



# Houston Business

A Perspective on the Houston Economy

## Is There a Slowdown in Houston's Future?

**E**mployment growth in Houston moved into high gear in mid-1996 and has stayed there ever since. The number of wage and salary jobs rose at a 5.6 percent annual rate in the second half of 1996, then 4.7 percent from December 1996 to December 1997. Year-to-date job growth through April exceeds same-period growth in 1997.

A strong national economy combined with a rising oil market has driven this expansion. The U.S. economy has churned out more than a quarter-million jobs a month since early 1994, and the country has enjoyed full employment or better since 1996. The average posted price of crude oil was \$20.51 per barrel in 1996, followed by a healthy \$18.61 in 1997. Meanwhile, natural gas prices rose from \$2.16 per thousand cubic feet to \$2.42.

This powerful combination of national expansion and healthy oil markets easily overcame an appreciating exchange rate. The Federal Reserve Bank of Dallas calculates the real trade-weighted value of the dollar rose 8.1 percent between the last quarter of 1995 and the end of 1997, in the process eroding Houston's large merchandise export sector.

In 1998, the picture has darkened as energy markets have fallen and the dollar has appreciated further due to the financial crisis in Asia. West Texas Intermediate averaged only \$13.87 per barrel in March; natural gas prices have slid recently, although they remain above \$2. The rig count has slowly fallen from over 1,000 at the end of 1997 to 822 at the last reading. The game for the Houston economy has suddenly changed from a two-on-one fast break with two strong economic positives overcoming one negative, and the break is now headed the other way. The national economy re-

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mains positive, but it can't offset the dampening effects of weak oil markets and a strong dollar. With no change in the current outlook, Houston's hot economy *will* cool off. The question is, how far and how fast.

This article poses three scenarios for this year and next and estimates the likely growth path of employment under different assumptions. The scenarios are not forecasts, but they provide an opportunity to examine how far and how fast the Houston economy would cool under different circumstances. Recent growth in Houston has been so strong, and there remains so much backlog in housing, infrastructure and other areas, it is hard to imagine job growth of less than 2.5 percent this year. It will be late 1998 or 1999 before the effects of weaker energy and a strong dollar are felt in the Houston job market. But they will be felt, and slower growth probably lies ahead.

### A MECHANICAL APPROACH

To estimate the effect of our three scenarios, we use a simple framework that assumes oil markets, the U.S. economy and the dollar exchange rate drive short-run events in the local economy. The variables used are the rig count or the real price of oil, the national unemployment rate, and the Dallas Fed's trade-weighted index of the dollar.

It takes four quarters for a change in oil markets or the U.S. economy to work its way through the Houston economy and six quarters for a change in the exchange rate to be completely felt. Table 1 shows the percentage change in employment in various goods sectors resulting from a 1 percent change in each factor. The coefficients, which include all immediate and lagged effects, are based on quarterly observations from 1975 through the first quarter of 1998.

The left side of Table 1 shows the goods sectors for which estimates were made: all goods sectors (upstream, downstream and other manufacturing), upstream oil (mining and machinery), downstream oil (chemicals and refining) and all other manufacturing. The signs on these coefficients are mostly as expected—negative for the unemployment rate and exchange rate, positive for the rig count and oil prices. The positive coefficient relating the rig count and the U.S. unemployment rate—indicating that recessions and good oil markets are often companions—is

**Table 1**

**Response of Houston Goods Employment to a 1 Percent Increase in Three Factors**

	U.S. unemployment rate (percent)	Rig count† (percent)	Real dollar exchange rate (percent)
All goods sectors	-.07*	.37	-1.06*
Upstream oil	-.04	.55*	-1.17*
Oil and gas mining	.25*	.47*	-1.04*
Machinery	-.46*	.71*	-1.57*
Downstream oil	0	.14*	-.43*
Other manufacturing	-.18*	.23*	-1.05*

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

† For downstream oil, real oil prices are used instead of the rig count.

different from the relationship for the other sectors but probably right. Oil markets and the U.S. economy have moved counter to each other throughout the past 60 years.

In our model, growth in Houston's goods production and the U.S. economy drives construction and all service sectors. Table 2 shows the effect of a change in goods employment for the current and four subsequent quarters. The U.S. economy, included to reflect growth in services driven by factors outside the area, is significant in wholesale trade and in transportation, communications and public utilities. It is also significant for all private services combined. Local goods production dominates all these sectors, however, and it strongly leads growth in every service subsector and in construction.

Longer term structural change also enters the model, but only through trend and dummy variables that capture structural shifts. Thus, we imperfectly capture the effect of new oil exploration and extraction technology, the consolidation of the oil industry into Houston, and any local growth independent of oil market or business-cycle developments. However imperfect, trend growth of as much as 5 percent a year is included for machinery industries and 3 percent a year in the "other manufacturing" category. Also, after 1987 there is a strong shift upward in the number of oil employees in Houston (from 3,200 to 5,800) that is independent of changes in the rig count.

### THREE SCENARIOS

In the first scenario Houston continues to enjoy good times. Scenario 1 assumes the U.S. economy stays strong, with an unemployment rate of 4.7 percent through 1999. The rig count

rights itself and returns to 1,000 in the third quarter of this year and stays there through 1999. Note that this is a correction in the rig count to previous levels, not a resumption of growth. Continued job growth in the model is ensured by bringing the dollar back down from 108 in the trade-weighted dollar index in first quarter 1998 to 95 by the end of this year, where it stays through 1999.

Scenario 2 foresees more of the current situation. As in the first scenario, the U.S. economy remains strong, but the dollar also stays at current levels through the end of 1999. Oil markets stabilize at \$16–\$17 per barrel, and the rig count holds at 875 working rigs through 1999. This is the two-on-one fast break described above, with two negatives now dominating the positives from the U.S. economy.

The situation in Scenario 3 is bleaker yet. It is a repeat of Scenario 2, but with oil falling to \$13–\$14 per barrel and the rig count dropping to 750 by the end of this year and staying there through 1999. The dollar and the national economy remain as strong as they are now.

Table 3 gives the model's results for each scenario, expressed in annual growth rates for employment in 1998 and 1999. Scenario 1, as expected, is a continuation of solid expansion in Houston. Total employment growth is 3.8 percent in 1998 and 3.2 percent in 1999. Because the rig count levels off at 1,000, mining employment flattens. But the decline in the dollar is enough to revive goods employment, led by machinery. Services grow at a healthy rate.

Scenarios 2 and 3 manage to maintain overall employment growth in 1998 at 2.5 percent and 2.4 percent, respectively. However, in

**Table 2**  
Response of Houston Service Employment to a 1 Percent Increase in Two Factors

	Goods (percent)	U.S. unem- ployment rate (percent)
Construction	-.99*	-.10
Private services	-.31*	-.04*
TCPU	.54*	-.10*
Wholesale trade	.64*	-.15*
Retail trade	.23*	-.05
Fire, business and personal services	.23*	0

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

NOTE: TCPU is transportation, communications and public utilities, and Fire is finance, insurance and real estate.

**Table 3**  
Houston Employment Growth by Sector in Three Scenarios  
(Year-over-year percentage change)

Sector/Scenario	1996	1997	1998	1999
<b>Total employment</b>				
1	2.7	4.3	3.8	3.2
2	2.7	4.3	2.5	-1.0
3	2.7	4.3	2.4	-2.7
<b>Goods employment</b>				
1	4.1	5.0	3.9	4.6
2	4.1	5.0	.9	-4.4
3	4.1	5.0	-1	-7.7
<b>Mining employment</b>				
1	.8	4.9	2.5	0
2	.8	4.9	-1	-8.3
3	.8	4.9	-8	-12.4
<b>Machinery employment</b>				
1	8.8	10.8	11.9	12.2
2	8.8	10.8	5.6	-3.8
3	8.8	10.8	4.5	-10.2
<b>Services employment</b>				
1	2.4	5.0	2.5	2.4
2	2.4	5.0	2.9	0
3	2.4	5.0	2.8	-2.2

1999 the reversal in oil and a continued strong dollar push mining and machinery employment down sharply; total employment drops 1 percent in Scenario 2 and 2.7 percent in Scenario 3. Services flatten out in 1999 in Scenario 2 and fall 2.2 percent in Scenario 3.

## CONCLUSION

As previously stated, these scenarios are not forecasts. Scenario 2 and Scenario 3 are deliberately chosen to contrast with the strong growth of Scenario 1 and to present tough circumstances for the Houston economy. We don't know if oil markets will stay weak and the dollar strong for another 18 months. Nor should the model's results be taken literally. As noted above, for example, the model is a clumsy representation of important structural changes in Houston's energy sector—consolidation, restructuring, lower oil finding costs through technology and so on—that could provide a significant cushion as oil and natural gas prices decline.

The ongoing Asian financial crisis and sloppy oil markets present immediate prospects that push Houston away from an outlook like Scenario 1 and closer to Scenario 2. If current conditions persist, we should not be misled by the local economy's current momentum—a significant slowdown in overall job growth is in the offing, late this year and in 1999.

**R**apid job growth and a tight labor market indicate further expansion in Houston. Job growth this year has been faster than for the same period in 1997, and the unemployment rate is at its lowest since 1981. However, continued deterioration of the oil extraction and chemical industries signals possible belt-tightening ahead. Local oil extraction and durable manufacturing employment have been flat since the beginning of the year.

### OIL AND NATURAL GAS MARKETS

Crude oil markets remain oversupplied, and storage is full to the brim, with 6 percent more oil than a year ago. Oil prices, which rallied to over \$16 in April on news of OPEC and non-OPEC production cuts, recently slipped back under \$15 when only 60 percent of the promised cuts materialized.

Natural gas prices have slowly fallen over the past six weeks from \$2.60 to near \$2 per thousand cubic feet. April inventories were 25 percent or more above last year's levels, in part because of expectations of a hot summer and possible extraordinary demand by electric utilities.

Drilling activity has continued to decline and is down about 20 percent from the peak earlier this year. Oil-related drilling remains the main culprit in the rig count's fall, but softer gas-directed drilling is now emerging. Beige Book respondents say West Texas and New Mexico are hard hit by the decline, with reports of numerous stacked rigs.

### REFINING AND OIL PRODUCTS

Gulf Coast refiners operated at high levels of capacity utilization in recent weeks, building inventory for the coming driving season. This activity plus gasoline imports has resulted in higher inventories than seen at this time for the past several years.

Wholesale gasoline prices have risen as the driving season approaches, and refining margins have slowly improved from last winter's low levels. Retail gasoline prices for the

Memorial Day holiday were the lowest since 1994. A strong summer driving season is still anticipated, although gasoline demand for the holiday weekend was weaker than expected.

### PETROCHEMICALS

Weak Asian demand continues to hurt petrochemicals. Domestic demand remains very strong, but the inability to export has put downward price pressure on a number of products. Much of the olefin and polyolefin chain on the Houston Ship Channel has seen price declines of a penny per pound or more over the past month. Further down the product chain, similar price declines are common for volume purchases of thermoplastics.

### FINANCIAL INSTITUTIONS

Banks and other lenders report that credit quality remains steady, with no increase in delinquency rates. Commercial lending continues to be competitive, with many customers receiving several offers for their business. In consumer borrowing, mortgage demand is high for both original purchase and refinancing. Auto financing has slowed seasonally, and perhaps also in response to low interest rates offered by automakers as purchase incentives. Texas home equity lending appears to be evolving as a product marketed largely and most aggressively by the biggest banks, with less interest from their small and medium-size counterparts.

### REAL ESTATE

Houston real estate generally remains a hot, hot product, as builders and developers try to catch up with the torrid growth of the past two years. Office rental rates and occupancy are rising. Existing home sales were up 29 percent from April 1997, and inventories were at their lowest since 1982. New home sales were up 22 percent over last year, and new construction is being slowed by shortages of labor, concrete and wallboard.

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