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Southwest Economy

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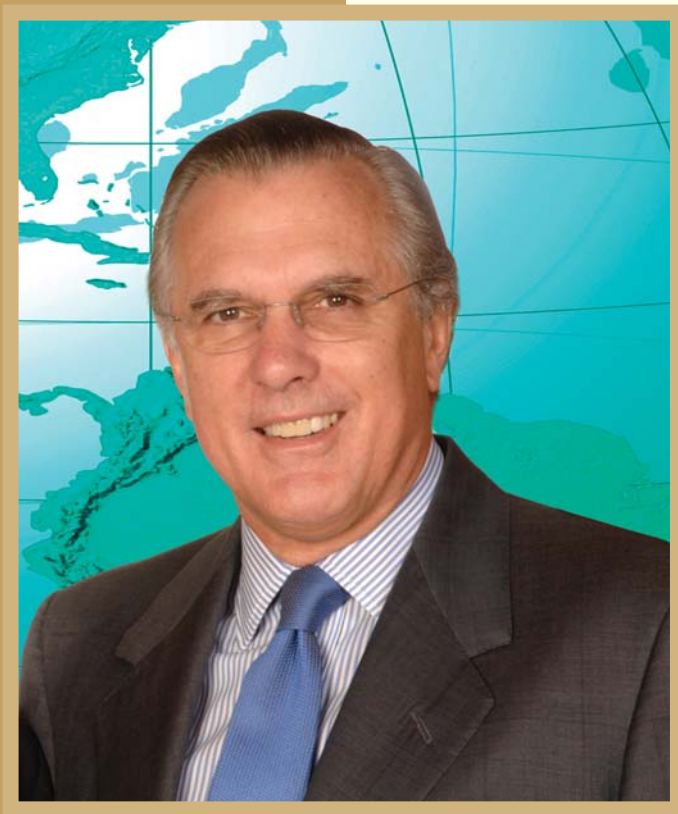
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The U.S. remains the premier destination for international investors who prefer the returns available in a flexible, highly adaptive economy.

The U.S. dollar has been firmly established as the world's currency of choice since World War II. The dollar's preeminence starts with our economy's unrivaled size, strength and track record of low inflation. Perhaps most important, however, is our solid Constitution, which affords the United States an enviable degree of political stability.

In 1999, a rival currency debuted on the world stage. I have followed the euro's course with great interest, first as an investor and now as a central banker. In recent years, the euro has grown as a portion of world currency reserves, and international financial transactions are increasingly denominated in euros.

The 12 nations currently in the European Monetary Union constitute a formidable economy in terms of size. The European Central Bank's strong commitment to price stability is another important selling point underpinning the euro's value.

Euro zone countries are still separate political entities. Never before have several sovereign nations of such economic size surrendered their monetary independence to a supranational institution. The euro is sailing into the

future through uncharted waters, without the usual rudder of political unity.

Absent a strong political union, there is a risk that member nations could dissolve the monetary union that supports the euro. Disbanding would be very expensive and disruptive—so it is unlikely. But no one could argue that dissolution of the U.S. is *more* likely.

Even as other European nations adopt the euro, adding to its monetary heft, the dollar will likely maintain its dominant position in the world for many reasons. First and foremost, the dollar is already firmly entrenched at the top, so replacing it with another currency would entail significant transition costs. The United States doesn't face the structural and demographic impediments to long-term growth that have hamstrung Europe and that progressive European leaders, like German Chancellor Angela Merkel, are attempting to address. Moreover, the U.S. remains the premier destination for international investors who prefer the returns available in a flexible, highly adaptive economy.

Even so, the U.S. must guard the currency's leadership role by keeping our economic affairs in good order. Our elected representatives and lawmakers must rein in the long-term fiscal imbalances that threaten our continued economic prosperity, and the Federal Reserve must remain ever vigilant in its effort to prevent inflation from debasing the value of our dollar.

A handwritten signature in gold ink that reads "Richard W. Fisher". The signature is fluid and cursive.

Richard W. Fisher
President and CEO
Federal Reserve Bank of Dallas



The Texas Economy: Almost a Boom

By **Fiona Sigalla**

Overall, the Texas economy has enough momentum to fuel another good year in 2007.

The Texas economy turned in a robust performance in 2006. Initial estimates suggest employment increased 3.2 percent and output growth could approach 5 percent. For most any other state, an expansion this strong would constitute a boom. But everything is bigger in Texas, and so are the booms.

Overall 2006 economic activity was not on par with the great bursts of growth ignited by construction and energy in the 1970s and 1980s or high tech in the 1990s. Still, the current expansion is impressive, even by Texas standards.

In 2006, the economy grew rapidly to accommodate heavy demand for energy and construction. Adding 316,000 jobs, the state surpassed 10 million workers for the first time. Homebuilding and exports reached record levels.

According to Fed contacts throughout the state, shortages of equipment and qualified labor prevented growth from being even stronger.

Activity was also restrained by weakening demand from a slowing U.S. economy and by high energy costs that dampened consumer spending. The Texas expansion began to moderate in the second half of 2006, and the state's economy will likely grow more slowly in 2007.

Somewhat slower growth in the U.S. economy in 2007 will soften demand for Texas products and services. Still, strong global ties should boost Texas sales, buoyed by healthy foreign economies.

The energy industry likely will keep humming in the coming year as the state continues to supply the world's drilling industry with equipment and services. The construction industry will also remain busy, although the boost will come more from nonresidential building as housing markets continue to slow. Overall, the Texas economy has enough momentum to fuel another good year in 2007. Job growth is projected to be between 2 percent and 2.5 percent.

Fast Job Growth, Labor Shortages

Texas' employment tends to grow about 1 percentage point faster than the nation's, and the margin widened in 2006. Texas job growth finished above the 37-year average of about 2.8 percent. At the same time, the U.S. slowed to just under its 37-year average of 1.8 percent (*Chart 1*).¹

All major sectors of the Texas economy added workers at a pace faster than the rest of the country in 2006. The state's private employment increased 3.4 percent, compared with 1.7 percent for the United States excluding Texas. Government employment expanded 2.1 percent in Texas and 1 percent in the rest of the nation.

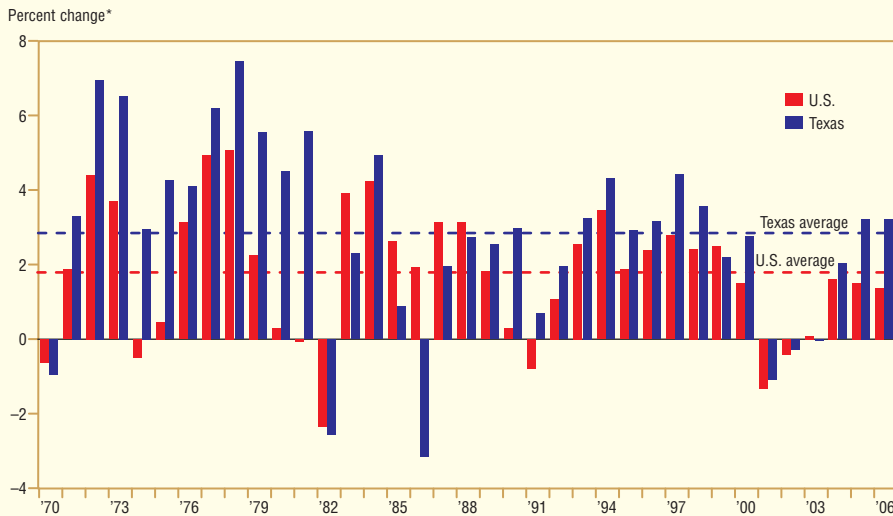
Employing nearly 80 percent of the state's nongovernmental workforce, the private service-producing sector added the bulk of new jobs. Its 2.9 percent increase eclipsed the 2 percent rise in the rest of the U.S.

While comparatively smaller, the Texas goods sector grew vigorously in 2006. The sector, which includes manufacturing, construction and energy, was stimulated by low interest rates and high oil and natural gas prices. Employment swelled 5.4 percent in the state, while the rest of the U.S. managed a meager gain of 0.1 percent.

The strength of Texas' goods sector compared with the rest of the country is due in part to the ease with which firms can expand in the state. With a fast-growing workforce and copious land, the construction industry can build quickly to accommodate demand. Employment in the state's construction sector surged 7 percent in 2006—an additional 40,800 workers. Excluding Texas, U.S. construction employment was up just 1.5 percent—102,200 workers.

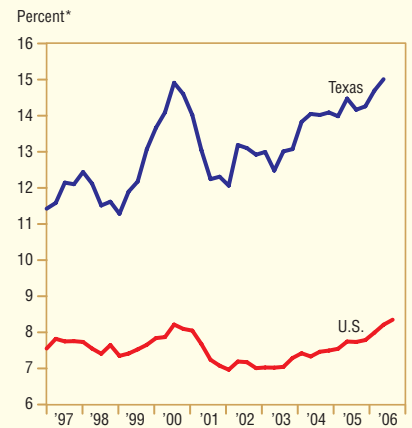
Texas' manufacturing sector has outperformed the nation for over a decade (see "*Made in Texas: The Natural Selection of Manufacturing*" on page 12). In 2006, the state added 26,300 factory jobs, an increase of 2.9 percent. Meanwhile, manufacturers in the rest of the country cut

Chart 1
Texas and U.S. Employment Growth



*December over December.
 SOURCES: Bureau of Labor Statistics; Texas Workforce Commission; seasonal adjustment by Federal Reserve Bank of Dallas.

Chart 2
Share of Output Exported, Texas and U.S.



*Seasonally adjusted.
 SOURCES: Bureau of Economic Analysis; WisenTrade.

110,300 positions, a decline of 0.8 percent.

The energy industry grew strongly across the country, as mining jobs increased 13.1 percent in Texas and 7.5 percent in the rest of the nation.

With Texas employers adding workers at a swift pace in 2006, competition for employees has been stiff. Seasonally adjusted initial claims for unemployment insurance declined to 54,635 in October 2006, a level not seen in the state since January 1982. The seasonally adjusted unemployment rate fell to 4.5 percent in December 2006, the lowest level since March 2001.

Companies reported hiring difficulties in the construction, service, manufacturing, finance and energy industries. Throughout the year, the Fed's Beige Book reported hot demand for many types of skilled and semiskilled workers, including engineers, electricians, high-tech technicians, truckers, certified mechanics and accountants. The need was particularly acute in the energy industry, where a decade of high unemployment discouraged potential workers from training to be roughnecks, engineers and geologists. Some employers reported difficulty finding relatively unskilled workers with basic qualifications.

As the state's unemployment rate pushed lower, labor shortages intensified and, in some areas, companies resorted to

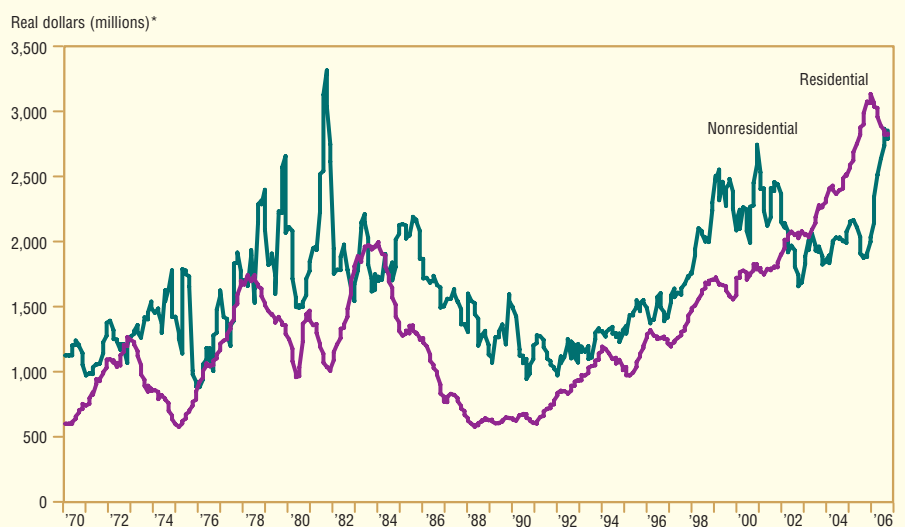
posting billboards in an attempt to attract workers. Anecdotal reports suggest job growth could have been stronger with a more educated workforce. Firms took on the challenge of educating and training their own workforces. Business leaders say they've developed training programs to help workers enter their industries. Some

reached out to a local high school, community college or university to create programs to boost supplies of qualified workers.

Hearty Export Growth

Trade has become increasingly important to the Texas economy. Exports have been a larger share of the state's output

Chart 3
Texas Construction Contract Values



*Seasonally adjusted, five-month moving average.
 SOURCES: McGraw-Hill Dodge Construction; Bureau of Labor Statistics.

than the nation's. In 2006, U.S. exports were just over 8 percent of output, but Texas exports were 15 percent of state production (*Chart 2*).

As the nation's number one export state, Texas has been buoyed by expanding world trade. In 2006, the state shipped more goods to international customers than ever. Seasonally adjusted Texas exports rose to a record \$12.1 billion in November. In the first 11 months, shipments were up 14 percent, which annualized is the strongest growth since 1999.

International demand has been spurred by stronger economic growth overseas and declines in the dollar's value that lowered the relative cost of U.S. products. Since peaking in 2002–03, the Dallas Fed's Texas Value of the Dollar has dipped 13 percent. This measure is weighted by export shares to account for movements in real exchange rates for the 44 countries that make up the large majority of Texas trade.

In the past three years, Texas shipments have increased 10 percentage points faster than shipments from the overall U.S. The state's relatively strong exports have been driven by both the favorable composition of Texas industries and fast growth in the nation's strongest trading partners.

Exports to the European Union have increased mightily, accounting for 28 percent of the trade growth in the first three quarters of 2006. Sales to Asia (excluding China) contributed 24 percent, while 18 percent came from shipments to Latin America, excluding Mexico. Breaking it down further, 8 percent was from goods shipped to China, a small but fast-growing trading partner. Another 8 percent went to Mexico, the state's largest trading partner.

Energy products helped drive last year's export surge. These included petroleum, chemicals, and oil and gas extraction equipment. Chemical sales accelerated toward the end of the year as falling natural gas prices lowered the cost of Texas petrochemicals and made them more attractive to strong Asian economies. Computer and electronics shipments also surged during the year.

Recent increases in exports bode well for the coming year. Changes in exports tend to lead changes in goods-producing jobs, suggesting that the state could see continued strength in coming months.

Whether it's because of movements in the dollar's value or modifications to trade

agreements, changes in world trade will have a greater impact on the state than on the rest of the country.

Vigorous Construction

In the early 1980s, construction cranes dotted Texas skylines. At the time, Texans joked that these cranes were the new state bird. In 2006, this bird made a bigger comeback than the whooping crane.

Construction of large projects took off in 2006, including office buildings, condominiums, hospitals, hotels, schools and entertainment venues. Nonresidential contract values jumped 52 percent in 2006, their strongest growth since 1981 (*Chart 3*).²

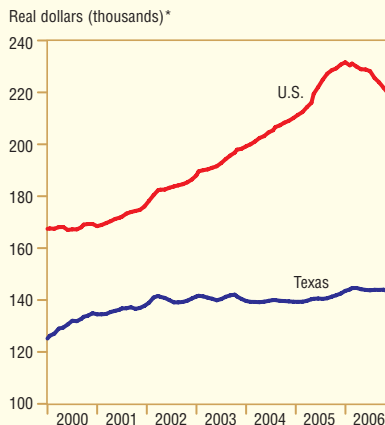
Following the 1980s boom, the state was plagued by years of oversupply. As the current construction boom shows signs of cooling, demand appears to be sufficient to absorb most new space, leaving builders with fewer hangovers from overdoing it.

Texas' most recent building boom took a quiet backseat to the house-price boom that occurred elsewhere in the country. While concerns grew that home prices along the coasts were soaring beyond fundamentals, inflation-adjusted median sales prices in Texas were relatively unchanged. As a result, some people were left with the impression that construction in the state also hadn't accelerated (*Chart 4*).

That wasn't the case.

Anecdotal reports suggest job growth could have been stronger with a more educated workforce. Firms took on the challenge of educating and training their own workforces.

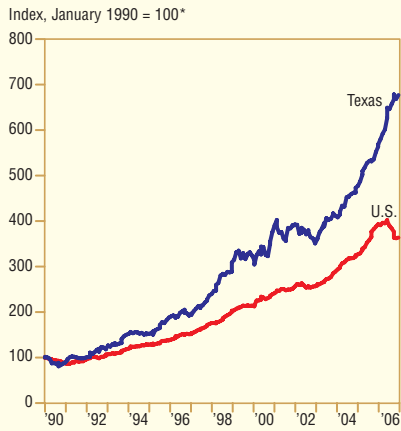
Chart 4
Texas and U.S. Median Existing Home Prices



*Seasonally adjusted.

SOURCES: Texas A&M Real Estate Center; Bureau of Labor Statistics.

Chart 5
Total Construction Contract Values



*Seasonally adjusted, five-month moving average, real dollars.
SOURCES: McGraw-Hill Dodge Construction; Bureau of Labor Statistics.

Median home prices in the state didn't rise very much because, with available land and labor, Texas builders worked quickly to meet demand. The supply of homes increased rapidly and kept home prices in check.

Inflation-adjusted total construction contract values increased faster in Texas than in the nation (*Chart 5*). The state's surge in investment was tremendous but not unprecedented. Measured as percent of output, residential contract values remained below the levels of the 1970s and early 1980s building boom.

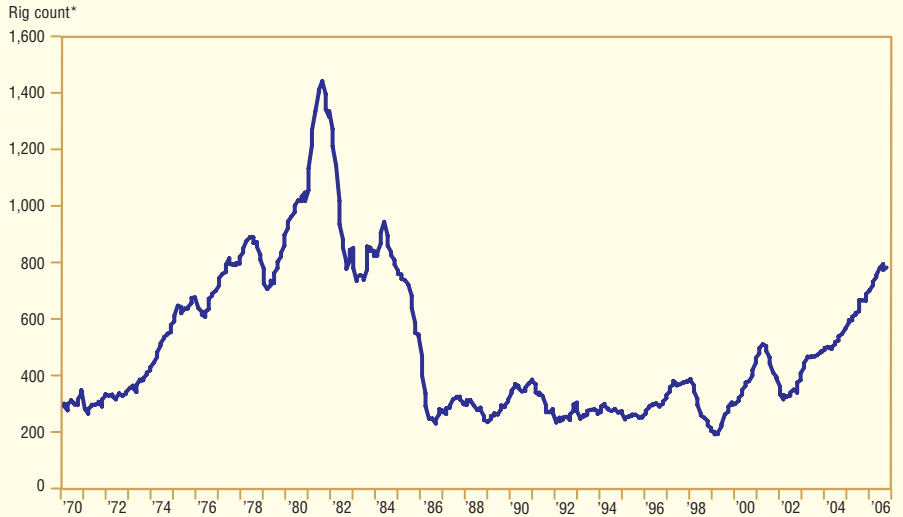
Residential markets began to downshift nationally in late 2005 but remained robust in Texas until mid-2006. Homebuilding was driven largely by the state's strong economy, but sales also received a boost from investors, who turned to Texas amid news reports that real estate was a better value there than in other parts of the country.

Texas residential real estate activity will likely continue to edge down in 2007. After climbing 24 percent in 2005, single-family housing permits dropped 18 percent in 2006. Although growth is expected to be slower than in 2006, nonresidential building should remain strong through much of the year, keeping the construction cranes busy.

Burst of Energy

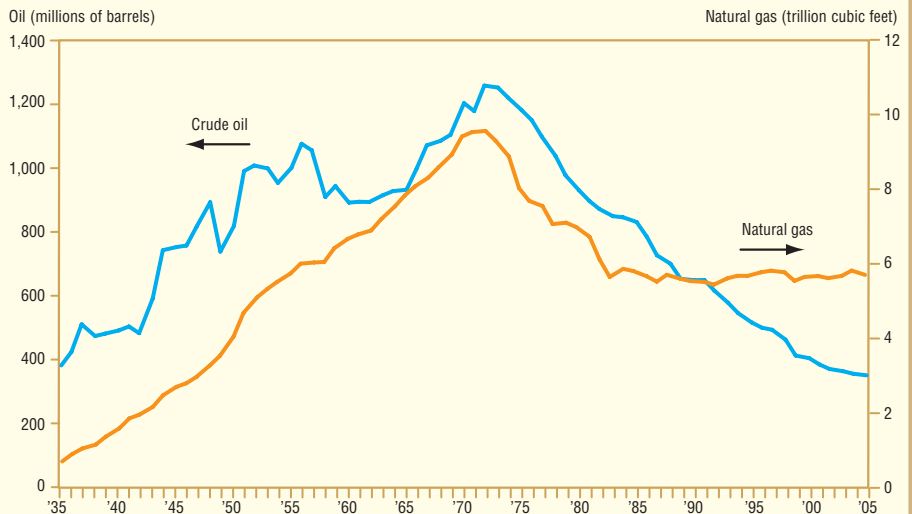
The construction industry wasn't the only sector to relive memories of the 1980s

Chart 6
Texas Oil and Gas Rig Count



*Seasonally adjusted.
SOURCE: Baker Hughes International.

Chart 7
Texas Oil and Natural Gas Production



SOURCE: Texas Railroad Commission.

boom. Persistently high energy prices encouraged a worldwide surge in investment in oil and natural gas extraction, creating new business for Texas energy service firms and manufacturers. Royalty payments filled mineral owners' pockets, boosting consumer spending. Taxes from natural gas and oil production poured into state coffers.

Drilling activity pushed the state's rig count to nearly 800 in 2006, the highest level since 1984 (*Chart 6*). However, the rise in working rigs was not accompanied by a similar increase in Texas oil and natural gas production. Both remain on a long-term decline as reserves dwindle (*Chart 7*). High prices and new technologies

made it cost-effective for drillers to venture into territories previously thought impenetrable, such as the Barnett Shale natural gas field near Fort Worth. Because some Texas fields are expensive to drill, business leaders say these fields will be the first discontinued if prices fall or costs rise.

Fears of higher costs and a price collapse slowed the growth of drilling activity in the fall of 2006. The energy industry has been constrained by a scarcity of rigs, equipment and labor. These shortages pushed up drilling costs and led to backlogs of orders for services and equipment. The backlogs should keep the industry busy in 2007, even as energy prices drift lower.

Mixed Blessing for Texans

Not all Texans own mineral rights or work in the energy industry. For them, relentlessly high gasoline prices and air-conditioning bills dampened consumer spending and caused financial strain.

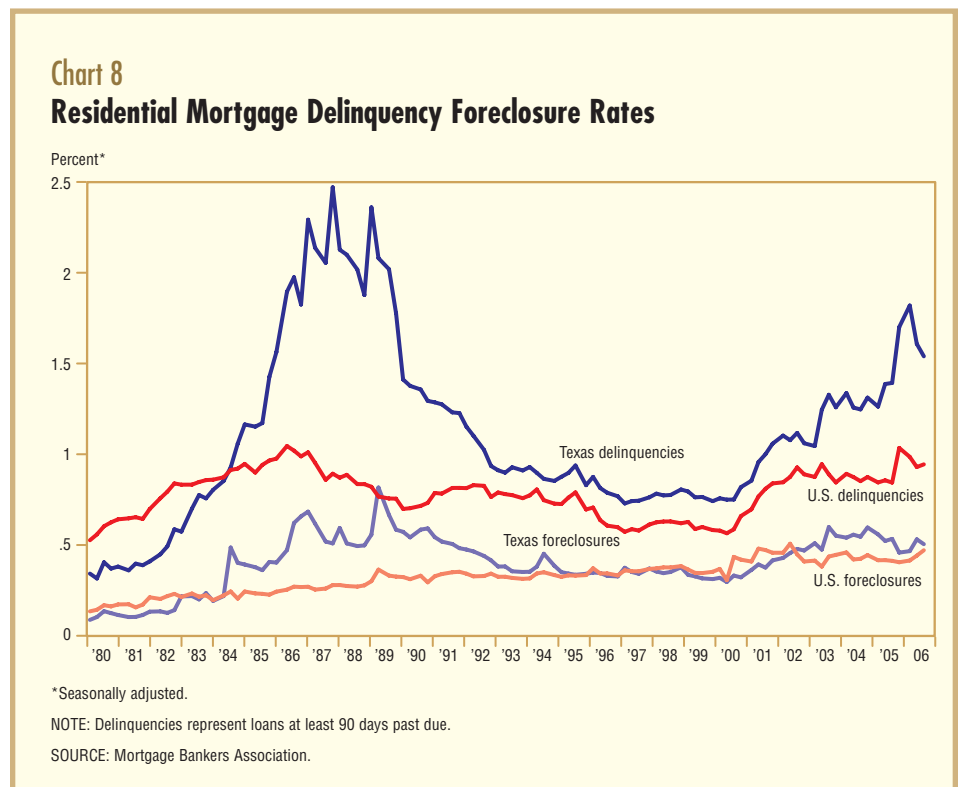
On average, Texans spend more than other Americans on energy bills.³ Electricity prices tend to be higher in Texas than in other parts of the country because state utilities rely more on natural gas for electricity generation. In the third quarter of 2006, monthly outlays on gasoline, residential natural gas and electricity were \$206 per capita in the state, compared with \$171 for the nation. And these higher energy bills come out of smaller income; per capita personal income was \$34,816 in Texas, compared with \$36,506 in the U.S.

Slow home price appreciation relative to other parts of the country has also made it tougher for the average Texan and dampened consumer spending. In parts of the country with rapidly rising real estate prices, homeowners can extract equity to finance consumer spending or pay down bills. With stagnant home prices, Texas homeowners tend to have less equity from which to draw.⁴ Any decline in home prices quickly eliminates equity, making foreclosure more likely and putting further pressure on consumers' pocketbooks.

Texas mortgage delinquencies—loans 90 days past due—and foreclosures have drifted up over the past few years, rising faster than those in the U.S. (*Chart 8*).

Slower Growth in 2007

In late 2006, the economy started decelerating from the robust pace posted through most of the year. Activity likely



will continue to downshift in 2007.

The Texas Leading Index has been sluggish since peaking in March 2006 (*Chart 9*). The index suggests continued expansion but slower job growth, just below the state's trend over the past 37 years.

The construction sector remains quite strong, and a substantial amount of building will continue to finish projects already under way. Even if the state experiences a pullback in exploration, its energy industry is expected to remain busy, filling backlogged orders and supplying drilling activity around the world. Exports should continue to support the state's goods sector. Shortages of skilled workers will likely be the primary constraint to expansion.

Despite slower growth, Texas will remain one of the fastest-growing areas of the country.

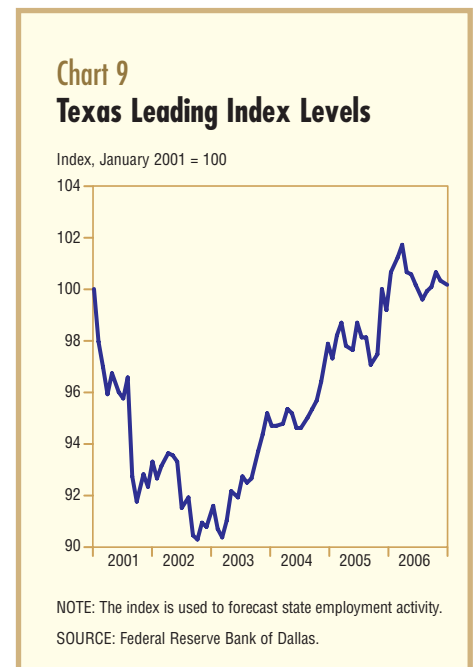
Sigalla is an economist at the Federal Reserve Bank of Dallas.

Notes

The author thanks Keith Phillips, D'Ann Petersen, Frank Berger, Mine Yücel and Raghav Virmani for helpful comments. Virmani provided excellent research assistance.

¹ U.S. and Texas employment data are estimates as of the publication date. Both are subject to revision.

² Contract values are a seasonally adjusted, five-month mov-



ing average. In this analysis, nonresidential values include nonbuilding, which is largely highway and road construction.

³ This calculation is based on methodology first used in "Regional Update" by Mine Yücel, Federal Reserve Bank of Dallas *Southwest Economy*, September/October 2006.

⁴ "Has the Housing Boom Increased Mortgage Risk?" by Jeffery W. Gunther and Robert R. Moore, Federal Reserve Bank of Dallas *Southwest Economy*, September/October 2005.

The Mexican Economy at a Crossroads

The installation of Felipe Calderón as Mexico's new president provides an occasion for Dallas Fed economists William C. Gruben and Erwan Quintin, both specialists on the Latin American region, to discuss Mexico's progress toward economic stability as well as its remaining hurdles to growth.

Q: Why has the Mexican economy been so stable in the face of recent political turmoil?

Gruben: The first thing to recall is the protracted period of Mexican history when presidential transitions were accompanied by fiscal misbehavior, which created worries for the investment community. Investors would understandably be highly uncertain about the exchange rate, so Mexico would get boom-and-bust cycles every six years.

One of the most important developments in the last 50 years is that Ernesto Zedillo, Mexico's president from 1994 to 2000, didn't engage in this type of behavior as his "sexenio," or six-year term, came to a close. Although Calderón inherits a stable, growing economy, he faces the challenges of an ineffective educational system, a legal structure in need of repair and excessive government interference in the private sector.

Q: What have been the fruits of this good fiscal behavior?

Quintin: I like to say that Mexico has been able to grow a yield curve in recent years. The Mexican government was unable to sell any debt with over a year to maturity in the aftermath of the mid-1990s Tequila Crisis, but the situation has changed tremendously in the past five years.

Investors, both domestic and international, are now much more willing to entrust the government with their money. In 2004, Mexico issued its first 20-year bonds. And the government just started issuing 30-year, fixed-rate, peso-denominated bonds.

Q: Even against this backdrop of greater stability, Mexico's economic growth is nowhere near its full potential. Why is that?

Quintin: Yes, macroeconomic stability creates an environment where it's easier to lend and



Erwan Quintin

invest, but this alone isn't sufficient to achieve strong economic growth. Several factors still impede the ability to do business.

One obstacle is the Mexican financial sector. Despite recent improvements, it remains one of the world's smallest. The ratio of loans to GDP is still quite low, relatively speaking. One key problem is that property rights aren't enforced. So banks aren't certain of repayment or their ability to collect on collateral in case of default.

That hampers the efficiency of the financial system, whose job is to facilitate investment and help allocate resources to their most productive uses. Insufficient financial intermediation results in an economy that doesn't invest as much and isn't as productive as it would otherwise be.

Q: This seems to tie in to the notoriously stormy history of the Mexican banking sector.

Gruben: Mexico's banks have had their fair share of troubles. First, the banking sector was nationalized in the 1980s. Then, when the banks were privatized in the 1990s, many of those who took the reins were stock-mar-

ket types, which is to say they were prepared to take on more risk than traditional bank managers. This resulted in banks making loans they shouldn't have, which, of course, played out to Mexico's detriment in the Tequila Crisis.

Q: So where does that leave the banking sector today?

Quintin: It's in much better shape than it was 10 years ago. Supervision has greatly improved. The ratio of nonperforming loans to outstanding bank credit is a small fraction of what it used to be. Bank lending is now growing at a healthy rate, albeit from a very low base.

Q: What are other symptoms of economic inefficiency in Mexico?

Quintin: One is Mexico's informal sector—the untaxed and unregulated portion of economic activity. By some estimates, it accounts for as much as a third of Mexico's \$1.07 trillion economy.

A large informal economy is a natural response to a burdensome regulatory environment, especially when bank financing, one advantage formal producers presumably enjoy, remains scarce. The flip side is that the



William C. Gruben

“Investors, both domestic and international, are now much more willing to entrust the government with their money.”

country pays a high price in the form of a smaller tax base—fiscal resources being less than they otherwise would be.

The allocation of resources is unlikely to be efficient when a significant share of production is carried out in an environment where there aren't sufficient legal means of contract enforcement. The result is an excessive amount of low-scale production and self-employment.

Q: It would seem that now more than ever there is a need for strong leadership.

Gruben: The good news is that the current generation of politicians appears more open to cooperation than ever before. This carries tremendous implications for Mexico's overall economy.

And regardless of political affiliation, there's a commitment to ensuring macroeconomic stability, especially the continued independence of Mexico's central bank. If you can imagine, Mexico's central bank was recently easing when the Federal Reserve was tightening. That would have been unheard of 15 years ago.

Q: Step outside Mexico for a moment to the broader economic landscape of Latin America. How does the Mexican economy differ from its neighbors to the south?

Gruben: The larger Latin American countries trade to a much lesser extent than Mexico does—that is, the share of their economies tied to their export sector is much smaller. Of course, trade is of particular importance to Mexico because of its proximity to the United States.

This makes Mexico much more vulnerable to the U.S. business cycle; hence the adage, “When the United States gets a cough, Mexico gets pneumonia.” With the U.S. industrial sector showing signs of slowing, short-term risks mount that any shock to U.S. manufacturing will be pushed southward.

Quintin: One other thing that bears mentioning is that Mexico is one of the biggest cus-



tomers for U.S. exports. As with Canada, our trade relationship with Mexico is very much a two-way street.

While it's true that there's concern about a possible slowdown in U.S. manufacturing, something new has cropped up in the Mexican economy to act as an offset. The improving health of the Mexican financial sector has unleashed quite a bit of pent-up demand in many areas, including housing. This pickup in domestic-driven growth is promising. It suggests the Mexican economy may not take as big a hit as it did in 2000 if the U.S. manufacturing sector were to once again slow significantly.

Q: What about China? What has Mexico done to adapt and recapture its competitive position on the global stage?

Gruben: It's important to note that countries whose export profiles most closely resemble China's will encounter the most direct, face-to-face competition. Of the seven most populous Latin American countries, the one with an export profile most like China's is Mexico.

At the risk of oversimplifying, it's useful to note that the value of Mexico's manufacturing exports as a percent of total exports is nearly 80 percent—far above that of any other Latin American economy. It's easy to say that Mexico will have to move toward specializing in production that benefits from Mexico's proximity to the U.S., but that's already happening.

There are various products Mexico can still produce efficiently enough to compete with Chinese manufacturers. Think of the fast-changing apparel sector, where it's perhaps more convenient to

produce higher value-added garments in Mexico than in China.

Quintin: Chinese competition has hurt some Mexican manufacturers, who have essentially had to reinvent themselves to survive. Today, we see many of the new plants that have cropped up on the border concentrating on products that can effectively compete with China—particularly those with high transportation costs and high-skill content.

Q: What's your prognosis for the Mexican economy?

Gruben: The most important issue to address is the need for structural reform in the legal and education systems. The good news is there are signs of progress, especially the apparent formation of bipartisan coalitions in Mexico. One promising development is a recent comment made by the new finance minister, Agustín Carstens, about tax dodging by Mexico's large corporations. Carstens said it was rational for these corporations to dodge taxes but that it wasn't rational for the finance ministry to let them do it. I don't know when I've seen any cabinet level minister anywhere say anything more succinctly.

Quintin: Mexico had a very good year and should continue to grow at a decent pace over the next few quarters. The main risk to this outlook remains the possibility of a marked slowdown in U.S. manufacturing. On the upside, the stage could be set for a long-overdue investment boom in Mexico if the new administration manages to implement significant reforms.

QUOTABLE “Strong hiring pushed unemployment rates down in most Texas metros in 2006. The largest six metros reached five-year lows in their December unemployment rates.”

—D’Ann Petersen, Associate Economist

APARTMENTS: Katrina Surge Beginning to Recede

Hurricane Katrina’s devastating blow in August 2005 forced a massive relocation from the Gulf Coast. The Texas Health and Human Services Commission estimates 251,000 people moved temporarily to Texas from New Orleans and other ravaged areas.

Houston welcomed 44 percent of the evacuees and Dallas/Fort Worth 26 percent.

The influx had a large impact on already improving apartment markets in these areas. Houston’s occupancy rate jumped from 88.4 percent in first quarter 2005 to 94 percent by year’s end, while D/FW’s rate rose from 89.6 percent to 92 percent, according to M/PF YieldStar.

The evacuees and robust job growth kept occupancy high in both metros for most of 2006, despite added supply. Toward year’s end, however, apartment markets softened as evacuees’ government-issued vouchers began expiring.

Houston’s apartment occupancy rate fell from 93.9 percent in the second quarter to 92.4 percent by year’s end. After climbing through September, D/FW’s rate slipped 0.9 percentage point to 92.8 percent in the fourth quarter.

While more evacuees are likely to leave, healthy job growth is expected to dampen the impact on Houston and D/FW apartment markets in 2007.

—D’Ann Petersen

TRADE: New Facilities Diversifying Houston Port

Since opening in 1914, the Port of Houston has grown into a lynchpin of the mining and natural resources sector and one of the world’s largest petrochemical complexes, with more than 150 companies along the Houston Ship Channel.

In recent years, the port has become less reliant on energy and petrochemicals, growing into the nation’s second-largest in terms of tonnage. In 2005, it handled \$85.8 billion in cargo, more than 700 ships and 150,000 barges.

Increased traffic prompted the \$1.2 billion Bayport Expansion Project, which should generate 30,000 permanent jobs when completed in 15 years. The Bayport Container Terminal opened at the end of 2006, and it’s expected to gen-

erate 2,000 jobs in its first year and 9,800 by 2011.

Houston and its port have also benefited from Wal-Mart’s Baytown distribution center, opened in May 2005. The giant retailer will redirect more than 20 percent of its imports through Houston, and its market power is expected to attract other companies’ imports to the port.

These large projects, and the Port of Houston as a whole, have created jobs and helped diversify the region’s economy. They have even benefited the service sector through a cruise terminal that has boosted tourism enough to warrant plans for a new facility.

—Adriana Fernandez

HOUSING: Prices Up, Affordability Down in El Paso

El Paso continues to absorb the shock of rising home prices, which are up 40 percent since 2003, exceeding the U.S. average.

The sharp appreciation is partly due to the metropolitan area’s job growth, fueled by rebounding U.S. industrial production and steady growth in Mexico’s economy and maquiladora industry.

Expectations for current and future housing demand have also been affected by the 2005 decision to double the size of El Paso’s largest employer, Fort Bliss.

Some analysts argue that El Paso’s home price increases are a correction in a historically underpriced market, while others say restrictions on local development are artificially inflating prices.

As prices have risen, affordability has fallen. Even so, an index comparing median family income with what’s needed to qualify for a conventional mortgage on a median-priced home remains within the range of recent experience.

El Paso’s current affordability index ranks among the lowest for Texas cities. Joining El Paso at the bottom are Brownsville and McAllen, suggesting that low median family incomes on the border factor heavily into these index levels.

The Dallas Fed’s *Crossroads* newsletter contains a more thorough analysis of El Paso’s housing market. It can be found on the Bank’s web site at www.dallasfed.org/research/crossroads/index.html.

—Jesus Cañas

Revived Spending Ends Prolonged Lull

In 2000, Texas venture capital spending was booming at almost \$6 billion a year—up more than five times from 1998. The high-tech bust led to a precipitous decline in 2001 and 2002, and venture capital showed little or no growth for the next several years.

Venture capital investment began to rebound in late 2005, and it grew 28 percent in 2006, outstripping the nation's 12 percent growth (*Chart 1*). Even so, last year's \$1.4 billion represented slightly less than 6 percent of the U.S. total.

According to PricewaterhouseCoopers' MoneyTree Survey, telecommunications, software, semiconductors and other high-tech sectors still receive the largest share of funds, accounting for half of the Texas venture capital investment (*Chart 2*).

As venture capital growth has revived in the past two years, however, the state has seen more funding for energy and nontraditional sectors, including media and entertainment and electronics. The biotechnology, medical devices and equipment industries are also making strides, with this life sciences sector identified as one of the drivers for innovation and economic growth.

Although high tech remains dominant in

Texas venture capital, its composition has changed. Networking, equipment and telecommunications investments grew steadily in the late 1990s but collapsed with the dot-com bust in 2000. More than five years later, these sectors still haven't recovered. Overinvestment created a glut of telecom and Internet infrastructure, such as wireless equipment, routers and fiber-optic lines. Today, software and semiconductors, which together account for about half of high-tech venture capital dollars, have filled the void left by the telecommunications and networking industries.

Another notable change is in the administration of venture funds. Financiers are now more conservative and have shown increasing preference toward mature companies over neophytes. This affinity stems from a lower likelihood of companies going public, which venture capitalists trace to the burdensome costs of Sarbanes-Oxley compliance, particularly for small-cap companies, and to the residual effects of the high-tech bust.

More than two-thirds of Texas venture capital investment takes place in the five largest metropolitan areas. Austin leads the pack by a large margin, increasing its share of Texas ven-

ture capital from 33 percent to over 43 percent since 2000. All told, the capital city commands more venture capital than Dallas-Fort Worth, Houston and San Antonio combined.

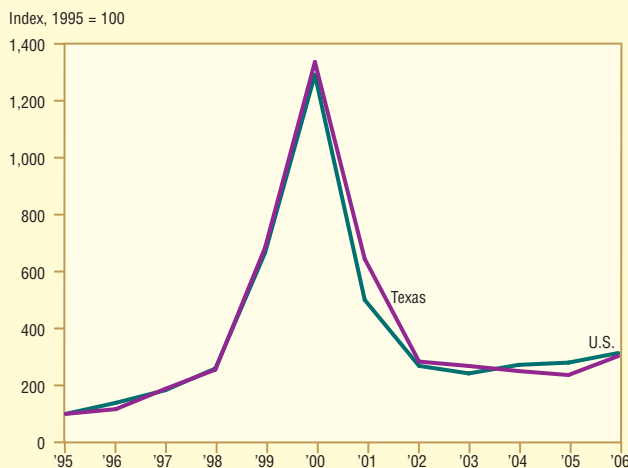
Despite Austin's dominance, San Antonio is the only major metro posting gains in venture funding in this decade. The city's share of the Texas market increased fivefold—from 0.9 percent in 2000 to an average of 4.7 percent from 2003 to 2006. Fueling San Antonio's upsurge are investments in the life sciences and high-tech sectors.

Venture capital investment fosters job creation, both nationwide and in the state. In 2003, for example, venture-backed companies accounted for nearly 12 percent of Texas private employment and generated about \$188 billion in annual sales, according to a 2004 study by the National Venture Capital Association and Global Insight.

Although venture capital spending isn't likely to regain the lofty heights of 2000, the most recent data suggest that Texas investment may have broken out of its slump. This bodes well for the confidence and optimism of Texas firms—and it should help boost job creation and output.

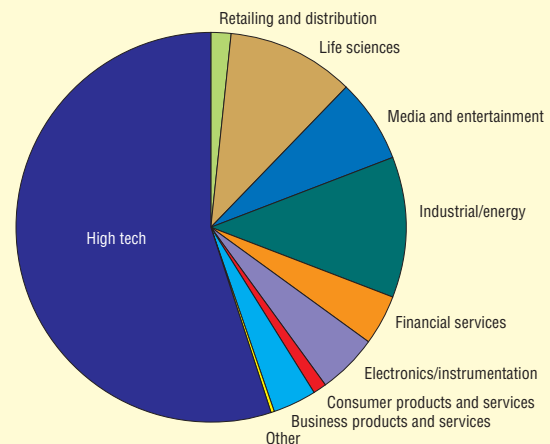
—Laila Assanie and Ragbav Virmani

Chart 1
Venture Capital Investment in Texas Picks Up in 2006



SOURCE, Chart 1 and 2: National Venture Capital Association, Thomson Venture Economics, PricewaterhouseCoopers MoneyTree Survey.

Chart 2
High Tech Still Dominates Texas Venture Capital



NOTES: Data are for 2006. High-tech sector: IT services, networking and equipment, semiconductors, software and telecommunications firms. Life sciences sector: biotechnology, medical devices and equipment, and health care services industries.

Made in Texas: The Natural Selection of Manufacturing

By Fiona Sigalla and Danielle DiMartino

The U.S. manufacturing sector conjures up images of Michigan's auto plants, Pennsylvania's gritty steel mills and the iconic smokestacks that stand today as artifacts of a time when the U.S. economy and its manufacturing sector were one and the same. Mention manufacturing, and the furthest thing from most people's minds might be Texas—long renowned for its cattle ranches, oil derricks and cowboy-booted bankers.

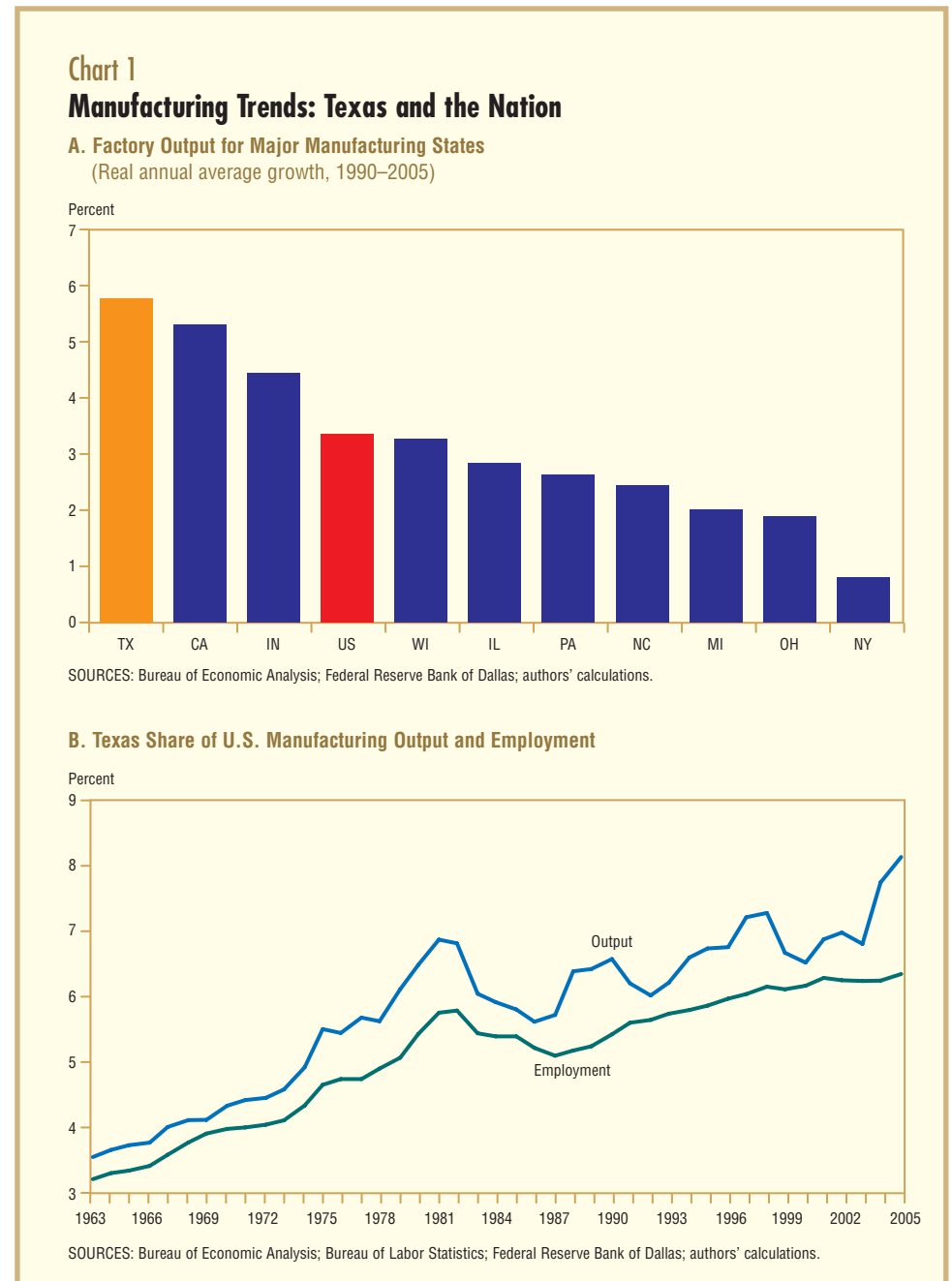
Yet, Texas has emerged as one of the nation's fastest-growing manufacturing hubs. Between 1990 and 2005, a time frame long enough to encompass an entire business cycle, the state's factory output grew an average of 5.8 percent a year, eclipsing all other major manufacturing states (*Chart 1A*).¹ A longer-run perspective shows that Texas' share of the nation's manufacturing base has been rising for at least four decades—with a particularly pronounced output jump in the past year or so (*Chart 1B*).

In 2005, Texas' manufacturing production reached \$126.8 billion, or 8.2 percent of the U.S. total. The state ranked second in output after California—another nontraditional manufacturing center—and led all states in exports, with 14.5 percent of the U.S. total.

What's behind the rise of manufacturing in the Lone Star State?

In Texas, factory operators can check off many of the prerequisites they need to prosper in a highly competitive, rapidly globalizing business environment:

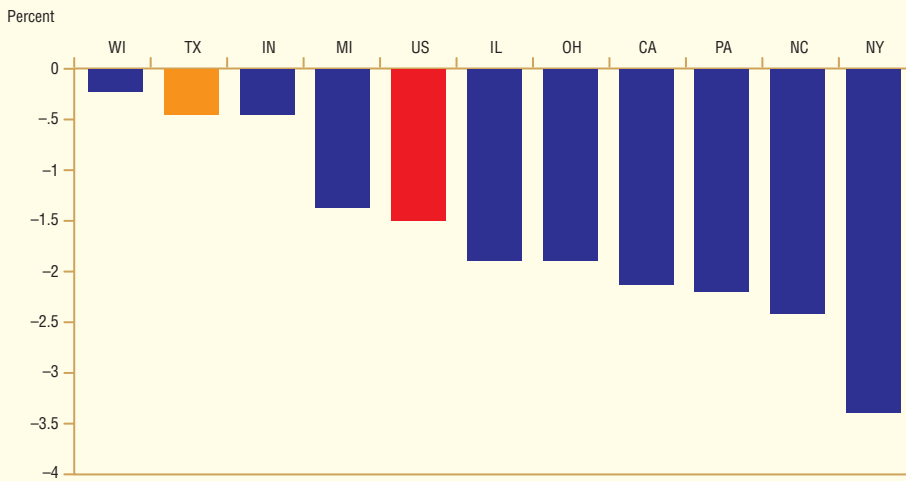
- A central location within North America.
- Good distribution facilities that include one of the world's largest sea-ports.
- A fast-growing and flexible labor market.
- A relatively low cost of living and an attractive business climate.
- Low land and construction costs compared with other parts of the U.S.



• The presence of Mexico and its maquiladora plants just over the Rio Grande, providing manufacturers with a nearby partner for globalizing supply chains and finishing production in the U.S.² These advantages have encouraged

companies to expand Texas operations, build new plants and relocate from other states. The payoff extends beyond increases in factory output. The state's manufacturing job base has also held up better than that of most other states

Chart 2
Manufacturing Employment
 (Average annual growth, 1990–2005)



SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas; authors' calculations.

amid a nationwide decline in factory employment.

Manufacturing's Evolution

The past half century has brought many changes to the nation's manufacturing sector. New technologies and globalization have given consumers a greater variety of products at lower prices, but these forces also have ratcheted up competitive pressures on firms to increase efficiency and lower costs. In the U.S., the result has been decades of declining factory employment as companies invest in productivity-enhancing equipment and outsource labor-intensive assembly to workers in other countries.

Nationwide, manufacturing payrolls contracted an average of 1.5 percent a year between 1990 and 2005, but this masks a deep disparity among states (*Chart 2*). New York shed factory jobs at an annual average of 3.4 percent, more than double the U.S. rate. Meanwhile, Texas' manufacturing employment declined an average of 0.4 percent—or less than a third the U.S. rate.

Two broad factors explain states' diverse experiences. First, manufacturing firms in some states have outperformed similar firms in other parts of the country. Second, some states have larger shares of fast-growing or rapidly declining industries than others.

Decomposing these two influences determines how they've affected employ-

ment in the top 10 manufacturing states. The height of the bars (*Chart 3*) reflects each state's decline in manufacturing jobs relative to that of the nation from 1990 to 2005.³ Purple bars are above zero when the state's firms grew faster or contracted more slowly than similar firms in the same industry nationwide. Green bars are

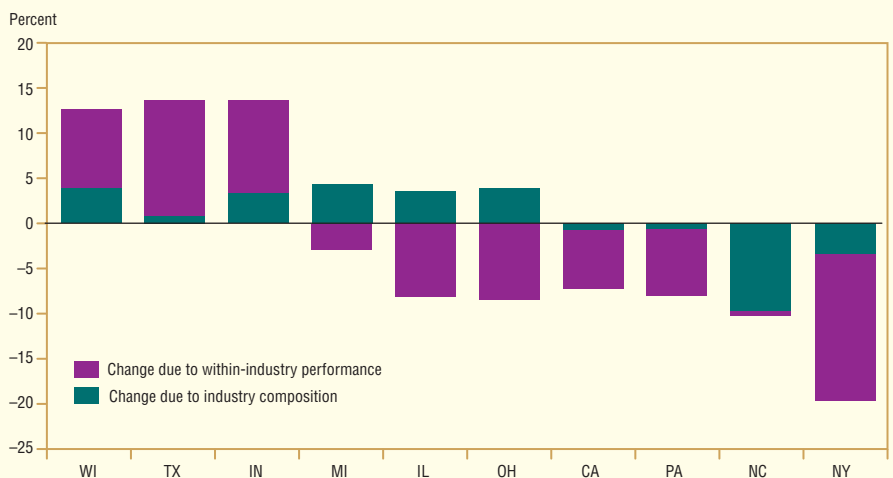
above zero when a state had a mix of industries that did better than the overall manufacturing sector during this period. *Chart 3* also lists the job performance of manufacturing industries relative to the sector as a whole.

Manufacturing employment outperformed the overall U.S. in Wisconsin, Texas, Indiana and Michigan. All four states benefited from having a relatively large share of industries that fared better than manufacturing overall. Texas, for example, is home to a significant number of firms producing chemicals and fabricated metals, industries that did quite well from 1990 to 2005.

Firm-level forces weren't kind to Michigan, but companies outperforming their peers was the biggest factor contributing to relatively healthy manufacturing in Texas, Wisconsin and Indiana.

In the furniture industry, for example, Texas increased employment 51.9 percent over the 15-year period, compared with a 12.2 percent contraction nationwide. In electrical equipment, employment was up 11 percent at Texas firms but down nearly 30 percent in the U.S. Other relatively strong Texas industries have been food, machinery and nonmetallic minerals. In all these industries, Texas firms added work-

Chart 3
Employment Growth for Top 10 Manufacturing States
 (Compared with U.S., 1990–2005)



Steeper job losses than overall manufacturing: Apparel, primary metals, computer and electronics, electrical equipment, petroleum and coal, paper and printing.

Less severe job losses than overall manufacturing: Transportation equipment, machinery, chemicals, furniture, nonmetallic minerals, fabricated metals, food and beverages.

Net job creators: Wood and plastics.

SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas; authors' calculations.

ers, while businesses in the rest of the country reduced employment on net.

New York, North Carolina, Pennsylvania, California, Ohio and Illinois didn't do as well as the nation as a whole in retaining manufacturing employment. All six states had a large share of producers that performed below their industry benchmarks. For example, employment in North Carolina's relatively large furniture industry fell 36.2 percent, almost triple the U.S. decline.

New York, North Carolina, Pennsylvania and California were also hurt by their industry composition. They entered the 1990s with a disproportionately high share of industries with shrinking employment. North Carolina suffered the greatest relative job loss due to the composition of its industrial base. In 1990, the state had a larger-than-average share of apparel and textile mills. These industries had more severe job contractions than manufacturing as a whole.

While painful for affected workers, job losses don't necessarily signal industry

contraction. Table 1 breaks down industry performance by output and employment for the U.S. and Texas over a shorter period, 1997–2004. Some industries, such as computer and electronic product manufacturing, had sizable increases in output that were accompanied by employment losses. Other industries, such as paper and printing, suffered declines in output and employment.

Productivity's Role

Despite job losses, all of the top 10 manufacturing states produced more goods in 2005 than they did in 1990. This can mean only one thing—productivity gains.

Average real manufacturing output per U.S. worker rose from \$52,000 in 1990 to \$108,000 in 2005. Once again, the performance was disparate across states. Real output per worker rose rapidly in Texas—from \$57,000 in 1990 to \$141,000 in 2005, the highest among the 10 states. Wisconsin posted the weakest gains, remaining under the U.S. average throughout the period. Its

output per worker was \$88,000 in 2005.

Texas' output per worker was on par with the rest of the nation and other leading manufacturing states a decade ago (*Chart 4*). By the end of 2005, its manufacturing productivity was running 30 percent above the national average.

Texas' productivity gains derive from two major sources: efficiency-enhancing technologies adopted by manufacturers, and shifts in the types of goods produced.

Demand has surged the past few years for chemicals and machinery—two of the state's most productive sectors—resulting in increased output in these relatively capital-intensive industries.

Texas also outperforms the nation in such industries as computers and electronics. In recent years, output per worker has been higher in Texas than in the U.S. and the high-tech mecca of California.

Texas' factory sector has mirrored a broader national trend of manufacturers moving less-productive operations to

(Continued on back page)

Table 1
Industry Performance for U.S. and Texas, 1997–2004

United States	Percent change		Texas	Percent change	
	Output	Employment		Output	Employment
Output increases with fewer workers			Output and employment increases		
Chemical manufacturing	14.2	-11.1	Furniture and related product manufacturing	18.9	5.1
Computer and electronic product mfg.	292.2	-28.5	Nonmetallic mineral product manufacturing	38.1	9.3
Electrical equipment and appliance mfg.	6.0	-25.0			
Furniture and related product manufacturing	5.9	-8.5	Output increases with fewer workers		
Miscellaneous manufacturing	34.3	-10.0	Chemical manufacturing	16.1	-16.3
Nonmetallic mineral product manufacturing	12.0	-3.9	Computer and electronic product mfg.	305.5	-27.6
Plastics and rubber products	16.6	-14.5	Electrical equipment and appliance mfg.	35.3	-19.5
Primary metal manufacturing	2.8	-27.6	Fabricated metal product manufacturing	2.4	-11.2
Wood products	10.6	-7.4	Food manufacturing	16.5	-0.8
			Machinery manufacturing	40.8	-12.6
Output and employment declines			Miscellaneous manufacturing	14.6	-13.7
Fabricated metal product manufacturing	-2.4	-12.6	Plastics and rubber products	7.3	-9.3
Food manufacturing	-0.5	-4.6	Primary metal manufacturing	38.9	-16.9
Machinery manufacturing	-1.8	-24.2	Wood products	5.5	-17.0
Paper manufacturing	-16.4	-22.2			
Petroleum and coal products	-18.8	-18.7	Output and employment declines		
Printing and related support activities	-6.0	-20.8	Paper manufacturing	-16.3	-25.3
Total manufacturing	22.6	-18.7	Petroleum and coal products	-4.4	-9.4
			Printing and related support activities	-7.4	-22.3
			Total manufacturing	44.1	-15.9

NOTE: This table has a different time period from the other analyses because comparable output data by industry are unavailable prior to 1997.

SOURCES: Bureau of Economic Analysis; Bureau of Labor Statistics; Federal Reserve Bank of Dallas; authors' calculations.



The Texas Manufacturing Outlook Survey: A Tool for Understanding the Economy

In May 2004, the Dallas Fed asked Texas' top manufacturers to help it better understand the economy. Each month, firms respond to an electronic survey about changes in a variety of indicators, including production, new orders, prices and general business conditions.

Roughly 80 manufacturers regularly participate, with respondents coming from all sectors of manufacturing. No one industry dominates the survey.

Each question asks participants whether certain items of interest have increased, decreased or remained unchanged. Answers cover changes over the previous month and expectations for six months into the future.

For each question, survey responses are used to generate an index. Each index is calculated by subtracting the percentage reporting a decrease from the percentage reporting an increase. If all firms report an increase in activity, an index will register 100; if all report a decrease, an index will register -100. An index will be zero when the number report-

ing an increase equals the number reporting a decrease.

There are not sufficient data to seasonally adjust the index, but survey respondents are asked to adjust their responses for normal seasonal variations. There seems to be no obvious seasonal pattern. The Dallas Fed will further examine the issue of seasonality as soon as sufficient data are available.

At the survey's inception, results pointed to an economy expanding strongly, with many indexes high or rising through 2004 and 2005. Several of the indexes began to decelerate along with the state's cooling economy in mid-2006 but rebounded in January (see charts below). Index movements over the last six months suggest continued expansion of the manufacturing sector but at a slower pace.

To the extent conclusions can be drawn with a limited sample size of just over 30 months, preliminary statistical analysis suggests the manufacturing survey may have some predictive power for understanding both the U.S. and Texas economies.

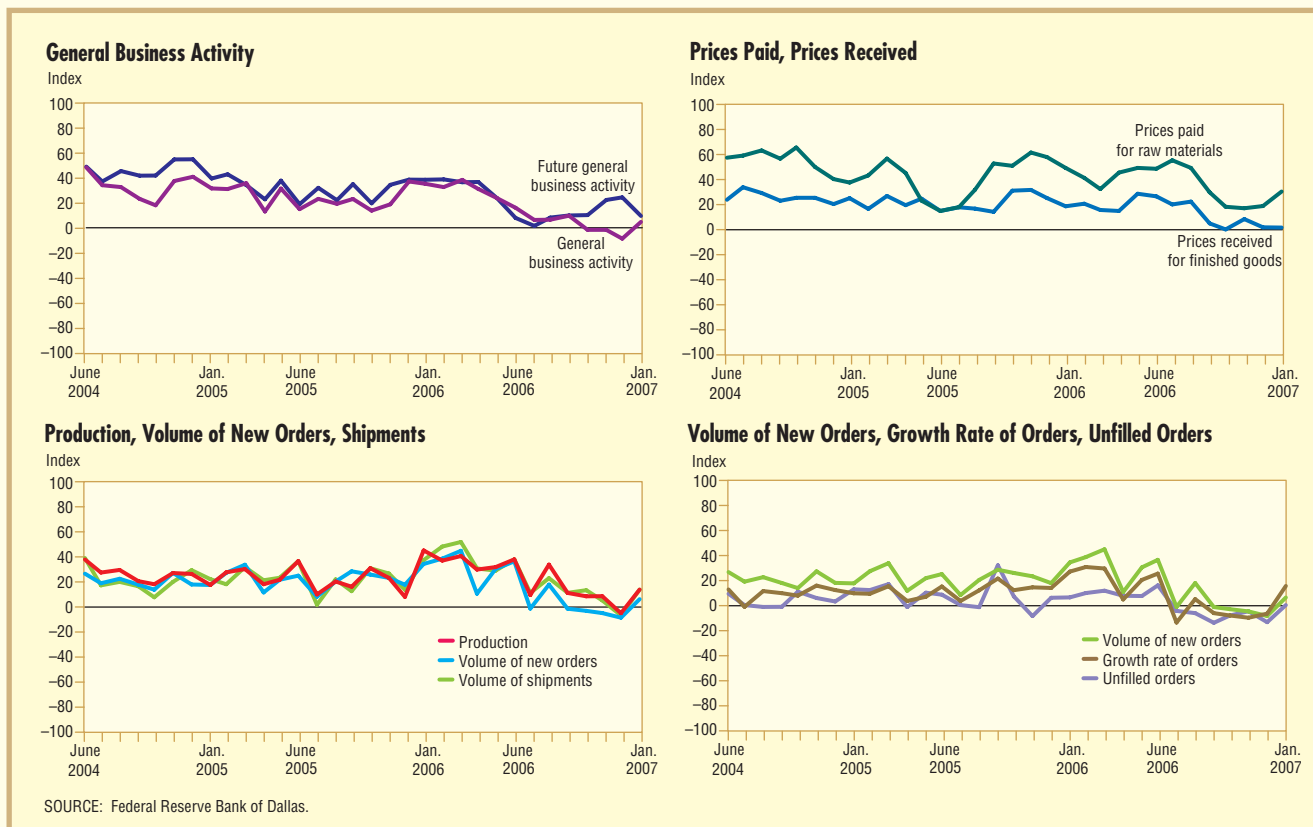
The employment diffusion index appears to help explain changes in U.S. and Texas employment. The general business activity index seems to be useful in understanding movements in U.S. and Texas industrial production. The future business activity index also appears to have some predictive power for understanding movements in U.S. industrial production over the next two months.

The Dallas Fed will continue to closely monitor the Texas Manufacturing Outlook Survey's monthly results and their ability to predict changes in the economy.

—Frank Berger, Tom Fomby, Fiona Sigalla, Mine Yücel

Note

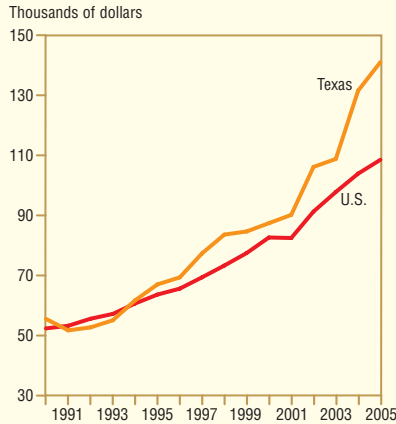
The Texas Manufacturing Outlook Survey is released on the last Monday of the month, and results are posted on the Dallas Fed web site. An electronic mailing list is available to notify recipients each month when new data are released. To subscribe, go to www.dallasfed.org and click on "E-mail Alerts" under "Tools."



Made in Texas: The Natural Selection of Manufacturing

(Continued from page 14)

Chart 4
Real Manufacturing Output per Worker: Texas and the U.S.



SOURCES: Bureau of Economic Analysis; Bureau of Labor Statistics; Federal Reserve Bank of Dallas; authors' calculations.

lower-cost countries, leaving the higher-value-added production at home. A more recent development may be even more telling: Foreign auto and semiconductor manufacturers are establishing new production facilities in the state.

In 2006, Texas reversed its decline in manufacturing employment. The state added 26,300 jobs, an increase of 2.9 percent, while the nation's manufacturing sector continued to shed positions, down 84,000, or 0.6 percent.

Manufacturing remains an important driver of the Texas and U.S. economies. Since 2004, the Dallas Fed has been collecting data from key Texas manufacturers to better understand the economy. The responses are tabulated monthly in the Texas Manufacturing Outlook Survey (see related article on page 15).

While the survey is still very young in the world of economic indicators, preliminary statistical analysis suggests this tool will help provide insights into the Texas and national economies.

Sigalla is an economist and DiMartino is an economic writer in the Research Department of the Federal Reserve Bank of Dallas.

Notes

The authors wish to thank Pia Orrenius for helpful comments. Raghav Virmani and Anna Berman provided excellent research assistance.

¹ The states of Texas, California, Indiana, Wisconsin, Illinois, Pennsylvania, North Carolina, Michigan, Ohio and New York represent 53 percent of employment and 55 percent of output in manufacturing.

² For more about maquiladoras and their effect on the Texas economy, see "A Decade of Change: El Paso's Economic Transition of the 1990s," by Jesus Cañas, Federal Reserve Bank of Dallas *Business Frontier*, Issue 1, 2002.

³ A shift-share analysis was used to break down the difference between each state's employment growth by industry and the performance of the same industry in the U.S.

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