

THE TEXAS ECONOMY

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Story of Texas' Economic Rise Starts with Geology and Geography

By Richard Alm

Long before the Texas economy, before even Texas itself, earth-shattering events (literally!) took place between latitude 36° 30' north and 25° 50' south, between longitude 106° 38' west and 93° 31' east.

In degrees and minutes, those numbers define Texas' physical address on this planet. Over billions of years, natural forces operating in this space determined the state's geology and geography. Over the much shorter time span of about 200 years, the state's location, topography, climate and natural resources shaped the opportunities and aspirations of the generations of human beings who toiled and triumphed in creating the Texas economy.

Today's Texans probably take geography and geology for granted, but physical Texas combined with human actions to steer the state along a path to prosperity—from the early days of cotton and cattle, through the oil booms and busts, right up to the 21st Century's highly diverse economy.

Why look backward?

In addition to analysis of current issues and trends, *The Texas Economy* will take regular trips back in time, putting a spotlight on the historical, political and cultural forces that forged the Texas economy.

Looking backward should be worthwhile in and of itself—the state's history is often epic, occasionally quirky and sometimes shameful. However, it also promises to give us a better understanding of why today's Texas economy outperforms all other states in economic growth, job creation and other measures (see *The Texas Economy*, January 2016).

HISTORY ISSUE: Roots of the Texas Model

Texas' economic development involves many interesting stories, but as we tell the tale we intend to keep an eye on a key question: How did the state evolve a political economy that works—the Texas Model of economic freedom, with low taxes and small government giving private enterprise the room to thrive?

Strictly speaking, this isn't a matter of geology and geography, but the land itself shaped Texas' economy in a number of ways. So we start the search for the roots of the Texas model at the very beginnings.

The story of natural Texas goes back billions of years to a time when giant land masses rose from the primordial seas and wandered slowly about the planet's surface on tectonic plates, sometimes splitting apart and other times crashing into each other. Out of this epochal mayhem came North America as we know it.

In Texas' corner of the continent, eons of tectonic uplift, volcanic activity, erosion, earthquakes, floods and sedimentary accumulation have created the natural environment in which today's Texans live and work—a relatively flat terrain, hot summers and mild winters, annual rainfall that declines sharply from east to west, shallow rivers and estuaries, varied soil conditions and a long, low-lying coastline.

All of these characteristics shaped Texas' economic development, but nothing in our natural history matches the importance of the vast inland seas that ebbed and flowed across the state hundreds of millions of years ago.

Over millennia, the carcasses of dead plants and animals settled to the bottom

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of these seas. River-borne silt slowly buried the organic matter, the mud hardening into the ancient sedimentary rock that lies below the soil in much of present-day Texas.

Under intense heat and pressure, these pockets of dead organic matter turned into the oil, coal and gas deposits that lie beneath the state—from East Texas to the Permian Basin. Once discovered and tapped, these resources would fuel the oil boom that led the Texas economy's growth for a century.

Cotton and cattle

Long before human beings arrived on the scene, the seas receded and the land rose, allowing natural forces to shape the Texas we know today. As in every other part of the world, people first focused on how well Texas' natural environment would support agriculture.

A temperate climate combined with a flat landscape and fertile soils to make Texas an ideal place to grow a wide variety of crops. The state lies far enough south to create a moderate climate, with annual average temperatures between 70 and 82 degrees Fahrenheit. Below the Panhandle, the growing season lasts more than 210 days, increasing to 300-plus days in the Rio Grande Valley.

Rainfall patterns favored settlement

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in the eastern half of the state, which receives up to 60 inches of rain a year, enough to support the cultivation techniques typically used in the wetter regions of the United States. West of the 98th meridian, which cuts through Jacksboro, annual rainfall declines to less than 30 inches a year, suitable only for dryland farming.

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The state's wetter parts were well-suited for growing cotton, which could be sold to the traders who dealt in the raw material demanded by the booming textile mills in the Northeast and England. Where the Texas climate was too dry or too cold for cotton, many early Texas farmers turned to cattle, producing beef

for the dinner tables in the increasingly prosperous cities to the east.

Texans could produce cotton and beef in abundance, but the other characteristics of the Texas landscape made moving products to faraway markets expensive and time-consuming.

Texas doesn't have rivers to rival the Mississippi, Ohio or Missouri. Over time, water flowing over Texas' flat terrain carved out the Brazos, Canadian, Colorado and Red rivers—waterways that were relatively short and shallow, giving them only limited value as trade routes for shipping products to market.

The receding Paleozoic seas left Texas with a long but marshy shoreline along the Gulf of Mexico, with few good natural harbors. Even Galveston, fated to become the state's most bustling port, remained small relative to New Orleans a few hundred miles to the east.

Because of the limits imposed by geology and geography, early Texas farmers faced the ordeal of shipping cotton bales and cattle hundreds of miles to the Gulf coast, usually overland, then loading their goods on ships for journeys of thousands of additional miles to market. The high cost of moving goods to market was a significant obstacle to economic growth as settlers flocked to Texas in the early 1800s.

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In time, new modes of transportation would reduce the obstacles imposed by distance, allowing cotton and cattle to emerge as the Texas economy's first growth engines in the mid to late 1800s. After Beaumont's historic Spindletop gusher in 1901, the oil business began its long cycle of boom and bust, joining cotton and cattle as Texas' iconic industries.

Geology and geography favored cotton, cattle and oil in Texas. This resource-based economy created opportunities for backward and forward linkages—oilfield equipment suppliers, bankers, processors and traders. Some Texans grew rich, giving rise to the money-bags caricature that still marks Texans today. With the resource industries ascendant, other parts of the Texas economy lagged as industrialization swept across the United States.

A technology story

The availability of natural resources doesn't create wealth or grow an economy. It takes another powerful force of nature—human ingenuity. A running theme of the state's economic history has been the Texans' ability to adopt and adapt technologies, many of them imported rather than indigenous. With their drive and resourcefulness, Texans have thrived in a business culture that accepts change as inevitable and even positive, seeking the economic advantage in it.

Time and again, Texans have found ways to prosper from the gifts of geology and geography. Early on, for example, geologists knew petroleum deposits lay beneath the Texas soil, but discovery and production awaited advances in drilling technology. Human ingenuity's

impact on the industry continued into the 21st Century, when hydraulic fracturing, or “fracking,” led to a renewed oil and gas boom in Texas.

The cattle drive, an innovation with the Texas brand on it, moved beef on the hoof to railheads in Kansas, expanding the cattle industry and providing the story line for any number of Hollywood westerns. The business changed again after barbed wire closed the open range. The cotton and cattle industries thrived once the railroads finally reached Texas in the mid-1800s, reducing shipping costs.

Today, Texas still leads all states in beef and cotton production, but both industries have evolved far from their 19th Century roots. For example, irrigation, new strains of plants, more effective pesticides and mechanical pickers have allowed cotton production to move onto the once-forbidding plains of west Texas, centered on Lubbock. The crop is still mostly exported to foreign textile mills—now, it's across the Pacific to China rather than across the Atlantic to England.

In a very real sense, the state has followed the pattern described by economist Joseph Schumpeter, who coined the phrase “creative destruction” to describe the way technological change roils free-enterprise economies. Innovative companies and industries rise to replace and remake the old ones—that's the path to progress.

All this takes time—economies evolve slowly and unevenly, with economic change creating winners and losers. Capitalism's ceaseless and often unsettling transformations have turned a region that was a sparsely populated wilderness in the early 1800s into one of

the world's most dynamic and successful economies in the 21st Century.

This is the story we will tell in upcoming issues of *The Texas Economy*.

References

“Geology of Texas,” Bureau of Economic Geology, University of Texas at Austin.

<http://www.beg.utexas.edu/UTopia/images/pagesizemaps/geologic.pdf>

Hentz, Tucker F. “Geology,” Texas State Historical Society, *Handbook of Texas Online*

<http://www.tshaonline.org/handbook/online/articles/swgqz>.

Rivoli, Petra. *The Travels of a T-Shirt in the Global Economy*. John Wiley & Sons, 2015.

Schumpeter, Joseph. *Capitalism, Socialism and Democracy*, Harper & Row, 1947.

Stephens, A. Ray. *Texas: A Historical Atlas*. University of Oklahoma Press, 2010.

Next issue: *The Texas Economy* will focus on an industry closely tied to the state's geologic past—oil and gas. We'll take a look at how the Texas economy has fared in the wake of a sharp decline of oil prices since mid-2014.

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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.

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