

Why Did Texas Have a Jobless Recovery?

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In early 2001, the U.S. and Texas economies fell into recession. While the National Bureau of Economic Research Business Cycle Dating Committee declared the U.S. recession over in November of that year, job growth did not resume until June 2003. Texas job growth broke into positive territory two months later, and there is evidence that, like the nation, economic activity in the state picked up long before that.

Following a typical recession, employment begins to rise at about the same time output does. But in the two years after the 2001 recession, U.S. real output growth averaged 2.5 percent, while employment growth was essentially zero. The divergence between output and employment was even more pronounced in Texas, where real output—as measured by gross state product—grew faster than the nation's, but employment fell at an average annual rate of 0.2 percent. Clearly, something was different this time.

Many explanations have been offered for the unusually weak labor market performance, including problems with measuring employment, high productivity growth, widespread uncertainty in the wake of 9/11 and corporate scandals, and

structural change in the economy. While much has been written on the nation's experience during this period, there is little information on what caused the jobless recovery in Texas. For this reason, it's important to examine these explanations to see which of them can shed light on the state's experience.

Employment Statistics?

Two Bureau of Labor Statistics (BLS) surveys are the primary source for national and state employment data. The establishment, or payroll, measure—officially, Current Employment Statistics—surveys about 400,000 work sites each month. Critics contend this survey understates job creation at economic turning points because it misses employment in the new firms created during a recovery's initial stages. The alternative, household-based Current Population Survey contacts individuals directly about their employment status. According to this survey, there has been little jobless about the recovery: Jobs have grown each year since the 2001 recession.¹

The household survey might seem sounder than the payroll survey because it is not limited to wage and salary work-

ers on firm payrolls. However, the household survey has a much smaller sample size and depends on population estimates that are not always reliable, mainly because of uncertainty about immigration rates. Given these weaknesses and the adoption of a statistical method to compensate for missed job growth in start-up firms, most experts—and the BLS—consider the payroll survey the better gauge of employment.

Productivity Growth or Uncertainty?

If the data are sound and the country did experience a jobless recovery in 2002 and 2003, could high productivity growth or substantial uncertainty have been the cause?

U.S. productivity growth averaged 4.3 percent during this period, and some experts believe that increase—well above the post-World War II average of about 2 percent—enabled companies to step up production without hiring more workers. Others believe the uncertain environment that followed various corporate accounting scandals and the 9/11 attacks led to a wait-and-see approach by employers.

These factors likely played an important role in the jobless recovery. But job growth in 2002–03 was far below what Texas and the nation saw in earlier periods of relatively high productivity growth, such as the late 1990s, and substantial uncertainty, such as the late 1970s. So there is more to the story.

Structural Change?

A widely read article from the Federal Reserve Bank of New York offers another explanation for the jobless recovery.² Erica Groshen and Simon Potter consider two types of effects that could shake up labor markets: (1) short-term cyclical adjustments that vary with the business cycle, and (2) longer term structural changes, in which some industries decline while others grow.

The economists contend that an unusually large amount of structural change in the labor market, as opposed to temporary cyclical adjustments, hindered the resumption of employment growth in 2002 and 2003. When jobs shift across industries, new positions have to be created and filled, which takes far more time than simply recalling workers to their jobs, as might occur with cyclical change. So if structural change is on the rise, it could explain the jobless recovery.

The kind of structural change Groshen and Potter consider can result from a myriad of factors that cause some industries to decline as others grow. These factors include technological and demographic change, reorganization of production, trade and outsourcing—any one of which can permanently alter a state's or nation's industrial mix. Cyclical job losses, by contrast, move with the business cycle. As the economy enters a recession, jobs are temporarily lost in response to softening demand. They are added back as the economy picks up again.

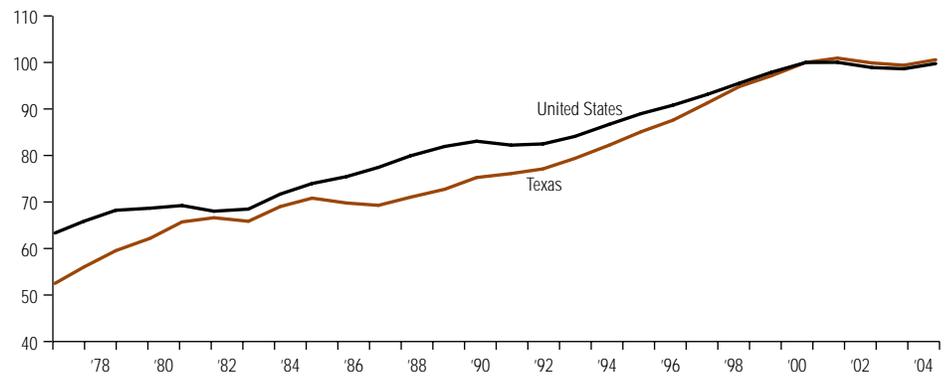
Looking at job growth by industry, Groshen and Potter find that structural factors played a much greater role in the United States during 2001–02 than in earlier U.S. recoveries. They attribute this to a changing labor market in which cyclical job losses have been minimized and structural changes are more pervasive.

This conclusion has important implications for public policy. The traditional safety net in the United States, with such elements as unemployment insur-

Chart 1

Texas Employment Tracks the Nation's in 2001 and After

Index, 2000 = 100



NOTE: Data show total nonfarm employment.

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

ance, is largely designed around the needs of the cyclically unemployed—people who need short-term help with income sustenance while they search for a job. The system is generally not designed to provide longer term retraining for displaced workers whose sectors permanently shrink. Public job-training programs are becoming more common, however. Lawmakers recognized the effects of structural change in the labor market in passing such bills as the Workforce Investment Act of 1998 and the Trade Adjustment Assistance Reform Act of 2002.

Assuming structural change has accelerated at the national level, can the same be said for Texas? Taking the Groshen–Potter approach, we compare recent patterns to earlier recessions to see if structural change has increased in Texas and, if so, whether it helps explain the state's recent experience.

Measuring Structural Change

To measure structural job change, Groshen and Potter compare employment growth in the recession and the recovery.³ They make this comparison for each major industry over the length of the recession as designated by the National Bureau of Economic Research (NBER)—March 2001 to November 2001.⁴ The recovery is defined as the 12 months following the business cycle's trough in November.

Pinpointing recession dates for Texas is more complicated. Economic analysts often look to payroll employment growth to date state recessions because this is the most timely and reliable data available at

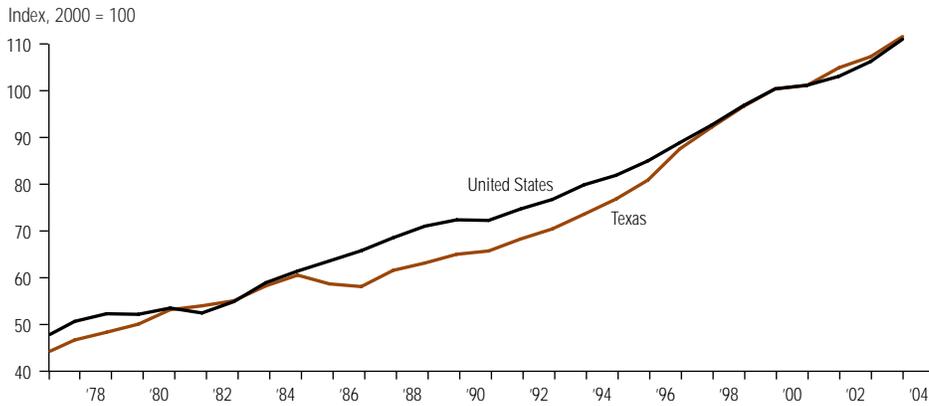
the state level. In a jobless recovery, however, the traditional relationship between employment growth and overall economic activity breaks down. This means payroll employment data may not have accurately reflected the state's overall economic health during 2002–03, making it impossible to date the Texas recession using those numbers.

The NBER solves this conundrum for the nation by using several variables in addition to employment—such as industrial production and, especially, gross domestic product—to date U.S. business cycles.⁵ Most of these numbers are not available in a timely fashion at the state level, and they are not available at all on a quarterly or monthly basis, which would be needed to date the Texas recession.

We use the national dates for a baseline analysis of Texas. After all, Texas employment closely tracked the nation's in 2001 and thereafter, suggesting that similar factors drove both economies into recession (*Chart 1*). Texas output also tracked the nation's reasonably well in 2001 and 2002 (*Chart 2*). That said, estimates of real output at the state level are subject to a higher degree of uncertainty than at the national level, and there is anecdotal evidence Texas emerged from the recession after the nation. To check the validity of our findings, we repeat the analysis using an end date of March 2003 rather than November 2001.⁶

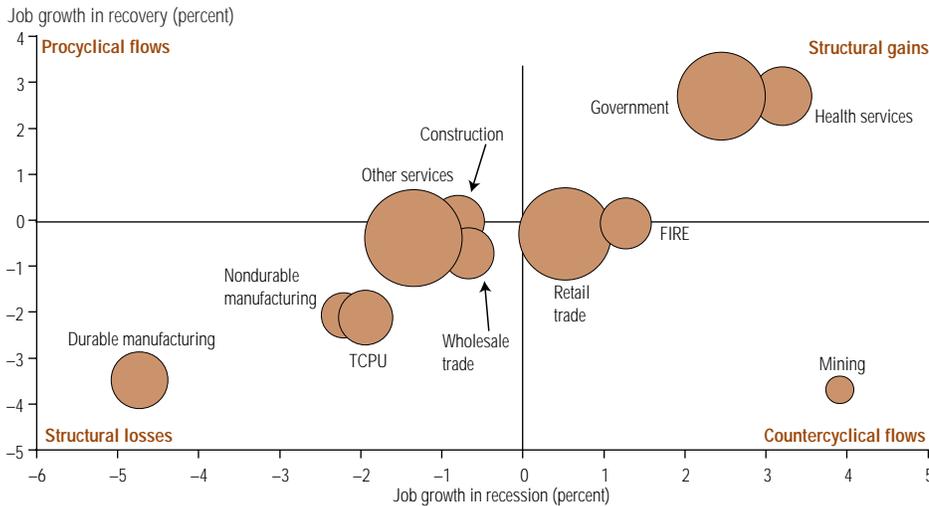
Chart 3 shows how Texas job growth fared during the 2001 recession and the 12-month recovery for each one-digit industry, the broadest category in the

Chart 2
Texas Real Output Tracks the Nation's in 2001 and After



NOTE: Data show real U.S. gross domestic product and Texas gross state product.
 SOURCES: Bureau of Economic Analysis; Federal Reserve Bank of Dallas.

Chart 3
Structural Change Prevalent Among Texas Industries in 2001–02



NOTES: TCPU is transportation, communications and public utilities. FIRE is finance, insurance and real estate. The recession is dated March to November 2001; the recovery is dated December 2001 to November 2002.
 SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

Standard Industrial Classification (SIC) system.⁷ All growth rates are relative to the average for total Texas employment during the relevant period. For example, if an industry grew 5 percent slower than the Texas economy as a whole during the recession, its growth rate is -5 percent. Likewise, if an industry grew 5 percent faster than the Texas economy during the recovery, its growth rate is 5 percent.

The horizontal axis on Chart 3 measures the relative growth rate during the recession; the vertical axis measures the relative growth rate during the recovery.

If an industry grew slower than the statewide average in each of the two periods, it falls in the southwest portion of the chart, labeled “structural losses” because these industries lose jobs regardless of overall economic conditions. If an industry grew more rapidly than the statewide average during both intervals, it is in the northeast portion of the chart, labeled “structural gains” because such industries gain jobs regardless of the overall economy.

The remaining quadrants deal with industries that rise and fall with the business cycle.

Industries that grew slower than the statewide average during the recession but faster during the recovery are in the procyclical flows quadrant because they move with changes in the business cycle. Industries that grew faster than the statewide average during the recession but slower during the recovery are in the countercyclical flows quadrant because they tend to add jobs when the rest of the economy declines but lose jobs when the rest of the economy does well.

The size of each industry’s bubble on the chart represents its share of total Texas employment in March 2001, when the recession began. The larger the bubble, the larger the industry’s share of the state’s workforce at that time.

The results suggest that the recent business cycle has been dominated by structural gains and losses, as most major industries fall into the structural change quadrants in Chart 3. Manufacturing of both durable and nondurable goods suffered the largest structural losses, whereas health services and government had the biggest structural gains. Overall, about 75 percent of March 2001 employment was concentrated in industries that subsequently underwent structural change. The next section breaks down these major industries to take a closer look at job adjustments.

Industries with Structural Loss. Industries in Chart 4 are classified according to subsectors in the North American Industry Classification System (three-digit NAICS codes). The southwest portion of Chart 4 includes a number of high-tech sectors, among them computer and electronic product manufacturing (includes semiconductors); electrical equipment, appliance and component manufacturing; telecommunications; and Internet service providers (ISPs), search portals and data processing services. High tech’s presence in the structural loss quadrant is not surprising, since the 2001 recession kicked off a prolonged retrenchment and restructuring for the sector in Texas, a process from which the state has not fully emerged.

Apparel manufacturing also falls in the structural loss quadrant. In contrast to high tech, the apparel industry has been declining in the United States and Texas for many years. Indeed, apparel experienced the largest job losses in percentage

terms during both the recession and the recovery.

The northeast quadrant of Chart 4 shows the industries that grew faster than total Texas employment during the recession and recovery. This quadrant consists mainly of sectors related to the provision of health care and education, including local government.

Given recent policy and demographic developments, this trend is understandable. Rapid advances in medical technology, coupled with an aging population, are producing an increased emphasis on health care, regardless of the business cycle.

The rise in the economic return to education, the burgeoning youth population and renewed public attention to educational quality have produced an increased emphasis on education that doesn't ebb and flow with economic conditions, either. Since local government is the largest provider of K-12 education, it's not surprising that employment in this sector rose during the recession, as well as the recovery.

Countercyclical Industries. The southeast corner of Chart 4 consists mainly of industries in the energy sector. Rising energy prices were a contributing factor to the 2001 recession.⁸ As home to a major share of the U.S. energy industry, Texas benefits from high oil prices (although to a lesser extent than when the industry constituted a much larger part of the state's economy).

Since energy prices were higher during the 2001 recession than during the 2002-03 recovery, it makes sense that energy is categorized as countercyclical for this period.⁹ Natural resource and mining industries in this quadrant include oil and gas extraction and mining support activities.

One notable countercyclical industry that doesn't fit into the natural resource category is real estate. What high oil prices did for natural resource industries during the recession, low-interest loans likely did for homebuyers.

Procylical Dating. Despite expectations of "normal" cyclical losses, few industries fall into the procyclical category during and after the 2001 recession. The northwest quadrant of Chart 4 consists of only about 9 percent of total employment. Among the industries in this quadrant are retail, transportation-related sectors and

accommodations.

It may be surprising that so few industries fall into the cyclical category, but it's important to remember that we are comparing each industry to the overall state economy. If an industry's employment fell slightly during the recession and rose slightly during the recovery, it's categorized as countercyclical because its employment fell by less than the state average during the recession and rose by less than the average during the recovery.

Recession Dating. What if the Texas recession was longer than the nation's and did not end in November 2001? If so, the analysis so far biases the findings toward structural change by attributing 2002 job losses to the recovery instead of to what may have been a continuing recession. To check our results, we repeat the exercise under the assumption that Texas emerged from the recession in March 2003—much later than the nation and about four months before employment growth resumed in the state.

A few industries move from one quadrant to another, but the overall picture is one in which structural change still dominates cyclical change (*Chart 5*). About two-thirds of employment is concentrated in industries undergoing structural change, compared with three-fourths when November 2001 is used as the end date.

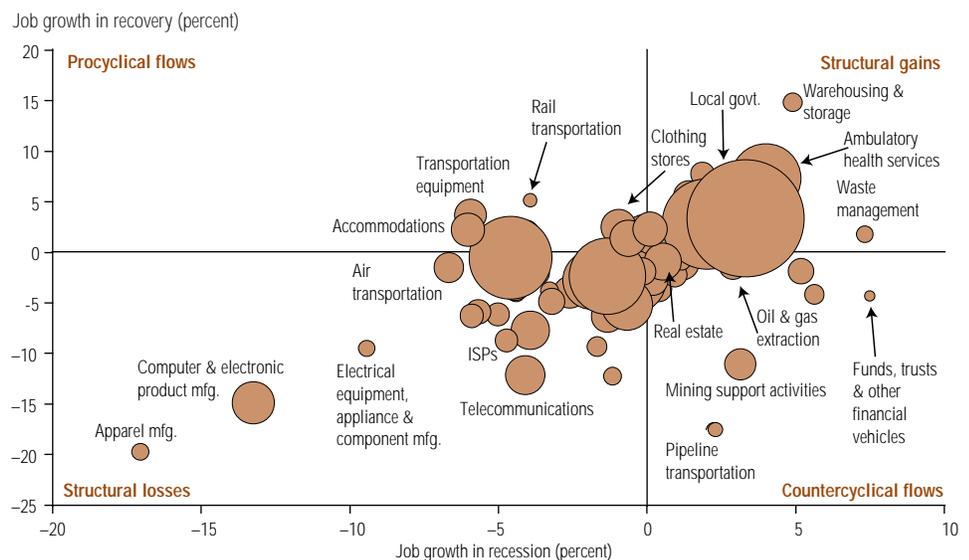
Comparing Texas Recessions

Is structural change a bigger factor today than in the past?

Groshen and Potter conclude that for the United States as a whole, it is. More industries in the recent recession fell into the structural-change quadrants, compared with earlier recessions. They find that 79 percent of U.S. employment was in industries affected more by structural than cyclical shifts in the 2001 recession, up from about 50 percent in previous downturns.

It's a somewhat different story for Texas. Chart 6 shows job adjustments by major industry during the recession and recovery of the early 1980s.¹⁰ That recession was more severe than the recent one, with several large industries—such as durable manufacturing and mining—experiencing double-digit job losses. Nevertheless, except for government, education and health services, the losses were fairly concentrated in the structural categories. In fact, Texans were about as likely to work in structural-change sectors in the 1982-83 recession as they were in 2001. The share of structural job losses was about 72 percent during the earlier period, compared with 76 percent in the 2001 recession. While the relationship can be seen a bit more easily in Chart 3 than in Chart 6, the two graphs confirm that

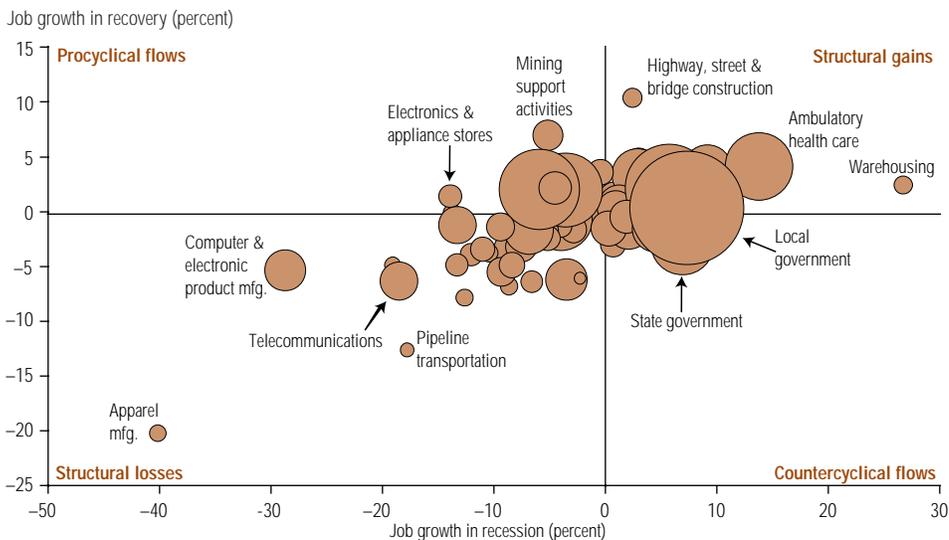
Chart 4
Structural Change Prevalent in 2001-02: A Look at More Detailed Industries



NOTES: The recession is dated March to November 2001; the recovery is dated December 2001 to November 2002. Educational services is behind local government in the northeast quadrant.

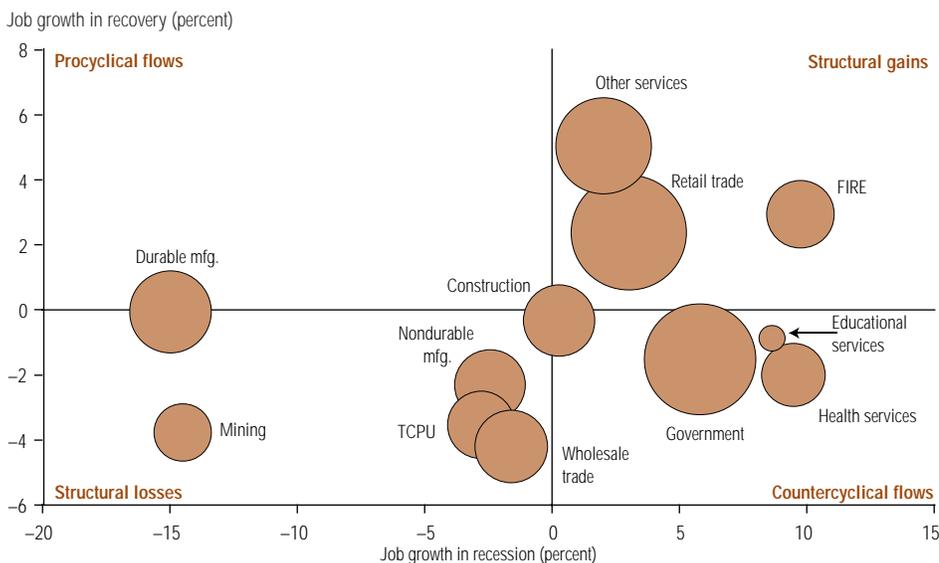
SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

Chart 5
Structural Change Prevalent with Alternate Recession End Date



NOTES: The recession is dated March 2001 to March 2003; the recovery is dated April 2003 to March 2004.
 SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

Chart 6
Structural Change a Major Factor in 1982–84



NOTES: TCPU is transportation, communications and public utilities. FIRE is finance, insurance and real estate. The recession is dated March 1982 to March 1983; the recovery is dated April 1983 to March 1984.
 SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

structural change, as defined by Groshen and Potter, is not new to Texas.

More Sectors Undergo Structural Change

Several explanations have been offered for the growing role of structural change in the U.S. economy, including technological change and increasing

international trade. A decline in the role of cyclical change, meanwhile, has been linked to factors such as improved monetary policy, which appears to have lessened the duration and severity of U.S. business cycles.¹¹ Better supply chain management has also allowed firms to respond more quickly to changes in demand and avoid sudden large swings in

inventory, production and employment. Additional contributing factors are a decline over time in the severity of energy and food supply shocks and the deregulation of financial markets.

But does structural change really explain the jobless recovery? Structural change, as measured here, was about as prevalent in Texas in the 2001 recession and ensuing recovery as in the early 1980s recession and recovery. The difference between the two periods is the severity of the change. Job losses were much deeper in the 1982–83 downturn (and worse yet in 1986). Nevertheless, employment rebounded with a short lag, and there was nothing like the jobless recovery experienced post-2001.

Another possibility is that the investment bust that characterized the 2001 recession and its aftermath may have driven both structural losses in the labor market and the jobless recovery. The investment bust followed the investment boom that had characterized certain fast-growing industries—led by high tech—during the 1990s. In Texas, for example, post-2001 venture capital commitments fell sharply to about 20 percent of their 2000 levels. The investment bust likely delayed employment growth during the recovery in the sectors that had been booming. If this was the case, sectors that were fast-growing before the recession would fall into the structural loss category in our analysis. These industries may or may not belong there, depending on whether they will eventually resume above-average job growth.

The data suggest that the investment bust played an important role in Texas during the recent business cycle. In fact, of the state's 16 fastest-growing industries in the 1990s, 10 appear in the structural-loss quadrant of Chart 4, meaning they shed jobs both during and after the 2001 recession. Groshen and Potter show that for the nation, seven of the 18 fastest-growing industries fall into the structural loss category.

It is likely that as these industries' expansion fell short of expectations, investment dried up and employment declined. The industries include several high-tech subsectors, such as telecommunications and ISPs, search portals and data processing services. Not all fast-growing industries fall into the structural

loss quadrant, however. Three of Texas' fastest-growing industries in the 1990s are in the structural gain category—warehousing and storage, ambulatory health services and social assistance.

Little New About Structural Change

The Texas economy has undergone fundamental restructuring as the state has diversified away from agriculture and energy and become more like the nation. These trends began in earnest in the 1970s and intensified in the 1980s with the drop in oil prices and collapse of the banking sector. The 1990s saw tremendous growth of the state's high-tech industries and further consolidation in the energy sector. In both the 1970s and again in the 1990s, Texas' economic growth was characterized by large inflows of workers who brought different skills and education with them and contributed to the state's economic transformation.

The decline of industries paves the way for diversification and the growth of new sectors as workers, capital and know-how are freed up to pursue better ends. For example, at one time, 90 percent of the U.S. labor force was engaged in farming. Today, that number is a mere 3 percent.

While this transformation is clearly beneficial in the long run, in the short to medium term, this type of change is not without its critics. People may primarily see the negative connotations of structural change, without seeing the benefits. This may be because certain advances in trade and technological change have large benefits that are spread across many people, such as all U.S. consumers, while the costs of such advances can be small but concentrated on a select few (such as laid-off textile workers).

Texas has not been immune to the forces of trade and outsourcing. Semiconductor production has moved out of Austin and Dallas to Asia, for example, and major computer companies have concentrated their software development in India, outsourcing thousands of jobs there. Big retailers and national banks continue to expand in the state, often displacing or absorbing local businesses in the process.

At the same time, the state's economy has many strengths. Workers and investors continue to flock to Texas, home

construction is at record levels, freed-up capital and labor are moving into sectors—such as education and health—where structural growth is most pronounced. Exports to China are booming, and the border economy is thriving as a result of freer trade with Mexico.

Summary

The aftermath of the 2001 recession is often described as a jobless recovery. It took Texas and U.S. employment almost four years to reach their respective prerecession levels, which they finally did in January 2005. Many factors contributed to labor market weakness in 2002 and early 2003, including high productivity growth, the war on terror and corporate scandals.

In their New York Fed article, Groshen and Potter highlight another potential source of labor market weakness—structural change. The economists imply that because new industries are replacing old ones, jobs are being created and filled at a slower rate than in past business cycles, in which workers were simply laid off and rehired by the same or similar employers.

Applying the Groshen–Potter methodology to Texas, we find that structural change also dominated cyclical change in the state during the last business cycle. We do not find, however, that the amount of structural change has increased over time, as Groshen and Potter argue is the case for the nation.

Structural change is an enduring feature of the state's economy. But while Texas labor markets experienced structural change in earlier recessions, they did not experience drawn-out weakness once a recovery was under way. In other words, the recent jobless recovery remains a bit of a mystery. The investment boom and subsequent bust may have had something to do with it. Many of the 1990s' fastest-growing industries ended up with the largest relative and most persistent job losses. The extent of the state's high-tech investment boom and subsequent bust may help explain why the effect on Texas employment growth was so significant and lasting.

Orrenius and Saving are senior economists in the Research Department of the Federal Reserve Bank of Dallas. Caputo worked on this article while an economic analyst at the Bank.

Notes

¹ Annual household employment was lower in 2002 than 2001, but yearly job growth is calculated December-over-December and was 0.26 percent in 2002.

² "Has Structural Change Contributed to a Jobless Recovery?" by Erica L. Groshen and Simon Potter, Federal Reserve Bank of New York *Current Issues in Economics and Finance*, August 2003.

³ Alternative measures of structural change are discussed at length in "Can Sectoral Reallocation Explain the Jobless Recovery?" by Daniel Aaronson, Ellen R. Rissman and Daniel G. Sullivan, Federal Reserve Bank of Chicago *Economic Perspectives*, Second Quarter 2004.

⁴ Groshen and Potter compare employment growth in the recession and the recovery for two-digit industries as defined by the Standard Industrial Classification (SIC) system. SIC codes were replaced by the North American Industry Classification System (NAICS) in 2002.

⁵ In a statement announcing the dating of the 2001 recession, the NBER called real GDP "the single best measure of 'aggregate economic activity.'" See www.nber.com/cycles/recessions.pdf.

⁶ Texas payroll employment began to grow in August 2003, while retail sales began to grow in September 2002. As a compromise, we selected March 2003 as an alternative end date for the state recession. Eleventh District Beige Book accounts also suggest the second quarter of 2003 may have been the turning point for Texas.

⁷ SIC codes are used in Charts 3 and 6 so that employment by industry can be compared over time. The newer, three-digit NAICS codes are used in Charts 4 and 5.

⁸ See "Do Energy Prices Threaten the Recovery?" by Stephen P. A. Brown, Federal Reserve Bank of Dallas *Southwest Economy*, May/June 2004.

⁹ In 2004, oil prices rose again, and they are currently higher than they were during the 2001 recession. Natural gas prices have also remained high.

¹⁰ The 1982–83 Texas recession is assumed to have lasted from March 1982 to March 1983. This period roughly corresponds to the downturn in both state output and employment.

¹¹ See "New Economy, New Recession?" by Evan F. Koenig, Thomas F. Siems and Mark A. Wynne, Federal Reserve Bank of Dallas *Southwest Economy*, March/April 2002.