

# Houston Business

A Perspective on the Houston Economy

## The Dollar Exchange Rate And the Houston Economy

The dollar exchange rate is a key determinant of the U.S. business cycle. As the dollar strengthens against other currencies, imports become cheaper relative to domestic goods and services, and products purchased abroad displace domestic output and slow the U.S. economy. The opposite is true as the dollar weakens, pushing up the dollar price of imports and stimulating domestic production as purchases are made at home rather than abroad. The Houston economy is subject to exactly the same principles, of course, but there are several reasons for Houston to be more sensitive to the U.S. dollar exchange rate than other U.S. metropolitan areas.

In the last issue of *Houston Business*, we explained the recent strength of the Houston economy by focusing on oil markets and the national business cycle; we did not discuss the dollar exchange rate. This article corrects that oversight by taking a close look at the role of the dollar in Houston. The dollar exchange rate can affect Houston in three ways, all operating in the same direction. A strong dollar works to slow Houston's economy, while a weak dollar works to stimulate it. Together, these factors make the dollar a powerful influence on local economic conditions.

### THE DOLLAR IN HOUSTON

In several past publications, we have statistically highlighted the role of three influences on employment growth in Houston since 1975: real oil prices, the national business cycle and the real dollar exchange rate.<sup>1</sup> Table 1 shows estimates of the percentage change in employment in Houston's goods-producing sectors that result from a 1

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percent increase in each factor. These results are updated to early 1997, and they have proved highly stable as the length of the data series has grown.

For this article, the main lesson from Table 1 is that the role of the dollar is large and consistent across these goods sectors, and that the dollar is a powerful influence on the local economy. Why so large? First, the estimated effects on employment are not immediate, but cumulative over 12 to 18 months. Second, the coefficients shown here respond to a relatively stable index of the dollar that moves less than exchange rates of individual currencies. Our measure of the real exchange rate, a product of the Federal Reserve Bank of Dallas, is a trade-weighted index of the dollar based on U.S. trade with over 100 partners. Because of the averaging that occurs across so many countries, this measure tends to be more stable than individual country exchange rates or other trade-weighted measures that include fewer countries. Also, our measure of the exchange rate is a real measure, adjusted for inflation trends between currencies, and in recent years these real measures have become more stable as global inflation has slowed. For example, monthly changes in the Dallas real-dollar index since 1976 have a standard deviation relative to the mean of only 1 percent, and nominal changes have a standard error of 1.4 percent. Further, the Board of Governors' well-known measure of the nominal trade-weighted value of the dollar, based on only 10 countries, has a standard deviation relative to the mean of 2.3 percent. Over the same period, nominal monthly changes are 2.8 percent for the German mark and 2.9 percent for the Japanese yen.

Finally, the effect of the exchange rate on Houston is large because it affects the Houston economy in three ways, all in the same direction. A stronger dollar slows the local export sector; a stronger dollar slows the U.S. economy and, indirectly, slows Houston; and, because world oil prices are denominated in dollars, a stronger dollar pushes up world oil prices measured in local currencies—even if the dollar price is unchanged. Higher oil prices discourage oil consumption, weaken world oil markets and slow the Houston economy.<sup>2</sup> In contrast, a weaker dollar stimulates the Houston economy through exactly the same channels. Because of the “other things equal” nature of the statistical estimates of employ-

Table 1

Percentage Response of Houston Goods Employment To a One Percent Increase in Three Factors

	U.S. unemployment rate	Real oil prices	Real-dollar exchange rate
Goods sectors	-.0690*	.3587*	-.9263*
Upstream			
oil sectors	-.0477	.5197*	-.9613*
Mining	.1838*	.4163*	-.6193
Machinery	-.4676*	.7403*	-1.8170*
Downstream			
oil sectors	.0563	.0963*	-.7956*
Refining	.2990*	.1041*	-.8269*
Chemicals	.1049*	.0998*	-.7518*
Other manufacturing	-.1965*	.2417*	-1.1140*

\* Indicates that the variable is statistically significant at a high level.

ment changes in Table 1, the influence of the dollar—as it works through all three paths—winds up combined in the coefficient for the exchange rate.

#### HOUSTON'S EXPORT SECTOR

The U.S. Department of Commerce International Trade Administration provides data on sales of merchandise for export by metropolitan area. As Figure 1 indicates, Houston's 1995 export sales of \$16.2 billion were large enough to rank number seven among U.S. metropolitan areas. Other large Southern or Southwestern cities that are commercial competitors with Houston fall behind in this ranking: Miami (\$10.2 billion), Dallas (\$6.9 billion), Phoenix (\$6.8 billion), Atlanta (\$5.8 billion) and New Orleans (\$3 billion).

The Department of Commerce warns that its sales estimates may not be the same as local production, since the data cannot separate production and marketing of exports. However, the industries that provide the bulk of Houston's exports suggest a substantial overlap between these sales figures and local production. In 1995, Houston's largest export sector was industrial machinery, with \$5.8 billion in sales, or 35.6 percent of the total, followed by chemicals (29.6 percent), refined products (11.3 percent), electric and electronic equipment (4 percent) and various nonmanufactured goods (3.6 percent). If we count only sales of industrial machinery, chemicals and refined products—all mainstays of Houston's productive capacity—it is enough to keep Houston as the South's dominant exporter.

Houston's export customers are widely distributed: the list of regions that buy between

15 and 20 percent of local exports includes the other NAFTA countries, Europe, East Asia and South America. Countries making the largest purchases are Canada, Mexico, the United Kingdom, Singapore, Korea, Japan, Taiwan and Brazil. The fastest growth in Houston's trade from 1993 to 1995 was with South America, East Asia, China and India. Trade with Europe, Mexico and Japan experienced below-average growth during this period.

### THE DOLLAR AND HOUSTON TODAY

In the last issue of *Houston Business*, we discussed how a strong national economy and strong oil markets have pushed the performance of the Houston economy to high levels over the past year. Given this is true, oil and the U.S. economy have been able to overcome the effects of a stronger dollar. Using the Federal Reserve Bank of Dallas real-dollar index, the dollar rose 4.1 percent from December 1995 to July 1997; the nominal increase in the index was 8.8 percent. Real increases in the value of several key currencies during this period were 7.4 percent for the yen, 22.5 percent for the mark, 20.8 percent for the franc and 8.1 percent for the pound.

Despite the strong dollar, the U.S. economy has continued to export at high levels in recent quarters. This has suggested to some observers that the investments made by American companies in new plants and new technologies, along with a smaller and streamlined workforce, have begun to pay off with greater productivity and improved international com-

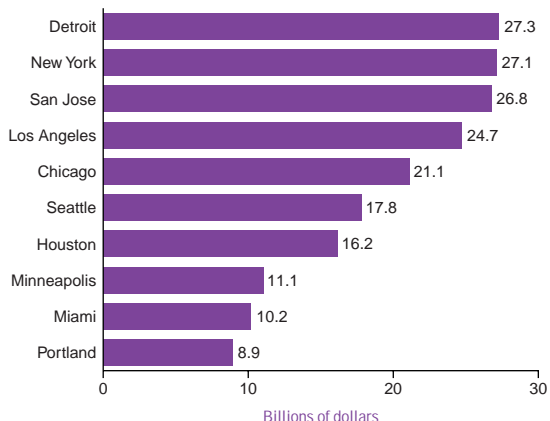
petitiveness. In other words, the relationship between the exchange rate and the growth of the national economy may have changed. This may well be true, but when we conducted specific tests to see if the relationship between the real-dollar exchange rate and Houston employment had changed in recent years, we could find no such evidence.

Some of the most important dollar appreciation in recent months has occurred among large OECD countries such as Japan, Germany, France and the United Kingdom. These countries also top the list of the world's large oil consumers, and as the dollar price of oil has climbed over the past two years, it has risen even more in terms of their local currencies. Since December 1995, for example, the real-dollar prices paid by U.S. refiners for imported oil rose from about \$17 to \$20, or about 17.6 percent. To find the local price equivalent for other currencies, however, we must add the real appreciation in the value of the dollar. Thus, over the same period, German real oil prices rose 40.1 percent, French prices 38.4 percent and Japanese prices 25 percent. The higher prices paid by major developed countries work to cut oil consumption, put oil back onto world markets, soften oil prices and slow the Houston economy.

Houston, of course, has not slowed in step with the dollar's appreciation over the past six to 18 months. This circumstance reinforces the conclusion drawn in the last issue of *Houston Business*: that the current good times in Houston are the result of both a strong U.S. economy and a healthy energy sector, but that Houston's recent move to a high level of performance has occurred largely with the help of oil and natural gas.

— Robert W. Gilmer  
Robin S. Chhabra<sup>3</sup>

Figure 1  
Metropolitan Merchandise Exports  
(Top 10 U.S. Metro Areas, 1995)



SOURCE: U.S. Department of Commerce.

<sup>1</sup> For further details, see R. W. Gilmer, "Oil Prices and Manufacturing Growth: Their Contribution to Houston's Economy," Federal Reserve Bank of Dallas *Economic Review*, March 1990, pp. 13–20, or R. W. Gilmer, "Houston and the National Business Cycle," *Houston Business*, July 1993.

<sup>2</sup> For further discussion and statistical evidence that exchange rates influence oil consumption, see Stephen P. A. Brown and Keith R. Phillips, "The Effects of Oil Prices and Exchange Rates on World Oil Consumption," Federal Reserve Bank of Dallas *Economic Review*, July 1984.

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The Houston economy continues to show robust health in retailing, energy, construction, real estate and manufacturing. The Houston purchasing managers index jumped from 58.2 in July to 64.3 in August, surging to levels higher than the national index, as local factories saw big gains in sales, production and hiring. Local purchasing managers also indicated more price increases and longer lead times from suppliers.

#### RETAILING AND AUTO SALES

Retailers and auto dealers both continue to report solid demand. Houston retailers continue to operate in a rapidly changing and highly competitive environment, but say that demand is strong and the current high levels of consumer confidence are a big plus. A worrisome upward trend in consumer bankruptcies is the only negative note. Auto dealers report very good sales and spot shortages of some of the hottest selling vehicles.

#### PETROCHEMICALS

The loss of Shell's Deer Park ethylene capacity has kept that market unexpectedly tight and prices up. This will change in the fourth quarter, however, as at least two new large plants will come on line and push prices down. Some discounting of current polyethylene prices was noted by respondents, and posted prices of polyvinyl chloride slipped by 2 cents per pound in August. Other plastics prices have been flat throughout the summer. Demand for most products remains very strong.

#### ENERGY PRICES AND UPSTREAM ACTIVITY

Strong demand is the order of the day in oil and natural gas markets. World oil markets shrugged off another round of Iraqi crude oil sales for humanitarian aid, focusing instead on high levels of demand for oil. Crude prices held steady over the past six weeks near \$20 per barrel. Natural gas prices rose from \$2.50 to near \$2.75 with a heat wave on the East Coast and in the Midwest, and they have stayed up as the heating season approaches.

Storage injections passed the two-thirds mark in August and are on track to match the storage levels of last year if the heating season arrives on schedule.

The story remains unchanged for oil service and machinery companies. The domestic rig count surpassed 1,000 in August, and Canadian drilling is moving toward record levels. Shortages of oil-related skills and equipment have become chronic. Industry profits are excellent, with significant price increases adding to revenue.

#### REFINING AND OIL PRODUCTS

Most of the excitement in energy markets in recent weeks came from record demand for gasoline late in the summer. The driving season began slowly this year, but wholesale gasoline prices began to rise sharply in late June, moving from 55 cents to 70 cents per gallon in July and August. The domestic refinery system set several records for capacity utilization, and gasoline prices spiked with any outages in the refinery system. There were also some shortages of oxygenates to produce clean-burning summer fuels. The Labor Day weekend traditionally marks the end of the summer driving season, and gasoline prices should fall as winter approaches. Refinery margins improved along with gasoline prices, providing refiners with some of the best profits in the last two years.

#### REAL ESTATE

The number of existing home sales in July set an all-time record in Houston, as did the median price of the homes sold. New home sales were up 16 percent over last July, and housing starts jumped 21 percent as builders took advantage of dry weather. The industrial market in Houston remains the strongest commercial real estate sector, with 1.7 million square feet to be completed by year-end. About half of industrial new construction is going into northwest Houston, and much of the rest is going to the far north and far western suburbs. This marks the highest level of industrial construction since the mid-1980s.

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