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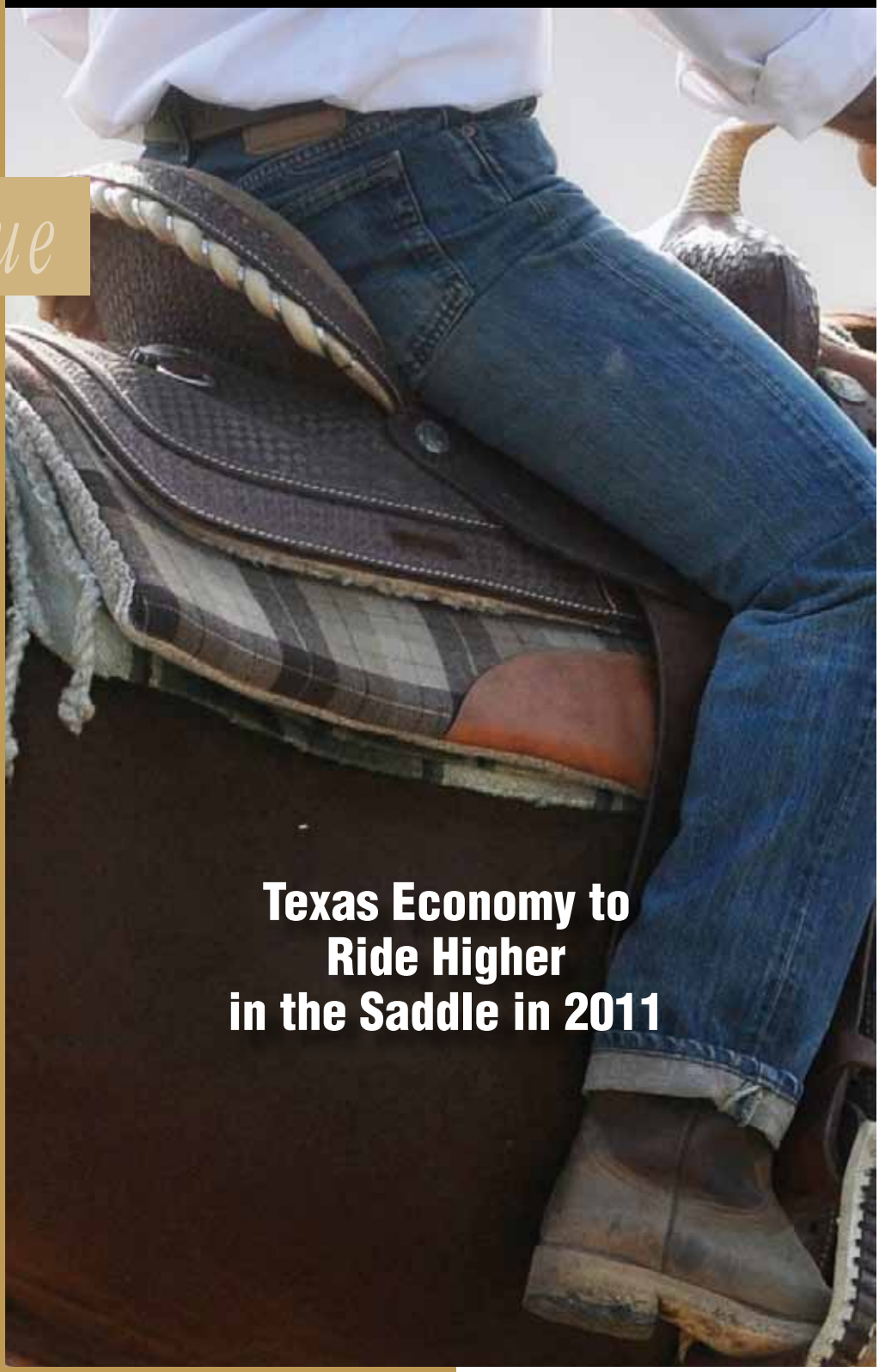
Southwest Economy

FEDERAL RESERVE BANK OF DALLAS

In This Issue



Texas Economy to Ride Higher in the Saddle in 2011

President's Perspective

As the 2011 regional outlook in this issue of *Southwest Economy* demonstrates, there is much room for Texas brag when we talk about our economy. Job expansion is expected to pick up further this year, led by exports and manufacturing, particularly high-tech. A recent report on states' competitiveness by the Beacon Hill Institute gave Texas high marks for attributes such as a low overall tax burden, exports per capita and foreign direct investment.

But the study also placed Texas near the bottom in most human capital measures. It ranked dead last in the percent of the population age 25 and older that graduated from high school, 37th in percent of population enrolled in degree-granting institutions, 35th in academic research and development and 41st in science and engineering degrees awarded.

We can't be happy that we are lagging behind in education, particularly at the high school and university levels. In the Knowledge Age, the mind is the capital plant of the modern economy. We admire those who work with their muscles in pulling prosperity from the soil on our farms and ranches, or from deep beneath the earth in our oil and gas sector. We rightly applaud those who help Texas produce almost 10 percent of the nation's manufactured goods. But the world of today and tomorrow is driven by digits, not widgets.

Education quality is determined not solely by the number of dollars we spend, but by how we spend them.

Our economy will continue to move up the value-added ladder and stay ahead of the competition—not just other states, but also China and other emerging powers—only if we nurture and harness Texas brains and attract the "best and brightest" from around the world.

The Legislature faces an enormous task. Our state's two-year shortfall, which according to Dallas Fed calculations totals roughly $20 billion, must be resolved in a way that maintains Texas' stature as a beacon of entrepreneurialism and capitalist hope in today's knowledge-based economy. We can't shortchange education. Fortunately, as Professor Lori Taylor points out in this issue's "On the Record" interview, education quality is determined not solely by the number of dollars we spend, but by how we spend them.

Legislators confronting our budgetary squeeze must remember this simple, unalterable, indisputable, critical fact: We have done well so far; our economy is mighty. But to stay ahead and compete in tomorrow's global marketplace, Texas must better educate its population.

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

Texas Economy to Ride Higher in the Saddle in 2011

By Keith R. Phillips and Emily Kerr

Strength in the high-tech and energy sectors was an important source of Texas' economic might relative to other parts of the country in 2010.

The Texas economy grew moderately in 2010, outperforming most other states. Jobs increased by 209,000, a growth rate of about 2 percent—near the state's average pace since 1980. Strength in the high-tech and energy sectors was an important source of Texas' economic might relative to other parts of the country. The state also suffered less from housing price declines.

Leading indicators, generally positive at the end of 2010, suggest an improving outlook in 2011 as consumers and businesses regain confidence in the economy. The Dallas Fed forecasting model projects Texas job growth of 2.5 percent to 3.5 percent this year.

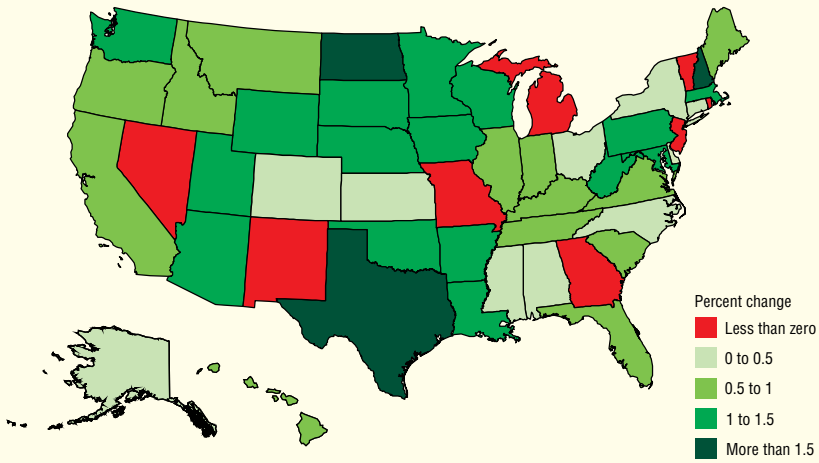
Job Growth Strong in Texas

The number of U.S. jobs expanded 0.7 percent in 2010; Texas experienced triple that rate. Texas was among three states where employment grew more than 1.5 percent (*Chart 1*). In general, energy-producing states performed better than other areas. Natural resources and mining spurred employment gains in North Dakota, South Dakota and Minnesota, for example. Eight states experienced an employment drop-off in 2010, with Nevada recording the largest decrease. Weakness there is largely tied to the struggling housing market, as prices continued falling in 2010. Nevada had the nation's highest foreclosure rate.

Looking across Texas industries, employment data in 2010 showed that support activities for mining as well as metals and machinery manufacturing—partly tied to the energy industry—were among the fastest expanding sectors last year. Professional and business services, accounting for roughly 12 percent of total Texas employment, added

Chart 1

2010 Texas Job Growth Better Than Most States



NOTE: Shown are the December 2010 year-over-year percent changes for employees on nonfarm payrolls, by state.
SOURCE: Bureau of Labor Statistics.

more than 59,000 jobs last year, a 4.8 percent annual growth rate. Health-care services, which held up through the state's recession and account for about 12 percent of Texas employment, expanded 4 percent.

Business-Cycle Index Shows Expansion

While job growth is a key economic performance measure, the Texas Business-Cycle Index (TXBCI) provides a broader view of the state's economic health. The TXBCI, which combines movements in employment, the unemployment rate and state real gross domestic product (GDP), hit a bottom in November 2009 and grew at an annual pace of 2.2 percent through December 2010.

We define periods of negative change in the TXBCI as recessions in Texas. The TXBCI's average annual growth rate during nonrecession years was roughly 5 percent prior to the most recent Texas downturn. Employment and output growth will need to continue to accelerate for the TXBCI to reach its historical expansion pace. The index increased at a healthy rate early in 2010 as the housing market picked up because of the homebuyer tax credit and a rebound in manufacturing, particularly high tech (*Chart 2*). TXBCI growth slowed during the summer, but the most recent data point shows an uptick at year-end.

Early-year strength and the midyear slowing are somewhat exaggerated by the hiring and release of temporary census workers.[1] However, other indicators and anecdotal evidence confirm that activity slowed over the summer and picked up slightly near year-end. Elimination of the most recent homebuyer tax credit and its impact on new home construction contributed to weakness.

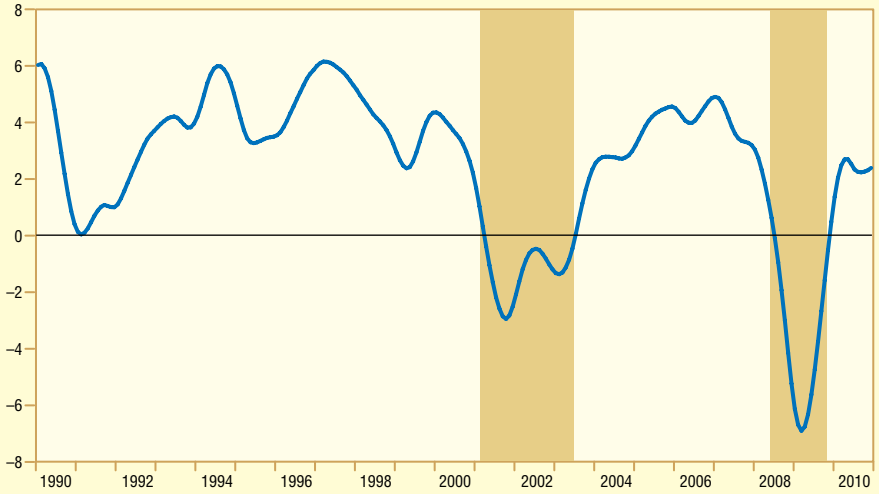
Builders of low- to moderate-priced homes, who are among contacts for the Dallas Fed's Beige Book economic report, noted a significant sales drop in May and June. Existing-home sales continued declining into the summer and began stabilizing in the fall. The value of single-family construction contracts and the number of permits issued to build single-family homes increased mildly after bottoming in early 2009, but fell again beginning around April 2010 when the tax credit expired. Home construction affects a number of jobs directly and indirectly through service industries such as real estate and home finance and through manufacturing such as production of building materials.

The Dallas Fed's Texas Manufacturing Outlook Survey, which gauges the overall health of factory activity, also indicated a slow patch over the summer, followed by a pickup toward year-end (*Chart 3*).[2] The production index, the survey's key measure of manufacturing in Texas, appears to track the state economy quite well.[3] Movements within the manufacturing sector are highly correlated with the general economy, and the production index closely mirrored turning points in the business cycle during the most recent Texas recession. After reaching high levels in the spring, the index fell substantially in June and remained at relatively low levels into early fall. Respondents' comments suggested the weakness largely came from outside the state in the form of financial market uncertainty and declining federal government stimulus money, as well as from slumping construction activity,

Chart 2

Texas Business-Cycle Index Suggests Moderate Expansion in 2010

Percent (month/month annual rate, seasonally adjusted)



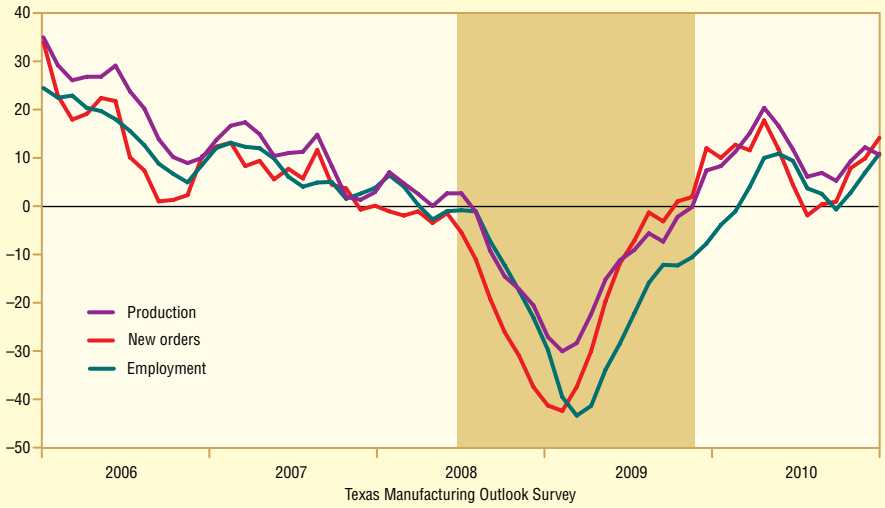
NOTES: The index is an aggregate measure of the state's current economic activity. Shaded areas represent Texas recessions.

SOURCE: Federal Reserve Bank of Dallas.

Chart 3

Texas Manufacturing Strengthens at Year-End 2010

Index (three-month moving average)

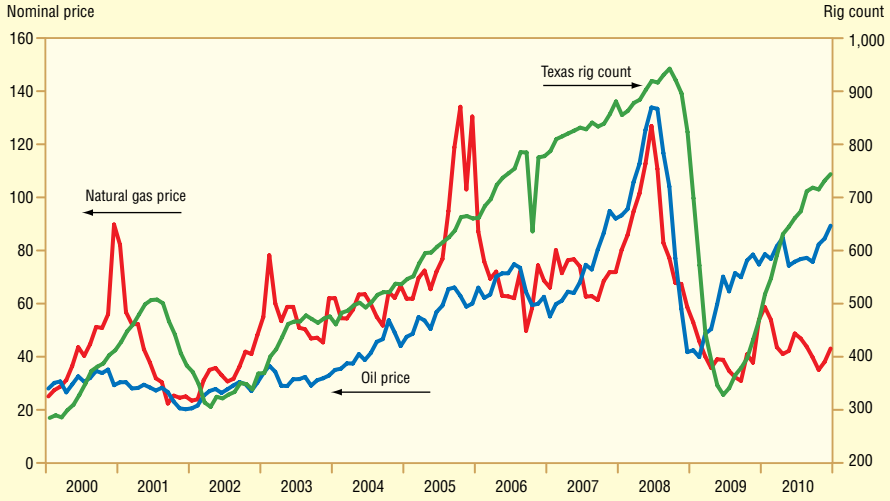


NOTE: Shaded area represents Texas recession.

SOURCE: Federal Reserve Bank of Dallas.

Chart 4

High and Steady Oil Prices Boost Texas' Energy Sector

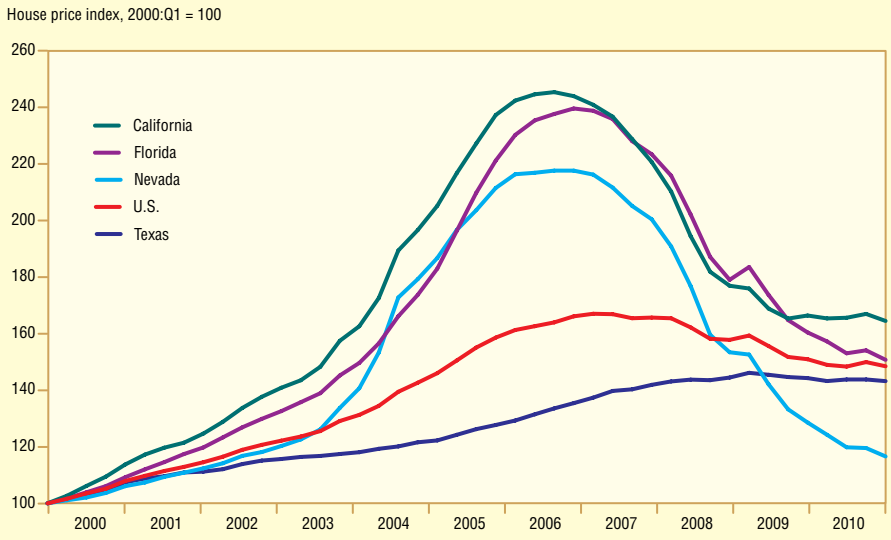


NOTES: Oil price is dollars per barrel. Natural gas price is dollars per million Btu, multiplied by 10.

SOURCES: *Wall Street Journal*; Henry Hub; Baker Hughes.

Chart 5

Texas House Prices a Stabilizing Force



SOURCE: Federal Housing Finance Agency.

related to the end of the homebuyer tax credit. The survey indicated that manufacturing growth picked up again in November and December.

Key Factors in Texas' Relative Strength

Despite the summer slowdown, Texas' growth in 2010 exceeded most other states' performance. High tech plays a significant role in the state's economy, and a recent Milken Institute study concluded that Texas has three of the top 25 U.S. high-tech centers—Dallas, Austin and Houston.[4] While high-tech manufacturers were hit hard in the first half of 2009, the sector has grown rapidly since then. For example, U.S. computer and peripheral equipment output declined year-over-year by more than 34 percent in May 2009, but by last May it was up about 17 percent.

Although regional high-tech measures are scarce, Dallas Fed Beige Book contacts reported that Texas high-tech manufacturing output grew at a rapid pace in the first half of 2010 as customers rebuilt inventories from very low levels. This production growth subsided over the summer, with the sector expanding at a slower but still healthy pace. Jobs in Austin—the Texas metropolitan area with the largest share of its economy tied to high tech—grew about 2.2 percent last year, making Austin one of the nation's fastest-growing regions.

The value of computer and electronics exports, which come under the high-tech umbrella and account for 20 percent of total Texas exports, expanded 11.0 percent in 2010. Other fast-growing export industries during this period were oil and gas (up 121.5 percent), mining (up 112.3 percent) and petroleum and coal products (up 50.6 percent). These sectors collectively make up one-fifth of total Texas exports and reflect the importance of the energy sector to the state's recovery.

Energy was vital to growth in the Texas economy last year. Oil prices were generally high and stable, fluctuating between $75 and $80 per barrel (*Chart 4*). The share of rigs drilling for oil relative to natural gas increased as natural gas prices generally fell. Although Texas rig count data are not broken down by oil and gas deployment, the overall number of U.S. oil rigs rose 13.6 percent in the fourth quarter, while the number of U.S. gas rigs slipped 3.8 percent. Early last year, some Dallas Fed Beige Book respondents were concerned about natural gas drilling falling off in the second half of 2010 due to declining prices, but in July they noted that activity remained surprisingly steady. By the fall, however, contacts began seeing a slowdown in gas-directed drilling, although increases in land-based oil drilling offset those declines. Overall, the rig count for Texas increased 59 percent last year and mining employment gained 10 percent.

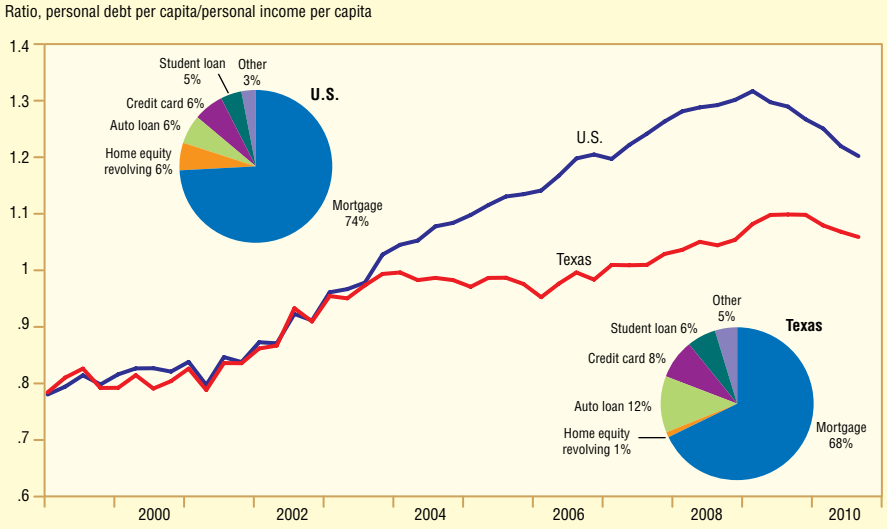
Relatively stable Texas home prices in 2010 also helped the state economy outpace the nation, where declines continued (*Chart 5*). During the national housing boom, a relatively ample supply of undeveloped land around Texas metro areas and few development regulations allowed additional housing stock without increasing home prices. Absent big price gains, Texas housing markets were less vulnerable to lax lending standards that existed in other areas of the country. In markets such as Florida and California, risky lending practices grew; in Texas, unconventional loans were not as prevalent.

The home foreclosure rate in Texas rose last year, but only to about 60 percent of the national average. While foreclosures in the state remain elevated and will continue to suppress building activity well into the year, the magnitude of the problem is less than in many other parts of the country.

Many consumers took on added debt amid the national home-price escalation from 2003 to 2006. While Texas consumers' obligations increased during the period, a less significant home-price rise helped keep debt levels from rising as rapidly as elsewhere. Texas continued to have a lower ratio of personal debt to personal income than the national average—largely reflecting Texas households' lower concentration of mortgage debt (*Chart 6*). Less leverage means that Texas consumers on average will use not as much of their income to pay down debt and may be in better financial shape. Still, debt burdens are high relative to where they were at the start of the decade and likely will continue restraining expenditures. Consumer spending, while not robust, picked up somewhat last year. In particular, the three-month moving average of real, seasonally adjusted retail sales in Texas increased 5.8 percent in the first 11 months of 2010 but remained about 4.1 percent below the peak reached in November 2008.

Chart 6

Texas Households Less Burdened With Debt Than U.S.



SOURCES: Bureau of Economic Analysis; Census Bureau; Federal Reseve Bank of New York Consumer Credit Panel.

Leading Indicators Suggest Improvement

On the heels of modest growth at the close of last year, several Texas leading indicators suggest continued improvement going into 2011. One such measure is the Texas Leading Index, which uses eight key measures to forecast future economic activity (*Chart 7*).[5] With the exception of average weekly hours—an average of weekly hours worked by manufacturing industry production workers—all of the components of the Texas Leading Index were either flat or increased during the three months ended in December.

The Texas Value of the Dollar uses weights based on Texas' export trade volumes with various countries. Declines in this measure, representing positive contributions to the Leading Index, should provide stimulus for Texas exports by making goods produced in Texas less expensive to foreign buyers.

The increase in stock prices of Texas-based companies is a reflection of earnings growth and a positive outlook for businesses. New unemployment claims filings, a leading indicator of both job growth and future changes in the unemployment rate, have also fallen, signaling labor market improvement. Recent changes in energy indicators have generally been positive, and help-wanted newspaper advertising volumes have held steady.

Other leading indicators have also increased. Because firms often hire temporary employees before they add permanent workers—and terminate those interim personnel first when the economy weakens—employment agency jobs are a good leading indicator of overall hiring. Jobs in this sector grew at a 15.7 percent rate in 2010. Beige Book respondents in the staffing services industry recently reported an increase in direct hires, or positions offered on a permanent basis, a good sign that businesses are becoming more confident that demand will be sustained.

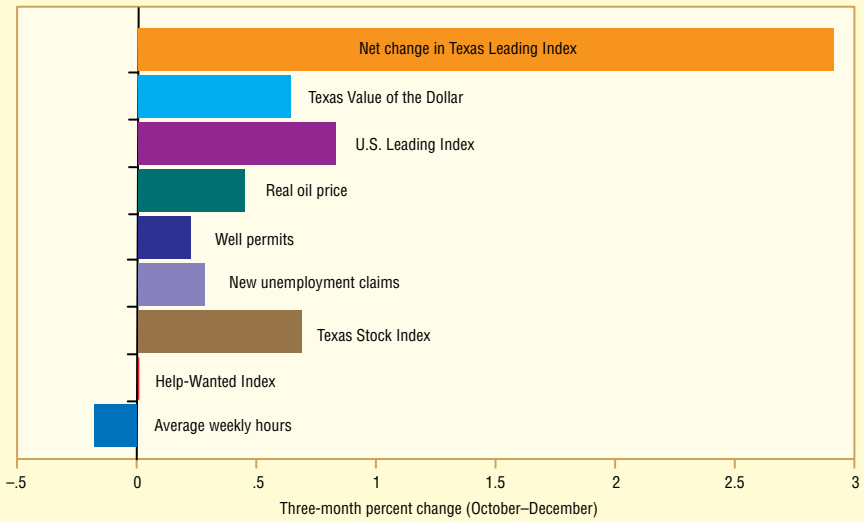
The Texas Manufacturing Outlook Survey also suggests continued expansion. With the production index and the new orders index ending the year with positive readings, Texas can hope to see sustained growth in manufacturing output in coming months. The survey's labor market indicators picked up toward the end of 2010, and in December, 98 percent of manufacturing firms expected employment to increase or remain unchanged over the next six months. Manufacturers' expectations for production, new orders and capacity utilization continued improving, as these six-month-ahead indexes rose to their highest levels since January 2010.

Factors Restraining Growth

Two factors likely to restrain Texas economic growth this year are persistent weakness in construction and the state budget shortfall's downward pressure on public spending. Building activity in Texas hit a bottom in 2009 and increased slightly last year. Overall construction is likely to increase only modestly in 2011, remaining at subdued levels. On the residential side, Dallas Fed Beige Book contacts still report sluggish sales and weak homebuilding and retain a cautious outlook. Foreclosures and high inventories will continue depressing building activity. Commercial construction remains weak and won't likely improve much this year. For instance, the Dallas Fed's aggregate metro-adjusted office vacancy rate in Texas was 18.3 percent in the third quarter. In the past, new office construction did not grow significantly until that rate fell below 16 percent. This is unlikely to happen in 2011. Retail construction will probably remain weak since much new activity tends to follow the growth of new homebuilding.

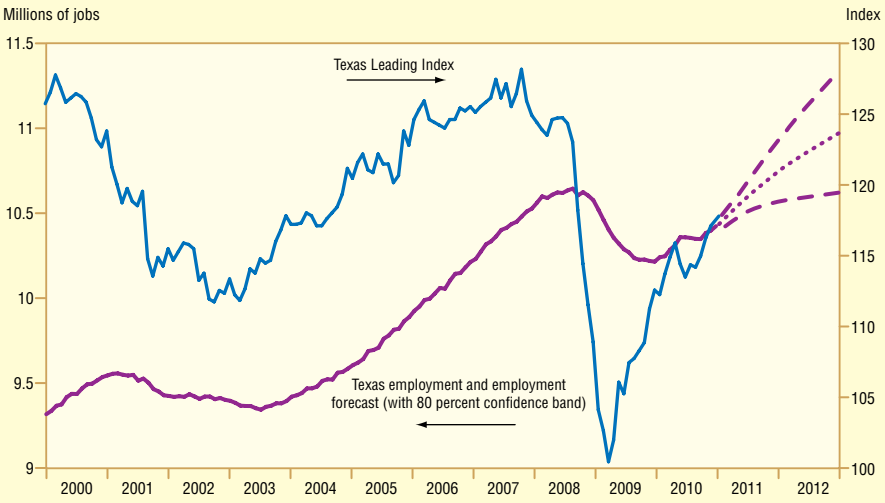
The state budget shortfall poses another restraint to economic growth. Due in part to increased Medicaid and other social welfare expenditures, less-than-expected business tax revenue and the expiration of stimulus funding, Texas faces a shortfall estimated at more than 10 percent of the state's budget for the 2012–13 biennium.[6] To close the gap, lawmakers may need to cut spending or

Chart 7
Leading Indicators Giving Positive Signals for Growth for 2011



NOTE: The index is a composite of eight leading indicators that can predict movements in the state economy.
SOURCE: Federal Reserve Bank of Dallas.

Chart 8
Texas Jobs Forecasted to Increase 2.5 to 3.5 Percent in 2011



SOURCES: Federal Reserve Bank of Dallas; Haver Analytics.

raise taxes or both, which in turn will slow demand growth in the recovering economy. Additionally, the state could decide to tap its rainy day fund to meet some of its obligations.

Looking Ahead at 2011

In 2011, many of the same factors that influenced Texas' growth last year will continue playing a role in the state's rebound. Exports and manufacturing, particularly high-tech, should continue moderate growth, slower than in early 2010 but faster than in the second half of last year. Consumer spending should increase at a slightly quicker pace as consumers grow more positive about the recovery's sustainability and face lower debt-to-income levels. Energy will likely continue to be a positive, while construction will add only slightly to growth, and state and local government could become a negative force.

The pace of job expansion is expected to pick up in 2011 (*Chart 8*). This forecast is based on data adjusted to exclude temporary census workers. Overall, movements in the Texas Leading Index suggest that 261,000 to 374,000 jobs will be added. This would cause employment growth to surpass the 30-year average Texas rate of roughly 2 percent. According to the forecast, Texas will surpass its prerecession employment peak sometime around December. This pace of growth is consistent with the Texas unemployment rate falling to about 7 percent by the end of 2011, from 8.3 percent in December. Even with the expected decline, Texas will likely conclude the year with unemployment well above the state's average rate since 1990 of 6 percent.

Phillips is a senior research economist and advisor at the San Antonio Branch of the Federal Reserve Bank of Dallas and Kerr is an assistant economist in the Research Department of the Federal Reserve Bank of Dallas.

Notes

[1] Using a deviation from a linear trend in federal civilian workers, we estimate that the number of temporary census workers in Texas averaged 7,761 from July 2009 to September 2010. The largest numbers of workers occurred from March 2010 to July 2010, and the peak level was 39,130 jobs in May 2010.

[2] The Texas Manufacturing Outlook Survey can be found online at www.dallasfed.org/data/outlook.

[3] See "Texas Manufacturing Survey Offers Advance Look at State and National Economies," by Franklin D. Berger, Federal Reserve Bank of Dallas *Southwest Economy*, Third Quarter, 2010.

[4] "North America's High-Tech Economy: The Geography of Knowledge-Based Industries," by Ross C. DeVol, Kevin Klowden, Armen Bedroussian and Benjamin Yeo, Milken Institute, June 2009, www.milkeninstitute.org/nahightech/nahightech.taf.

[5] A description of the Texas Leading Index and its components can be found online at www.dallasfed.org/data/basics/definitions.html#leading.

[6] See "Poor State Finances Deepen Recessionary Hole," by Jason Saving, Federal Reserve Bank of Dallas *Southwest Economy*, Fourth Quarter, 2010.

OnTheRecord

A Conversation with **Lori Taylor**

PISA Results Shed New Light on U.S. Education Debate

Lori Taylor, associate professor at Texas A&M University's Bush School of Government and Public Service, is an expert on the costs of education. She reviews test results from the Program for International Student Assessment, known as PISA, administered through the Organization for Economic Cooperation and Development (OECD). The exam is given every three years to 15-year-olds in nations across the globe—most recently in 2009 to students in 65 countries. Results were released late last year.

Q. What nations stand out with respect to student scores? Any surprises?

A. Many countries in Asia performed particularly well on the PISA exams.[1] Children from China, Korea, Japan and Singapore did significantly better than the average for OECD countries in all three assessment areas—reading, math and science.

This was the first time that students from mainland China were included in PISA, and only students from Shanghai, Macao and Hong Kong were tested. Therefore, China's results may not reflect the country as a whole. Nevertheless, the level of performance was impressive.

Of course, Asian countries were not the only ones to perform well on the PISA exams. Students from Finland, Canada, New Zealand, Australia, Belgium and the Netherlands also did better than the OECD average across the board. At the other end of the spectrum, seven OECD countries (Mexico, Chile, Turkey, Israel, Luxembourg, Spain and Italy) and many of the non-OECD countries performed significantly below the OECD average in all three subject areas.

Q. In what areas do U.S. students outperform? Underperform?

A. Students from the U.S. performed at or slightly above the OECD average in reading, at the OECD average in science and significantly below the OECD average in mathematics. Among the 34 OECD countries, the U.S. ranked 14th in reading, 17th in science and 23rd in mathematics.

The U.S. fell particularly short in the share of students achieving the highest level of math performance. Only 2 percent of U.S. students reached the top rung. By comparison, more than 4 percent of students in Canada, Finland, Korea and eight other OECD countries attained that level—as did 11 percent of the Hong Kong students and 27 percent of the Shanghai pupils.

Even average performance on PISA is in many ways disappointing. According to the OECD, "Level 2 on the PISA reading scale can be considered a baseline level of proficiency, at which students begin to demonstrate the reading competencies that will enable them to participate effectively and productively in life."[2] In 2009, 18 percent of U.S. 15-year-olds failed to reach that level of proficiency. While 18 percent below the baseline in reading is close to average for OECD countries, it cannot be acceptable if we hope to have a functioning, literate society.

The U.S. performance in reading and mathematics was essentially unchanged from earlier comparisons of international performance, but science was significantly improved. It was largely due to gains at the low end of the performance scale. The share of U.S. students achieving only the lowest levels of proficiency in science stood at 18.1 percent in 2009, an improvement from 24.4 percent in 2006. The share of U.S. students achieving only the lowest levels of proficiency in mathematics also fell slightly—to 23.4 percent in 2009 from 25.7 percent in 2003—but the difference is not statistically reliable. Even after the improvements, however, we remain no better than the OECD average in science.

Q. Can cross-country differences tell us anything about why U.S. students do poorly in math?

A. There seem to be three interesting patterns that help differentiate high-performing countries from low-performing ones. First, countries that spend their education resources on high-quality teachers tend to perform better than countries that spend their education resources on lower pupil–teacher ratios. Second, gaps in performance between economically advantaged and disadvantaged students tend to be smaller in countries that use standards-based external examinations. Finally, early childhood education seems to matter. School systems with a larger share of students who attended prekindergarten classes seem to have higher levels of student performance among 15-year-olds.

Q. Do rich countries always have higher-performing students? Is education funding the main explanatory variable?

A. There isn't much of a relationship between education funding and student performance on PISA. U.S. mediocrity is clearly not attributable to a lack of resources devoted to education. Only Luxembourg spends more per pupil on schools than the U.S.

There is a little more evidence that how schools spend the money matters. For the same amount of money, a country can choose to have higher teacher salaries and larger class sizes or lower teacher salaries and smaller class sizes. The PISA results sug-

"Countries that spend their education resources on higher teacher salaries tend to perform better than countries that spend their education resources on lower pupil–teacher ratios."

gest that countries that spend their education resources on higher teacher salaries tend to perform better than countries that spend their education resources on lower pupil–teacher ratios. The U.S. is a low salary/low-class-size country.

Q. How does socioeconomic status play into students' results? How about immigrant status?

A. The U.S.'s mediocre performance is also not attributable to a high fraction of immigrant students. Although students from an immigrant background generally performed less well on PISA exams, excluding immigrants raises the average U.S. reading score only slightly (to 506 from 500). On the other hand, the higher fraction of economically disadvantaged students helps explain the results. Across countries, differences in the students' socioeconomic status can account for 14 percent of the difference in reading performance. However, poverty is not destiny. As the PISA scores illustrate, it is not uncommon for students from the poorest 25 percent of a country's population to exceed expectations and place among the top 25 percent of students (after accounting for socioeconomic background). The PISA report calls such students "resilient." In the U.S., 28 percent of the economically disadvantaged students are considered resilient; in Korea, Shanghai and Hong Kong, economically disadvantaged students are roughly twice as likely to be considered resilient.

"Socio-economic disadvantage translates more directly into poor educational performance in the United States than is the case in many other countries," according to the PISA report.[3] In general, PISA results suggest that economically disadvantaged students who attend schools where most of their peers are also economically disadvantaged tend to perform poorly, while economically disadvantaged students who attend schools where most of their peers are economically advantaged tend to perform better. It isn't clear whether these performance differences arise because schools with few economically disadvantaged students tend to have lots of resources or because having advantaged peers affects student performance; it's probably both. Quite likely, we may not be as aggressive as other countries at targeting additional resources to low-income schools and kids.

Q. What is the most important takeaway for U.S. policymakers from the PISA results? Are there international or regional differences from which we can learn?

A. The education system in the U.S. is broken. We spend more than nearly every other country on K–12 education, and our performance is mediocre at best. We have to make education reform a policy priority and rethink almost everything about how we go about accomplishing our educational goals.

We especially need to do a better job of integrating educational research into the design and implementation of education policy. For example, there are dozens of studies telling us that high-quality teachers are the cornerstone of high-quality schools. However, those studies also tell us that the teacher characteristics that largely determine a teacher's pay—years of experience and advanced degrees—are not good indicators of teacher quality. There are lots of outstanding teachers with only a few years of experience—and too many ineffective teachers with more than 20 years of experience. It is a waste of scarce resources to base teacher pay on things that don't translate into classroom effectiveness. We need to get away from the rigid salary schedules found in many U.S. school districts and do a better job of rewarding teaching excellence rather than teaching endurance.

We also need to do a better job of holding onto our best teachers. The Bureau of Labor Statistics estimates that over 60,000 teachers were laid off during 2009. One of the minor tragedies of the budget crises triggering many of those terminations is that seniority rules in states such as California, Ohio, New York, New Jersey and Pennsylvania prevented school districts from taking quality into consideration when deciding who to let go. Last hired were first fired, no matter how effective they were in the classroom. Texas is one of the few states where classroom performance has been the deciding factor in layoff decisions. More states need to follow Texas' lead on this issue.

Policymakers should also become a little more flexible in their approach to class-size regulations. States and countries that focus on maintaining small class sizes find it difficult to staff all those classrooms with high-quality teachers. The PISA results indicate that countries that emphasize teacher quality over teacher quantity (by paying higher salaries and accepting larger class sizes) tend to outperform other countries.

The PISA results also suggest that standardized tests can have a positive impact on school systems. In particular, PISA researchers found that gaps in student performance between economically advantaged and disadvantaged students tend to be smaller in countries that use standards-based external examinations. Such examinations are an important part of the No Child Left Behind Act, which is up for reauthorization. The Obama administration has proposed a number of changes to the law that should strengthen it—but pointedly has not backed away from the basic premise that students should be tested regularly and that school districts should be required to publish the results. In fact, the Obama administration has strongly encouraged states to adopt more rigorous and consistent educational standards and to hold school districts accountable for meeting those standards. I think that approach has considerable potential.

Notes

[1] See www.oecd.org/edu/pisa/2009.

[2] See, www.pisa.oecd.org/dataoecd/32/50/46623978.pdf, p. 29.

[3] See note 2, p. 34.

Oil and Gas Rises Again in a Diversified Texas

By Mine K. Yücel and Jackson Thies

The industry is still contributing positively to Texas output and employment, though in a less-pronounced way than during the prior oil boom 30 years ago.

The oil and gas industry has been a driver of the Texas economy for the past 40 years. Its contribution declined with the oil-led recession of 1986 and appeared to slip further in the 1990s as the high-tech industry boomed. But oil and natural gas prices have risen since 1999, reaching record highs in 2008. This resurgence has boosted energy activity and factored into the recent economic recovery in Texas, affirming the industry's long-held prominence in the state (*Chart 1*).

An econometric model developed by the Federal Reserve Bank of Dallas documents the state's evolving energy fortunes since the late 1990s. It shows that the industry is still contributing positively to Texas output and employment, though in a less-pronounced way than during the prior oil boom 30 years ago.

Oil and Gas in Texas

Texas is the country's largest producer of oil and gas. Though production of both peaked in 1972, the state still accounts for 20 percent of oil and 33 percent of natural gas extraction in the United States. Of the state's 254 counties, 223 are active in oil and gas production. More than 200,000 people work in exploration, production and oil services statewide.

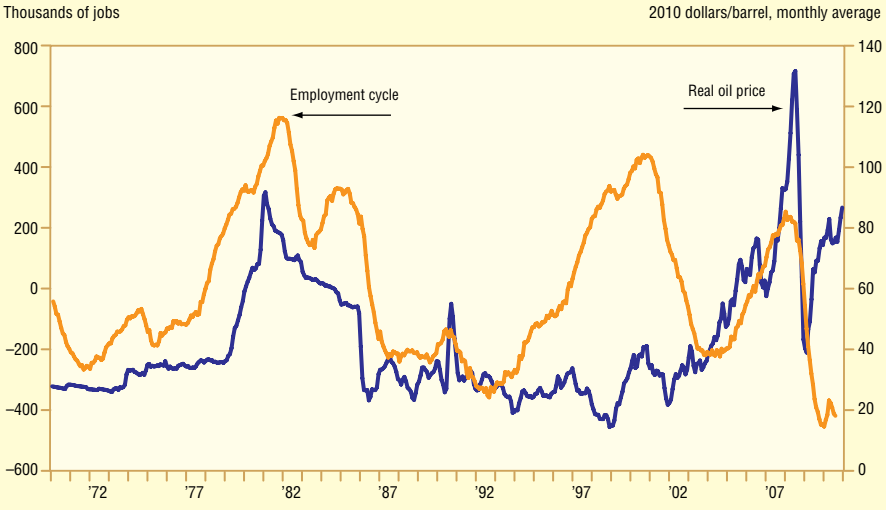
Additionally, a substantial portion of Texas manufacturing is in refining and petrochemicals, which use oil and gas as inputs. Both industries are capital intensive, making their share of overall employment relatively small. Refining and petrochemical employment has declined since the late 1960s from a little more than 2 percent to around 0.5 percent. These industries accounted for less than 2 percent of Texas gross domestic product (GDP) on average in the 1970s to 1990s, rising only recently in the mid-2000s. Extraction is sensitive to energy price changes, while refining and petrochemicals seem less responsive. The expanding global economy has been an important driver of the growth in refining and petrochemicals output (*Chart 2*).

How do changing oil and gas prices affect the Texas economy?

Increasing energy prices boost employment and output in oil and gas extraction-related industries. Moreover, demand grows for products and services the oil and gas industry uses. An increase in oil and gas production anywhere benefits the state and its energy sector, which provides oilfield machinery and energy services to the rest of the world. Severance tax payments on oil and gas extraction benefit the state; sales taxes flow to local governments and royalty payments to individuals.

However, higher oil prices are a negative for the downstream refining industry because they mean higher input costs. Texas petrochemical plants use natural gas instead of oil, making gas prices of primary importance. Because the rest of the world uses mostly oil as a petrochemical input,

Chart 1
Texas Employment Cycle and Oil Prices

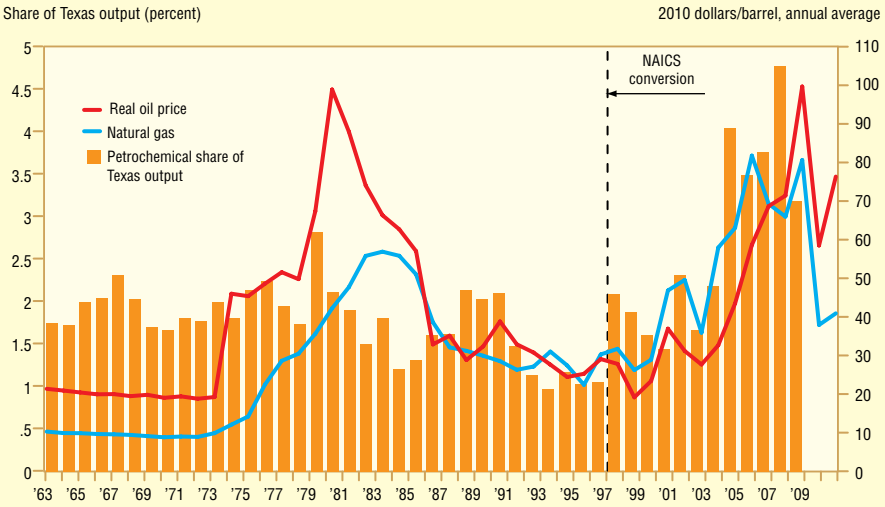


NOTE: The employment cycle is calculated by subtracting a time trend from total nonfarm employment.

SOURCES: Bureau of Labor Statistics; *Wall Street Journal*; Texas Workforce Commission; calculations and adjustments by the Federal Reserve Bank of Dallas.

Chart 2

Refining and Petrochemicals Output Share Rises

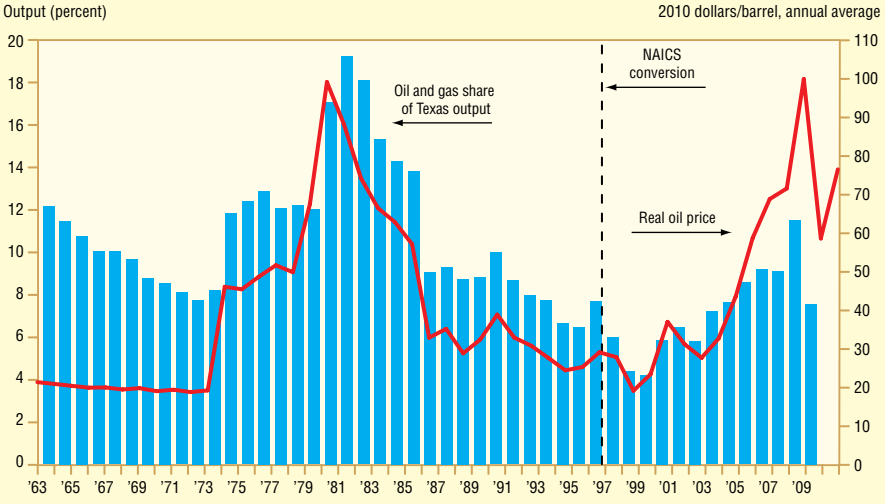


NOTES: NAICS, the North American Industry Classification System (NAICS), was adopted in 1997 to replace the Standard Industrial Classification system (SIC). NAICS and SIC industry classifications do not align perfectly, causing a slight shift in data at the conversion in 1997. Gas price multiplied by 10.

SOURCES: Bureau of Economic Analysis; Energy Information Administration; calculations and adjustments by the Federal Reserve Bank of Dallas.

Chart 3

Oil and Gas Output Share Reflects Energy Prices



NOTE: NAICS, the North American Industry Classification System (NAICS), was adopted in 1997 to replace the Standard Industrial Classification system (SIC). NAICS and SIC industry classifications do not align perfectly, causing a slight shift in data at the conversion in 1997.

SOURCES: Bureau of Economic Analysis; Energy Information Administration; calculations and adjustments by the Federal Reserve Bank of Dallas.

Higher energy prices have been a net benefit for the Texas economy, with gains in the upstream extraction-related industries more than offsetting losses downstream.

the differential between oil and gas prices makes Texas plants extremely competitive when gas is cheaper per unit of energy.

Higher energy prices have been a net benefit for the Texas economy, with gains in the upstream extraction-related industries more than offsetting losses downstream.

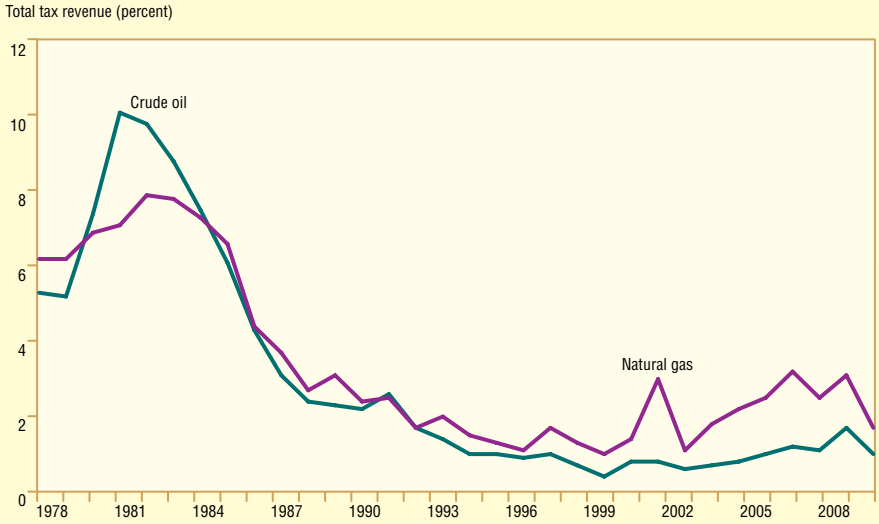
The Boom and Bust

As the price of oil rose in the 1970s to $30 per barrel from $3.35, oil's economic impact increased.[1] At the height of the boom in 1981, oil and gas extraction employment accounted for 5 percent of total nonfarm employment in Texas, and output amounted to 18 percent of total Texas GDP (*Chart 3*). Oil and gas severance tax revenues made up almost one-fifth of state tax revenues in 1981 (*Chart 4*).[2]

As oil prices started to decline from a

Over the past decade, the energy industry has reemerged. Strong growth in global economies, especially in Asia, produced robust energy demand and put upward pressure on oil prices.

Chart 4
Oil and Gas Tax Revenue Share Peaks in Texas During 1980s Boom



SOURCES: Bureau of Labor Statistics; Texas Comptroller of Public Accounts; calculations and adjustments by the Federal Reserve Bank of Dallas.

then-record high of $37 per barrel in 1981, the share of oil and gas extraction in employment and output tumbled, as did oil and gas-related taxes. Oil prices collapsed to $11 in 1986, and Texas fell into a deep recession. In 1986 and 1987, almost 300,000 people left the state. From 1981 to April 1987, when job losses eased, oil and gas industry employment had shrunk by more than half, or 212,100 jobs. The rig count, almost 1,500 at the height of the boom, plunged 83 percent to 255.

Economic Diversification

Following the 1986 recession, the Texas economy diversified away from oil and gas, and energy's share of employment and output declined. From 1987 until the onset of the 2001 recession, the mining industry (mainly oil and gas) grew only 18 percent, while total Texas output jumped more than 113 percent. The collapse of oil prices, again to $11, in late 1998 following the Asian debt crisis further pushed the energy industry downhill. Oil and gas' share of output reached its lowest level, 4.1 percent, in 1999. The sector's employment share also reached its nadir, 1.4 percent and 125,000 jobs, in 1999.

Reversal of Fortune

Over the past decade, the energy industry has modestly reemerged. Strong growth in emerging economies, especially in Asia, produced robust energy demand and put upward pressure on oil prices. The price of West Texas Intermediate (WTI) crude rose to a record $136 in July 2008. After hitting a low of $2 per million British thermal units (MMBtu) in 1998, natural gas prices followed oil, reaching $12.64 per MMBtu in September 2008. Earlier this year, WTI hovered near $90 and spot natural gas prices were around $4.50.

Texas oil and gas activity rose as prices climbed. As seen in Chart 3, Texas' share of output attributable to energy activity increased along with oil prices. By 2008, oil and gas extraction had reached 11.4 percent of total Texas output. The Texas rig count also climbed, attaining a high of 946 in September 2008, a 26-year peak. Oil and gas extraction employment rose to a 2.1 percent share of total employment in 2008.

In contrast to the energy sector's heyday, natural gas rather than oil drove industry activity in Texas in the mid-2000s. Production of natural gas from shale, starting in the Barnett Shale west of Fort Worth, has been a major driver in the sector in the 2000s. The increase in activity was a boon to state and local economies. Severance taxes from natural gas reached $2.7 billion in 2008—almost twice the tax revenue generated by oil production and a record high even after adjusting for inflation.

Examining Energy Price Shocks

To analyze the changing impact of oil and gas prices on the Texas economy over

Table 1

Effect of a 10 Percent Increase in Energy Prices on the Texas Economy

Oil	GDP (percent)	Employment (percent)	Rig count (percent)
1970–87	1.9	1	10
1988–97	No effect	No effect	2.6
1997–2010	0.5	0.36	6.2

Natural gas	GDP (percent)	Employment (percent)	Rig count (percent)
1974–87	No effect	0.6	No effect
1988–97	No effect	No effect	No effect
1997–2010	0.3	No effect	4.9

NOTE: 1997 is split at midyear.
SOURCE: Authors' calculations.

the past 40 years, we developed an econometric model that captures the effect of price shocks on employment, nominal GDP and drilling activity. Oil prices are studied from 1970 to 2010, gas prices from 1974 to 2010.[3]

To examine the differential effects, we analyze oil and gas price shocks separately. In the 1970s and 1980s, prices were strongly linked because oil and natural gas were close substitutes in electricity generation and heating.[4] That relationship changed, becoming weaker after 2005.[5] Our results are consistent with the stronger price linkage in earlier years and the weaker ties later on.

The econometric tests show two data break points, 1987 and 1997. This implies that the relationship between oil and gas prices and Texas employment and output changed after the oil bust in 1986 and again in 1997.

To determine how these relationships evolved, we estimate how Texas employment and output respond to a 10 percent rise in oil or natural gas prices in each of three periods—pre-1988, 1988 to mid-1997 and mid-1997 to 2010.

The Texas economy's response to oil and natural gas price shocks differs significantly in the three time frames (*Table 1*). In the pre-1988 period, a 10 percent oil price increase leads to an almost 2 percent GDP increase, a 1 percent rise in employment and a 10 percent jump in the rig count. A 10 percent shock to natural gas prices produces a 0.6 percent employment gain while failing to significantly affect GDP or the rig count.

From 1988 to mid-1997, energy price increases do not significantly impact GDP or employment, perhaps because the state economy diversified away from oil and gas. The effect on drilling is smaller in this period than in the others.

The most recent time frame encompasses the spectacular rise and subsequent fall in both oil and gas prices and the decoupling of oil and natural gas after 2009. Record high oil prices spawned a huge increase in global oil activity and brought both business and revenue to Texas.

Although energy price shocks still aid the Texas economy in this period, the effects of a 10 percent oil price increase are smaller than in the first period. The increase leads to gains of 0.5 percent in GDP, 0.36 percent in employment and 6.2 percent in the rig count.

A 10 percent natural gas price jump leads to gains of 0.3 percent in GDP and 4.9 percent in the rig count. The price increases do not affect employment significantly. In general, these results are consistent with the development of the Barnett Shale and the increase in natural gas production.

Price Impact on Texas

The Texas economy has undergone a major sectoral shift in the past 40 years. The economy has evolved from one dependent on oil and gas in the 1970s and early 1980s to one in which oil and gas extraction accounts for just 2 percent of employment and 11.4 percent of output.

Despite its decline in importance, the oil and gas industry remains a potent force. Price increases still benefit the state overall, but to a lesser degree than at the height of the oil boom.

Yücel is a vice president and senior economist and Thies is a senior research analyst in the Research Department of the Federal Reserve Bank of Dallas.

Notes

[1] Oil prices referenced refer to West Texas Intermediate oil prices sourced from the *Wall Street Journal*. Natural gas prices referenced refer to wellhead prices as reported by the Energy Information Administration. Prices noted are nominal unless otherwise specified.

[2] The tax on natural gas has been 7.5 percent of market value at the wellhead since 1969; the rate on oil and condensate has been 4.6 percent since 1952.

[3] The two time frames differ due to a lack of monthly natural gas price data before 1974.

[4] "What Drives Natural Gas Prices?" by Stephen P.A. Brown and Mine K. Yücel, *The Energy Journal*, vol. 29, no. 2, 2008, and "The Relationship Between Crude Oil and Natural Gas Prices," by Jose A. Villar and Frederick L. Joutz, Energy Information Administration, October 2006.

[5] "The Weak Tie Between Natural Gas and Oil Prices," by David J. Ramburg and John E. Parsons, Massachusetts Institute of Technology, Center for Energy and Environmental Policy Research Working Paper no. 10-017, 2010.

NoteWorthy

QUOTABLE: *"Encouraging signs are present in manufacturing and services, with a marked pickup in temp employment and initial signs that direct hiring is on the upswing."*

—Jason Saving, Senior Research Economist and Advisor

NEW TEXANS: Other States Provide One-Third of Arrivals After 2005

Texas' population stands at 25.1 million, a gain of 4.3 million, or 20.6 percent, in the past 10 years, according to the 2010 census. In terms of people, Texas had the most growth of any state, and by percentage, it ranked fifth, trailing Nevada, Arizona, Utah and Idaho.

In the first half of the decade, international migration accounted for a larger portion of Texas' growth than domestic movement. In the latter half, the reverse was true. Net migration from other states (including Hurricane Katrina arrivals) made up roughly one-third of the growth and international inflows about one-fifth. Net births were responsible for the rest.

People are relocating from other states, in part, because of Texas' economic strength and ability to attract businesses. *Site Selection* magazine's business climate rankings have placed Texas near the top over the past decade; the state was third in 2010. CNBC picked Texas as the top state for business in 2010, while *Forbes* named Texas the seventh-best state for business and careers.

In 2010, the Milken Institute's rankings of best U.S. metros by job creation and economic growth placed five Texas cities in the top 10 among large metros. Military-dominated Killeen–Temple–Fort Hood (No. 1) and El Paso were on the list, as were Austin–Round Rock, McAllen–Edinburg–Mission and Houston–Sugar Land–Baytown. College Station–Bryan and Tyler were among the 10 best small metros.

—Yingda Bi

MEXICAN POPULATION: Decennial Census Reveals Surprising Growth

Mexico's resident population increased 15.2 percent to 112.3 million in 2010, up from 97.5 million 10 years earlier, the nation's census shows.

Surprisingly, Mexico's head count was 3.9 million higher than previously estimated. Reasons cited by the Mexican statistical agency Instituto Nacional de Estadística y Geografía (INEGI) include decreased emigration in the second half of decade—most likely due to the U.S. recession—and a higher-than-expected fertility rate.

U.S. construction, a destination industry for many migrant workers, suffered during the recession. Construction employment is 27 percent below its 2006 peak. In addition, the fertility rate came in at 2.2 children per woman. The projected rate was 2.04, authorities said.

INEGI released the first results from its decennial census late last year. The data showed that women are in the majority in the country at 57.5 million, compared with 54.8 million men.

In terms of population size, Mexico is the 11th-largest nation in the world. It ranks third in the Western Hemisphere, trailing the United States (308.7 million) and Brazil (190.7 million).

The four Mexican states bordering Texas—Chihuahua, Coahuila, Nuevo Leon and Tamaulipas—represent 12.5 percent of the nation's population. Mexico is predominantly urban, with 76.9 percent of the population living in cities.

—Jesus Cañas

HIGHER EDUCATION: Texans Return to Classroom as Employment Lags

It's not unusual for people to go back to school when the economy falters and jobs are hard to find. Texas payroll employment fell 2.8 percent in 2009—and public higher-education enrollment soared in the state.

Community colleges posted a year-over-year increase of 12.2 percent, compared with 3.4 percent average growth since 1994, and four-year university enrollment expanded 4.5 percent, above the 1.9 percent historic rate.

The last recession generated a similar spike, beginning in 2001 and peaking in 2002, when community colleges saw an increase of about half their recent gain and four-year schools matched their current performance. As employment sagged in 2008, enrollment jumped again. When jobs began to reappear last year, preliminary data suggest, community college enrollment growth remained high, but slowed. Four-year university enrollment continued unabated.

Greater pursuit of higher education in times of lower employment stands to benefit the Texas economy in years to come, though an enrollment increase doesn't necessarily translate into a greater proportion of degrees granted.

According to 2008 data from the Integrated Postsecondary Education Data System, 21.7 percent of students in Texas two-year colleges receive an associate's degree within three years, while 49 percent of the state's four-year university students earn a bachelor's degree within six years.

—Adam Swadley

SpotLight

Educational Opportunity

Does Low-Income Housing Tax Credit Hurt Nearby Schools?

The largest federal program designed to increase the rental housing supply for poor working families helps them find living space in decent neighborhoods with good schools. It also encounters frequent neighborhood opposition.

The low-income housing tax credit (LIHTC) program, created under the Tax Reform Act of 1986, subsidizes developers who construct market-quality, multifamily units or renovate older structures for rent to low-income tenants at below-market rates.

Homeowners in more-affluent areas often resist the housing in their neighborhoods, citing concerns that new residents will flood public schools and crowd classrooms, negatively influencing existing students and competing for limited educational resources. There are also worries that adding more low-income pupils to struggling schools in poor areas may overburden educators and facilities, ill-serving students even while helping reduce the financial burden on parents.

Texas allocated approximately $750 million in tax credits to developers from 1989 to mid-2009, creating almost 200,000 affordable housing units, 90 percent of them reserved for low-income residents. Suburban counties, though lacking large low-income populations, attract LIHTC investors drawn to a greater supply of vacant land than in central cities.[1]

Approximately 9 percent of Texas elementary schools have nearby LIHTC properties, each averaging 324 units. Year-to-year changes in the accountability ratings of public elementary schools closest to the low-income housing may help indicate whether the construction adversely affects neighborhood schools.[2]

Chart 1 illustrates that ratings remained unchanged over a one-year period for most schools. Some of the schools moved up or down one level, but very few moved two or more levels. Most of the schools that improved one level were initially rated academically acceptable. In contrast, those that fell one level were mainly recognized. Among schools rated exemplary, approximately one-fourth fell one level the next year.

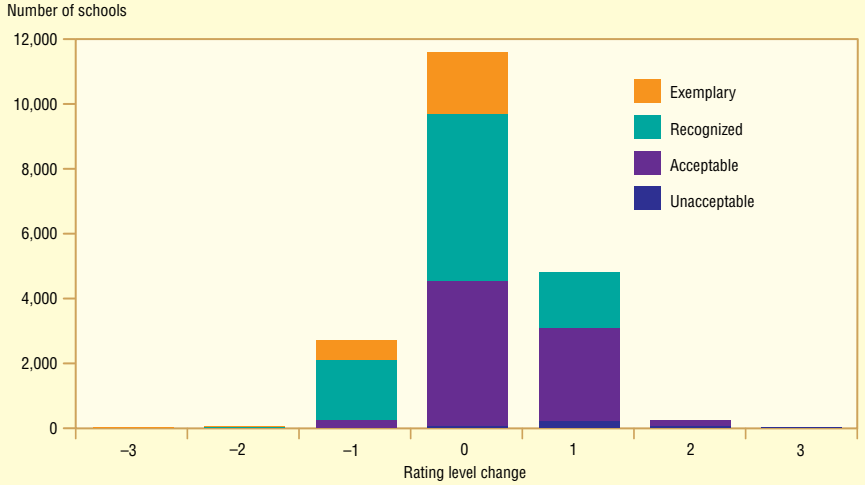
Adding LIHTC units appears to positively, not negatively, influence a school's accountability rating in the year the projects open, our analysis found. However, that effect is temporary, largely disappearing after a year. Schools with nearby LIHTC units were classified by income and share of minorities in nearby census blocks. The estimates suggest that the positive influence is largely driven by the housing units constructed in higher-income census areas, while the negative, offsetting data come from LIHTC census block groups with greater minority or lower-income populations. The program's influence on schools also depends on whether the project is new construction or rehabilitation. New buildings seem to contribute to improvement of academic performance at the nearest elementary schools.

To be sure, the results involve relatively few children from the new homes in elementary schools each year. Therefore, the makeup of residents in the new housing units doesn't necessarily alter the demographics of Texas schools. However, the results appear consistent with previous studies indicating that such projects don't necessarily adversely affect receiving neighborhoods. In fact, they seem to suggest that more-motivated low-income families seek subsidized rental units in mixed-income neighborhoods offering better schools for their well-performing kids. This may dispel some homeowner concerns in higher-income neighborhoods hosting the projects. However, the possibly negative influence of the units in lower-income or higher-minority areas justifies the worries that the multifamily units in neighborhoods densely populated with low-income residents may limit educational opportunities.

–Wenhua Di and James C. Murdoch

Chart 1

Some Schools Improve After Low-Income Tax-Credit Housing Opens



NOTE: Compiled from a pooled sample of 19,433 Texas public elementary schools near new low-income housing tax credit projects, 2004-09.
SOURCE: Texas Education Agency Academic Excellence Indicator System.

Notes

[1] For a more-detailed discussion of the LIHTC projects in Texas, see "Low-Income Housing Tax Credits in Texas: Achievements and Challenges," by Roy Lopez and Wenhua Di, Federal Reserve Bank of Dallas *Banking and Community Perspectives*, Issue 2, 2009.

[2] For more details on the methodology and data, see "The Impact of LIHTC Program on Local Schools," by Wenhua Di and James C. Murdoch, Federal Reserve Bank of Dallas, Research Department Working Paper no. 1006, 2010.

Trade Conference Explores U.S.–Mexico 'Common Bonds'

By Jesus Cañas, Roberto Coronado and Robert W. Gilmer

The El Paso Branch of the Federal Reserve Bank of Dallas held a daylong conference, "U.S.–Mexico Manufacturing: Common Bonds," in November 2010 to assess the future of U.S.–Mexico trade in manufactured goods following the global recession. Speakers reviewed the prospects for bilateral trade and Mexico's maquiladora plants, which typically take inputs from the U.S. and assemble them into products for export back to the U.S. A summary of conference highlights follows.[1]

As Mexico shifts its competitive focus, the maquiladora story is increasingly about more-skilled jobs and higher compensation, not just the number of jobs.

U.S.–Mexico manufacturing has undergone a transformation over the past 10 years following two U.S. recessions, thrusting Mexico's maquiladora plants into a new age. In his presentation "Maquiladoras: Do We Still Benefit from Them?" Federal Reserve Bank of Dallas associate economist Jesus Cañas compared the effects of the 2007–09 recession and recovery with the 2001–02 cycle, when the U.S. entered a mild recession accompanied by a steep decline in industrial production that quickly spilled into Mexico.

In the earlier period, two events exacerbated cyclical challenges confronting maquiladoras and contributed to industrial restructuring in Mexico. The Sept. 11 terrorist attacks bolstered security requirements and dramatically slowed border crossings. Additionally, China entered the World Trade Organization (WTO) in December 2001, gaining access to North American Free Trade Agreement markets at tariff rates low enough to end Mexico's low-wage advantage.

By contrast, Cañas said, the 2007–09 recession was tied primarily to the business cycle, with less industrial restructuring and labor market displacement through trade.

The structural shift to higher-end manufacturing and higher-skilled jobs that occurred in the 2001–02 cycle led to a better outcome for Mexico and its maquiladoras in the most recent recession—and bodes well for U.S.–Mexico manufacturing in the years to come.

The Maquiladora Redefined

In 2001–02, Mexico lost 280,500 maquiladora jobs, many in the lowest-wage industries, such as toys, leather, textiles and apparel. But it became apparent that Mexico's role in North American production was based on more than just low wages, Cañas said. Its proximity to the U.S. mattered—for bulky items such as appliances and televisions, as well as for just-in-time inventory needs. Mexico, with a skilled and experienced workforce and intellectual property protections, found its place manufacturing higher-value-added goods such as medical instruments.

To evaluate the cycle, it was necessary to wait until the recovery to sort cyclical losses from longer-lasting structural damage.[2] By 2006, maquiladoras had recovered fewer than two-thirds of the jobs lost during the downturn, and there was no expectation that the lowest-wage positions would return. Yet based on production levels and real compensation per worker, the maquiladora industry reached its peak in 2005, retaining its most productive and best-compensated positions.

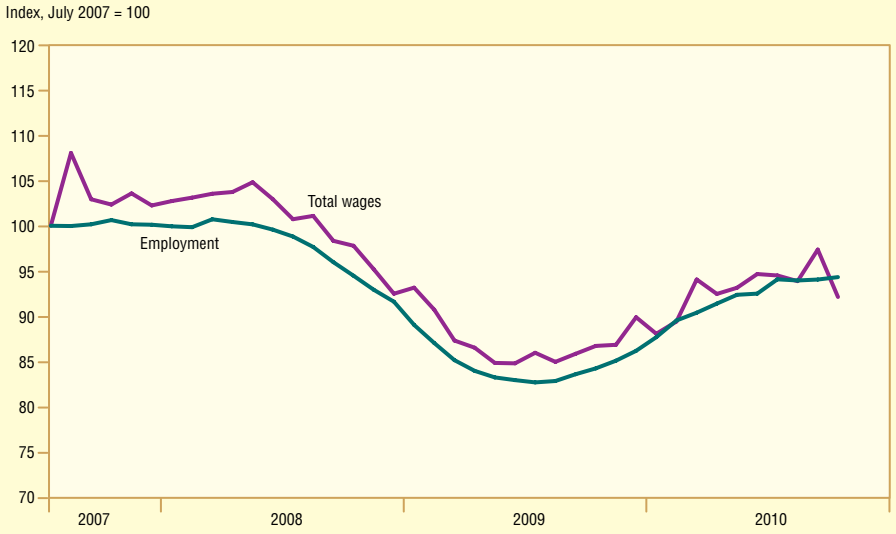
The focus has been on maquiladora employment because structural displacement of jobs through trade is an important labor market issue and the industry has been regarded as a jobs program. As Mexico shifts its competitive focus, however, the maquiladora story is increasingly about more-skilled jobs and higher compensation, not just the number of jobs.

A comparison of employment and real compensation shows that the latest cycle represents a serious cyclical event, without

Chart 1

Maquiladora Jobs, Wages Rebound from Recession

(Real wages, seasonally adjusted)



SOURCES: Instituto Nacional de Estadística y Geografía; Federal Reserve Bank of Dallas.

structural losses, Cañas said.[3] The maquiladora industry as a whole experienced a jobs decline of 17.4 percent by July 2009, deeper than the previous recession. Total compensation fell as hard and fast as employment, suggesting that this time there was no bias toward the loss of uncompetitive low-wage jobs (*Chart 1*).

Employment has returned much faster during this recovery, Cañas said. About two-thirds of the maquiladora job losses were restored by late 2010, compared with virtually no job recovery in U.S. manufacturing.

Examining Integration

Daniel Chiquiar, Banco de México's director of economic measurement, brought another point of view to Mexico's restructuring of manufacturing after 2001, focusing on exports to the U.S. He noted in his presentation that the strong historical cyclical correlation between U.S. and Mexican manufacturing continued after China's entry into the WTO, and that after 2005, Mexico's share of exports to the U.S. grew again. Some reorientation of Mexican manufacturing took place in a short period.

Chiquiar examined specific industries in Mexico to determine if they gained or lost competitive advantage after 2001 and whether they became more or less integrated into U.S. manufacturing. Integration refers to maquiladora-style intra-industry trade, with Mexico importing inputs and exporting final goods.

For Mexico, sectors that gain in competitiveness are more integrated into the U.S., suggesting that maquiladora-style production sharing has been at the heart of Mexico's restructuring. Further, he found that improved competitiveness in an industry was often tied to rising skill levels. As trade between the two countries evolved post-2001, U.S. firms shifted their least-skilled jobs to Mexico, effectively raising the skill level of both Mexican and U.S. manufacturing. The primary driver of improved competitiveness in Mexico appears to be increased skill levels, with no consistent role for a shift of physical capital, such as plants and equipment.

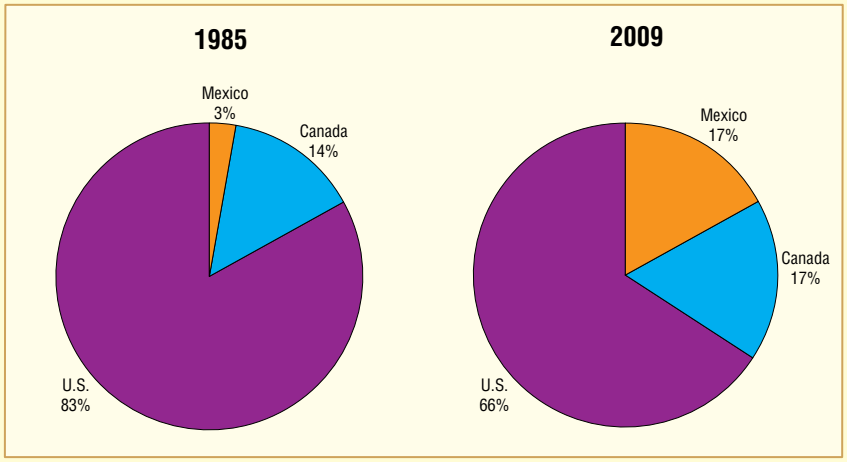
Carlos Bello, director general of the Mexican Federation of the Aerospace Industry, said his sector provides an example of how Mexico climbed the ladder in terms of manufacturing skills. No other industry imposes more exacting requirements for certification and quality production.

Mexico had 41 manufacturing plants, nine maintenance and repair operations and 20 design and engineering companies, generating a combined $3.1 billion in revenue in 2008, the industry's peak year. About $13 billion has been invested in aerospace by foreign and national sources. About 5 percent of suppliers to major aircraft manufacturers such as Boeing, Airbus, Bombardier and Embraer are Mexican companies.

For Mexico, sectors that gain in competitiveness are more integrated into the U.S., suggesting that maquiladora-style production sharing has been at the heart of Mexico's restructuring.

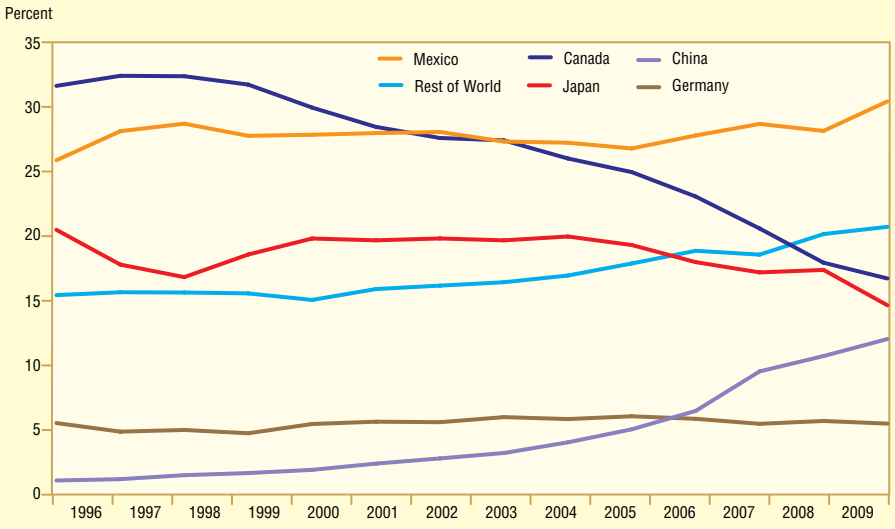
Mexico passed Canada in 2009 to become the largest exporter of auto parts to the U.S., with a 30 percent share of U.S. imports. China has made inroads as a parts supplier to the U.S. in recent years, largely at the expense of Canada.

Chart 2
Mexico Gains Ground in North American Light Vehicle Production



SOURCE: Thomas H. Klier, Federal Reserve Bank of Chicago, with data from Ward's Automotive Group.

Chart 3
Mexico Becomes Largest Source Country of U.S. Motor Vehicle Parts



SOURCE: Thomas H. Klier, Federal Reserve Bank of Chicago, with data from International Trade Commission.

Auto Parts and Assembly

George Magliano, director of North American automotive research at Global Insight, and several other experts discussed the changing landscape of North American auto production. Auto parts and assembly is a large and important example of Mexico's maquiladora trade. Mexico now vies with Canada to be the second-largest auto producer in North America (*Chart 2*).

Mexico passed Canada in 2009 to become the largest exporter of auto parts to the U.S., with a 30 percent share of U.S. imports (*Chart 3*). China has made inroads as a parts supplier to the U.S. in recent years, largely at the expense of Canada.

Magliano presented his analysis of the auto industry in the context of recession, recovery and longer-term growth. He said a slow U.S. recovery will carry over to the auto market in a number of ways. A weak job environment, lack of creditworthiness and a poor housing market could keep sales below prerecession levels until 2015. Relative to population or employment, 2015 sales will remain much lower than before

Other Trade Topics

Conference speakers addressed other issues related to U.S.–Mexico trade. Those presenters included Andrew Selee, director of the Mexico Institute at the Woodrow Wilson International Center for Scholars; vice president and senior policy advisor Evan Koenig, vice president and senior economist Mark Wynne and economist Roberto Coronado, all of the Dallas Fed; and Vanda Felbab-Brown, a fellow at the Brookings Institution.

- Selee suggested four strategic initiatives to advance the needs of the U.S.–Mexico border: timely and efficient movement of goods across the border; expansion of the North American Development Bank into new and creative projects; border educational partnerships to train binational leaders; and the pursuit of green energy and health care opportunities unique to the region.[1]
- Koenig forecast a continued moderate pace of recovery in the U.S. but "a long slog" before the nation returns to the levels of employment and income indicated by the trend before the financial crisis.
- Wynne said initial fears of deglobalization—a reversal of global integration—resulting from the 2007–08 collapse in world trade are unwarranted. In retrospect, most of the decline is accounted for by the severity of the crisis and the highly cyclical durable-goods sector's share of world trade.
- Coronado discussed how maquiladora growth affects jobs in El Paso and other border cities. For the border as a whole, the impact of the maquiladora is reduced from levels of 20 years ago, but it remains a particularly strong influence in Texas border cities. The impact no longer extends to manufacturing on the U.S. side of the border but is more evident in services such as transportation, real estate, and wholesale and retail trade, he said.
- Felbab-Brown brought into perspective the current drug-related violence in northern Mexico. So far, the large industrial plants of northern Mexico have not been targets of this criminal activity, although plant management has been placed at risk of extortion and kidnapping and employees live in fear. The violence continues as a significant threat to economic and social progress throughout northern Mexico.

NOTE:
[1] See "Strategic Guidelines for the Competitive and Sustainable Development of the U.S.–Mexico Transborder Region," presentation by El Colegio de la Frontera Norte and the Woodrow Wilson International Center for Scholars, Border Governors Conference, September 2009.

the downturn, with no recovery expected in these ratios. Magliano said, however, that the postrecession, restructured auto industry is profitable—and that will only improve as sales volumes return.

North American production has snapped back quickly from the depths of the recession. Ralph Watkins, International Trade Commission senior international trade analyst, tracked the most important sectors in the turnaround in U.S.–Mexico trade and found intra-industry trade in autos at the forefront. High on the list of fast-growing U.S. exports to Mexico in 2010 were engines, auto parts, cars, trucks and engine parts. Fast-growing Mexican imports from the U.S. included those items, along with seat parts and truck-tractors.

Over the long run, Magliano said, North American vehicle production will return to about 16 million units, the level before the recession began. He reiterated that Mexico already has been a big winner in the North American auto market, and Mexican plants will continue adding capacity as it's shut down in the U.S. and Canada. The 2 million light vehicles currently produced in Mexico should surge to 3.3 million units by 2015. Ford, GM and Chrysler have shifted premium production to Mexico, manufacturing large and expensive, high-valued-added vehicles such as bigger pickup trucks and SUVs.

Thomas Klier, a senior economist at the Federal Reserve Bank of Chicago, put Mexico's niche in the North American auto market into perspective. In his address on U.S.–Mexico auto linkages, he said that Mexico is not well-integrated into the U.S.–Canada Auto Alley, a region centered in Detroit and stretching from the Great Lakes to Tennessee and Mississippi. But Mexico has a cost advantage; it offers the lowest wages in North America. Klier said this advantage can be found in such labor-intensive activities as casting, machining and painting.

These auto-related skills are more than a notch above the low-wage assembly and sewing skills associated with the early maquiladoras. However, Thomas Kurfess, a professor at Clemson University's International Center for Automotive Research, emphasized that the auto industry is increasingly driven by system integration, led by advanced electronics. He pointed to the critical role of research and development, noting that little of it occurs in Mexico. Some design and development takes place at the component level—many suppliers moved into Mexican industrial parks because of just-in-time inventory requirements—but nothing original is happening in engineering for assembly operations.

Exploiting Its Advantages

Mexico lost many of its low-wage, low-skill jobs in the apparel and textile industry following the 2001–02 recession. In the early 2000s, low-wage competition in Asia, Central America and the Caribbean led to structural job losses in low-value-added sectors of Mexican manufacturing. New avenues for growth arose later in the decade, however, as U.S. and foreign car companies increasingly sought cost savings by turning to Mexican parts suppliers and assembly plants. Mexico's proximity to the U.S., its experienced manufacturing workforce and its lower cost structure led to a growing role in North American auto parts production and auto assembly and contributed significantly to the global competitiveness of the North American auto industry.

Cañas is an associate economist at the Federal Reserve Bank of Dallas, and Coronado is an economist in the Bank's El Paso Branch. Gilmer is vice president in charge of the El Paso Branch.

Notes

[1] See the conference agenda at www.dallasfed.org/news/research/2010/10commonbonds.cfm.

[2] "Maquiladora Recovery: Lessons for the Future," by Jesus Cañas, Roberto Coronado, Robert W. Gilmer, *Southwest Economy*, no. 2, 2007.

[3] Mexico revised its coverage of export-oriented plants for data collection purposes in 2007 to include maquiladoras, plus domestic plants that enjoy similar tax and customs benefits. Thus, the data coverage in the 2007–09 chart is broader than prior figures, which were strictly for the foreign-owned maquiladoras. See "Mexican Reform Clouds View of Key Industry," by Jesus Cañas and Robert W. Gilmer, *Southwest Economy*, no. 3, 2007.

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