Oil prices in today’s dollars are now the lowest since the early 1970s. Precipitous declines of oil prices after mid-2014 brought the U.S. shale oil boom to an end. Texas — the nation’s largest state in oil and natural gas production — is bracing for economic headwinds brought by the expected downsizing of its oil and gas industry.

And South Texas is in the eye of the storm simply because of what the newly discovered Eagle Ford shale play has contributed to its regional economy in the past five years.

In a newly published article in an academic journal, Energy Policy, I indeed found that, holding all else constant, the economic impact of extracting oil and gas wells was significantly greater in the Eagle Ford than other shale plays in Texas during the shale oil boom between 2009 and 2014.

This finding alone implies that if the oil and gas industry goes into reverse gear as opposed to what happened before 2015, then the Eagle Ford communities and South Texas as a whole would be hit hard.
The anticipated full impact on the Texas shale regions hasn’t occurred just yet as both oil and gas production continued to grow through the first quarter of 2015. Meanwhile, average production for the existing rigs has in fact soared.

**Invisible Hands**

How so? First, it is helpful to understand that other than such technological advances as hydraulic fracking and horizontal drilling, the shale oil boom was fueled by developments in the global oil markets.

Drilling occurs only when the price of crude oil produced is above the break-even level. After the depths of the 2007-2009 recession, shale oil explorers and drillers responded to oil prices hovering above $80 a barrel along with an outlook of solid market growth spurred by growing energy demand in China and other emerging economies.

Development in the Eagle Ford shale began to unfold in 2008. The number of drilling permits and both oil and gas production in that play rose exponentially through 2014.

**Gas vs. Oil Wells**

Yet economic impacts varied drastically between oil and gas wells. While there was virtually no difference between an oil well and gas well during their development and drilling phases, gas wells on average brought in at least twice as much in additional total income or employment created as compared to oil wells when the extraction phrase began.

This surprising finding can be explained by the opposite oil and natural gas market dynamics at that time. While crude oil prices were elevated at historically high level above $100 a barrel, natural gas prices stayed at low levels below $5 per million BTU.

At high output prices, an oil well needed not be as productive as otherwise to be economically feasible to operate. In economic terms, new oil wells in Texas then were operating on the top portion of the market supply curve.

This, however, was not the case for gas wells. At prices below $5 per million BTU, a gas well was drilled only if it was sufficiently cost efficient to at least break even. In other words, Texas’ shale gas wells were operating near the bottom portion of the industry production curve. This was the case of survival of the fittest.

But since mid-2014, drillers for oil have appeared to follow the same footsteps as those for natural gas a few years ago.
The short history of the shale oil boom offered some insights into today’s shale industry. Oil market collapses since mid-2014 have paralleled developments in the aftermath of the 2007-2008 financial crisis. Indeed since the beginning of 2015, capital investment for oil drilling has grinded to a halt due to heightened uncertainty amidst a volatile market. As a result, the number of operating oil rigs in Texas has undergone a free fall.

Yet Texas shale oil production continued to grow through mid-year, boosting the average production rate of the existing oil rigs and wells. Like that for gas wells a few years back, now energy companies operate only those oil wells that are most productive or cost efficient.

The break-even prices for oil wells in the Eagle Ford play today are believed to range between $40 and $60 per barrel. So those wells with a unit-cost above the current market price around $50 are most likely to be capped first. And scores of new wells that were once considered profitable have been abandoned at least for the short term.

As this “survival of the fittest” process continues, only wells that are most productive or cost efficient are drilled or kept operational. By late 2015, the average production rate of new oil wells in the Eagle Ford and Permian Basin nearly doubled that a year ago. This positive effect of relatively low energy prices translates into a greater income or job impact for existing active wells.

As oil and gas companies become more selective in drilling new wells, their operations tend to be more environmentally friendly. Oil industry development will also become more economically sustainable in the long run than what would be under the previously high market price environment. So, for all the economic challenges that low oil prices are bringing to Texas, there are nevertheless long-term benefits.

Reference
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