The Houston Economy

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June 2016
Houston Business-Cycle Index

Average since 2000 = 3.2

2015 growth rate = 0.2

2016 YTD = -1.4

*Annualized month-over-month growth rate. SOURCE: Dallas Fed.
Employment Growth

<table>
<thead>
<tr>
<th>Industry Supersector</th>
<th>Apr. 2015 to Apr. 2016</th>
<th>January to April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-0.1</td>
<td>-1.0</td>
</tr>
<tr>
<td>Trade, transp &amp; utilities (20%)</td>
<td>1.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Professional &amp; business svc (15%)</td>
<td>-3.4</td>
<td>-1.9</td>
</tr>
<tr>
<td>Government (13%)</td>
<td>2.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Education &amp; health services (13%)</td>
<td>4.5</td>
<td>6.4</td>
</tr>
<tr>
<td>Construction &amp; mining (11%)</td>
<td>11.0</td>
<td>-5.4</td>
</tr>
<tr>
<td>Leisure &amp; hospitality (10%)</td>
<td>3.1</td>
<td>5.3</td>
</tr>
<tr>
<td>Manufacturing (8%)</td>
<td>-9.5</td>
<td>-8.4</td>
</tr>
<tr>
<td>Financial activities (5%)</td>
<td>-2.5</td>
<td>-0.6</td>
</tr>
<tr>
<td>Other services (4%)</td>
<td>-2.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Information (1%)</td>
<td>0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

NOTES: Chart shows seasonally adjusted and annualized percentage growth by industry supersector. Numbers in parentheses represent shares of total employment and may not sum to 100 percent due to rounding.
Real Retail Sales & Wages

Wages Flatten in 2015
Retail Sales Fall

Billions of 2016:Q1 dollars

NOTE: shaded area is U.S. Recessions
Unemployment Drifts Up 0.7 Points So Far. Labor Force Growth Accelerates.

Notes: Labor force data is an annual six-month percent change. Source: Bureau of Labor Statistics.
Oil & Gas Extraction
Oil & Gas Extraction

Index, June 2014=100

Millions of barrels per day.

U.S. Production Falling

Production down by 524K barrels per day since March 2015.

U.S. Oil-directed rig count

Crude oil price

U.S. crude production

NOTE: Rig count and crude production seasonally adjusted. Rig count and nominal oil price indexed to June 2014.
2015: Upstream CapEx in the U.S. Down ~40%

2016: CapEx to fall by Another ~40% in U.S.

Cumulative 138 Oil & Gas Bankruptcies Nationally
Representing ~$26.5 Billion in Debt

May 16, 2016
(Haynes and Boone, llp)

~57,300 Core Oil- & Gas-Related Jobs
Lost Since Dec-2014

More job losses coming/already here as
Bankruptcies Mount.
## Upside Potential In Early 2017?

### When WTI Turns, How Long Before Rigs and Jobs Turn?

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Quarters after WTI Peaks</th>
<th>Number of Quarters after WTI Bottoms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rigs</td>
<td>Energy Core</td>
</tr>
<tr>
<td>1985Q4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1987Q3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>1990Q4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>1997Q4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2000Q4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2008Q2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2014Q2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Average: 
- **Rigs**: 1.2
- **Energy Core**: 4.2
Refining & Petrochemicals
Downstream Advantage

U.S. Downstream Still Cost advantaged.

Oil/Gas Ratio

Dollar Spread

Brent Spread

WTI/HH

-4

0


Downstream construction in Houston falls off in 2017 & 2018.

$55 Billion in capital Investments announced in Houston-area alone.

Note: Data are value of construction projects delivered.
Punchline

2015 & 2016:
Upstream Jobs Down
Downstream-Related Jobs Up

2017:
Upstream Jobs Flat to Up? Downstream-Related Jobs Down

On net, 2017 probably good for the region, but...

Houston Region Job Growth Could Stay Below Average into 2018
Construction & Real Estate
Anomalous Growth in 2015:Q4 Revised Away
Anomalous Contraction in 2016:Q1 Persists for now.

- Total construction: -0.7%
- Construction of buildings: -5.8%
- Heavy & civil construction: 6.4%
- Specialty trades: -0.9%
- Real estate & leasing: 43.5%
- Average since 2000: 3.2%

NOTE: Real estate and leasing is not a subsector of construction.
NOTE: Square feet of construction started is a centered three-quarter moving average.
Office CRE

Office Vacancy Rates Tied with Post-Recession Peak

SOURCE: CBRE.
Houston Home Sales

Prices level off as inventory rises

**Index Jan2000=100**

- **Median**
- **Home Sales***
- **Month's of supply**

*per the 12mma of payroll employment
Note: Seasonally adjusted
SOURCE: Houston Association of Realtors. Author's calculations.
Health Employment Growth

Hospital employment growth very strong

Percent

- **Ambulatory health (46%)**: 3.7 (Apr. 2015 to Apr. 2016), 3.3 (Jan. 2015 to Apr. 2016)
- **Hospitals (27%)**: 6.7 (Apr. 2015 to Apr. 2016), 7.1 (Jan. 2015 to Apr. 2016)
- **Other health (27%)**: 3.8 (Apr. 2015 to Apr. 2016), 0.1 (Jan. 2015 to Apr. 2016)

NOTES: Data show seasonally adjusted and annualized percentage employment growth. Numbers in parentheses represent share of total health employment and may not sum to 100 due to rounding.

Outlook
Outlook
NOTE: Employment growth is a three-month annualized percent change.

New Job Ads Suggest Less Weakness in Job Growth Ahead

NOTES: Job ad data are a statistically optimized weighted moving averages, shifted forward two months.
U.S. and TX Leading Indexes Improve.

Note: data are annualized three-month percent changes.

SOURCE: Conference Board. Seasonal and other adjustments by the DallasFed.
Looking Ahead
Looking Ahead

Houston Running Out of Steam as grim outlook for Upstream persists / spills into other industries.

Forecast:
Dec-2015 to Dec-2016

Houston Job Growth:
0 to -1% in 2016 & 2017

Texas Job Growth:
0.5 to 1.5% in 2016
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The Houston Economy

Jesse Thompson
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May 2016
Oil and Gas Jobs

Selected Mining-Related Jobs

- Support activities for mining
- Extraction
- Agriculture, construction & mining machinery

57,333 Core Oil- &-Gas-Related Jobs Lost Since Dec-2014

Less than Half of Energy-Related Losses From Mining Directly.

Note: data are three-month annualized percent changes.