

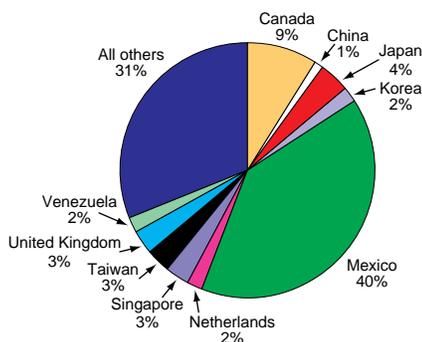
# the Southwest ECONOMY

FEDERAL RESERVE BANK OF DALLAS

ISSUE 5 – 1995

## Made in Texas: Global Exports Boost State Economy

**Chart 1**  
1994 Texas Exports  
(Adjusted for Inflation)



SOURCES: Massachusetts Institute for Social and Economic Research; Federal Reserve Bank of Dallas.

At year-end 1994, Texas' number one trading partner lost half of its buying power in the peso devaluation. Mexico bought 40 percent of Texas merchandise exports last year, and not surprisingly, Mexican demand for Texas goods dropped sharply in early 1995. But just as Texas' prospects for international trade looked their worst, the state's merchandise exports surged to a record-breaking \$17 billion in the first quarter of 1995.

So, why are Texas merchandise exports soaring? While Mexico's demand for Texas goods dropped abruptly, rising demand from Japan, China and other countries pushed Texas exports to unprecedented levels. Much of the rising demand has been for Texas' chemical, electronic, computer and agricultural products.

Exports represent a significant share of Texas' economy, contributing roughly 18 percent of total gross state product, compared with approximately 10.6 percent of total gross domestic product for the nation as a whole.<sup>1</sup> In 1994, Texas' \$60 billion in merchandise exports constituted about 51 percent of the state's total manufacturing sales, up from 44 percent in 1993.

Texas exports stimulated growth in the state even as the national economy weakened. In the first

quarter of 1995, Texas employment growth remained strong, particularly in manufacturing. Preliminary Dallas Fed estimates suggest that the state's total real output soared to an annual rate of 7 percent in the first quarter, up from roughly 4 percent in the fourth quarter of 1994.<sup>2</sup> In contrast, in the first quarter, U.S. real output increased at an annual rate of 3 percent.

### Texas Trades with Many Countries

In recent years, Mexico's rapidly expanding market may have overshadowed growing global demand for Texas goods. More than 50 countries regularly purchase Texas products. Most of these goods are shipped to 10 countries: Mexico, Canada, Japan, the United Kingdom, Taiwan, China, Singapore, Korea, Venezuela and the Netherlands (*Chart 1*). These top 10 markets account for almost 70 percent of Texas merchandise exports. Typically, more than half of those Texas exports are bound for Mexico.<sup>3</sup>

Over the past seven years, Texas exports to Mexico more than tripled. But as shown in Chart 2, in the last two years, export growth

I N S I D E

Does the CPI Overstate  
Increases in the Cost  
Of Living?

Maquiladoras:  
Mexico's Bright Spot

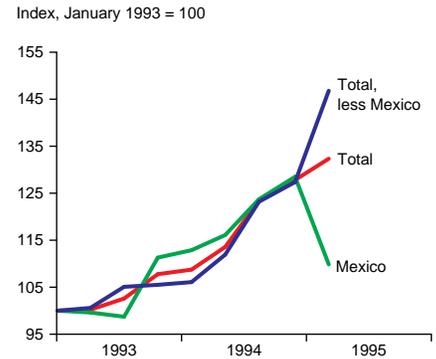
*“Texas goods became relatively less expensive in those markets, greatly mitigating the effects of the dollar’s strength relative to the peso.”*

to the rest of Texas’ trading partners kept pace with that of Mexico, rising 24 percent. After Mexico’s peso devaluation, exports to these other trading partners surged and helped offset lost trade with Mexico. In the first quarter of 1995, exports to Mexico fell 14 percent. Exports to the rest of Texas’ trading partners jumped 15 percent, resulting in a 4 percent increase in total Texas exports.<sup>4</sup> As shown in Table 1, rising demand from Japan, Taiwan, China, Korea and the Netherlands boosted Texas’ first-quarter exports.

### Other Currency Changes Soften Peso’s Blow

Many factors influenced the demand for Texas exports in the first quarter, but the value of the dollar was perhaps the most important. Between the fourth quarter of 1994 and the first quarter of 1995, the value of the dollar rose 53 percent relative to the peso, greatly increasing the price of U.S. exports to Mexico.<sup>5</sup> During the same period, however, the value of the dollar relative to most Texas trading partners’ currencies fell. Texas goods became relatively less expensive in those markets, greatly mitigating the effects of the dollar’s strength

**Chart 2**  
Texas Exports to Mexico and the Rest of the World  
(Adjusted for Inflation and Seasonal Patterns)



SOURCES: Massachusetts Institute for Social and Economic Research; Federal Reserve Bank of Dallas.

relative to the peso.

An export-weighted value of the dollar helps analysts evaluate the impact of the changing exchange rates of all of Texas’ trading partners. The Texas value of the dollar measures the real dollar/foreign currency exchange rates for 44 countries, weighting them by their importance to Texas trade.<sup>6</sup> As shown in Chart 3, the total Texas export-weighted value of the dollar increased from October 1994 to March 1995, but not as much as the dollar strengthened against the peso. Even though the value of the dollar fell against the currencies of

**Table 1**  
Top 10 Texas Export Markets, First-Quarter 1995  
(Adjusted for Inflation and Seasonal Patterns)

	Percent change in exports	
	From fourth-quarter 1994	From first-quarter 1994
1. Mexico	-14	-4
2. Canada	3	36
3. Japan	37	63
4. United Kingdom	-2	29
5. Taiwan	48	60
6. China	165	275
7. Singapore	7	30
8. Republic of Korea	20	49
9. Venezuela	1	40
10. Netherlands	12	43
Rest of exports (43 countries)	12	25

NOTE: Exports to Mexico would have fallen further without maquiladoras. See related article on page 9.  
SOURCE: Massachusetts Institute for Social and Economic Research.

most of Texas' trading partners, the export-weighted value of the dollar increased because Mexico, as the leading trading partner, has the largest weight. In the first quarter of 1995, the total Texas export-weighted value of the dollar rose 14 percent.

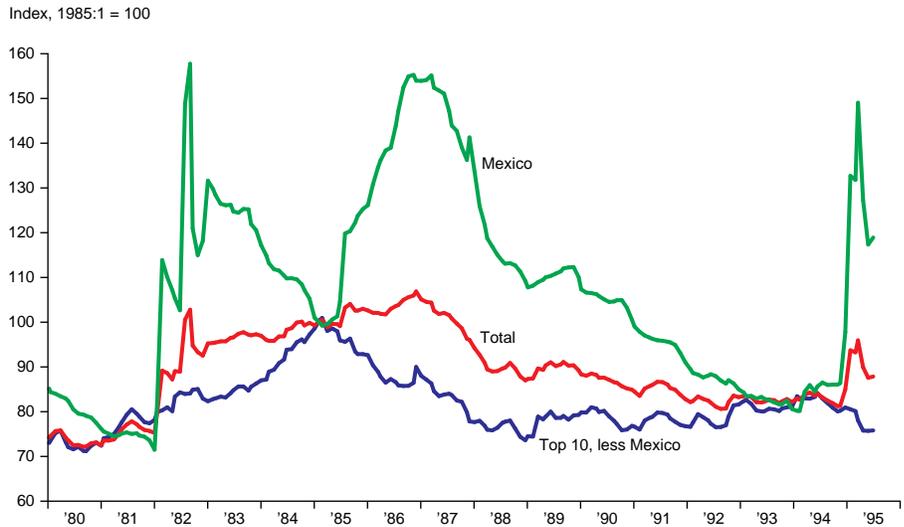
### Several Texas Industries Surge

Although Texas ships a variety of products to foreign markets, nearly 90 percent of those goods are from 10 industries. Table 2 ranks Texas' top 10 export industries by the value of sales between first-quarter 1994 and first-quarter 1995. During this period, export growth was driven by strong demand for goods from four industries: chemicals, electronics, industrial machinery (including computers) and agriculture. Together, products from these four industries represented 97 percent of the net gain in Texas exports.

**Chemicals.** On a year-over-year basis, exports of chemicals and allied products increased 50 percent in the first quarter of 1995, representing 36 percent of the net increase in Texas exports. Strong domestic and international demand for petrochemicals spurred a boom for the Texas chemical industry in 1994. Until recently, however, capacity constraints have limited Texas' exports to the world; most products were consumed by a prospering U.S. economy. In the first quarter of 1995, however, slowing domestic sales allowed Texas manufacturers to meet demand from international customers.

Petrochemicals and related engineering and construction firms have become an important segment of the Texas energy industry.<sup>7</sup> As a major natural gas processor, the Gulf Coast region is rich with the coproducts necessary to produce petrochemicals. Ethylene and propylene, for instance, are the building blocks for most plastics and rubbers. Global demand for these goods has stimulated the Houston economy and led to several huge expansion projects on the ship

**Chart 3**  
Texas Export-Weighted Value of the Dollar



channel. Construction contractors with roots in the hydrocarbon processing (or petrochemical) industry have diversified to become multinational suppliers of engineering and construction expertise, building major industrial facilities, roads, highways, airports, hotels and resorts around the world. In 1994, five of the top 20 industrial contractors in the world were based in Texas and generated \$4.1 billion in foreign revenues.<sup>8</sup>

**Electronics and Electric Equipment.** Heavy worldwide demand for semiconductor computer chips and telecommunications equipment helped these industries contribute 27 percent of the net increase in Texas

exports in the first quarter of 1995. Although the United States is still the world's largest semiconductor buyer, global demand is increasing rapidly. Computer chips and other Texas-produced electronic devices are used in an expanding variety of products, including personal computers, cellular telephones, answering machines, cameras, automobiles and microwave ovens. International sales of Texas-produced telecommunications equipment also have been growing rapidly. Texas produces switching components and internal components of state-of-the-art telecommunications networks, such as fiber optic transmission equipment.

**Table 2**  
Top 10 Texas Export Industries, First-Quarter 1995

	Value in millions	Percent change from first-quarter 1994
1. Chemicals	\$3,566	50
2. Electronics and electric equipment	3,377	35
3. Industrial machinery and computer equipment	3,105	25
4. Transportation equipment	1,252	-18
5. Agricultural production—crops	1,093	80
6. Instruments	697	6
7. Food and kindred products	558	6
8. Petroleum and coal products	503	14
9. Fabricated metal products	503	-16
10. Primary metal industries	480	12

SOURCE: Massachusetts Institute for Social and Economic Research.

Global demand has led Texas' high-tech industry to expand rapidly in recent years, leading to construction of several huge factories. Two of the largest microchip manufacturers in the world are located in Austin: Motorola Inc. and Advanced Micro Devices. Motorola is also the world's leading maker of micro-controllers. Applied Materials, also in Austin, is the world's leading producer of wafer fabrications systems and a leading manufacturer of flat-panel display screens used in portable computers and other electronic devices. Texas Instruments, also a major producer of semiconductors, has been expanding in the Dallas area, along with several large telecommunications manufacturers.

**Industrial Machinery and Computers.** While some electronics produced in Texas are shipped worldwide as parts, other electronics are assembled in the state and exported as industrial machinery and computers. In the first quarter of 1995, computers and nonelectrical equipment represented 19 percent of the net gain in Texas exports.

Many of the world's largest computer manufacturers are located in Texas, including Dell Computer Corp. in Austin, Compaq Computer Corp. in Houston and Texas Instruments in Dallas. These firms have been reporting strong sales, with a backlog of orders for many of their products.

Heavy international demand for oil and gas field equipment has also contributed to exports in this industry. Texas oil service and machinery companies have more than replaced declining domestic oil field activity by expanding into international markets.

**Agriculture.** Shipments of agricultural crops added 15 percent of the net increase in Texas exports over the past year. Texas crop exports increased 80 percent between the first quarter of 1994 and the first quarter of 1995, and 65 percent of the increase in sales went to China. Exports to China tend to be very volatile, but in the past year, several

factors led China to import large volumes of corn, cotton, edible oil, rice and wheat.<sup>9</sup>

As the nation's number one cotton producer, Texas has benefited as U.S. exports of cotton climbed to their highest level in 70 years. Strong worldwide demand, along with the adverse effects of insect infestations and disease on cotton crops in China, Pakistan and, to a lesser extent, India have contributed to the rise in exports and boom in cotton prices.

### **Mexico Still Restraining Texas Export Growth**

Although exports have diversified the Texas economy, the drop in sales to Mexico has restrained export growth. Total Texas exports grew slightly slower in the first quarter of 1995 than in all of 1994. Export growth would have surged further if sales to Mexico had increased at the same rate as in 1994.

A partial rebound in the value of the peso suggests that exports to Mexico may have picked up in the second quarter (second-quarter state export data were unavailable at press time). As shown in Chart 3, in the third quarter, the value of the dollar depreciated 20 percent relative to the peso, and the Texas export-weighted value of the dollar also fell, declining 8 percent.<sup>10</sup> Still, a weak Mexican economy will continue to restrain Mexico's consumption and restrain Texas' export growth.

—Fiona Sigalla

### **Notes**

<sup>1</sup> Gross state product data for Texas are Federal Reserve Bank of Dallas estimates for 1994, and merchandise exports are from the Massachusetts Institute for Social and Economic Research (MISER). Service exports for Texas and the United States are assumed to equal 40 percent of merchandise exports, which is the average percentage of U.S. service exports to the world.

<sup>2</sup> See Franklin D. Berger and Keith R. Phillips, "A New Quarterly Output Measure for Texas," Federal Reserve

Bank of Dallas *Economic Review*, Third Quarter, 1995.

<sup>3</sup> The export data used in this article were obtained from MISER, which makes adjustments to data from the U.S. Census Bureau, Foreign Trade Division. Exports are measured by state of origin; products are measured from the state where they begin the journey to point of export. This measure may attribute goods to the state where they are warehoused before beginning the journey to point of export. In the case of Texas exports, this measure likely overstates exports to Mexico and understates exports to Canada.

<sup>4</sup> Exports to Mexico would have fallen further without maquiladoras. (See related article on page 9.)

<sup>5</sup> The real value of the dollar against the peso, according to the Dallas Fed's Trade-Weighted Value of the Dollar Index, went from 90.1 to 137.8 from the fourth quarter of 1994 to the first quarter of 1995.

<sup>6</sup> Texas' largest trading partner, Mexico, represents 33 percent of the index. Canada represents 8 percent of the index, Japan 6 percent, the United Kingdom 5 percent and Taiwan 4 percent. Overall, the dollar index represents 91.5 percent of Texas exports.

<sup>7</sup> Bill Gilmer, "Houston's Economy Continues to Improve," Federal Reserve Bank of Dallas, Houston Branch *Houston Business*, September 1994.

<sup>8</sup> According to the *Engineering News Record*, four Houston companies (M.W. Kellogg, Raytheon Engineers, John Brown/Davy, and Brown & Root) and one San Antonio company (H.B. Zachary) are listed among the top 20 companies, based on the values of contracts signed in 1994. One other company (Centex of Dallas) is number three in the world in construction revenues but has zero foreign revenues.

<sup>9</sup> Rising demand and commodity prices, government policies and inadequate transportation and marketing systems were among the factors leading to China's surge in agricultural imports. For more information, see United States Department of Agriculture, Economic Research Service, *Agricultural Outlook*, June 1995.

<sup>10</sup> During the third quarter, the value of the dollar fell 3 percent against the currencies of Texas' other leading trading partners.