

# Southwest Economy



## ▶ Intra-Industry Trade with Mexico May Aid U.S. Global Competitiveness

### **PLUS**

- ▶ Eleventh District Banks Confront Challenging Energy, Rate Situation
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► *Production sharing with Mexico is likely boosting U.S. export competitiveness.*

**P**rospects for the Texas economy have improved since first quarter. We currently expect 2017 job growth of approximately 2.5 percent, the strongest rate in three years.

While the forecast for the region has improved, some developments still cloud the outlook. One of these is the upcoming renegotiation of the North American Free Trade Agreement (NAFTA) among the U.S., Mexico and Canada. Texas is now the top exporting state in the nation with \$231 billion in exports in 2016. The state also imported \$229 billion.

Much of U.S.-Mexico trade is production sharing. The nature of this trade partnership is explained in this issue's article, "Intra-Industry Trade with Mexico May Aid U.S. Global Competitiveness," a collaborative effort between Federal Reserve Bank of Dallas economist Jesus Cañas and two colleagues from Banco de México, Aldo Heffner and Jorge Herrera Hernández. The authors argue that production sharing with Mexico is likely boosting U.S. export competitiveness.

The improved economic outlook is also a welcome message for our banks, which are still managing through some of the residual negative effects of the 2015-16 oil bust, a situation Kelly Klemme and Edward C. Skelton outline in their article, "Eleventh District Banks Confront Challenging Energy, Rate Situation."

During the early parts of 2016, district banks faced sharply slower loan growth and rising levels of noncurrent loans. Improved conditions in the energy sector will boost reported performance, but with a lag.

As we look ahead, I am very optimistic about growth prospects for the Eleventh District. At the Dallas Fed, we will continue to work to understand the regional economy, national and global economies, and share our research with policymakers, business leaders and the public in a manner that is insightful and informative.

A handwritten signature in black ink that reads "Robert S. Kaplan". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

*Robert S. Kaplan  
President and Chief Executive Officer  
Federal Reserve Bank of Dallas*





# Intra-Industry Trade with Mexico May Aid U.S. Global Competitiveness

By Jesus Cañas, Aldo Heffner and Jorge Herrera Hernández

**ABSTRACT:** Since the enactment of NAFTA, U.S.–Mexico trade and manufacturing processes have become increasingly integrated through cross-border production linkages. A new Banco de México economic model finds that U.S. imports from Mexico can be explained by taking into account the level of U.S. exports—suggesting that trade with Mexico may have contributed to enhanced U.S. global competitiveness.

**T**he U.S.–Mexico commercial relationship reflects decades of production integration, starting with Mexico's border industrialization program that established the maquiladora industry in the 1960s.

Expansion of trade between Mexico and the United States—a large portion of it coming through Texas—accelerated in the late 1980s, shortly after Mexico joined the General Agreement on Tariffs and Trade. U.S.–Mexico trade grew 108 percent in inflation-adjusted terms between 1986 and 1993 (*Chart 1*).<sup>1</sup>

Trade flows further expanded following implementation of the North American Free Trade Agreement (NAFTA) in 1994. U.S.–Mexico trade rose 283 percent between 1993 and 2016, from \$137 billion to \$525 billion. Mexico today is the U.S.'s third-largest trading partner (behind China and Canada) and Texas' No. 1 foreign market.

Studies suggest that perhaps half of U.S.–Mexico trade volume is made up of intermediate goods—items used to produce finished products. Given the large volume of intra-industry trade, it may not be surprising that a recent Banco de México analysis found it is necessary to explicitly consider the performance of U.S. exports to the rest of the world.<sup>2</sup>

This analysis is groundbreaking because it suggests that U.S. export competitiveness depends partly on Mexican imports. While it has been long known that Mexican imports benefit domestic consumption and production destined for sale *inside* the U.S., little has been known about how

Mexican imports may be boosting U.S. companies' ability to export globally. The linkage underscores how production processes increasingly straddle the 1,954-mile border and how Texas plays an important role as a trade participant and principal gateway.

## U.S.–Mexico Manufacturing

When countries trade, they tend to specialize in the types of goods they are most efficient in producing. In the U.S.–Mexico context, Mexico tends to specialize in relatively labor-intensive production, while the U.S. specializes in more capital-intensive manufacturing. This specialization takes place not only across different industries, but also at very fine levels within the same industry.

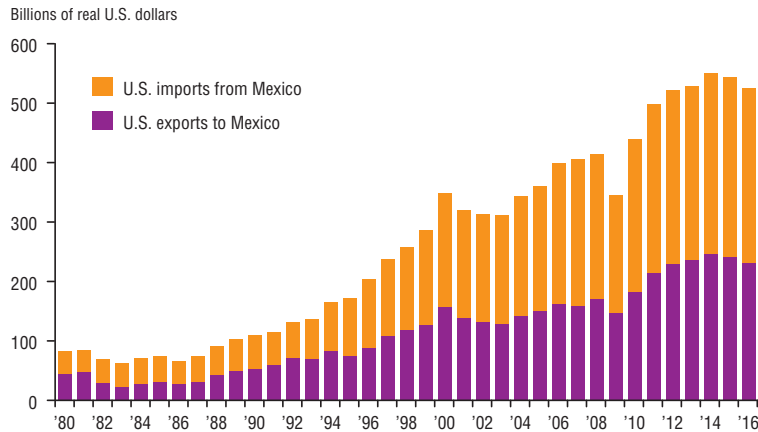
In fact, the most significant deepening of U.S.–Mexico trade has occurred within large, specialized industries common to both countries. The automotive industry provides the best example of this kind of integration.

In intra-industry trade, products are exported and re-imported at different stages of production. By spreading production costs across borders, firms are able to produce at a lower average unit cost, which leads to greater competitiveness in both global and domestic markets and to lower prices for domestic and foreign consumers. Recent estimates of the volume of U.S.–Mexico intra-industry trade range from 48 percent to 53 percent of total trade, while estimates for U.S.–China intra-industry trade are around 20 percent.<sup>3</sup>

Thanks in part to the growth of intra-industry trade, the U.S. manufacturing sector has been better able to withstand the effects of economic

## Chart 1

### U.S.–Mexico Trade Jumps After NAFTA in 1994



NOTE: NAFTA is the North American Free Trade Agreement, a trilateral agreement among the U.S., Mexico and Canada that took effect in 1994.

SOURCE: Census Bureau.

shocks and volatility, such as China's entry into the World Trade Organization in 2002 and the Great Recession.<sup>4</sup>

Production-sharing arrangements in the wake of NAFTA have also led to the synchronization of U.S. and Mexican business cycles (*Chart 2*). Industrial production in Mexico is now more affected by shocks to U.S. industrial production than to U.S. domestic demand. This is indicative of the increasing degree to which imports from Mexico

are used as inputs in U.S. industrial production, whose output is dependent on both domestic and foreign markets.<sup>5</sup>

### Texas, the Intermediary

Trade between Texas and Mexico surged following NAFTA's implementation 23 years ago; the state's exports to Mexico rose in the 1990s and accounted for nearly half of exports before falling to around 35 to 40 percent in more recent years. U.S. exports are more

diversified, so while the Mexico share of U.S. exports is increasing, it is much smaller at 16 percent.<sup>6</sup>

Imports from Mexico represented 35 percent of Texas imports in 2016, compared with 13 percent for the U.S. as a whole.

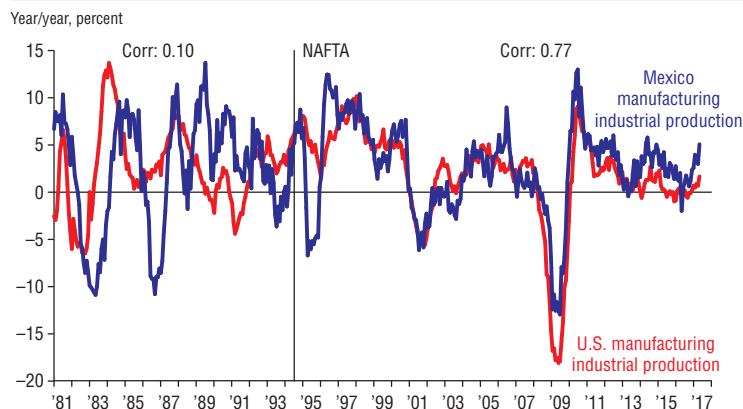
Significantly for Texas, this growing commercial exchange has coincided with diversification of the state economy and a smaller role for the oil and gas extraction industry, whose share of the Texas economy peaked in 1981. In 2016, oil and gas extraction represented less than 8 percent of Texas gross domestic product (GDP), while total trade represented about one-third.<sup>7</sup> Some experts have argued that Texas' ability to leverage its strengths and benefit from globalization has been key to maintaining its growth premium over the nation.<sup>8</sup>

Texas exports have gained global market share over the past decade despite facing competition from world-class manufacturing powerhouses, including Japan, Korea, the United Kingdom and Germany.

Texas' comparative advantage in manufacturing markets—likely aided by ties to Mexico—has grown as its manufacturing productivity has increased.<sup>9</sup> Notable examples include rising global market share in petroleum products, chemicals, fabricated metals and transportation equipment. This trend is consistent with the shale oil and gas boom that started in the mid-2000s, but it also reflects the state's longstanding manufacturing linkages with Mexico.

## Chart 2

### U.S., Mexico Business Cycles More Correlated Post-NAFTA



NOTES: NAFTA is the North American Free Trade Agreement, a trilateral agreement among the U.S., Mexico and Canada that took effect in 1994. The chart shows year-over-year changes in the manufacturing component of industrial production. The last data point is April 2017.

SOURCES: Instituto Nacional de Estadística y Geografía (National Institute of Statistics and Geography); Federal Reserve Board.

### Imports from Mexico

When imports consist of final goods, particularly of goods that were once produced domestically, opening to trade may entirely displace domestic production of those goods. However, this is not necessarily the case when imports consist of intermediate goods because such imports may complement rather than substitute for domestic production.

Research suggests firms that import more intermediate inputs also expand the volume of their exports and increase their export scope—that is, the variety of exports and number of markets.<sup>10</sup> On

average from 2003 to 2016, 73 percent of U.S. imports from Mexico were intermediate goods; only 24 percent were final consumer goods.<sup>11</sup> By comparison, 46 percent of imports from China were intermediate goods and 53 percent were final consumer goods.

Finally, imports of intermediate goods from Mexico are highly correlated with total U.S. exports (Chart 3). U.S. exports to the rest of the world are generally made up of finished products, some of which contain Mexican inputs. The U.S., similarly, sends inputs to Mexico that subsequently become intermediate-goods imports from Mexico.

Chart 3 highlights the decline of U.S. exports as well as the flattening of imports from Mexico since 2015. These developments motivated Banco de México to look more closely at whether faltering U.S. exports could explain the stagnation of nonautomotive imports from Mexico.<sup>12</sup>

Previous research by Banco de México showed that nonautomotive U.S. imports from Mexico could be explained relatively well in a traditional econometric model using U.S. manufacturing production and the real (inflation-adjusted) peso-dollar exchange rate.<sup>13</sup> However, that model's ability to explain the recent behavior of those imports weakened in the more recent period. Specifically, the decline in non-automotive imports from Mexico occurred at a time in which U.S. domestic demand grew at a relatively favorable rate and the peso depreciated against the dollar. The traditional model would have predicted an increase rather than a decrease in imports from Mexico.

So what was different this time? External demand for U.S. exports waned due to weak global growth, particularly in advanced economies, and to an appreciating dollar that made U.S. exports more expensive.

U.S. economic growth averaged 2.1 percent per year between 2012 and 2016, while GDP in advanced economies as a whole grew only 1.5 percent. At the same time, the dollar appreciated 33 percent against a basket of other major currencies.<sup>14</sup>

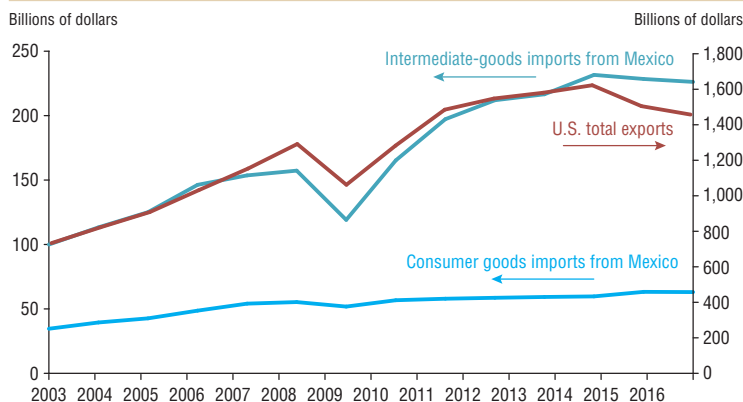
Before 2012, the traditional model (Chart 4, blue line) was sufficient to explain the evolution of U.S. nonautomotive imports from Mexico (Chart 4, red line). However, after 2012, the model based only on U.S. manufacturing production and the peso-dollar exchange rate appears insufficient to explain the performance of those imports.

To capture the effect that external demand for U.S. goods may have had on the performance of U.S. nonautomotive imports from Mexico, the tradi-

tional model was augmented by adding seasonally and inflation-adjusted U.S. nonautomotive exports as an explanatory variable. Controlling for U.S. external demand in addition to the two previous variables (U.S. manufacturing production and the exchange rate) notably improves the model's ability to explain the recent behavior of U.S. nonautomotive imports from Mexico (Chart 4, green line).

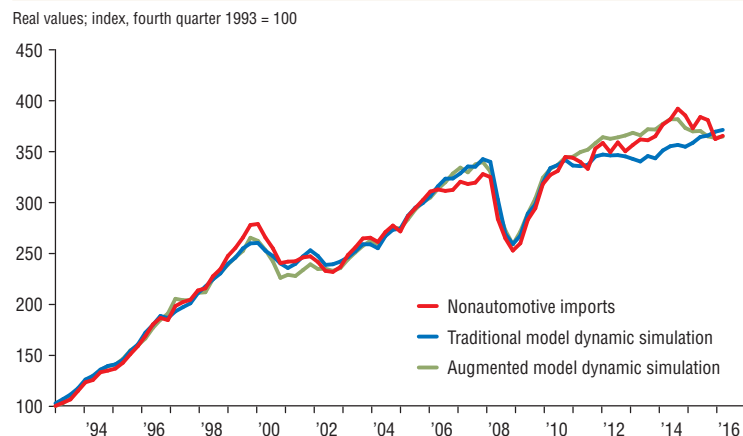
Simulations using Banco de México's augmented model indicate

**Chart 3** U.S. Exports Highly Correlated with Intermediate Imports from Mexico



SOURCES: Bureau of Economic Analysis; Haver Analytics.

**Chart 4** U.S. Exports Help Explain Changes in Mexican Imports



NOTES: Mean squared forecast error (RMSFE) indicates better forecasting performance. Traditional model RMSFE = 21.15; augmented model RMSFE = 6.90.

SOURCE: "Recuadro 2: Importancia del Desempeño del Sector Exportador Estadounidense como Determinante de las Exportaciones Manufactureras No Automotrices de México a Estados Unidos (Box 2: The Importance of the Performance of the U.S. Export Sector as a Determinant of Mexican Nonautomotive Manufacturing Exports to the U.S.)," Informe Trimestral, Banco de México, April–June 2016.

that global economic weakness outside the U.S. has negatively affected U.S. imports from Mexico. These effects are consistent with an intra-industry trade dynamic in which Mexican imports are used as inputs in the production process of U.S. output sold abroad.

Texas imports from Mexico demonstrate this U.S.–Mexico trade dynamic. Computer and electronic products, transportation equipment and machinery were among the top 10 Texas imports from Mexico in 2016 and among the top 10 Texas exports to the world.

## Complementary Processes

Along with its geographic proximity, Mexico's maquiladora industry, trade openness and NAFTA participation have all deepened intra-industry ties with the U.S. While the implications of U.S.–Mexico intra-industry trade for the U.S. domestic market have been relatively well-understood, this analysis suggests these linkages extend even further and may have bolstered the competitiveness of U.S. exports to the rest of the world.

Plans to renegotiate NAFTA might therefore have repercussions not only for U.S.–Mexico trade, but also for trade with the rest of the world. Could a more restrictive NAFTA reduce the trade deficit with Mexico, only to widen it with the rest of the world? It is possible that placing more limits on North American trade may harm rather than improve the U.S.'s trade balance by making its companies less competitive abroad. Texas, whose top trading partners are Mexico and Canada, would also likely be harmed by restrictions on North American trade.

If, instead, NAFTA is redrawn to exploit new areas of opportunity and broaden its coverage, all three trading partners stand to benefit. The expansion could include energy, digital trade and e-commerce and related services—sectors that didn't exist when the agreement took effect—as well as provisions for more North American immigration to make better use of resources across the region.

Further economic integration could boost each country's competi-

tiveness, allowing the North American region to be in a better position to face increased global competition.

*Cañas is a senior business economist in the Research Department at the Federal Reserve Bank of Dallas. Heffner and Herrera are research economists at Banco de México. The opinions expressed here do not necessarily reflect the views of Banco de México or its Board of Governors, the Federal Reserve Bank of Dallas or the Federal Reserve System.*

## Notes

<sup>1</sup> The General Agreement on Tariffs and Trade, or GATT, was the predecessor to the World Trade Organization.

<sup>2</sup> "Recuadro 2: Importancia del Desempeño del Sector Exportador Estadounidense como Determinante de las Exportaciones Manufactureras No Automotrices de México a Estados Unidos (Box 2: The Importance of the Performance of the U.S. Export Sector as a Determinant of Mexican Nonautomotive Manufacturing Exports to the U.S.)," Informe Trimestral, Banco de México, April–June 2016.

<sup>3</sup> "La Economía Mexicana en el Contexto Global Actual (The Mexican Economy in the Current Global Context)," by Alejandrina Salcedo Cisneros, Banco de México, November 2016, and "Growing Together: A Regional Manufacturing Platform," by Christopher Wilson, Mexico Institute, Wilson Center, October 2016.

<sup>4</sup> For the impact of China's entry into the World Trade Organization, see "Offshoring and Volatility: Evidence from Mexico's Maquiladora Industry," by Paul R. Bergin, Robert C. Feenstra and Gordon H. Hanson, *American Economic Review*, vol. 99, no. 4, 2009, pp. 1,664–71.

<sup>5</sup> "Macroeconomic Synchronization Between Mexico and its NAFTA Partners," by Alfredo Cuevas, Miguel Messmacher and Alejandro Werner, World Bank, 2002, and "Recuadro 1: Sincronización de la Economía Mexicana con la Estadounidense (Box 1: Synchronization of the Mexican Economy to the U.S. Economy)," Informe Trimestral, Banco de México, January–March 2014.

<sup>6</sup> "Texas Border Cities Illustrate Benefits and Challenges of Trade," by Jesus Cañas, Federal Reserve Bank of Dallas *Southwest Economy*, Fourth Quarter, 2016.

<sup>7</sup> It is worth noting that trade is in terms of gross value, while oil and gas extraction is expressed in terms of value added.

<sup>8</sup> "Without Globalization, Adios 'Texas Miracle,'" by Pia Orrenius and Keith Phillips, *Austin American-Statesman*, April 19, 2017.

<sup>9</sup> "Texas Comparative Advantage and Manufacturing Exports," by Jesus Cañas, Luis Bernardo Torres Ruiz and Christina English, in *Ten-Gallon Economy*, Pia M. Orrenius, Jesus Cañas and Michael Weiss, ed., New York: Palgrave Macmillan, 2015, pp. 159–79.

<sup>10</sup> "The Connection Between Imported Intermediate Inputs and Exports: Evidence from Chinese Firms," by Ling Feng,

Zhiyuan Li and Deborah L. Swenson, National Bureau of Economic Research, NBER Working Paper no. 18260, July 2012, and "Does Importing More Inputs Raise Exports? Firm Level Evidence from France," by Maria Bas and Vanessa Strauss-Kahn, Centre d'Etudes Prospectives et d'Informations Internationales, CEPII Working Paper no. 2011–15, June 2011.

<sup>11</sup> Authors' calculations from Bureau of Economic Analysis and Haver Analytics data for imports from Mexico and China.

<sup>12</sup> Imports of Mexican automotive vehicles, parts and engines were excluded from the analysis because their behavior in the last decade has followed a different pattern. For example, during and after the Great Recession, U.S. automotive companies transferred some of their production to Mexico. Non-U.S. auto manufacturers also invested heavily in Mexico during the same period. Consequently, Mexico's automotive exports have steadily grown and been less sensitive to the business cycle. In addition, U.S. automotive industry imports from Mexico are more responsive to economic growth, consumer preferences and gasoline prices than to real exchange rates or overall industrial production.

<sup>13</sup> Imports from Mexico are also adjusted for seasonality and inflation using an index of U.S. consumer prices. For technical details and a more complete explanation of the dynamic model simulations, see the Banco de México report in note 2.

<sup>14</sup> Trade Weighted U.S. Dollar Index: Major Currencies, FRED database, Federal Reserve Bank of St. Louis, <https://fred.stlouisfed.org/series/DTWEXM>.



# Eleventh District Banks Confront Challenging Energy, Rate Situation

By Kelly Klemme and Edward C. Skelton

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**ABSTRACT:** Regional banks continue to navigate through the reality of depressed, though stable, energy prices. The institutions' performance slipped behind that of their counterparts nationally in 2016. Higher anticipated benchmark interest rates may provide little immediate benefit to bank balance sheets.

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**B**ank profitability remains below its long-term average nationally and in the Federal Reserve's Eleventh District.

Overall, district bank activity has declined over the past two years, primarily due to energy-sector woes. Those difficulties contributed to the region ending a 10-year period of outperforming its U.S. counterparts.

Challenges have come into clearer focus since last year, when potential commercial real estate (CRE) and energy lending risks raised concerns about further erosion of performance in the region.<sup>1</sup> CRE concentrations have yet to affect banks, but the same cannot be said of energy prices, which, though relatively stable in recent months, remain below their 10-year averages and continue impacting institutional performance.

At the same time, the financial sector has anticipated a boost from recent Federal Reserve moves to raise interest rates from the zero lower bound, where they had been set since the financial crisis. The central bank raised interest rates a quarter percentage point in December 2015, December 2016, March 2017 and June 14, with further increases expected.

Initial indications suggest that banks are benefiting from recent rate rises, though the future impact is less clear. Institutions face a challenging operating environment, particularly if increased competition among them causes funding costs to rise and leaves them unable to increase loan rates and maintain portfolio growth.

Traditionally, the impact of rate increases is most evident on banks' balance sheets, which are often characterized by a maturity mismatch between assets and liabilities. For example, banks may offer 30-year mortgages or long-term business loans, which they fund with short-term deposits such as savings accounts that have no stated maturity or

certificates of deposit that mature in one to five years.

Because of this asset-liability mismatch, banks are exposed to interest-rate risk. An institution with more long-term assets than liabilities is vulnerable to rising interest rates. In this scenario, the earnings on assets—typically loans—may not respond as rapidly as the cost of funds—typically deposits—leading to declining profits.

## Conditions Getting Tougher

Profitability in 2016 was stable for banks nationwide and down slightly for those in the Eleventh District.<sup>2</sup> Area banks earned a return on assets of 1.03 percent, down from 1.09 percent in 2015 and 1.16 percent in 2014. A 40 percent increase in provision expense—the money banks set aside to cover expected loan losses—hampered profitability. Among banks nationwide, return on assets was 1.05 percent in 2016—the same as 2015.

Loan growth slowed for district banks to 5.5 percent in 2016 from 7.3 percent in 2015, although it continued outpacing the nation at 5.3 percent (*Chart 1A*). CRE loans—loans for construction and land development, loans secured by multifamily property and loans secured by nonfarm nonresidential real estate—remain the biggest driver of overall lending (*Chart 1B*). CRE loans grew 10 percent on a year-over-year basis and accounted for 59 percent of overall loan growth among Eleventh District banks compared with a 9 percent growth rate and a 36 percent share of loan growth nationwide.

## Asset Quality Weakening

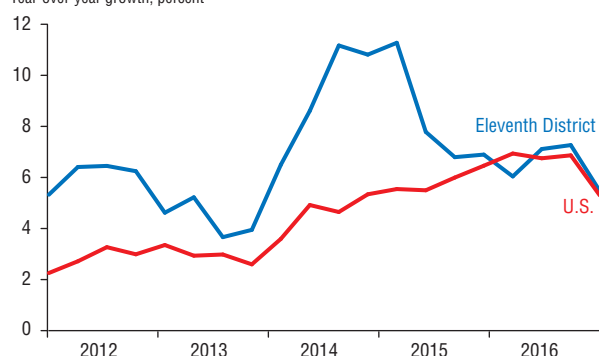
The weakening asset quality accounts for recent increases in loan-loss provision expense that negatively affected district bank profitability. Among district banks, 1.04 percent of loans were noncurrent at year-end 2016, up from

# Chart 1

## Eleventh District Bank Loan Growth Softens in 2016

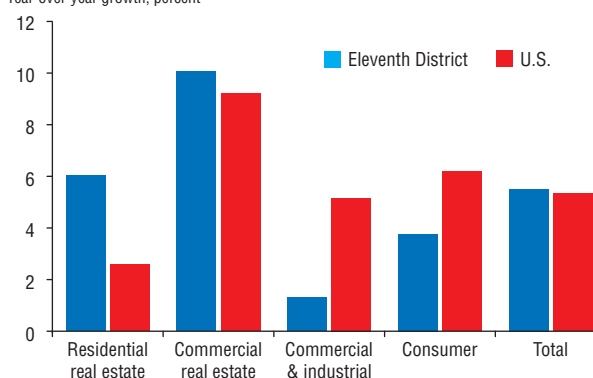
### A. Overall Loan Growth Slows ...

Year-over-year growth, percent



### B. ... Though Commercial Real Estate Loan Growth Remains High

Year-over-year growth, percent



SOURCE: Quarterly Reports of Condition and Income, Federal Financial Institutions Examination Council.

0.93 percent at year-end 2015 and 0.85 percent in 2014.<sup>3</sup> While still below the national rate of 1.39 percent, the ratio's rise is notable, with the gap between district and national rates continuing to narrow (*Chart 2*).

Troubled commercial and industrial (C&I) loans are driving noncurrent loan growth in the district. They account for 43 percent—the largest portion—of total noncurrent loans, up from 32 percent in 2015 and 19 percent in 2014. Nationwide, total noncurrent loans

have declined, although noncurrent C&I loans rose 72 percent in 2016, albeit from a low base, and constituted 19 percent of all noncurrent loans. Residential real estate was the biggest trouble spot, at 58 percent.

The C&I noncurrent increase can be traced to the troubled energy sector. Energy prices hit a trough in late 2015 and early 2016. While prices rebounded in the second half of 2016, boosting energy industry activity, they remained below historical levels, and their recent

improvement has yet to benefit district banks' asset quality.<sup>4</sup>

Bank call reports do not separate energy loans from the broader C&I loan category, but recent increases in noncurrent loans come disproportionately from banks with higher levels of energy-related loans, particularly the three largest energy lenders.<sup>5</sup>

In dollar terms, district banks' total noncurrent loans increased \$854 million, or 37 percent, from year-end 2014 to year-end 2016; the top three energy lenders together accounted for \$495 million of the increase, while noncurrent loans at other, like-sized banks declined. A similar story plays out if the focus is narrowed to only the district C&I portfolios. Noncurrent C&I loans increased \$894 million, or more than 200 percent, from 2014 to 2016, with the top three energy lenders accounting for \$535 million of the increase, compared with only a slight increase for similarly sized banks.

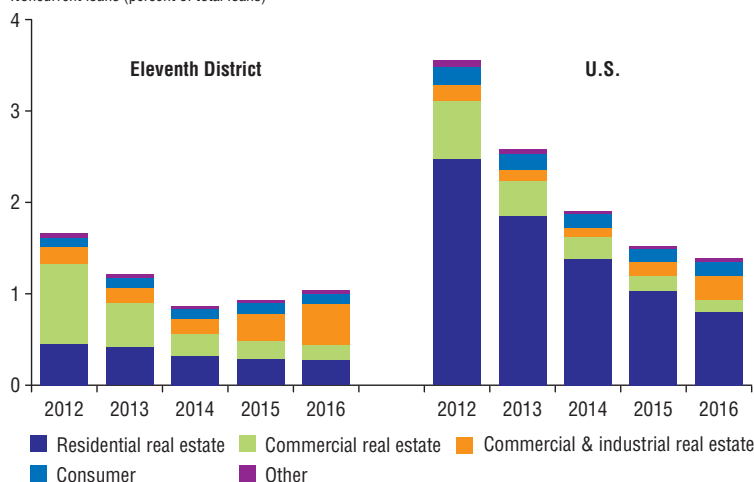
### Higher Interest Rates

While Eleventh District institutions navigate commercial real estate exposure and relatively low energy prices, arguably the biggest question facing the overall industry is how banks will adapt to the Federal Reserve normalizing monetary policy by increasing interest rates. Broadly speaking, the rates earned on loans and the rates paid to attract

# Chart 2

## Commercial and Industrial Real Estate Driving Rise in District Noncurrent Loans

Noncurrent loans (percent of total loans)



SOURCE: Quarterly Reports of Condition and Income, Federal Financial Institutions Examination Council.



deposits have been very responsive to changes in monetary policy (*Chart 3*).

Although monetary policy affects the economy as a whole and most businesses, banks' financial condition and performance are more directly tied to interest-rate change. The net effect of Federal Reserve policy for any given bank broadly depends on that institution's maturity profile, or the level of long-term assets (mostly loans) relative to long-term liabilities (deposits), and the impact of changes in interest rates on the cost of funding relative to the rate charged on loans.

Generally, banks positioned to benefit from rising interest rates have a relatively low level of long-term assets, a relatively high level of long-term funding and the ability to reprice loans faster than deposits.

One way to assess banks' maturity structure is to look at what is referred to as the "net-over-three-year position," defined as loans and securities that reprice in more than three years minus liabilities that reprice in more than three years as a percent of assets (*Chart 4*). A positive value indicates a greater proportion of long-term assets than long-term liabilities. From 2007 through 2014, banks responded to the low interest-rate environment by increasing the gap in a search for longer-term, higher-yield assets. However, this left banks more vulnerable to rising rates.<sup>6</sup> Over the last two years, banks in the aggregate have not materially reduced their gap despite more signs of rates returning to normal.

Still, recent history suggests higher interest rates have been a net positive for banks. Researchers from the Federal Reserve Board analyzed 3,418 banks from 47 countries between 2005 and 2013 to test the correlation between higher interest rates and higher bank profits. The study found that profitability, as measured by return on assets, is higher in high-rate environments.<sup>7</sup>

Specifically, higher profitability was propelled by a higher net interest margin. The net interest margin—defined as the difference between interest income and interest expense, weighted by average earning assets—is considered the bedrock of bank performance. Moreover,

at lower interest rates, the decline in profitability caused by a drop in rates was more pronounced, and profitability was also more volatile.

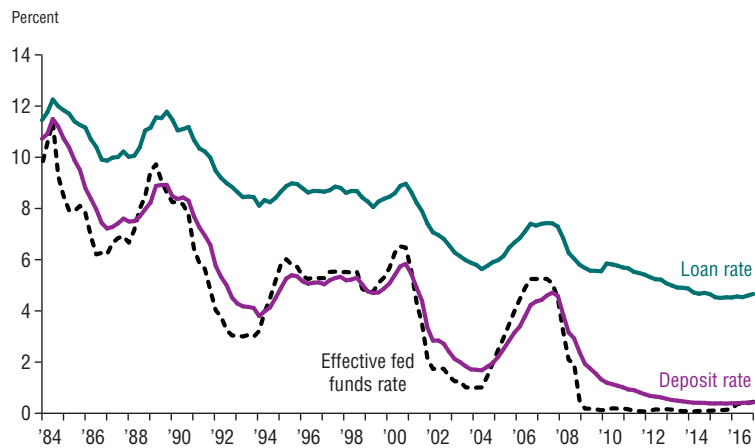
Additionally, smaller banks tended to better manage their net interest margin during the most recent low-rate environment, which began in 2008. A second Federal Reserve Board study using data from 2010 to 2015 found that, while the net interest margin compressed across the banking industry,

larger banks experienced a sharper decline than community banks.<sup>8</sup> The study found that large banks' net interest margins declined 70 basis points compared with a decline of 20 basis points for small banks.

Coming out of a low-interest-rate environment would seem to be especially beneficial for banks whose interest-related income is a large source of revenue (relative to fee income, for example), as is the case for community banks. This sug-

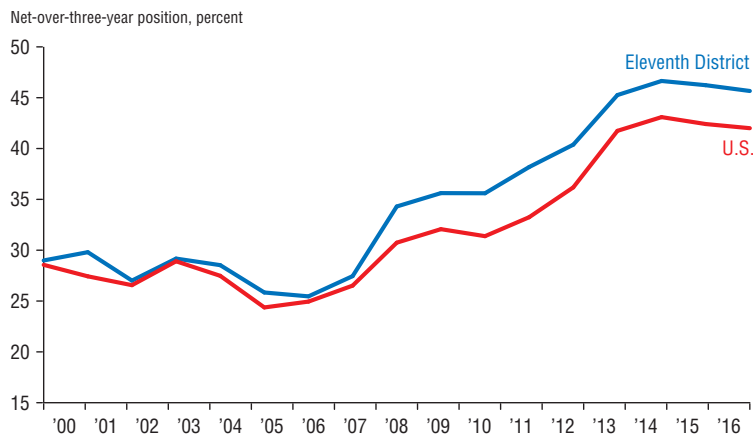
**Chart 3**

### Loan and Deposit Rates Respond to Monetary Policy



**Chart 4**

### Asset–Liability Gap Shrinking Only Slightly



gests that small banks may not only be better at navigating a low-interest-rate environment but also may benefit more from the expected normalization in interest rates. The Eleventh District has a higher concentration of community bank assets, 55 percent, compared with 18 percent nationwide. Thus, increasing interest rates could be especially beneficial for district banks.

The Fed's rate increases in 2015 and 2016 appear to have benefited the banking industry. During 2016, the

increase in interest income outpaced the increase in interest expense, leading to a higher net interest margin. District banks boosted their net interest margin almost 4 basis points (a basis point equals 0.01 percentage points) in 2016; nationally, banks achieved a 4.6 basis-point rise.

The increase in net interest margin is notable because net interest margin has generally been on a downward trend for the last 16 years. And, the initial pickup fueled analyst, banker

and media consensus that a rising rate environment will help banks profit from a fatter margin between what they earn on loans and what they pay for deposits. One of the main reasons for banks enjoying a wider net interest margin is that their cost of funds has not increased and matched the Fed's recent policy moves (*Chart 5*).

However, there has been a mixed record regarding the impact of rising interest rates on bank results. Overall, net interest margins have generally fallen since 2000, regardless of whether the Fed was raising or lowering interest rates (*Chart 6*). In fact, the one instance of a pickup in net interest margin followed the 2008 policy easing.

In short, there is no assurance that rate hikes will unequivocally boost net interest margin and profitability, particularly if a lengthier history is considered. A Federal Reserve Bank of Richmond publication studied the link between net interest margin and interest rates and found that the relationship is not as clear as most observers expected.<sup>9</sup>

In the 30 years before the current monetary tightening cycle, there were four cases of the Fed raising interest rates: first quarter 1988 through second quarter 1989, fourth quarter 1993 through second quarter 1995, second quarter 1999 through third quarter 2000 and second quarter 2004 through third quarter 2006. Only the first incidence of policy tightening coincided with a rise in the net interest margin; the net interest margin fell in each of the other three periods.

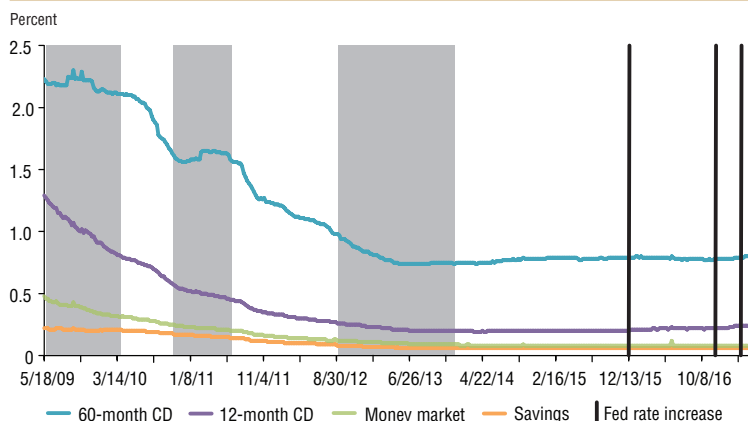
In sum, the historical record tells us that rate increases are not unambiguously positive for the banking sector, and that the industry and analysts may be overly optimistic.

## Looking Ahead

The banking industry, especially in the Eleventh District, seems to be at a crossroads. Banks' performance and financial conditions are generally stable, yet risks seem to be rising.

Relatively low oil prices continue to take a toll on district C&I portfolios and on asset quality in general, though

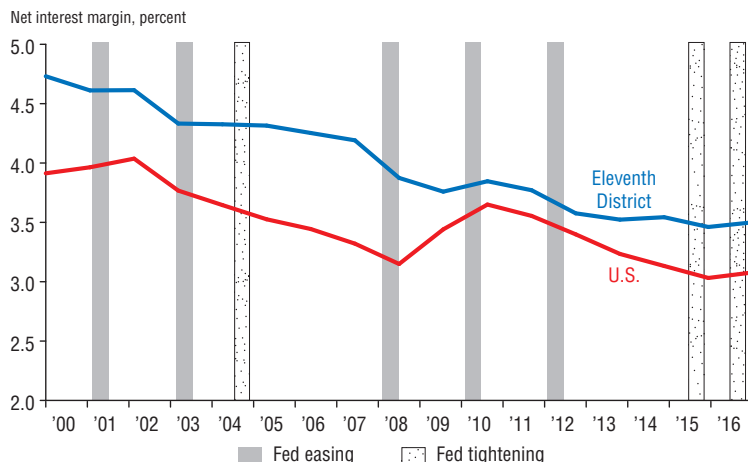
**Chart 5** Banks' Cost of Funds Unresponsive to Recent Rate Increases



NOTES: Shaded bars indicate quantitative-easing (QE) periods. QE 1 was announced Nov. 25, 2008, and began in December 2008.

SOURCE: Federal Deposit Insurance Corp., Weekly National Rates and Rate Caps.

**Chart 6** Lower Policy Rates Erode Bank Net Interest Margin



SOURCE: Uniform Bank Performance Report, Federal Financial Institutions Examination Council.

conditions within the energy industry have begun to boost economic activity. More broadly, in spite of the broad improvement in the energy sector as shown in job growth and rig counts, the firming will not likely benefit bank performance this year due to the long lag between such sector strengthening and the performance of institutions lending to the industry.

Banks' commercial real estate growth remains high. While fundamentals within the CRE segment remain strong, support current levels of activity and contribute to bank profitability and loan growth, a reversal of fortune within CRE would disproportionately affect district banks, a reflection of the institutions' relatively high exposure.

CRE tends to follow a boom-and-bust cycle, making it even more important to keep a close eye on the risk management practices of the banks with the highest CRE concentrations.

The impact of the Federal Reserve's current policy path poses the biggest unknown for district banks. While the initial impact appears positive, the responsiveness of loan and deposit rates should be monitored closely to determine the effects of future rate moves.

Nevertheless, the top driver of bank performance is likely to remain overall economic growth. The Dallas Fed is forecasting Texas job growth of 2.6 percent in 2017, up from 1.2 percent in 2016. If economic growth fails to meet expectations, loan growth will continue to fall, and district institutions will find it difficult to increase, or even maintain, their profitability.

*Klemme is a financial industry analyst and Skelton is a macro-surveillance officer in the Financial Industry Studies Department at the Federal Reserve Bank of Dallas.*

## Notes

<sup>1</sup> See "Risks Mount for Eleventh District Banks Amid Energy Weakness," by Kelly Klemme and Edward C. Skelton, Federal Reserve Bank of Dallas *Southwest Economy*, Second Quarter, 2016.

<sup>2</sup> Eleventh District banking industry data have been adjusted for structure changes such as mergers, acquisitions and relocations. The district comprises Texas, northern Louisiana and southern New Mexico.

<sup>3</sup> Noncurrent loans are loans that are either at least 90 days past due or on nonaccrual status.

<sup>4</sup> See "Texas Economy Shifting into Second Gear in 2017," by Keith R. Phillips and Christopher Slijk, Federal Reserve Bank of Dallas *Southwest Economy*, First Quarter, 2017.

<sup>5</sup> Call reports, formally referred to as Reports of Condition and Income, are quarterly regulatory reports containing detailed balance sheet and income statement information.

<sup>6</sup> See "Banking Recovery Could Be Vulnerable to Interest Rate Increases," by Kenneth J. Robinson, Federal Reserve Bank of Dallas *Southwest Economy*, Second Quarter, 2014.

<sup>7</sup> See "'Low-for-Long' Interest Rates and Banks' Interest Margins and Profitability: Cross-Country Evidence," by Stijn Claessens, Nicholas Coleman and Michael Donnelly, Federal Reserve Board of Governors *International Finance Discussion Series*, no. 1197, February 2017.

<sup>8</sup> See "Why Are Net Interest Margins of Large Banks So Compressed?" by Francisco B. Covas, Marcelo Rezende and Cindy M. Vojtech, *FEDS Notes*, Oct. 5, 2015.

<sup>9</sup> See "Do Net Interest Margins and Interest Rates Move Together?" by Humberto M. Ennis, Helen Fessenden and John R. Walter, Federal Reserve Bank of Richmond *Economic Brief*, May 2016, no. 16-05.

► There is no assurance that rate hikes will unequivocally boost net interest margin and profitability, particularly if a lengthier history is considered.



*A Conversation with James “Rad” Weaver*

## Texas Retains Competitive Advantage Despite Oil Price Softness

*Rad Weaver, 42, has been chief executive officer of McCombs Partners, the investment arm of McCombs Enterprises, since 2006. He oversees investment strategies, including direct investments in private businesses encompassing a variety of industries, including oil and gas. He also serves as chair of the San Antonio Chamber of Commerce and as a director of the San Antonio Branch of the Federal Reserve Bank of Dallas. He was recently appointed to the University of Texas System Board of Regents.*

### **Q. What is the ‘Texas advantage’? Why does Texas grow faster than most other states?**

It comes down to attitude. We have many structural advantages—a business-friendly environment due to tort reform, abundant low-cost electricity, a strong labor supply—but Texas also has a unique brand that distinguishes it from other states. There is a culture in Texas of hard work and pulling yourself up by the bootstraps. I believe that the aura of Texas has become enhanced as we have weathered economic storms. For example, the past two years of low oil and gas prices caused many energy states to decline, yet Texas continued to grow. We have a mindset of limited government and economic freedom that fosters risk taking; this attitude and brand define the culture.

### **Q. What are the biggest areas of opportunity and the risks currently present in the state’s business environment?**

In the 10 years in my current role, there has never been a more difficult time to see what is coming. There is great expectation for tax reform, and the feeling on the whole is that business regulation will continue to be rolled back. This improved business climate will put lenders in a better position

to take on new loans. There have also been many innovations, and new company formation seems to be gaining momentum.

That said, it feels overall as though assets are near full valuation, so I am a bit nervous about how much room we have to grow. Near term, we may see some damping in activity if, for instance, we get another downturn in oil. Also, interest rates and the cost of capital have been very low for a long time. Going forward, this will start to tighten, so reliance on financing will diminish and more equity will be needed for deals to go through.

### **Q. Most people associate Red McCombs with auto sales. What are some key trends impacting the auto industry?**

We still see the car business as a barometer of future expectations. Vehicles today last longer, which has changed the dynamics of the industry somewhat. Most people, no matter what they are driving, are thinking about driving something better than the car they have today. If you are feeling better about what is happening in the next six to 12 months, you are much more likely to make that upgrade.

I don’t know that auto purchases will be as strong of a leading indicator

going forward. Autos have become more utilitarian rather than the status symbol they once were. There has been something of a generational shift in demand from cars to electronics, and aftermarket upgrades in particular are a much harder sell now than they used to be.

### **Q. What are the key sources of the recent optimism in the oil and gas sector? Is it justified?**

The main source of optimism is the innovation in Texas that has led to better-producing wells at less cost. I guess you can say that necessity is the mother of innovation. With low energy prices over the past two years, service providers and well operators have been forced to become more efficient. This has led to an increase in the rig count in Texas since the middle of last year, while the rig count has fallen internationally.

While oil prices remain low relative to the period of 2011 to mid-2014, the stability of prices above \$44 per barrel since May 2016 has allowed producers to plan better and feel more confident that prices will not fall sharply. When you add to this a commitment by OPEC to lower production, I would say that the optimism is justified.

### **Q. As a newly named member of the University of Texas System Board of Regents, what do you see as the biggest gaps in the state educational system?**

The higher education system in Texas is very large, and I am learning all I can about it. The financial underpinnings of the system and how they relate to students, in particular, are areas that I am catching up on as fast as I can.

As an employer, I sense a real need for technical skills in the job market that will only become more in demand as time goes on. Universities in the state need to focus on filling that demand.

One of the key challenges is to improve the four-year graduation rate. The population in Texas is growing quickly, and we need to be able to provide the throughput for new students to come in and stay on track to graduate. A big part of increasing the rankings of our universities is also making sure our



▶ *“Never stagnate—do different things in different cycles and constantly change your portfolio by selling things with less potential and buying things with more potential.”*

students finish their degree programs on time. Also, for our size, Texas is behind other states in how many tier 1 research universities we have, and that is something we need to improve.

Part of the solution to this lies in school finance—many students need to work in order to afford to pay for college, so they take fewer credit hours per semester. Students only need 12 hours to be considered full-time, but that pace doesn’t lead to on-time graduation. We need to improve accessibility and affordability in the UT system so that students can focus on school work.

I also think that we can do better at providing support mechanisms on campus. This can take many different forms, whether it be allowing credits to more easily transfer across the system or having more student mentorship programs. These kinds of initiatives aren’t proliferated across the system as much as they should be.

Some of this comes from personal experience—were it not for scholarships, I wouldn’t have been able to afford to go to UT-Austin. We need to make sure that we provide the best possible product that we can for our kids and making college as accessible and affordable as we can without sacrificing educational excellence.

The challenges are as complex as they are important, but I think we have the opportunity and the potential to have the greatest public university system in the country.

#### **Q. What key lessons did you learn from working with a Texas business legend like Red McCombs?**

You have to get up every day and be better than yesterday. Continuous

training and development is essential for all employees. Never stagnate—do different things in different cycles and constantly change your portfolio by selling things with less potential and buying things with more potential. When I was 18, I was profoundly affected by the analogy of life being like a baseball in flight. You are the ball; you are always either moving up or moving down. There is no status quo, every moment of every day you are either making yourself better off or worse off.

In 50 years, McCombs Partners has never missed or been late on any debt payments. Cash flow is king. If you expect to win, you prepare differently than if you just want to win.

Red has a tremendous work ethic—he works six days a week and loves it. Even today [at age 89], Red takes the time to send about 20 handwritten notes every week to thank people for working hard or for doing business with him. His work ethic and attitude carry down to all the employees. Red also realizes that when business is good, it becomes easy to slack off. So that is a time when there needs to be particular focus on working hard.

#### **Q. How did you become CEO of McCombs Partners at a young age?**

I have been working with Red McCombs for 24 years. I started washing cars for him as a senior in high school, and he would sit with me for about an hour each day mentoring me on college and social life, and the importance of developing contacts and relationships. After attaining a degree in finance from UT, I worked at Red’s ranch and car dealerships for a short

while and then served a year as a sales associate for the Minnesota Vikings [football team], which Red owned at the time.

While working as an investment analyst for McCombs Partners from 2000 to 2006, I helped establish an online presence for the car dealership. Along the way, I learned many lessons from Red, such as how to evaluate a business proposition and write a one-page summary—any longer meant that the deal was too complex or too incomplete to undertake. I also learned the importance of doing what you say you will do. The opportunity that Red gave me was a ticket to a game that I didn’t know existed.

# Wind Power a Growing Force in Oil Country

By Justin J. Lee and Kelvinder Viridi

**T**exas, a state better known for oil production, is the nation's top producer of wind-generated electricity—an encouraging statistic for consumers seeking clean, renewable energy.

In fact, Texas' wind-generated electricity capacity has steadily grown since 2006 along with overall electricity consumption. A favorable regulatory environment and technological advances have contributed to investment in Texas wind power plants, which are concentrated in the often-windy West Texas and Panhandle areas.

Rapid population growth, at close to twice the national rate, has driven electricity demand in Texas. In 2016, Texas generated 455 million megawatt-hours of electricity, amounting to 11 percent of the national total. The proportion of total electricity generated by wind in Texas rose 12 percentage points from 2006 to 2016, while the state's population increased 19 percent over the same period.

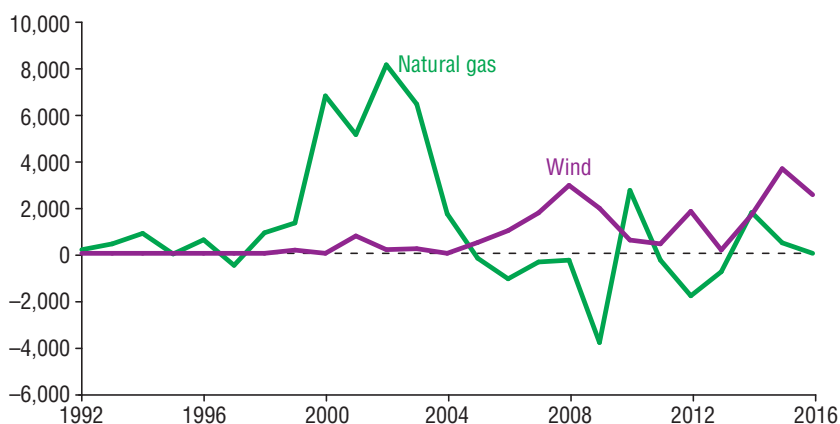
As a proportion of the electricity generated in Texas last year, 52 percent came from natural gas, 25 percent from coal and 13 percent from wind, the most rapidly growing source of power. Electricity from wind grew 763 percent from 2006 to 2016, compared with 748 percent in the rest of the country. Tax incentives are one reason for the rise.

## Tax Benefits

Provisions of the federal government's 1992 Energy Policy Act authorize tax credits for electricity generated from renewable sources. The act was the first legislation to incentivize renewable generation. The tax credit provision has been renewed multiple times since 1992, most recently in 2016. Other provisions included the investment tax credit, which provides cash grants toward the cost of building power plants devoted to renewable energy. Also, the state of Texas provides tax credit and rebate programs for renewable power plant generation.<sup>1</sup>

**Chart 1** Growth in Electricity Generation from Natural Gas Falls as Wind Expands

Energy capacity (megawatt change from prior year)



NOTES: 2016 values are based on estimations as of April 24, 2017.

SOURCES: U.S. Department of Energy from Global Energy Concepts and American Wind Energy Association; Federal Reserve Bank of Dallas.

The policy frameworks have incentivized investment in wind and solar instead of conventional hydrocarbon energy, such as coal or natural gas. But these measures are only part of the reason for the increased wind power generation. For example, wind turbines have fewer location restrictions than conventional power plants. The installations vary by size depending on location—anywhere from full-size turbines on farmland to community wind projects installed in residential or commercial areas. Meanwhile, natural gas and coal power plants have confronted significant regulatory and siting restrictions.

## Commodity Price Fluctuations

Also, the cost of commodities used in conventional power plants—principally oil and gas—can fluctuate significantly. For example, the price of natural gas briefly soared and then collapsed in 2005 due to Hurricane Katrina. Energy generation capacity from natural gas has declined since 2005 (*see chart*). There was a similar price-fluctuation episode after the 2008–09 recession. Even with low

prices since 2008, natural gas plants have been unable to consistently boost production capacity. By comparison, wind power capacity has never declined.

Additionally, Texas is an ideal place for inland turbines. The west central U.S. is one of the regions measured to have the fastest wind speeds in North America. The wind speed in West Texas and the Panhandle is higher than in any other region, providing favorable locations for turbines. According to the Department of Energy's Wind Program, Texas has the highest potential wind power capacity in the U.S. at around 1.3 million megawatts, followed by Montana at around 0.7 million megawatts.

Still, wind power is not a universal solution to mounting power demands. For example, along the East Coast, given lower potential wind capacity and the extremely high demand for electricity during winter, wind plants may not be as feasible an option.

## Note

<sup>1</sup> Information on state-specific programs can be found at [www.dsireusa.org](http://www.dsireusa.org).





## SNAPSHOT

# Texas Employment Forecast Adjusted Higher

Incorporating May employment growth of 2.4 percent and revised April leading index data into the Texas Employment Forecast suggests jobs will grow 2.6 percent this year (December/December), with an 80 percent confidence band of 1.6 percent to 3.6 percent.

The forecast increased from the Dallas Fed's previous estimate of 2.4 percent. Based on the forecast, 309,200 jobs will be added in the state this year, and employment in December 2017 will be 12.4 million (*Chart 1*).

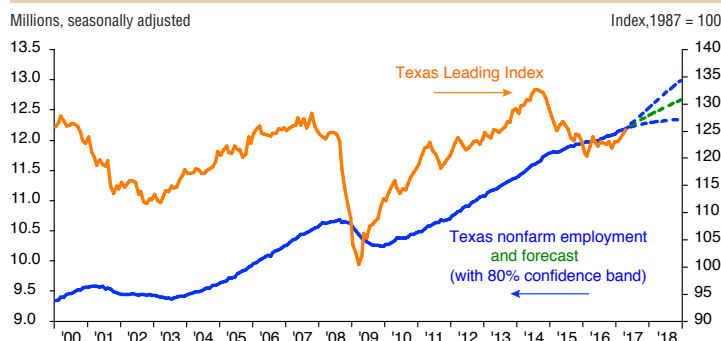
Revisions to the Dallas Fed's Texas Leading Index show a significant pick up over the three months ended in April.

"Job growth has been quite robust over the first five months of the year, averaging 2.5 percent," said Keith R. Phillips, Dallas Fed assistant vice president and senior economist. "We expect this good pace of growth to continue in the second half of the year."

—Adapted from Texas Employment Forecast,  
Federal Reserve Bank of Dallas, June 2017

Chart  
1

Texas Job Forecast Predicts 2.6 Percent Growth in 2017



SOURCES: Bureau of Labor Statistics; Texas Workforce Commission; Federal Reserve Bank of Dallas

## DALLAS FED



## Southwest Economy

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Federal Reserve Bank of Dallas  
2200 N. Pearl St., Dallas, TX 75201

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