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The Houston Economy From An Employment Perspective

August 2016

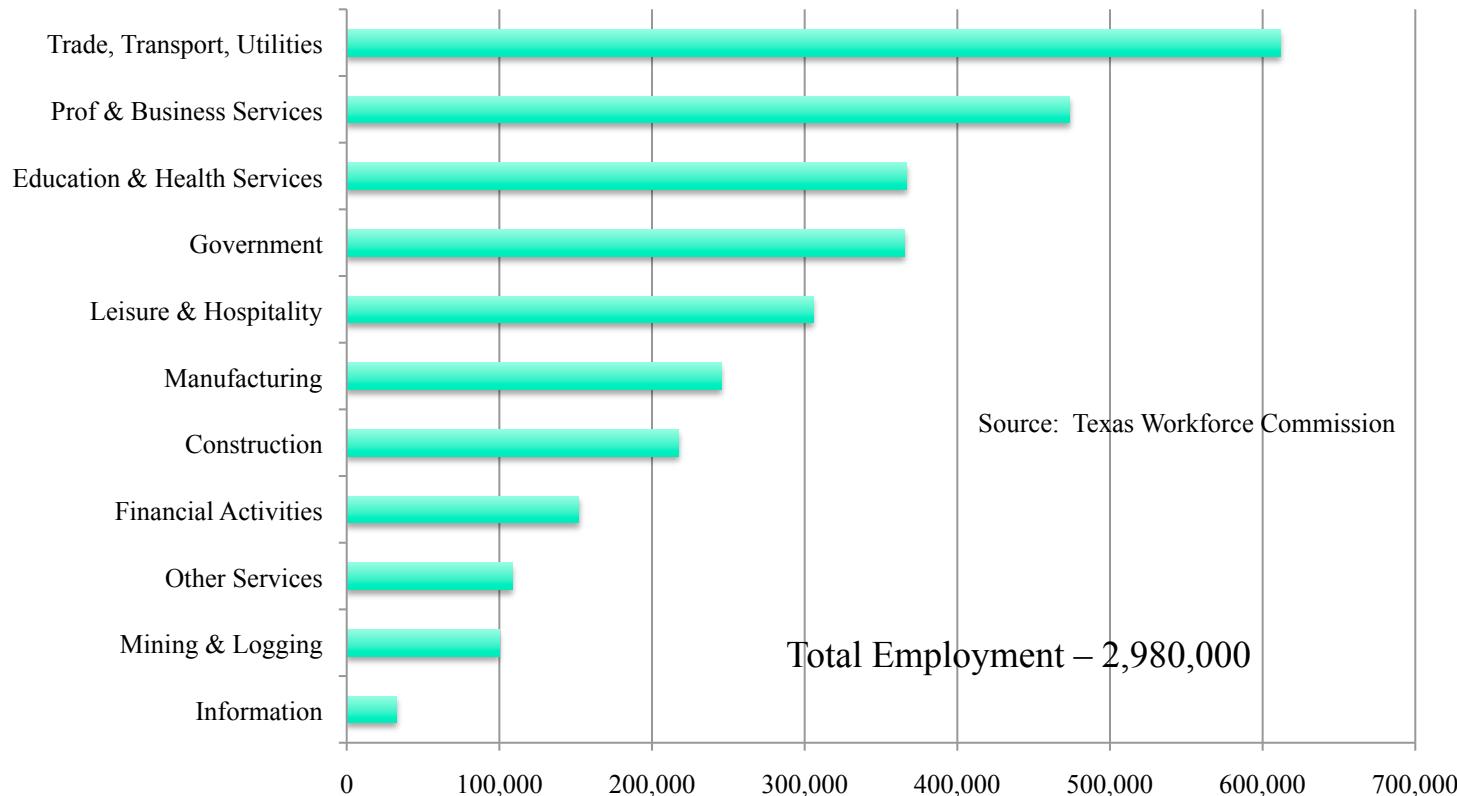
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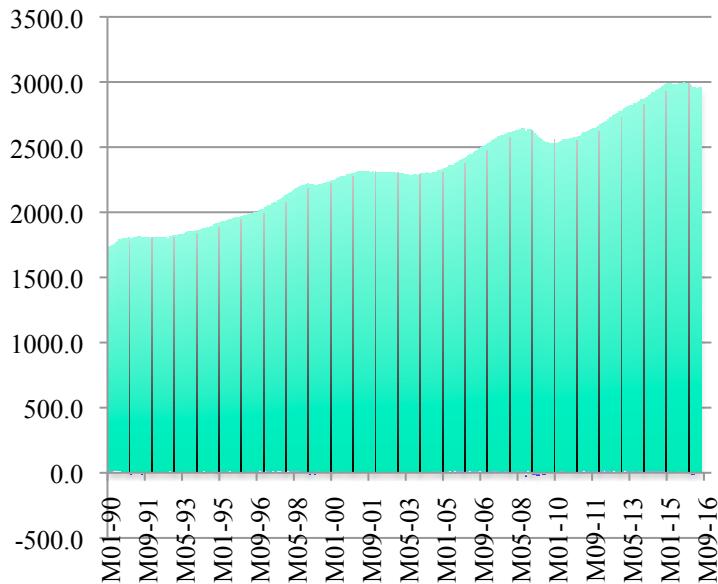
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Total Houston Employment – June 2016



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Total Houston Employment – 1990 to 2015



■ Houston—The Woodlands—Sugar Land Total Nonfarm Payroll
Employment Derived from seasonally adjusted components; early benchmarked through first quarter 2016. Last data entry July 2016 Downloaded from the Federal Reserve Bank of Dallas Employment (in thousands)

Significant increase in area total employment since 1990. Early (2006) oil & gas shale boom employment around 2.4MM. Current employment around 3MM looks vulnerable. Each past slow down has caused a dip. How deep and how long?

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GREATER HOUSTON
PARTNERSHIP

Making Houston Greater.

**From Patrick Jankowski
Chief Economist, Greater Houston Partnership
June 24, 2016**

“Employment growth has fallen from almost 120,000 additional jobs at the end of 2014 to zero last month (May 2016). Worse, the jobs lost have been well-paying positions in manufacturing, engineering, or oil and gas, replaced by lower-paying posts in construction, education and hospitality. Total wages paid dropped from \$48 billion during the last quarter of 2014 to \$44 billion at the end of last year.”

That was in May...

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The Latest News From The Greater Houston Partnership...

Houston lost 8,600 jobs in July 2016.

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Greater Houston Partnership - June 2016 - Winners & Losers Since 2014

Winners (by job growth since 2014)

Hotel, Restaurants, Bars: **+32,200** – Avg Pay - \$19,760

Health Care: **+21,000** – Avg Pay - \$52,963

Art, Entertainment, Recreation: **+8,400** – Avg Pay \$36,192

Services to Buildings: **+7,800** – Avg Pay \$27,612

Food Stores: **+4,500** – Avg Pay \$26,468

Government: **+3,400** – Avg Pay \$65,052

Construction: **+2,800** – Avg Pay \$68,744

Losers (by job losses since 2014)

Manufacturing: **-31,200** – Avg Pay \$75,816

Mining and Logging: **-25,500** – Avg Pay \$151,840

Engineering Services: **-10,300** – Avg Pay \$126,256

Employment Services: **-7,700** – Avg Pay \$48,516

Transport, Warehousing, Utilities: **-5,100** – Avg Pay \$69,940

Wholesale Trade: **-3,900** – Avg Pay \$78,520

Banks and Credit Unions: **-400** – Avg Pay \$74,048



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Additional Economic Data Points

Houston/Galveston Customs District (YTD June 2015 to YTD June 2016)

Exports down **21.3%** in dollar terms

Imports down **31.8%** in dollar terms

Source: Greater Houston Partnership

Port of Houston

Record 2MM Container Volume in 2015. 2016 slightly down, 4%, so far.

Source: Port of Houston Authority, July 2016

Houston MSA Total Building Contracts

\$10.7 B July YTD 2015

\$8.7 July YTD 2016

Decline of 18.9%

Source: Greater Houston Partnership

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Additional Economic Data Points

Sales Tax Receipts

Down 4.47% in Houston YTD July 2016 compared to YTD July 2015

Down 2.81% in Harris Country YTD July 2016 compared to YTD July 2015

Source: Texas Comptroller of Public Accounts

Houston Area Auto Sales

Down 22.3% June 2016 compared to June 2015

Source: Greater Houston Partnership

Houston June Home Sales

Single family home sales down 8.8% compared to June 2015.

Source: Greater Houston Partnership

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Additional Economic Data Points

Since 2015, almost 50% of the 90 oil and gas upstream and over 50% of the 80 oilfield service company bankruptcies have occurred in Houston.

Source: Haynes & Boone, August 1, 2016

That means at least 85 oil patch companies in Houston have gone bankrupt.

This doesn't count the smaller companies that don't get big law firm attention. The projection is that we will have a good number more bankruptcies this year. If oil prices don't recover measurably soon we can expect more next year.

More oil patch job losses to come?

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Where Do Jobs Come From?

Follow The Money

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Every economy is like a freight train.

Economic engines \$\$\$\$\$ pull the freight cars.



What are the engines of Houston's economy?

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The Big Three

Upstream Oil & Gas Capex

Midstream Energy Transportation Capex

Downstream Hydrocarbon Processing Capex

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Upstream Oil & Gas

Domestic Capital Expenditures

2014 - \$232B

2016 - \$88B

Source: Oil & Gas Journal, March 2016



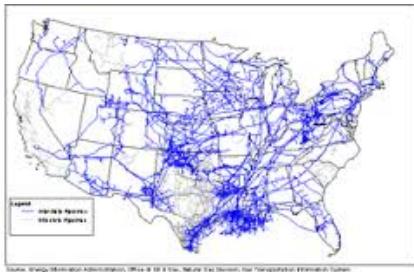
A 62% reduction in capex over 2 years

A great number of upstream oil and gas jobs are out in the field, where we drill for oil and gas. Houston is home to many of the headquarters jobs, in addition to many of the upstream industry's service providers.

Reductions in capex leads to a reduction in jobs.

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Midstream Energy Transportation



Domestic Capital Expenditures

2014 - \$33B

2016 - \$23B

A 30% reduction in capex over 2 years.



Source: Oil & Gas Journal, March 2016

Midstream assets are not in Houston, so the associated construction jobs are not here. But the design, construction management and asset management jobs are.

With oil and gas production declining will we need less transportation and storage? Are we currently over building transportation and storage?

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Downstream Hydrocarbon Processing



Domestic Capital Expenditures

2014 - \$19B

2016 - \$22B



A 16% increase in capex over 2 years

Source: Oil & Gas Journal, March 2016

Jobs are strong in hydrocarbon processing.

*Challenge – It may take 3,000 people to build a petrochemical plant,
but it may only take 150 people to operate it.*

*When all this hydrocarbon processing construction is over might we see
a big fall in construction and related employment?*

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The Smaller Engines

The Port of Houston Authority

In 2016, the Port Authority expects to commit \$314 million for various capital projects. **A positive catalyst.** Source: Port Authority of Houston

Houston's Medical Community

Current projects under construction (July 2016) represent about 2 million sq ft of new development. One year ago (July 2015) it was 2.7 million sq ft.

Not so positive. Source: Collier's International

NASA

JSC annual budget for FY 2016 is \$4.6B, similar to 2014.

In FY 2010 it was \$6B. **Not so positive.** Source: Johnson Space Center

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The Lag Effect

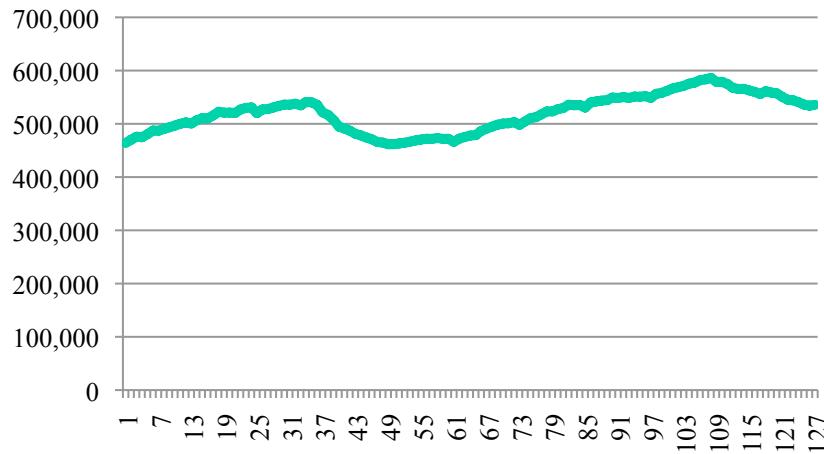
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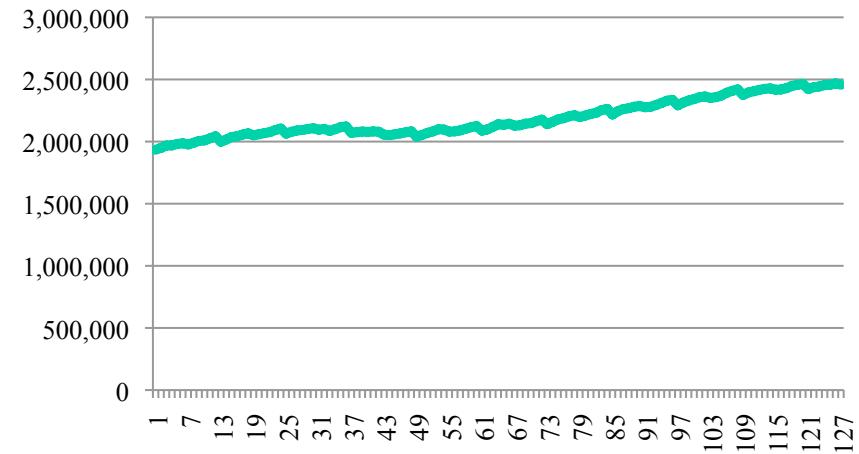
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The Lag Effect

Goods Producing Jobs
2006 to Present



Service Providing Jobs
2006 to Present



Source: Texas Workforce Commission

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The Lag Effect

**Goods Producing jobs peaked in December 2014
586,300**

**Service Providing jobs peaked in June 2016
2,467,800**

Source: Texas Workforce Commission

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The Lag Effect

Ratio of Goods Producing to Service Providing jobs is...

1990 to Present – 4 to 1

2006 to Present – 4.21 to 1

Current number of Goods Producing Jobs, June 2016 – 535,700

Current number of Service Providing Jobs, June 2016 – 2,457,600

Source: Texas Workforce Commission

Service Providing Job losses to maintain historical ratios

Using 1990 to Present Ratio – 314,800

Using 2006 to Present Ratio – 202,303

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Another Bugaboo...

Construction Jobs

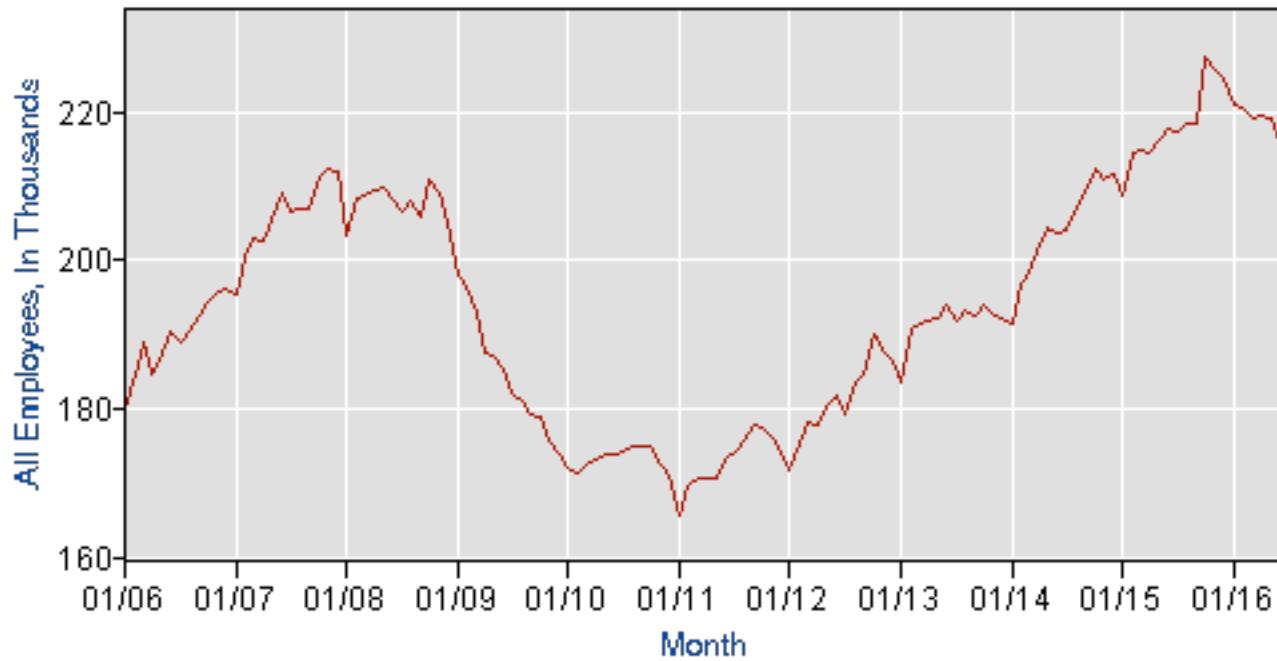
Construction Jobs are Counted as...

Goods Producing

Source: Texas Workforce Commission

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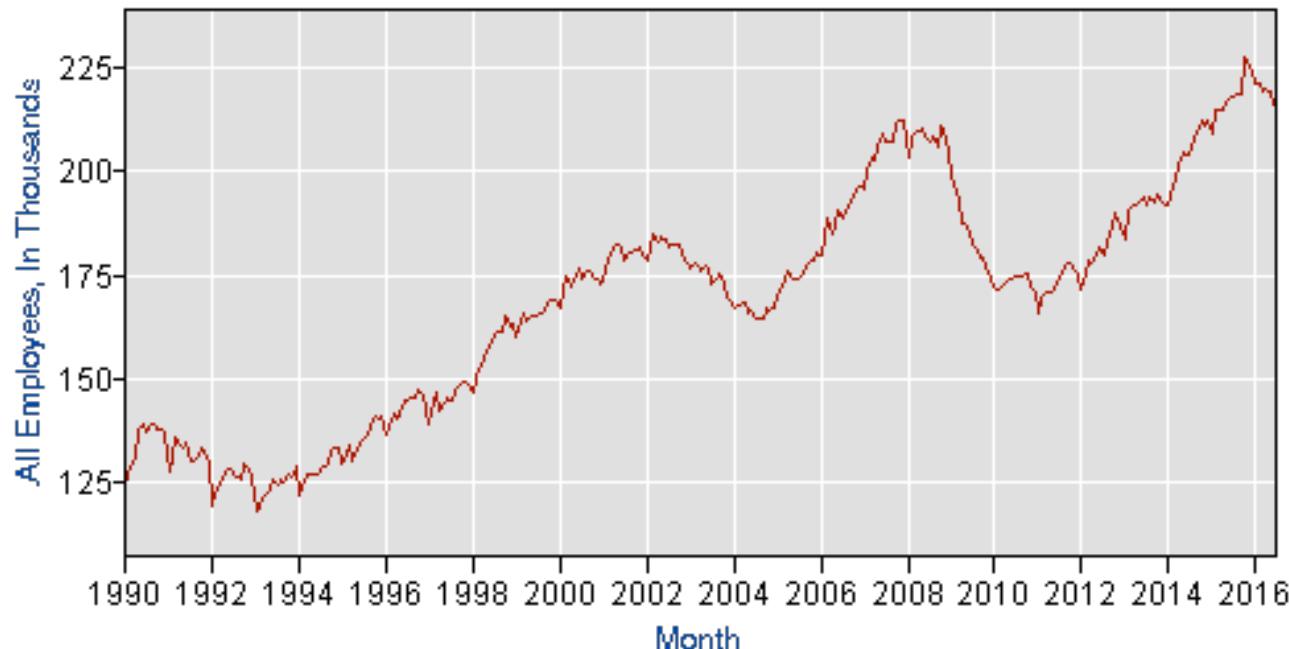
Construction Jobs – 2006 to Present



Source: BLS – Houston SMSA

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Construction Jobs – 1990 to Present



Source: BLS – Houston SMSA

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Another Bugaboo - Construction Jobs

January of 1990 – 124,000 employed in construction

January of 2006 - 180,000 employed in construction

June 2016 - 216,000 employed in construction

Source: BLS – Houston SMSA

If we lose 40,000 Construction jobs to maintain the historical ratio we will lose another 160,000+/- Service Providing jobs.

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The Total Lag Effect

Could lead to over 400,000 job losses in the Houston MSA economy.

This would be an almost identical percentage of job losses as was experienced during the 1980's oil and gas bust.

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The Bottom Line

If oil & gas capital
expenditures don't turn
around soon,
Houston, we have a problem.

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The Good News

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Every Forest Fire Creates Fertile Ground For The Next Forest.

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*When the forest burns down, there is more fertile soil.
More fertile soil means lower business input costs, lower rents, and
lower labor costs - all good for new business creation.
And when the forest burns down, there are fewer trees competing for
sunlight, meaning less competition for new businesses*

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Houston is Highly Entrepreneurial

According to the Kauffman Foundation's 2016 Report on Entrepreneurship, Houston ranks #7 out of 40 major cities in start up/entrepreneurial activity. This moved Houston up from #8 in the country in 2015 and #9 in 2014.

Austin ranks #1 in “start up density” with 105.2 new companies started for every 1,000 companies in the market while Houston comes in #7 with a score of 94.2.

This is, however, a 2-point decline from our score of 96 in 2015.

Source: *Houston Business Journal*

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The Next Boom

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Japanese company Daikin is building a 4.1 million square foot operational plant to build HVAC appliances on Highway 290, northwest of the Grand Parkway. It will permanently employ over 5,000 people.

Source: Realty News



If Houston can build air conditioners and heaters,
what other appliances can we build?

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Why A Next Boom

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Panama Canal expansion



Opened in June of 2016, this increases Houston's competitive position for trade.

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Excellent logistical center



We are the easiest port to serve the center of the country.

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Vibrant labor pool

Texas has the third lowest median age in the country.

Houston median age – 32.3

Texas – 34.3

California - 36

Michigan – 39.6

New York – 38.2

Florida – 41.6

Source: Sperling's Best Places

Young workers provide a vibrant labor pool.

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Housing costs 46.7% below average

The C2ERCost of Living Index for the first quarter of '16 shows Houston has the fifth lowest cost of living among the nation's 20 most populous metropolitan areas.

Houston's housing costs are 46.7% below the average for the 20 most populous U.S. metros, and its overall costs are 22.1% below the average for this group. If one excludes the three most expensive housing markets — New York, San Francisco, San Diego — which tend to skew the average, Houston's housing costs are still 35.3% below the major metro average.

Source: GHP – C2ER

***More affordability draws business and individual
relocations.***

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Best skilled labor pool in the country

In September 2104 *USA Today* published an article about “The New Blue Collar”, describing the coming growth of middle-skilled jobs, essentially higher trained and capable labor needed primarily in the production-oriented industries. According to the article these middle-skilled jobs will make up 37% of new job creations over the next few years, compared to 27% for high and 26% for low skilled.

Top of USA Today’s list of expected middle skilled job creation?

Houston, TX

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High number of engineers per capita

A *Forbes* published article in July 2013 ranked Houston as 2nd in the nation in engineers per capita. Per 1,000 residents

Silicon Valley MSA – 45 (40,400 engineers)
Houston MSA – 22.4 (59,070 engineers)
San Diego MSA – 20.2 (25,490 engineers)
Boston MSA – 17.5 (43,340 engineers)
Denver MSA – 17.0 (20,910 engineers)

MSA: Metropolitan Statistical Area

Engineers create things that create jobs.

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Lots of immigrants, lots of entrepreneurs

A March 2015 study by the Migration Policy Institute reports that 1.4 million of Houston's 6.3 million residents were foreign born (23%) and named Houston as the country's Most Diverse Metropolitan Area.

According to a Small Business Administration-commissioned report in 2012 by Robert W. Fairlie, an economics professor at the University of California, Santa Cruz, the business ownership rate is higher (10.5%) for immigrants than the for native-born (9.3%).

Expect lots of entrepreneurial activity from our diverse population.

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Texas' business friendly nature

Texas ranks up at the top of best states to do business in.

#1 in the country according to *Chief Executive Magazine*

#2 in the country according to CNBC

#6 in the country according to *Forbes*

A business friendly environment encourages entrepreneurial activity and attracts company relocations.

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Conclusion

No one is taking the word “cycle” out of the dictionary any time soon.

This too will pass.

Houston has recently been through a gold rush period, akin to the dot.com boom of the 1990s and the housing boom of the 2000s.

We have to work our way through the process of rebalancing our economy.

Our strengths as an economic region are great.
In addition to energy, our future could be, should be
as a manufacturing power center in the U.S.
...and why not the world?

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