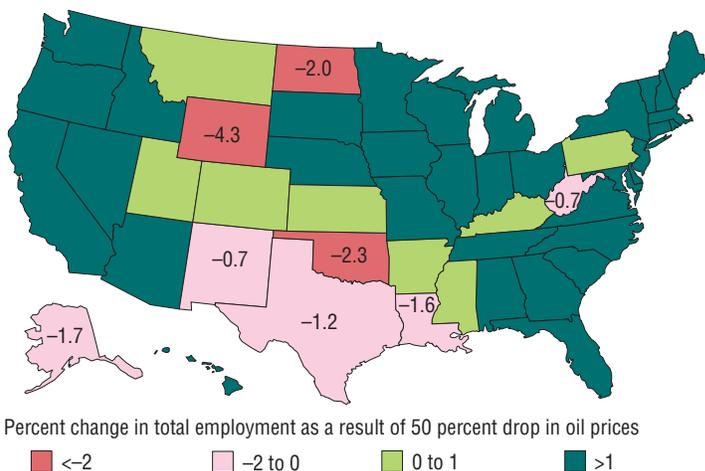
Share of 2013 government revenue (percent)



*Venezuela data as of fiscal 2012.

SOURCES: Texas Comptroller's Office; Alaska Revenue Sources Book; International Monetary Fund; Bloomberg; Haver.

Chart 5 | Falling Oil Prices Affect Employment Differently Across U.S.



SOURCE: "The Shale Gas and Tight Oil Boom: U.S.States' Economic Gains and Vulnerabilities," by Stephen P.A. Brown and Mine K. Yücel, Council on Foreign Relations, October 2013.

vary across basins, both within Texas and across the U.S. Factors influencing break-even prices include well productivity, drilling costs and the presence of other hydrocarbons besides oil.

Studies tend to find higher break-even prices in the Permian Basin and relatively lower ones in the Eagle Ford and the Bakken Shale in North Dakota. They also find significant variation in break-even prices within a given basin. Although no hard data exist for Texas, a recent study by North Dakota's Department of Mineral Resources showed that break-even prices in different counties in the Bakken ranged from \$28 to \$85 a barrel, with an average of \$56.⁴

These findings suggest diminished drilling in all major plays, since each will have specific areas with high break-even prices. The Permian is most susceptible to a slowdown. Indeed, the basin lost over 200 rigs from the first week of December to the last week of February, significantly more than in the Eagle Ford or the Bakken.

Finally, metropolitan areas also will be impacted to different degrees because some rely on energy jobs to a greater extent than others (*Chart 6*). Places such as Midland, in the Permian Basin, and other areas more reliant on oil and gas employment are more likely to feel the brunt of the negative impacts. Houston, where almost 25 percent of all jobs in Texas are located, is the most exposed among major metropolitan areas, with almost 3.8 percent of area jobs related to mining. On the other hand, cities such as El Paso and Austin have comparatively less exposure and may even benefit from falling oil prices.

Negative Effects for 2015

The oil and gas sector in Texas has grown in relative importance in recent years, but by most metrics the state is not as dependent on the sector as it was in the early 1980s. Despite this, research suggests that lower oil prices will negatively affect the Texas economy, with one model predicting that about 140,000 jobs could be lost statewide.

Although this is a large number, it is not expected to bring net job growth to a standstill, given recent employment

expansion in other sectors of the economy. Most susceptible to the downturn are areas of the state with high oil production and with numerous oil-related jobs. However, the overall impact will also crucially depend on just how long oil prices remain depressed, a difficult thing to predict given the uncertain and often volatile nature of oil prices.

Plante is a senior research economist in the Research Department at the Federal Reserve Bank of Dallas.

Notes

¹ The employment share is the number of jobs related to oil and gas production divided by total nonfarm employment, which includes all jobs in the private and public sectors except those related to agriculture.

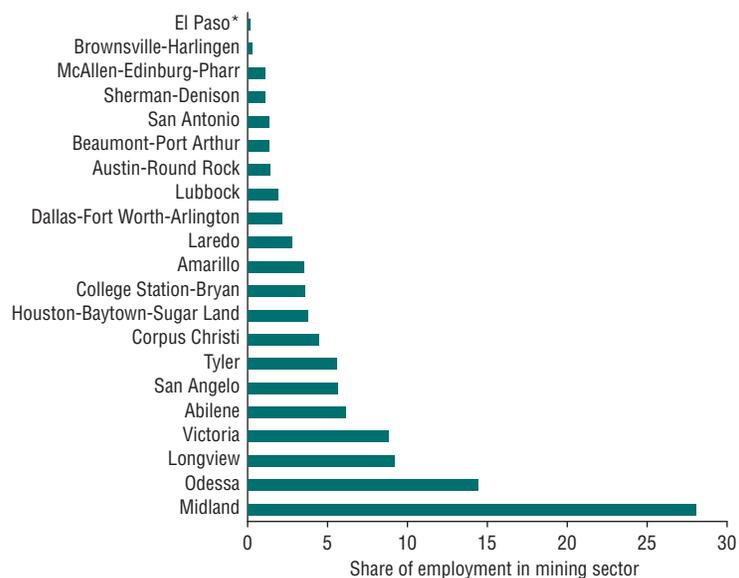
² The share is calculated as the sum of nominal gross domestic product (GDP) in oil and gas extraction and support activities for mining divided by total nominal GDP for the state, using publicly available data from the Bureau of Economic Analysis.

³ Details can be found in "The Shale Gas and Tight Oil Boom: U.S. States' Economic Gains and Vulnerabilities," by Stephen P.A. Brown and Mine K. Yücel, Council on Foreign Relations, October 2013.

⁴ See "North Dakota Discloses Break-Even Prices," *Oil Daily*, Oct. 17, 2014.

▶ Negative effects of the oil price decline will probably not be evenly spread across Texas.

Chart 6 Some Metro Areas Have Greater Exposure to Energy Sector



*El Paso data as of 2008; all others as of 2012.

NOTE: Mining predominantly represents oil and gas in Texas.

SOURCE: Bureau of Economic Analysis.