



ISSUE 2
MARCH/APRIL 2006

Southwest Economy

FEDERAL RESERVE BANK OF DALLAS

In This Issue

Did NAFTA Spur
Texas Exports?

Dynamic Growth in the
Rio Grande Valley

Spotlight:
Texas Manufacturing

On the Record:
Pia Orrenius



President's Perspective



*"A tidbit usually
grabs my attention
because it provides a
lesson—sometimes a
small one, sometimes
a big one."*

The economy is one of my passions, and I am a collector of sorts.

As I read and listen during the day, I gather bits of information on a global economy that produces jumbo jets, microchips and everything in between. A tidbit usually grabs my attention because it provides a lesson—sometimes a small one, sometimes a big one.

I'd like to share a few.

- Starting a business takes five days in the United States, compared with 45 days in Germany, 108 in Spain and no one knows how many in China. These numbers hint at America's true strength—a flexible, adaptable economy that doesn't try to thwart competition from new enterprises.

- China has to sell 800 million shirts to buy a single Airbus A380 jet. I could ask for no better example of international division of labor and how it pays to move up to higher value-added production.

- The Apple I personal computer sold for \$667 in 1976. It ran at the speed of 1 megahertz and had 4K of memory. Today, a Dell Dimension E310 with a Pentium 4

processor provides 2.9 billion times Apple I's processing power and millions of times more memory, plus a free flat-panel screen and lots of other features. It costs about \$500. Is there any doubt about technology's tendency toward better and cheaper?

Numbers like these, of course, don't reveal what's happening in the economy as a whole. So I keep a keen eye on the broad data and forecasts for growth, inflation, employment and other indicators of the economy's ups and downs.

Even the best statistical fact book cannot replace human experience. One of my most reliable sources of information on the economy is the talks I have regularly with CEOs, COOs and CFOs at dozens of companies, large and small.

These are real-time decisionmakers who are on the front lines, doing the business of America, and they are one of the key inputs the Federal Reserve needs in formulating monetary policy.

These business leaders are often the first to spot dominant and shifting trends—in demand, in hiring, in pricing power, in technology. Many are plugged into the world economy, and they can tell you about India, China or almost anyplace else.

The numbers and the anecdotes work together to provide me a timely and in-depth view of the regional and national economies.

A stylized, handwritten signature of Richard W. Fisher in a dark ink.

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



Did NAFTA Spur Texas Exports?

By Anil Kumar

Texas is one of the more interesting lenses through which to assess NAFTA.

The North American Free Trade Agreement unites the United States, Mexico and Canada—three nations with a combined population of 426 million, total output of more than \$13 trillion and regional trade of \$700 billion in goods and services.

Because of the North American market's sheer size, NAFTA has been repeatedly dissected. Most studies have sought to determine whether the pact fulfilled proponents' predictions of increased trade, lower prices and higher incomes or led to what critics warned would be a "giant sucking sound" of U.S. jobs going to Mexico.

On balance, researchers have found NAFTA a slight positive for the U.S. as a whole. For example, a 1996 study estimated that NAFTA had increased U.S. exports by \$5 billion, or 12 percent, a figure projected to grow as more of NAFTA's phased-

in trade liberalization took effect.¹

A lesser volume of research focuses on what NAFTA has meant to state and local economies, although theory and common sense suggest trade deals might have different impacts within countries. States' industrial mixes and workforces vary widely, leading to comparative advantages that influence the composition and destination of exports. Geography is another key factor. Firms may operate in one state rather than another to take advantage of proximity to newly opened markets. The results of national studies of NAFTA's effects may not apply uniformly to all states.

Texas is one of the more interesting lenses through which to assess NAFTA. The state lies near the center of NAFTA's economic space—about equidistant from Mexico City and Toronto, with a 1,200-mile frontier with Mexico and networks of highways and rail lines that lead to some of the world's busiest border crossings. Texas political and business leaders strongly supported NAFTA's ratification, an indication that many presumed it would benefit the state's economy.

Has NAFTA been good for Texas? Merely counting the truckloads passing through border checkpoints in the Lower Rio Grande Valley, Laredo and El Paso would make it seem so. A more definitive answer, though, involves distilling NAFTA's influence from factors responsible for overall increases in Texas exports over the past decade or so.

NAFTA can't be deemed a success for Texas if rising exports to Mexico merely represent sales diverted from markets elsewhere in the world. Trade theory suggests that overall economic effects of NAFTA and other preferential trade agreements depend on trade creation net of trade diversion (*see box*).

A fresh look at the issue, using industry-level export data, shows that NAFTA did indeed increase Texas' sales to

Trade Creation Versus Trade Diversion

Preferential trade agreements impose lower tariffs on trade in goods and services among their member countries. Even with expansion of the multinational World Trade Organization in recent years, nations have found these regional deals increasingly attractive, concluding more than 180 pacts since 1990.

Two types of preferential deals are common. Free trade areas, such as NAFTA, reduce tariffs on goods from member countries but allow each nation to set its own duties for nonmembers. Customs unions, such as the European Union, agree to impose a common tariff wall on imports from nonmember countries. In economic terms, they're similar, so the following discussion applies to both.

These preferential agreements would normally violate the WTO's most favored nation rules, which require each member to extend to other members the lowest tariff applicable on all goods and services. In other words, there should be no discrimination or preference in tariffs. To allow the existence of free trade agreements and customs unions, WTO rules exempt them from the most favored nation rule if they mandate complete tariff elimination among member countries and if tariffs to nonmembers are no higher than they were before.

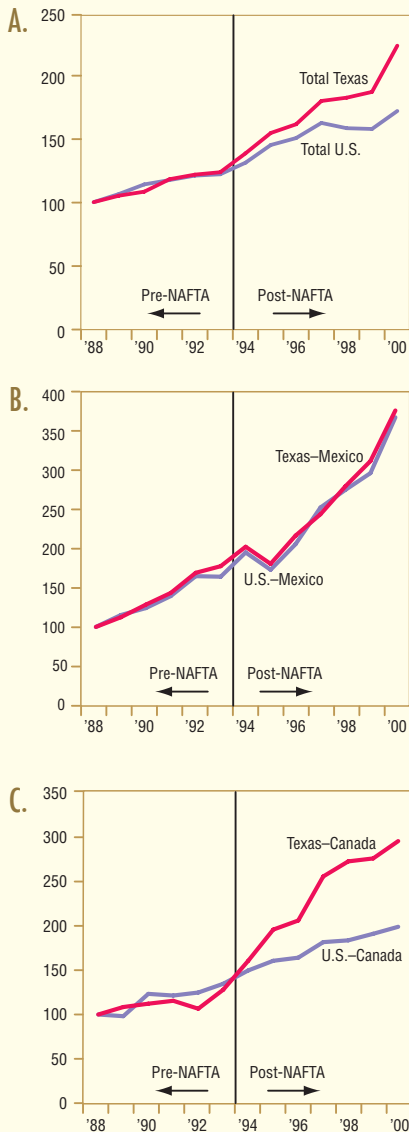
Both theory and experience suggest that free trade increases economic welfare. Does the proposition hold for preferential deals as well?

Jacob Viner provided the answer in his classic 1950 book, *The Customs Union Issue*. It introduced two important concepts—trade creation, which denotes new imports and exports, and trade diversion, which means a mere shifting of sources from one country to another. Viner argued that only trade deals that lead to net trade creation would improve economic welfare. If net trade diversion occurs primarily by shifting production from a low-cost nonmember country to a high-cost member country, it will hurt overall economic welfare.

*Trade has increased
by leaps and bounds
in the NAFTA years.*

Chart 1
U.S. and Texas Exports:
Pre- and Post-NAFTA

Index, 1988 = 100



SOURCE: WISERTrade.

Mexico—and to Canada as well. Perhaps more interesting, NAFTA also helped raise Texas exports to Asia, Europe and Latin America, making a strong case for net trade creation.

Before and After NAFTA

NAFTA went into effect Jan. 1, 1994. In general, it mandated eliminating trade barriers by 2008. For many products, the agreement did away with tariffs and other restraints immediately. Agriculture and apparel were the main sectors scheduled to be liberalized over a longer period.

Pre-NAFTA Mexico had the more protected economy, so it committed to larger tariff cuts than the U.S. and Canada. Average Mexican duties on U.S. goods fell from 12 percent in 1993 to 1.3 percent in 2001, while U.S. tariffs on Mexican goods declined from 2.1 percent to 0.2 percent.² The effect of NAFTA on U.S.–Canada trade restraints was minimal because the two countries operated under a free-trade agreement that took effect in 1989.

Trade has increased by leaps and bounds in the NAFTA years. U.S. exports to Mexico rose from \$42 billion in 1993 to \$111 billion in 2004, while imports from Mexico increased from \$40 billion to \$156 billion. Over the same period, U.S. sales to Canada grew from \$100 billion to \$189 billion, while imports from Canada to the U.S. climbed from \$111 billion to \$256 billion.

During the first six years of NAFTA, Texas gained ground in many foreign markets, allowing the state to grow faster than the nation in overall exports (*Chart 1A*). Texas exports to Mexico also increased—but not by any more than the nation as a whole. From 1994 to 2000, the growth of Texas shipments across the Rio Grande mirrored that of U.S. exports, just as it did in the five years prior to NAFTA's taking effect (*Chart 1B*).³ Indeed, both Texas and U.S. exports to Mexico grew steadily before and after NAFTA, except for a sharp decline in 1995, the year following the pact's implementation. An economic crisis in Mexico led to a steep devaluation of the peso vis-à-vis the dollar, making U.S. exports to Mexico more expensive.

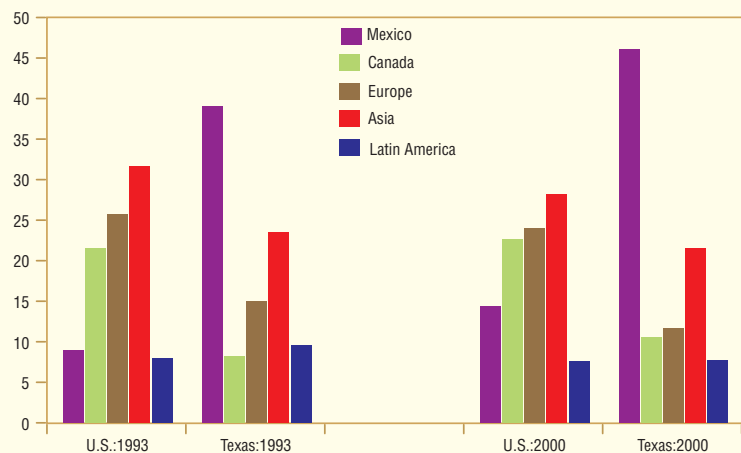
Given Texas' proximity to Mexico, it might be surprising that the state didn't increase its market share under NAFTA. Interestingly, one of the expanding markets has been Canada, the NAFTA partner farther from Texas (*Chart 1C*).

Although trade grew faster with Canada, there's no denying the importance of Mexico to the state's economy. In 1993, nearly 40 percent of Texas' exports went to Mexico, compared with less than 10 percent of overall U.S. exports (*Chart 2*). The state trailed the U.S. average in sales to Canada and all other regions except Latin America.

In the NAFTA years, Mexico has

Chart 2
Destination of Exports: 1993–2000

Percent of total exports

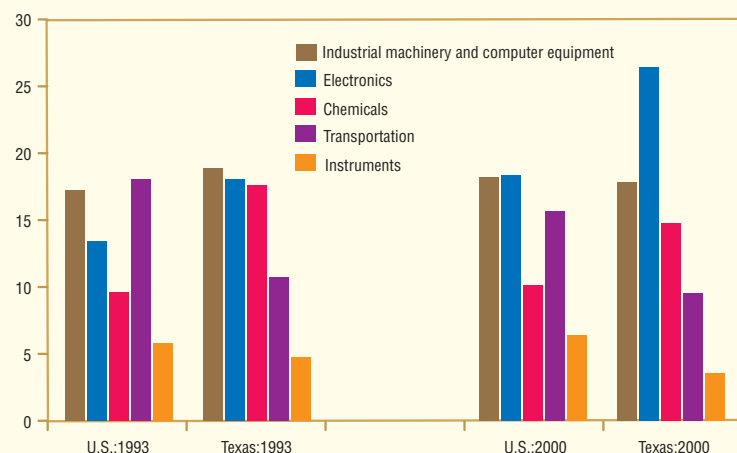


SOURCE: WISERTrade.

Chart 3

Composition of Exports: 1993–2000

Percent of total exports



SOURCE: WISERTrade.

For both the U.S. and Texas, the leading exports are largely the same—industrial machinery including computer equipment, transportation equipment, electronics, chemicals and instruments.

become even more dominant as a market for Texas. By 2000, Mexico received more than 45 percent of Texas' exports, and Canada also gained as a destination for Texas products.

Broad-based data on exports suggest continuity rather than change in the first years NAFTA was in effect. Texas and the U.S. sold more to Mexico and Canada in 2000 than they did in 1993, but general trade patterns didn't change all that much in the six-year period. NAFTA's impacts on the Texas economy emerge more clearly by looking at the changes in exports by industry.

Looking at Industry Data

For both the U.S. and Texas, the leading exports are largely the same—industrial machinery including computer equipment, transportation equipment, electronics, chemicals and instruments (*Chart 3*). They reflect America's comparative advantages in the global marketplace. Texas' mix differs from the rest of the country—electronics, for example, has emerged as a particular strength for the state. Even so, the same five categories were at the top before NAFTA in 1993 and after it in 2000.

In terms of overall exports, some major Texas industries show distinct breaks from their pre-NAFTA trends (*Chart 4*). Texas electronics companies, for example, saw their exports grow significantly faster after NAFTA went into effect. Chemicals,

which were dropping prior to the trade deal, began to rise after its implementation. After an initial decline due to Mexico's peso crisis of 1994, transportation equipment experienced an uptick in its growth rate.

Not all sectors show rising exports. Texas sales of lumber and wood had been increasing before 1994 but declined after NAFTA. Furniture and fixtures show a similar pattern.

Industry data suggest churning beneath the surface for Texas exports. How much of it can be attributed to NAFTA? The answer requires a model that takes into account other factors that might contribute to the state's expanding overseas sales. Income growth in Texas and Mexico would affect exports because richer countries tend to buy more overseas. The real exchange rate between the U.S. and Mexico is especially important because the period under study includes Mexico's peso crisis, which induced wide swings in trade.

The worldwide march toward freer trade deserves consideration because it, too, could be expected to increase Texas exports. Since 1990, nations have signed more than 180 regional free-trade agreements. Among the more important ones were the European Union's steps toward integration in 1992 and the liberalization in Latin America symbolized by the Southern Common Market, or Mercosur.

Controlling for incomes, a time trend, exchange rates, the EU opening, Mercosur and other industry- or country-specific factors allows us to isolate NAFTA's impact on 28 Texas industries. When it comes to exports to Mexico, 19 of these industries benefited from NAFTA, while nine saw sales decline. Texas exports to Canada rose for 18 industries and fell for 10. Half of the 28 industries gained in both countries, while six declined in both countries (*Chart 5*).

Industries with statistically significant gains in exports to Mexico as a result of NAFTA were rubber and miscellaneous plastic products (79 percent), printing and publishing (78 percent), textile mill products (75 percent), petroleum and coal products (69 percent), leather and leather products (71 percent) and electronic equipment (49 percent). Significant declines were found in lumber and wood products (89 percent) and furniture and fixtures (75 percent).

The statistically significant NAFTA winners in terms of exports to Canada were oil and gas exploration equipment (286 percent), furniture and fixtures (75 percent), industrial machinery including computers (70 percent), apparel (66 percent), instruments and related products (58 percent) and rubber and miscellaneous plastic products (54 percent). The only significant decline was in metal mining (88 percent).

The diversity in gains and losses of

exports among industries suggests trade deals affect economic sectors differently. Lower tariffs no doubt gave some Texas industries an advantage over Mexican and Canadian companies. Export declines might signal an inability to compete, although they could simply reflect some firms' decisions to shift economic activity to other states. Because Texas had more winners than losers, though, we can conclude that NAFTA in general made Texas industries more competitive.

Overall, NAFTA had an export-weighted average effect of 28 percent on Texas exports to Mexico. Adjusted for inflation, the trade deal accounted for roughly a quarter of Texas' 111 percent increase in exports to Mexico between 1993 and 2000.

During the same period, Texas' NAFTA-related exports to Canada rose 47 percent, or about a third of the state's 131 percent gain in that market. Texas sells quite a bit more to Mexico than to Canada.

Even if the percentage effect is smaller, the NAFTA-led increases in exports to Mexico are larger in dollar terms.

The results indicate that NAFTA stimulated Texas' exports. These findings are similar to those of a St. Louis Fed study.⁴ Using a different state-level database covering the years 1988 to 1997, they estimated that NAFTA increased Texas exports to Mexico by 14 percent and to Canada by 28 percent.

Global Gains

Did gains in the Mexican and Canadian markets come at the expense of exports to the rest of the world?

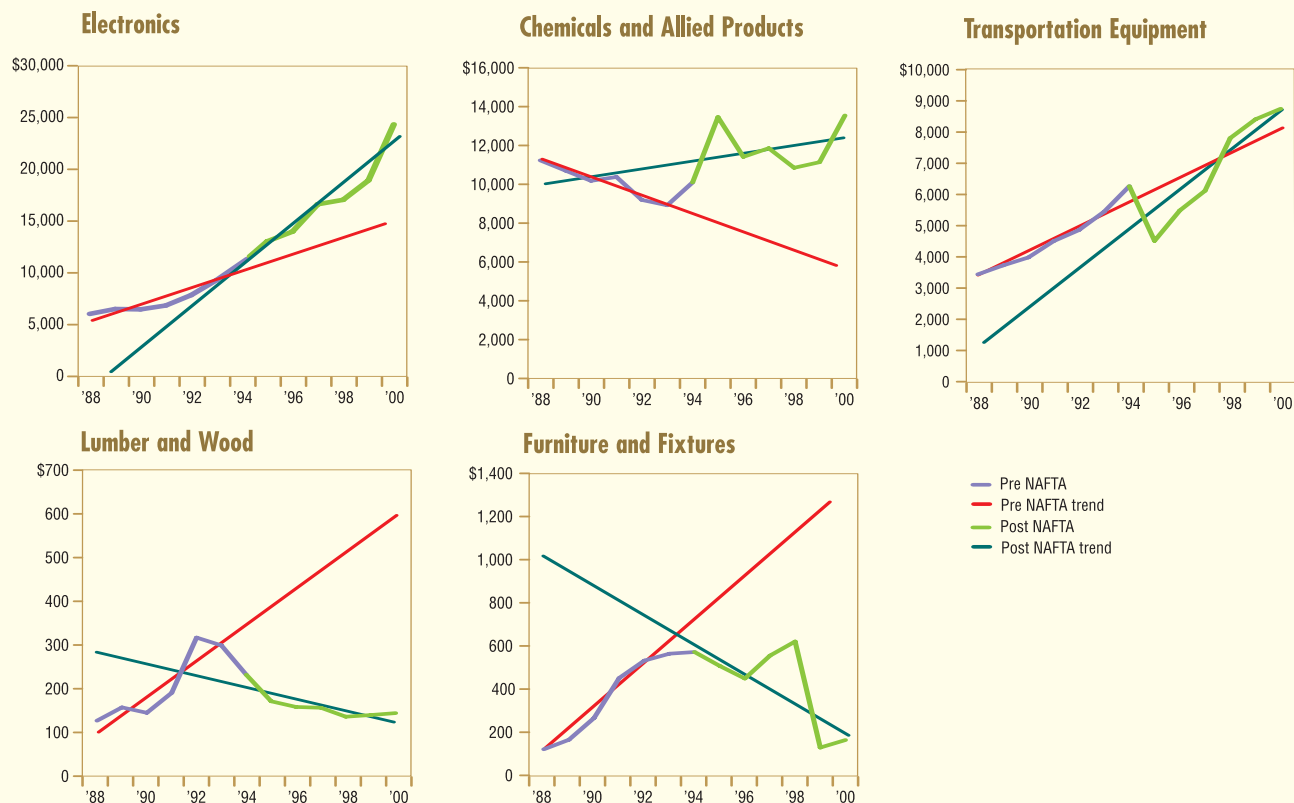
The answer is no. In addition to boosting North American sales, NAFTA also contributed to moderate gains in Texas' exports to other parts of the world. The trade deal helped boost sales by 17 percent in Latin America, not including Mexico; 15 percent in Europe; and 13 percent in Asia.

NAFTA didn't open non-North American markets, so why would it help Texas exports to the rest of the world? The answer likely lies in the reorganization of production that comes with exposure to the global marketplace. As North American trade barriers fell, Texas exporters had new incentives to become more competitive, perhaps by cutting costs to match rivals' prices or by incorporating lower-priced inputs from Mexico. Other factors might also be at work. The international-trade expertise that firms gained by selling to Mexico may have helped them penetrate Europe, Asia and elsewhere. Countries may have informally reduced import barriers as part of a strategy to achieve free-trade agreements with the U.S.

The estimates of NAFTA's impacts on Texas exports don't account for Mexico's highly successful maquiladora program, which allows U.S. goods to enter Mexico duty-free for further processing and re-

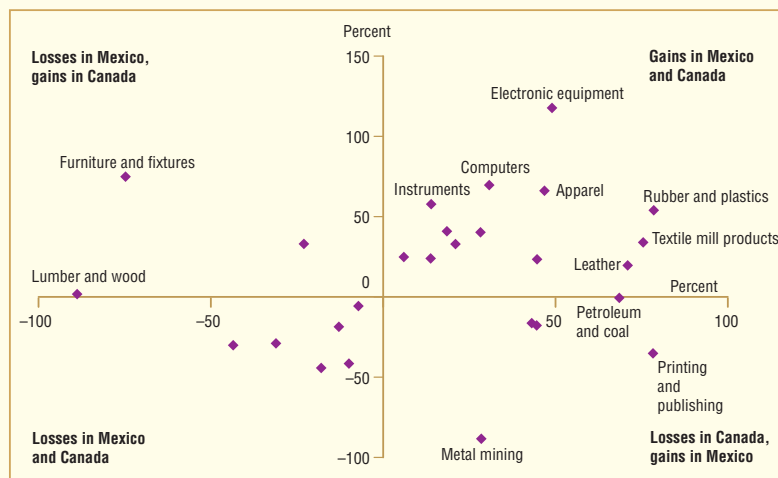
Chart 4

Texas Exports by Industry Before and After NAFTA (Millions of Dollars)



SOURCE: WISERTrade

Chart 5
Industry Winners and Losers from NAFTA

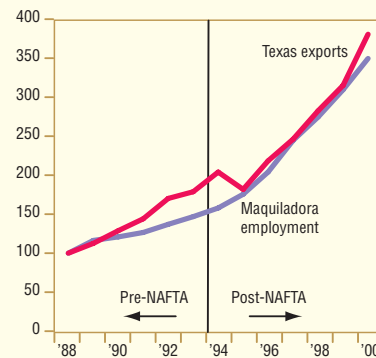


NOTE: Oil and gas equipment, although statistically significant at a 286 percent increase, falls outside the boundaries of this chart.

SOURCE: WISERTrade

Chart 6
Texas Exports to Mexico and Maquiladora Employment: Pre- and Post-NAFTA

Index, 1988 = 100



SOURCE: WISERTrade; Haver Analytics.

export to the United States.

In the debate leading to NAFTA's ratification, experts differed on how the trade pact would affect the maquiladoras. Some thought it would strengthen them by boosting investment in the plants. Others argued that it would erode the maquilas' advantage by lowering tariffs on nearly all imports to Mexico.

Maquiladora employment has grown steadily for decades, but it accelerated under NAFTA (*Chart 6*). However, a 2001 Dallas Fed study concluded that NAFTA had a negative but statistically insignificant influence on the maquiladoras.⁵ If the industry hadn't weakened, the estimates of NAFTA's effects on Texas exports would have been larger.

Texas now ranks as America's top exporting state, with about 14 percent of the nation's overseas sales. At least some of the gains can be attributed to NAFTA, which boosted 2000 exports by an estimated 23 percent above their pre-NAFTA 1993 levels. The trade pact's gains have been broadly based. Exports to Mexico rose—as many expected—but Texas products have also found expanding markets in Canada, Europe, Asia and Latin America as a direct result of NAFTA. The added overseas sales amount to a moderate gain for the state's economy, leading to faster growth and new jobs.

More Texas exports are only half the story. NAFTA also operated at the industry level, prompting a reorganization consistent with the theory of comparative advantage. As North American barriers fell, such knowledge- and capital-intensive industries as electronics, chemicals, transportation equipment and industrial machinery received a stimulating jolt. Labor-intensive industries, like lumber and furniture, couldn't maintain their exports.

The data don't allow industry-specific assessment of NAFTA beyond 2000. However, the steady increase in overall Texas exports in recent years at least suggests that NAFTA continues to exert a positive effect on the state's economy.

Kumar is an economist in the Research Department of the Federal Reserve Bank of Dallas.

Notes

The author thanks Jason Saving, Mine Yücel and Steve Brown for insightful comments.

¹ "Distinguishing NAFTA from the Peso Crisis," by David M. Gould, Federal Reserve Bank of Dallas *Southwest Economy*, Issue 5, September/October 1996.

² "The Effects of NAFTA on U.S.-Mexican Trade and GDP," Congressional Budget Office, May 2003.

³ The analysis can't be continued past 2000. The World Institute of Social and Economic Research compiles state-level export figures, providing added detail by industry. The switch from Standard Industrial Classification (SIC) to the North American Industry Classification System (NAICS) means data since 2001 cannot be compared with earlier periods.

⁴ "NAFTA and the Changing Pattern of State Exports," by Cletus C. Coughlin and Howard J. Wall, Working Paper 2000-029, Research Division, Federal Reserve Bank of St. Louis, October 2000.

⁵ "Was NAFTA Behind Mexico's High Maquiladora Growth?" by William C. Gruben, Federal Reserve Bank of Dallas *Economic and Financial Review*, Third Quarter 2001.

The Economics of Immigration

Congress is considering various proposals for immigration reform this year. Pia Orrenius, a Dallas Fed senior economist and immigration expert, discusses the economic aspects of the growing number of foreign-born workers, including their effects on the U.S. economy, government budgets, and native-born Americans' jobs and earnings.

Q: What can you tell us about the size of the immigrant population in the United States?

A: Immigrants make up about 12 percent of the overall population, which means about 36 million foreign-born live in the United States. The commonly accepted estimate for the undocumented portion of the foreign-born population is 11 million. Immigrants come from all parts of the world, but we've seen big changes in their origins. In the 1950s and 1960s, 75 percent of immigrants were from Europe. Today, about 75 percent are from Latin America and Asia. Inflows are also much larger today, with 1 million to 2 million newcomers entering each year.

What's interesting about the United States is how our economy has been able to absorb immigrants and put them to work. U.S. immigrants have high employment rates compared with other developed countries. This is partly because we don't set high entry-level wages or have strict hiring and firing rules. In this type of flexible system, you have more job openings. You have more opportunities. You also have lower entry-level wages, but immigrants at least get their foot in the door.

Being in the workforce allows immigrants to interact with the rest of society. They learn the language faster, pay taxes and become stakeholders.

Q: Where do immigrants fit into the U.S. economy?

A: Our immigrants are diverse in economic terms. We rely on immigrants for both high- and low-skilled jobs. Some immigrants do medium-skilled work, but more than anything else they're found on the low and the high ends of the education distribution.

The economic effects are different



depending on which group you're talking about. We have an extremely important group of high-skilled immigrants. We rely on them to fill important, high-level jobs in technology, science and research. About 40 percent of our Ph.D. scientists and engineers were born in another country. We also employ many high-skilled immigrants in the health sector.

High-skilled immigration has good economic effects—it adds to GDP growth. It also has beneficial fiscal effects—the impact on government finances is large and positive. People tend to focus on illegal or low-skilled immigration when discussing immigrants and often do not recognize the tremendous contribution of high-skilled immigrants.

Q: What about the low-skilled immigration?

A: With low-skilled immigration, the economic benefits are there as well but have to be balanced against the fiscal impact, which is likely negative.

What makes the fiscal issue more difficult is the distribution of the burden. The federal government reaps much of the revenue

from immigrants who work and pay employment taxes. State and local governments realize less of that benefit and have to pay more of the costs associated with low-skilled immigration—usually health care and educational expenses.

Q: Does it matter whether the immigration is legal or not?

A: If you're making value judgments about immigrants, or if you're discussing national security, you probably need to distinguish between those who come legally and those who don't. From an economic perspective, however, it makes more sense to differentiate among immigrants of various skill levels than it does to focus on legal status.

The economic benefits of low-skilled immigrants aren't typically going to depend on how they entered the U.S. Illegal immigrants may pay less in taxes, but they're also eligible for fewer benefits. So being illegal doesn't mean these immigrants have a worse fiscal impact. In fact, a low-skilled illegal immigrant can create less fiscal burden than a low-skilled legal immigrant because the undocumented don't qualify for most benefits.

Q: How does immigration affect jobs and earnings for the native-born population?

A: We focus a lot on that—for example, exactly how immigration has affected the wages of Americans, particularly the low-skilled who lack a high school degree. The reason we worry about this is that real wages have been falling for low-skilled U.S. workers over the past 25 years or so.

The studies tend to show that not much of the decline is due to inflows of immigrants. The consensus seems to be that wages are about 1 to 3 percent lower today as a result of immigration. Some scholars find larger effects for low-skilled workers. Still, labor economists think it's a bit of a puzzle that they haven't been able to systematically identify larger adverse wage effects.

The reason may be the way the economy is constantly adjusting to the inflow of

“A low-skilled illegal immigrant can create less fiscal burden than a low-skilled legal immigrant because the undocumented don’t qualify for most benefits.”



immigrants. On a geographical basis, for example, a large influx of immigrants into an area tends to encourage an inflow of capital to put them to use. So you have a shift out in labor supply, but you also have a shift out in labor demand, and the wage effects are ameliorated. At the same time, the native labor supply is changing. We have fewer and fewer low-skilled workers, largely because older workers, who are more likely to lack a high school degree, are retiring and leaving the labor force. In that way, low-skilled immigrants are filling a disappearing niche in our native labor force. So that, too, might work against finding large wage impacts.

Q: Is it all about wages?

A: Economic models say people move in response to wage differentials, and that’s pretty much it. When wage differentials shrink, migration should slow. Sociologists have long pointed out, however, that other dynamics affect immigration, such as family reunification, risk diversification, security and access to financial markets.

Workers are more likely to migrate if patterns have been established to help them make their way to the foreign workplace. In Mexico over the past 15 years, for example, we’ve seen increased migration to the U.S. even as living standards in Mexico improved slightly. Because of the networks and migra-

tion flows in place, it’s going to take longer before a small shrinkage in the wage gap results in a decline in immigration.

Q: What about the American Dream of immigrants coming to this country, working hard and prospering? Is it still alive?

A: Most immigrants start out behind the native-born because they don’t have the advantages of growing up in this society. As they learn, their wages grow. Within the same generation, you should find that immigrants assimilate to natives with similar characteristics—job, age, education and such. So a high school dropout immigrant will likely achieve the wage outcomes of a native high school dropout. However, if you don’t take into account education, you don’t see the same economic assimilation. Mexican immigrants who lack a high school degree don’t achieve the average wages of natives once they come to the U.S., even after 10 to 15 years.

What we want over generations is for the children of immigrants to achieve the same education and incomes as average natives. You do see that for many groups. Our biggest concern is with Hispanic immigrants, because they’re the ones coming in with the lowest education levels.

While the great majority of children of Hispanic immigrants do well, their summary statistics aren’t as favorable. This is because in the second and third generation they still have twice the high school dropout rate as other natives. So a fraction of these immigrants and their children aren’t assimilating even over generations. They’re not achieving overall U.S. averages in education and wages as much as they’re assimilating to Hispanic averages, which are lower.

Q: What are the likely economic effects of a guest-worker program?

A: A guest-worker program would likely have

two components, addressing existing and new migrants. Incorporating illegal immigrants who are already here and working, while controversial, would not have large economic effects. These immigrants have already had a labor-market impact. They’ve already had a fiscal impact. Because they’ve been working here, we’re not going to suddenly have a big wage impact or see native workers displaced.

What might change is that they would get temporary legal status in the U.S., and they’d be able to get driver’s licenses and open bank accounts. It would make their lives easier. It really wouldn’t worsen the fiscal situation because, as guest workers, the immigrants presumably wouldn’t be eligible for more public benefits than they are now.

The economic effects of legalizing new migrant workers is more complicated. If the program simply institutionalizes the existing stream of undocumented workers, economic and fiscal effects will be much what they are today. In fact, depending on how it’s implemented and how employers are impacted, a guest-worker program combined with stricter enforcement could actually serve to reduce the demand for immigrant labor.

If the program comes with fees on employers and workers or if employees who were off the books are now going to be contributing employment taxes, the program would raise the cost of immigrant workers. This would increase the relative demand for native-born workers. If there is no cap on the number of new workers coming in or other measures to limit the guest-worker inflows, then increases in labor supply could negate any benefit for natives.



In the current recovery, manufacturing has bounced back faster in Texas than in the nation as a whole. Last year, Texas added roughly 7,500 manufacturing jobs, a 0.8 percent increase, compared with a U.S. loss of 72,500 jobs, a 0.5 percent decline.

Jobs, of course, are just one measure of manufacturing performance. Investments in technology and knowledge have helped firms raise productivity. Production estimates, however, are available only with a lag and only for the state as a whole. Employment is the best indicator of where manufacturers locate within the state.

Manufacturing remains vital to many communities. In 21 of Texas' 254 counties, it accounts for 20 percent or more of the jobs (*see map*). Factories are responsible for a third or more of total employment in five counties—Titus and Morris in East Texas, Calhoun and Lavaca on the Gulf Coast, and Moore in the Panhandle.

Overall, manufacturing is a largely urban enterprise. Nearly 90 percent of the

state's 907,500 factory jobs are located in or near the state's big cities (*see chart*). The metropolitan areas offer a ready supply of skilled workers and access to transportation.

A third of the state's manufacturing jobs are in North Texas—22 percent in the Dallas area and 11 percent in the Fort Worth area. Houston and its environs account for 24 percent. Austin and nearby Round Rock are at 6 percent, San Antonio at 5 percent.

Border counties have a below-average share of manufacturing jobs, most likely because of the proximity of less expensive production in Mexico. Only 14 Texas counties report no manufacturing at all.

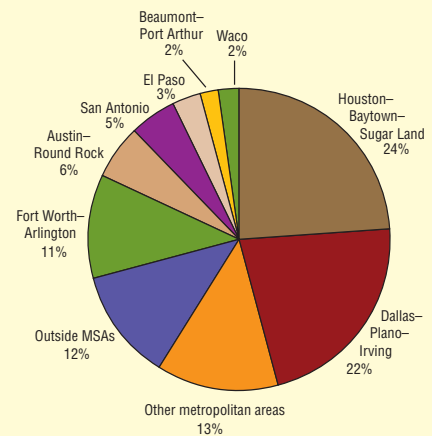
The state's metropolitan areas differ in their industrial profiles. Dallas leads in primary metals, furniture, wood, paper, printing, food, textiles and nonmetallic mineral products, such as brick, glass and cement.

Houston has half of the state's petroleum and chemicals manufacturing jobs and roughly a third of the workers making fabricated metals, machinery and electrical equipment. Houston also leads the state in jobs for workers making beverages, with 27 percent. San Antonio has the next largest concentration—16 percent.

Houston and Dallas are each home to slightly more than 20 percent of workers making rubber and plastics products.

While Austin is one of the nation's high-tech capitals, Dallas has Texas' largest concentration of workers making computer and electronics products, with 43 percent of the state's employment. Austin

Texas Manufacturing Employment



SOURCE: Texas Workforce Commission.

employs 26 percent of these workers.

Fort Worth-Arlington leads the state in rolling out transportation equipment, with 36 percent of jobs. Dallas also is home to a good number of factory jobs making transportation equipment, with 21 percent.

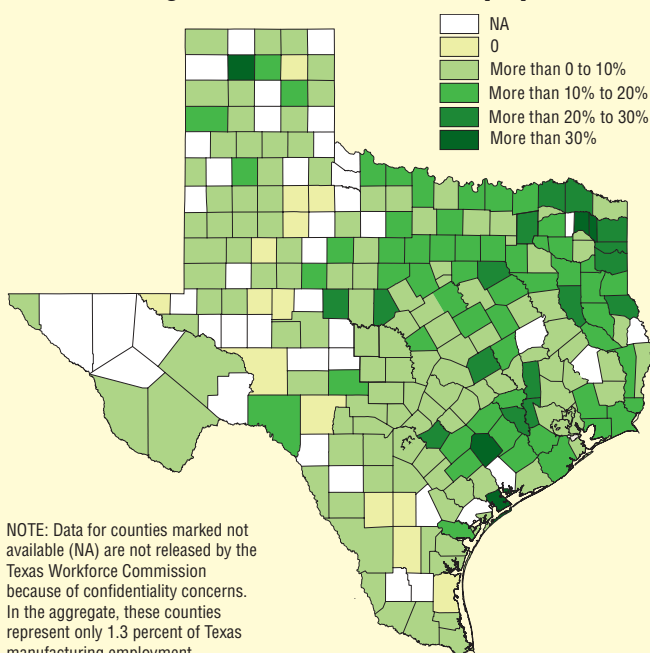
While still important, factory employment isn't what it once was. The rapid increase of service jobs has led manufacturing to slip as a share of Texas employment. Manufacturing accounts for roughly 9 percent of Texas employment today, down from 13 percent a decade ago.

The industry faces competitive pressures from low-cost producers in China, Mexico and elsewhere. Firms will seek the most cost-efficient method to produce, sometimes choosing to increase productivity through investments in machinery rather than workers. As a result, while the state's total factory output has continued to rise, many of Texas' 23,300 manufacturers are producing more with fewer workers.

The wide dispersion of factory jobs across the state, however, suggests that many communities still have a significant stake in maintaining a favorable climate for manufacturing.

—Fiona Sigalla and Franklin D. Berger

Manufacturing Jobs as Share of Total Employment



NOTE: Data for counties marked not available (NA) are not released by the Texas Workforce Commission because of confidentiality concerns. In the aggregate, these counties represent only 1.3 percent of Texas manufacturing employment.

SOURCE: Texas Workforce Commission.

Dynamic Growth in the Rio Grande Valley

By José Joaquín López

Its proximity to Mexico and fast-growing, binational job market are major factors in the Rio Grande Valley's economy. They're a large part of the reason employment has increased at a faster, steadier pace in the Valley than in the United States, Mexico or Texas as a whole (*Chart 1*).

Despite rapid job creation, the Valley remains relatively poor. The McAllen–Edinburg–Mission metropolitan statistical area ranks last among the nation's 361 MSAs, with a per capita income of \$15,184 a year, less than half the national average of \$31,472. The Brownsville–Harlingen MSA comes in next to last at \$16,308.

The combination of rapid job growth and low income is unusual. In a study covering 1967 to 1997, Dallas Fed economist Keith Phillips found weak employment gains in other states' low-income counties—annual averages of 2 percent in Kentucky, 0.4 percent in West Virginia and 0.3 percent in Mississippi. Valley employment, by contrast, rose 3.4 percent a year over the three decades.

More recent data confirm that the Valley is creating jobs at an above-average rate, a trend that dates back to at least 1969.

The McAllen MSA posted the strongest gains of all the Texas–Mexico border metros from 1997 to 2003, with employment growing an average 4.6 percent. Brownsville's 3.1 percent job growth was nearly twice as fast as Texas' 1.6 percent. National job creation over this period was 1.2 percent.

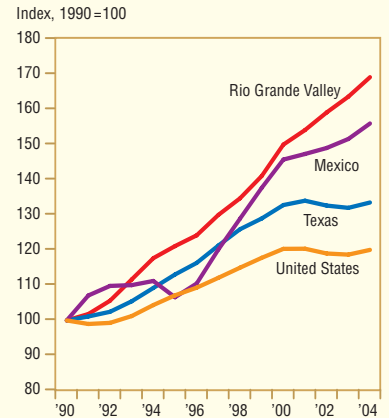
The years of strong job growth have whittled away at the Valley's once-high unemployment rate. McAllen's jobless rate fell from 25.1 percent in April 1990 to 6.6 percent in December 2005. Brownsville's dropped from 16.1 percent in April 1991 to 6.1 percent in December 2005.

These trends raise several questions. What sectors have contributed to the Valley's rapid job growth? How does Mexico shape the Valley's economy? Will the stripping away of trade barriers in Central America and the Dominican Republic mean new competition or new opportunities? Can the Valley continue to create jobs? Can it begin to close the income gap?

Economic Drivers

The Rio Grande Valley abuts the Gulf of Mexico at Texas' southern tip and stretches roughly 100 miles along the river that

Chart 1
Valley Tops Texas, U.S., Mexico in Job Growth



SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas; Instituto Nacional de Estadística, Geografía e Informática.

separates the United States from Mexico (*see map*). The region encompasses Cameron, Hidalgo, Starr and Willacy counties, which had a combined population of nearly 1.1 million in 2005.

In terms of earnings, two sectors account for nearly half the area's economic activity. The largest contributor to income is government, which includes local, state and federal workers as well as public school and university employees (*Chart 2*). This sector accounted for more than a quarter of Valley earnings in 2004, well above the 18 percent state average.

The Valley's second-largest sector is health care and social assistance. At 20 percent of earnings, the 2004 share was two-thirds higher than the 12 percent of a decade earlier. Over the same period, health care's share of the national economy rose much more slowly, going from 9.5 percent to 10.8 percent. The state is slightly below the U.S. average at 10 percent.

Retail trade earnings made up almost 10 percent of the Valley economy in 2004, just about matching the state average. Mexican nationals cross the border to shop year-round. Tourist traffic includes Winter Texans, mostly retirees from the Midwest and Canada who spend several months in the Valley, attracted by warm weather and low living costs.

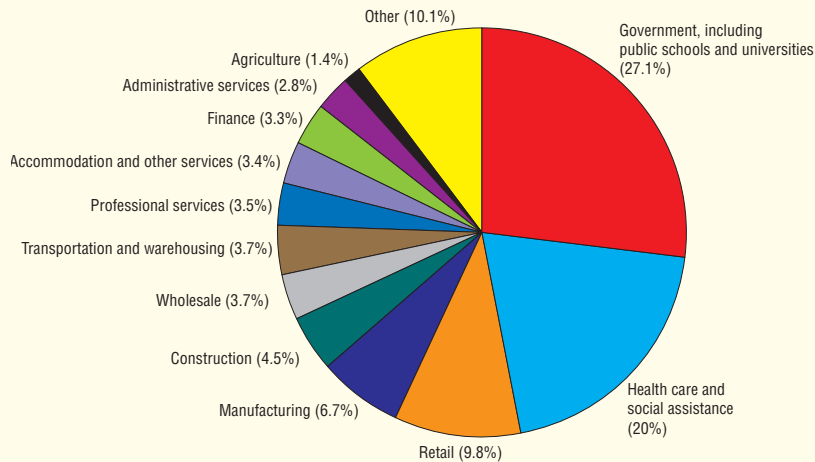
Spending by Mexicans and other visitors makes Valley retailing an important export sector, a rarity in nonborder cities.¹

Rio Grande Valley



Chart 2

Government, Health Care Biggest Sources of Valley Earnings



SOURCE: Bureau of Economic Analysis.

The percentage of sales to nonresidents averaged about 35 percent in McAllen and 26 percent in Brownsville over 1978–2001 (*Chart 3*). This number is considerably higher for Laredo, the main port of entry for U.S.–Mexico land-borne trade, and much lower for El Paso, which relies more heavily on the maquiladora industry in Ciudad Juárez.

Agriculture has historically been one of the Valley's cultural and economic mainstays. The annual harvest remains an

important source of income and jobs in rural areas, but agriculture's overall share of the Valley economy has been declining for more than three decades (*Chart 4*). By 2004, farming accounted for less than 1.4 percent of total earnings, making it one of the smallest sectors.

Ties to Mexico and Beyond

Across the Rio Grande from the Valley lies Mexico—a developing country with its most dynamic regions in the north, oppo-

site Texas. Northern Mexico interacts heavily with the Valley, providing demand for goods and services as well as a competitive location for low-cost production. Over the years, Mexico has contributed to the Valley's booms and busts.

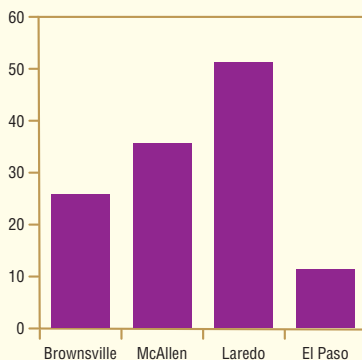
Spending by Mexican shoppers is well documented, but Mexico also affects the size of the government sector in the Valley. Many Mexican students attend school on the U.S. side of the border, boosting the education segment. The region, moreover, serves as a base for an extensive U.S. Customs and Border Protection presence. The agency is an important source of income because its jobs are relatively high paying. In 2003, average annual earnings for civilian federal workers in the Valley were \$83,562, up 11 percent from 1998 when adjusted for inflation. By contrast, the area's overall average earnings were \$26,874 in 2003, a gain of 4 percent.

Businesses on the Texas side of the border get a boost from a strong Mexican maquiladora industry, which takes advantage of duty-free imports from the United States for assembly and re-export. Reynosa, across the Rio Grande from McAllen, and Matamoros, Brownsville's sister city, are home to roughly a third of the maquiladora employment along the Texas–Mexico border. In addition, Reynosa's maquiladora industry has had the fastest job growth along the U.S.–Mexico border since 2000, and it was the only maquiladora industry that did not see employment declines during the most recent U.S. recession (*Chart 5*).

Chart 3

Nonresident Spending Boosts Border Retail Sales

Share of total retail sales, 1978–2001 average (percent)

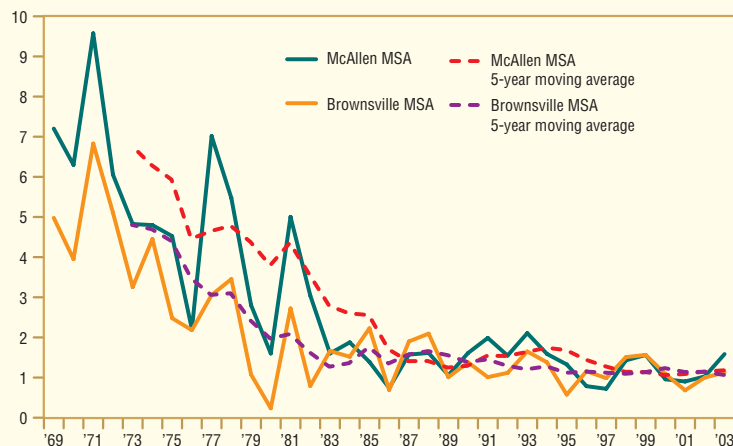


SOURCE: "Texas Border Benefits from Retail Sales to Mexican Nationals," by Keith R. Phillips and Roberto Coronado, in *The Face of Texas*, Federal Reserve Bank of Dallas, October 2005.

Chart 4

Agricultural Earnings Share Declines

Share of total Valley earnings (percent)



SOURCE: Bureau of Economic Analysis.

With Mexico's low-wage workers so near, the Valley's manufacturing sector has been limited. It accounts for 6 percent of employment, less than the state's 9 percent and the nation's 11 percent. The manufacturing across the border, however, beefs up transport, warehousing and other business services that supply maquiladoras. Research by Dallas Fed economists Bill Gilmer and Jesus Cañas finds that maquiladoras and their supporting industries play a key role in allocating employment across sectors in four pairs of border cities.²

Proximity to Mexico increases the importance of the dollar–peso exchange rate to the Valley. Fluctuations affect the purchasing power of Mexican shoppers and tourists, and sharp declines in the peso's real value have negatively impacted such sectors as retail and leisure. Valley MSAs are typical of all those along the border. They show a strong correlation between the U.S.–Mexico real exchange rate and the business-cycle index, as determined by employment, jobless rates, retail sales and total wages (*Chart 6*).

Since Mexico's adoption of floating exchange rates in early 1995, however, the peso has shown more stability, notably surviving a period of uncertainty during the 2000 presidential election. Since then, low inflation in Mexico and other factors have caused the peso to strengthen, improving its purchasing power. The Valley economy will benefit if the peso maintains its stability through this year's elections.

Although Mexico will continue to be a dominant factor for the Valley economy, new business opportunities could arise in other nations. In 2005, Congress approved the Central American Free Trade Agreement (DR-CAFTA), with Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and the Dominican Republic. The agreement will eventually eliminate tariffs and other trade barriers among the participants.

These countries' main exports include coffee, sugar, petroleum, bananas and gold. Their main imports are machinery and equipment, raw materials, consumer goods, cotton and fabrics. This pattern is consistent with trade theory, which predicts that countries will export goods produced with an abundant factor, such as low-skilled labor, while importing goods and services produced using a locally scarce input, such as capital or highly skilled labor.

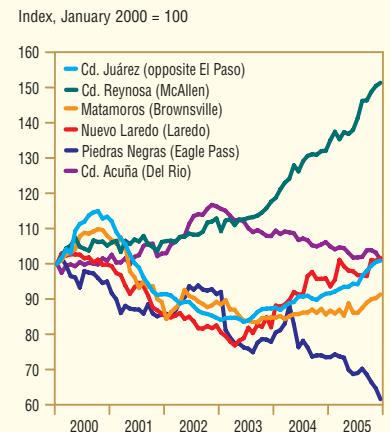
As barriers between the DR-CAFTA countries fall, however, access to a larger

variety of previously nontraded goods and services can redefine the pattern of imports and exports. The Valley can benefit from increasing trade with the DR-CAFTA nations by selling beef, medicinal products such as aloe vera, processed food, cotton, and unique fruits and vegetables, such as the Sweet Texas Red Grapefruit and the Texas 1015 SuperSweet Onion. The pre-CAFTA duty on such products ranged from 1 percent for cotton to 30 percent for beef.

Both the Valley and DR-CAFTA counties produce sugar, but Texas growers have little to fear from the new trade pact. The Valley's sugar industry, which represents about 10 percent of the area's agricultural output, retains substantial protection under the agreement. The quota over the next 15 years will reach 150,000 metric tons, 1.9 percent of 2004 U.S. production. Under the current farm bill, the domestic sugar program remains unaffected, while total sugar imports are kept below 1.4 million metric tons—a comfortable cushion considering the size of sugar influx from the DR-CAFTA area. The over-the-quota U.S. tariff on sugar will not change. It's currently above 100 percent, one of the highest the United States imposes.

Because imports from DR-CAFTA countries will not significantly threaten the U.S. sugar industry, Valley producers' market allotment is unlikely to decline significantly as a result of the agreement.

Chart 5
Maquiladora Job Growth Strongest in Reynosa



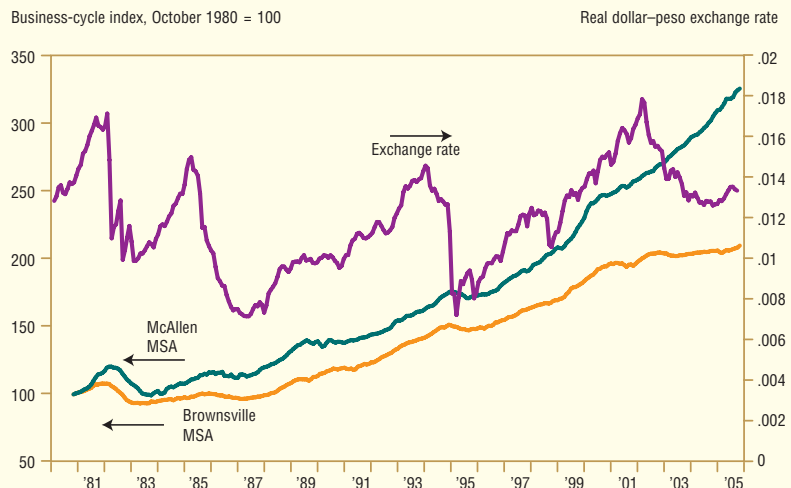
SOURCE: Instituto Nacional de Estadística, Geografía e Informática.

The Valley's Prospects

Overall, the Valley's short-term outlook is positive. Employment gains are likely to continue at a relatively strong pace, especially in health care, now the largest private-sector employer. Key drivers of employment will probably remain strong, and agriculture can benefit from more exports. Because the health care and federal government sectors

(Continued on back page)

Chart 6
Business Cycles, Exchange Rates Correlate in Valley MSAs



SOURCES: Federal Reserve Bank of Dallas; Banco de México.

QUOTABLE *"The oil industry has slowly come to believe that price incentives can be trusted this time and has finally begun to act on them."*

—Bill Gilmer, Vice President

TEXAS JOBS: Growth Stronger Than Earlier Estimates

An annual revision of job data indicates that Texas employment grew last year nearly twice as fast as previously reported. The Texas Workforce Commission now puts job growth from December 2004 to December 2005 at 2.7 percent, up from the previous estimate of 1.5 percent.

Updating the data adds about 119,000 jobs to Texas' employment growth for 2005. Among the significant gainers were government, manufacturing, professional and business services, and trade and warehousing.

The revisions incorporate more comprehensive survey data into previously published monthly data. They're part of a nationwide review conducted by the federal Bureau of

Labor Statistics and state employment authorities.

Government statisticians rework the data once a year, but each quarter the Dallas Fed anticipates the monthly revisions with a benchmarking methodology developed by economists Franklin D. Berger and Keith R. Phillips. Prior to the latest revision, the Dallas Fed model had been projecting Texas job growth of 2.1 percent for 2005—anticipating half the eventual revision.

To calculate the revisions on a timely basis, the Dallas Fed economists incorporate the same data the BLS later uses. Their estimates are regularly posted on the Bank's Internet site, www.dallasfed.org.

AGRICULTURE: Drought Taking Toll on the State

A prolonged period of sparse rainfall has been hard on Texas agriculture. The Texas Agricultural Extension Service estimates the state's drought losses from September through January at \$1.5 billion.

So far, the cattle industry has been the hardest hit. The drought has meant higher feed costs, less wheat in pastures and losses from selling livestock at lighter-than-normal weights. About 1 million acres of range- and pastureland and thousands of head of cattle and horses have been lost to wildfires.

The drought has added to agriculture's financial stress. Farmers and ranchers had already been hurt by rising fuel-

related costs and sagging market prices for crops.

After one of the driest years on record in 2005, this year is shaping up to be as dry, if not worse. Without significant and widespread rain in the spring and summer, the drought's effects could spread to farmers and other agriculture-related businesses. Consumers could face higher prices for meat, produce and other foods, and banks could see higher farm-loan delinquency rates.

Recent rains have helped ease the dry spell in some parts of the state, and agricultural lenders have not yet indicated that the drought has impacted farm-loan quality or performance.

DEFENSE: Military Expansion on Tap for El Paso, San Antonio

Two Texas cities, both already significant beneficiaries of defense dollars, will add jobs as the Pentagon closes bases and reassigns personnel.

El Paso's Fort Bliss will gain 11,395 military and civilian positions. About 3,800 troops came in late 2005. Another 3,800 troops were scheduled to arrive in the first few months of 2006, with the rest to follow over the next five years.

The incoming troops are already boosting homebuilding and other activities, and estimates of economic ripples raise the overall impact to as many as 20,198 jobs, or 6.1 percent of El Paso's current employment. In recent years, El Paso has been adding an average of 3,666 new jobs per year, so the military boost is equivalent to 5.5 years of job creation.

San Antonio's Fort Sam Houston will add 9,339 military and civilian jobs. Cutbacks at other San Antonio military facilities will reduce the regional economy's gain to 5,459 jobs, or 0.5 percent, including indirect effects.

The realignment will reduce employment in several Texas communities. For the most part, the losses will be small relative to total employment—less than 1 percentage point. Taking the biggest hits will be Corpus Christi, losing 7,026 jobs (3.2 percent), and Wichita Falls, down 4,360 jobs (4.7 percent).

After all gains and losses are taken into account, Texas will add 13,848 jobs from the Pentagon's realignment.

Texas Economy on Solid Footing

By all accounts, the sluggish economic growth witnessed in the years following the 2001 downturn is a thing of the past. In 2005, the Texas economy gathered speed, posting its best performance in five years. Moreover, job growth in the Lone Star State outpaced that of the United States, rising at a rate more in line with its historical average. So far in 2006, signs continue to point to a steady Texas expansion, with few clouds on the horizon.

Texas employment rose a solid 2.7 percent in 2005, according to revised job data released March 9 by the Texas Workforce Commission (TWC). This pace of job expansion was near Texas' 35-year historical average of 2.9 percent and faster than national employment growth. (2005 U.S. employment growth was 1.5 percent, slightly below its 35-year historical average of 1.8 percent.) Texas job growth last year was broad based across major industries and metros. The goods sector (natural resources and mining,

construction and manufacturing) provided a substantial boost after displaying weakness during most of the recession and recovery.

Texas labor market activity remained positive in January, with job gains of 11,700 (1.4 percent annualized), according to data released by the TWC and seasonally adjusted by the Dallas Fed. The largest gains were recorded in professional and business services (3,200), educational and health services (2,700), and trade, transportation and utilities (2,500). The construction industry added 1,700 jobs as demand for new homes remained elevated and commercial construction continued to edge up. Although January's overall employment growth was more moderate than that recorded in 2005, anecdotal reports, such as the Eleventh District Beige Book, indicate Texas labor market activity remains strong.

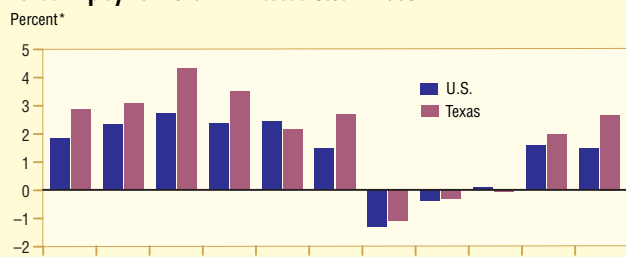
Besides employment, other economic measures suggest the Texas expansion remains on track. The Dallas Fed's Texas

Coincident Index—a business-cycle index made up of current indicators—rose at a solid 3.4 percent annualized pace in January. Despite slower growth in the index in late 2005 (mostly due to rising unemployment rates following the hurricanes), the index gained ground overall last year, rising at a pace of 3.6 percent—up from 2004's growth of 2.9 percent.

Additionally, real Texas exports are growing at a good clip, up 1.9 percent in fourth quarter 2005 and 5.9 percent from a year earlier. Because Mexico is Texas' largest trading partner, the country's recent economic pickup should give an added boost. Moreover, elevated energy prices have pushed the Texas rig count to its highest level in about 20 years. Finally, a January uptick in the Texas Leading Index confirms the state's economy remains on solid footing for growth in the months ahead.

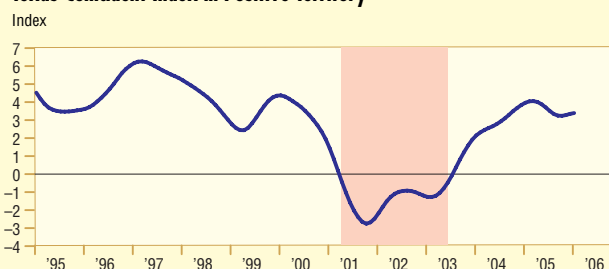
—D'Ann Petersen

Texas Employment Growth Exceeds U.S. in 2005



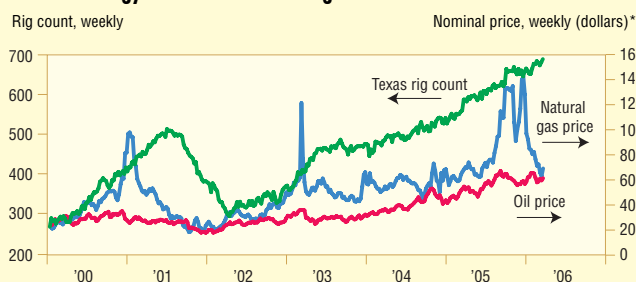
*Total nonfarm employment, December-over-December, seasonally adjusted, annualized rate.

Texas Coincident Index in Positive Territory



*Month-over-month, seasonally adjusted, annualized rate. Shading indicates Texas recession.

Elevated Energy Prices Boost Texas Rig Count



*Natural gas price is multiplied by 10.

Texas Leading Index on the Rise



pay above-average wages, the growth of these industries is good for the Valley economy.

Rising maquiladora employment, especially in Reynosa, should also boost the economy over the next year or so. Steady job and population growth will continue to fuel commercial and residential construction, resulting in an optimistic forecast for this otherwise volatile sector.

Although Mexico's July presidential election may create some uncertainty, floating exchange rates and relatively stable currency-market fundamentals reduce the likelihood of a peso shock. With its strength sustained, Mexico's currency should continue to stimulate the Valley's retail and leisure sectors.

Longer term, the Valley faces challenges. Consistent and rapid job growth since the early 1990s has helped the region shed its reputation for high unemployment, but the economy hasn't been catching up with national and state levels of per capita income.

Most likely, low educational attainment lies at the heart of this. The region has been unable to improve the education level of its workforce relative to the state since the 1970s. In 2000, the percentage of the labor force with less than a high school education averaged 52 percent in the Valley and 24 percent in Texas, according to the Census Bureau. If the Valley were to reduce its high

school dropout rate to the state average, income would go up an estimated \$2 billion a year.³

Some trends are encouraging. Local university enrollment has been rising for the past four years, perhaps a sign the Valley is responding to an economic environment that rewards higher skills. In addition, increased state funding for public education during the 1990s may start having a positive impact on education, and thus, on per capita income.

In summary, fast convergence toward state and national levels of per capita income will depend mainly on the Valley's ability to improve the education of its workforce, a long-term commitment that can only succeed through the combined efforts of households, businesses and government.

López is an economic analyst at the San Antonio Branch of the Federal Reserve Bank of Dallas.

Notes

¹ Exceptions are major tourist areas, such as Las Vegas, where a large share of retail sales is to nonresidents.

² "Industrial Structure and Economic Complementarities in City Pairs on the Texas–Mexico Border," by Robert W. Gilmer and Jesus Cañas, Federal Reserve Bank of Dallas Working Paper no. 0503, 2005.

³ "Secondary Education: Its Impact on Border Income," by Thomas Fullerton Jr., *The Border Economy*, Federal Reserve Bank of Dallas, June 2001.



SouthwestEconomy is published six times annually by the Federal Reserve Bank of Dallas. The views expressed are those of the authors and should not be attributed to the Federal Reserve Bank of Dallas or the Federal Reserve System.

Articles may be reprinted on the condition that the source is credited and a copy is provided to the Research Department of the Federal Reserve Bank of Dallas.

Southwest Economy is available free of charge by writing the Public Affairs Department, Federal Reserve Bank of Dallas, P.O. Box 655906, Dallas, TX 75265-5906; by fax at 214-922-5268; or by telephone at 214-922-5254. This publication is available on the Dallas Fed web site, www.dallasfed.org.

Executive Vice President and Director of Research
Harvey Rosenblum

Director of Research Publications
W. Michael Cox

Executive Editor
Mine Yücel

Editor
Richard Alm

Associate Editors
Jennifer Afflerbach
Kay Champagne
Monica Reeves

Graphic Designer
Gene Autry