

# THE TEXAS ECONOMY

O'NEIL CENTER FOR GLOBAL MARKETS AND FREEDOM ★ SMU COX SCHOOL OF BUSINESS ★ THIRD QUARTER 2017

## Listening for a Texas Twang in the Innovation Economy

By Richard Alm

In the 1820s, waves of American settlers started moving westward into Texas, then a sparsely populated province of Mexico, to grow cotton for capitalism's first boom, spurred by new machines for spinning and weaving textiles.

Half a century later, railroads steamed onto Texas soil, opening the rapidly growing U.S. market to the state's products, including cotton and cattle. Leaping ahead in time again, the automobile turned Texas' oil into "black gold," the foundation of a global industry that dominated the state economy through most of the 20<sup>th</sup> Century.

This historical sketch suggests that innovations, some arriving from far away, have been key to Texas' economic development. Past is prologue, as they say, and technology continues to shape Texas' economic destiny—just look at the sudden revival of the energy business due to hydraulic fracturing, or "fracking," used to extract oil and gas from dense rock formations.

The third Texas Economic Forum, held at SMU in September, explored Texas' place in "The Innovation Economy," with an emphasis on what's happening close to home in the Dallas-Fort Worth (DFW) area. In putting on the program, the O'Neil Center partnered with two other SMU Cox research groups—the Maguire Energy Institute and the Folsom Institute for Real Estate.

This issue of *The Texas Economy* summarizes the Forum's presentations.

### Imagine That!

W. Michael Cox, the O'Neil Center's founding director, opened the Forum by laying out a broad evolution of the



W. Michael Cox

U.S. economy. Founded in the Agrarian Age, the country transitioned into the Industrial Age and then the Information Age. In the past two decades or so, innovations emerging from the microprocessor thrust the country into the fourth wave of American economic progress, the Imagination Age.

"The age you are in is defined by what is dear—possible to have but expensive," Cox said. "You leave an age when what was once dear becomes commoditized and cheap."

The Imagination Age emerged because the Internet and related technologies reduced the cost of processing, storing and transmitting words, images and data. "Information is cheap," Cox said. "What's increasingly valuable today is our ability to imagine what can be done with all the technology around us. This is

how people are getting wealthy."

We live in a nation brimming with entrepreneurial spirit—so the possibilities are mind-boggling. Americans are using history's greatest technology tool kit to produce innovations that benefit the rest of us—doctors performing remote surgery, for example. Smartphones provide a platform for at least 6 million apps, some silly and others life-saving. Cox pointed to Zello, an open communications app from a company in Austin. When days of torrential rains swamped Houston in August, volunteers used the app to locate and rescue residents stranded by the floodwaters.

Cox turned a spotlight on emerging technologies that will upset existing industries and create opportunities in the next few decades. We can imagine self-driving cars on Texas roadways and drones hovering in Texas skies to help save lives or film movies.

Innovators can imagine uses for graphene—stronger than steel, thinner than a human hair. The same goes for artificial intelligence and the Internet of Things, both ways of weaving computer technology into the fabric of everyday life. Cracking the DNA code allows us to imagine gene-based therapies that will lead to longer, healthier lives.

"This is the next big thing—a revolution that is biological rather than electronic," Cox said.

After looking at these technologies, Cox posed a localizing question: "What role will Texas play in the Imagination Age?" Will it pass us by or will we be on the leading edge?"

In Cox's mind, Texas and its big metropolitan areas have reason to be optimistic about their place in the innovation economy. With knowledge

ubiquitous and fluid, innovation doesn't have a natural home. It will flourish where conditions are favorable to starting and growing businesses

For Texas, two trends stand out. First, the state weaned itself from dependence on oil over the past three decades, a process that required a burst of entrepreneurial energy. Texas emerged as the nation's fourth most diverse economy, with a varied mix of companies and industries linked to America's broad and innovative economy.

Second, Texas has consistently ranked among the Top Five states in economic freedom; DFW and Houston are second and third in metropolitan area economic freedom. With relatively few obstacles to business success, Texas maintains a healthy climate for startups and attracts entrepreneurs and innovative companies from outside the state.

"That bodes well for our ability to adapt and move forward in the Imagination Age," Cox concluded.

### DFW Tech Assets

Duane Dankesreiter, the Greater Dallas Chamber's senior vice president for research and innovation, began by telling the Forum that his organization had been busy preparing DFW's bid for one of history's biggest economic development prizes—technology giant Amazon's second headquarters, with its promise of 50,000 jobs.

"We could win this," Dankesreiter said. "We have the things that matter to them."

Dankesreiter didn't reveal much more on the secretive efforts to recruit Amazon, but he portrayed DFW as "one of the most significant high-tech and innovation business centers in the United States." He brought the facts and figures to back up the assertion.

To start with, tech companies seek easy access to a global marketplace. DFW Airport offers direct air links to 210 destinations, including 56 in foreign countries. North Texas region stands out as one of just nine major Internet "peering points"—digital transmission hubs that provide the fastest speeds. With its Internet access and low electricity costs, DFW has become a "data center powerhouse," ranking second behind



*Duane Dankesreiter*

Northern Virginia in capacity.

Tech-savvy workers are key to success in the innovation economy. According to Dankesreiter, the DFW labor force includes 230,000 engineers, computer programmers, systems analysts and other tech workers—seventh among major metropolitan areas and a bit above the San Jose area, hub of legendary Silicon Valley. "Austin gets the buzz about innovation and high tech, but Dallas has 40 percent of Texas' high-tech workers," Dankesreiter said. "Austin's at 16 percent."

The jobs testify to DFW's deep roster of tech companies. Some are home-grown giants—notably, Texas Instruments and GameStop. Others are the tentacles of the biggest names in tech—Google, Cisco, IBM, AT&T, to name just a few. Irving hosts Microsoft's second-largest U.S. operation. Particularly noteworthy—from the standpoint of the local innovation economy—are the 20-plus corporate innovation centers in DFW.

The big names have plucked some gems among DFW tech startups. Electronic Data Systems (EDS), Perot Systems, MetroPCS, Bottle Rocket,

Woot! and dozens of others are now part of bigger companies, but they maintain North Texas footprints. "The Dallas region doesn't do a good job of telling our story, especially when it comes to our successes," Dankesreiter said. "We are nose to the grindstone, getting the business done."

Support for entrepreneurs has been growing in recent years. To encourage the next generation of startups, 36 business accelerators and incubators and 61 co-working spaces are up and running in the DFW region.

Texas higher education doesn't get the recognition it deserves, but Dankesreiter considers it an asset in tech recruiting. Five Texas colleges rank among *U.S. News & World Report's* Top 100 computer science graduate schools. UT Southwestern stands out in medical research, and SMU's Guildhall topped the *Princeton Review's* list of graduate schools for computer gaming.

As for tomorrow's technologies, Dankesreiter says Texas is already in the game. Hillwood Development and Bell Helicopter are working with Uber on applying ride-sharing technology



From left, Bruce Bullock, Ryan Dalton, Chris Cooper, Randy DeWitt, Nick Clark, Joseph Cahoon

to airborne vehicles. Texas has been named one of 10 global finalists for Elon Musk's hyperloop, which promises to take passengers from Dallas to Austin in less than 20 minutes.

### Innovation in Action

A panel led by Maguire director Bruce Bullock and Folsom director Joseph Cahoon featured entrepreneurs from the energy and real estate industries, who gave first-hand accounts of the toils and triumphs of starting businesses in Texas.

The state has a good climate for innovation, the entrepreneurs agreed. "There are people here who want you to succeed," said Chris Cooper, CEO of Oilfield Water Logistics, a company that serves drillers, "and they want to help you no matter what."

And they all saw a virtue in being small and entrepreneurial when going toe-to-toe against bigger companies. "You have to be nimble," Cooper said, "and smaller companies can do that."

Bullock asked whether energy industry innovation could continue at its current pace with oil prices at \$45 to \$55 a barrel. "There's a lot of momentum to innovate, even in this price environment," said Ryan Dalton, CFO of Parsley Energy, an Austin-based firm focused on West Texas' Permian Basin.

"We're testing frack stages, frack spacing, well spacing, sand—you wouldn't believe that the size and shape of a grain of sand matters in our industry

as far as how much oil you're going to recover from a resource. How much water to pump. On the drilling side, it used to take 30 days to drill a well. Now it's down to 12 to 14 days. We think this is going to come down even further."

According to Cooper, the water supply and recovery side of the business is ripe for innovation. "Our particular sector is extremely fragmented with Ma and Pa operators and a lot of trucks on the road," he said. "It would be good for the industry and good for the environment to get these trucks off the road and create some efficiencies with water. Water recycling is a really important component as well. It's just an economic issue. I think the industry is on the verge of solving that—in the next five years or maybe sooner."

Cahoon asked Nick Clark, founder of Common Desk, a co-working space, why companies like his are thriving as an alternative to traditional office space in an age when technology makes telecommuting so easy. "We still have a demand for community," Clark said. "People are looking for an experience. You're not going to have an experience in your pajamas while on your Skype call with the four other people who are in your meeting with you in your bedroom."

What began with millennials and the startup community has now spread to all sectors because workers want more than a home office or the coffee shop. "They're finding community working out of a co-working space," Clark said.

Randy DeWitt, the veteran DFW area restaurant entrepreneur, described his company's new Legacy food hall in Plano as innovation in sync with its times—just like casual dining (Steak & Ale) in the 1980s and fast casual (Velvet Taco) after that.

"I'm trying to watch what's happening in our industry, and what's happening is millennials like to go out in groups. They're picky eaters," DeWitt said. "The food hall is the answer to that. It's a large space with a collection of at least 15 to 20 chef-driven food stalls offering a highly specialized, tightly edited menu. Everybody gets what they want."

Clark and DeWitt said their concepts' success depended on location, reflecting the real-estate industry truism. The formula for co-working spaces: walkable amenities, a population of young, creative people and easy access. For a food hall, it's a heavy-traffic mall with a big space to create a special ambiance where people want to gather.

Clark and DeWitt said they compete by customizing their properties, designing each to reflect surrounding communities. "In Common Desk, things are opened up a good bit more and you're able to breathe and experience the space," Clark said.

Dalton affirmed Bullock's observation about a new generation of young managers in the energy industry. "That's what's really changed in the last five years," Dalton said. "There are more private-equity backed CEOs in the age

range of 35 to 39 than in any other age bracket except for the late 50s and early 60s—which I think is absolutely astounding.”

The “lost generation” traces back to the low oil prices of the 1990s and early 2000s. “From 1988 to 2003, a 15-year period, there was a lull in petroleum engineering degrees—averaged about 2,000 a year, down from 11,000 in 1983,” he said. “We’re back up to 15,000 a year. Not that you have to be in petroleum engineering to be a CEO—but it sometimes works out that way.”

**References**

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**Next issue:** *The Texas Economy* picks up the evolution of the state’s economy

with a look at the entrepreneurs on horseback who developed the state’s cattle industry after the Civil War.

**About the Author**



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**CHARTING THE TEXAS ECONOMY**

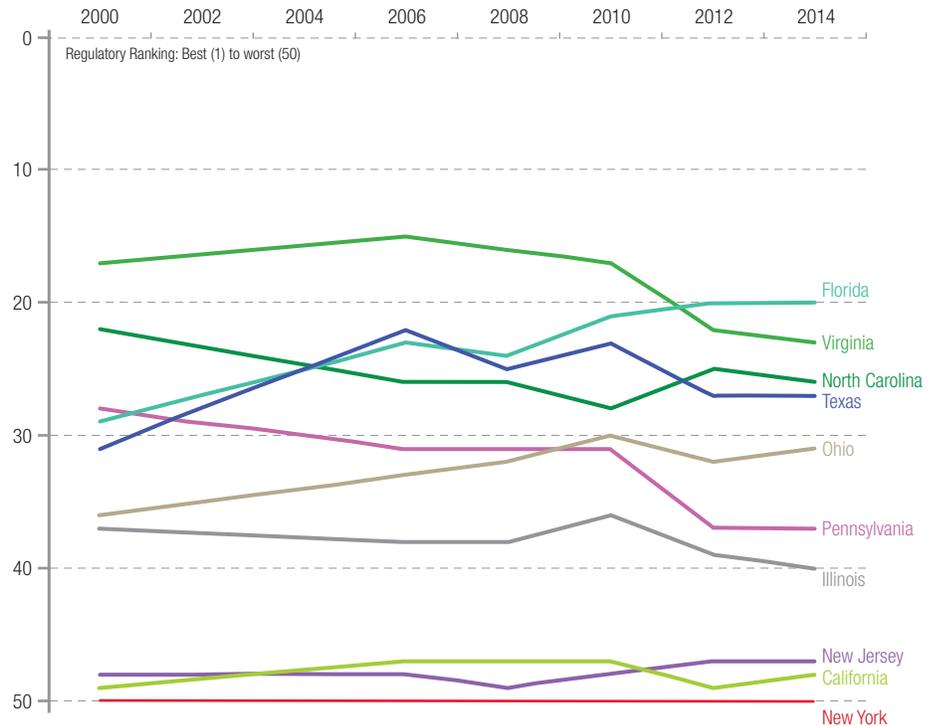
**Texas’ Grade on Business Regulations—Not the Best, Far from the Worst**

**The elevator-pitch description** of the Texas Model: low taxes, restrained spending and light regulation. Data on the first two are easy to come by, but measuring regulatory burdens is a herculean task.

Cato Institute economists William Ruger and Jason Sorens gave it a try. Looking at business regulation, they graded states on 58 policies affecting land use, labor markets, health insurance, occupational freedom and the framework governing lawsuits.

The state-level index shows that Texas doesn’t impose the heavy regulatory burdens of New York and California, but it doesn’t rank with Florida, Virginia, North Carolina and other lightly regulated states (see chart).

The latest figures rank the Texas regulatory regime 27th in the nation—nothing to brag about. The state does well in regulating labor markets, cable TV and telecommunications and land use. Regulations on healthcare, occupational licensing and lawsuits are Texas’ weak spots.



**ABOUT THE TEXAS ECONOMY AND THE O’NEIL CENTER**

*The Texas Economy* is an electronic publication of the William J. O’Neil Center for Global Markets and Freedom, a research institute in the SMU Cox School of Business.

The center was founded in 2008 with an initial grant from William J. O’Neil, a 1955 SMU business school graduate, and his wife Fay C. O’Neil. Its broad mission is the study of why some economies prosper and others do poorly, focusing on two critical issues for the 21st Century economic environment—globalization and economic freedom.

The center’s programs promote understanding of how capitalism works among the general public, policy makers, business managers and the next generation of business leaders. To these ends, the O’Neil Center teaches SMU Cox students, conducts economic research, publishes economic reports, sponsors conferences and educates the public through the media and speeches.

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