HOUSTON REGION

ECONOMIC OUTLOOK

GREATER HOUSTON **PARTNERSHIP**

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INTRODUCTION

There's a growing consensus among economists that the U.S. will slip into recession in '23. If the U.S. stumbles down that path, Houston will follow. There's some hope that the U.S. may avoid a downturn, but the odds grow slimmer each day. An October survey of economists by *The Wall Street Journal* placed the probability of a recession within the next 12 months at 63 percent, that's up from 49 percent in the July survey and 16 percent in October '21. A similar survey by Bloomberg places the odds at 60 percent.

The recession may have several causes, but the main trigger will be the U.S. Federal Reserve raising interest rates to combat inflation. As of October, inflation tracked at a 7.7 percent annual rate, well above what the Fed considers ideal for price stability. So, the Fed must act.

When the Fed raises rates, any purchase that's financed—homes, vehicles, inventories, machinery, construction materials, real estate—becomes more expensive. As costs rise, businesses and households consume less. Supply catches up with demand and prices stabilize. The Fed has raised interest rates at six of the first seven meetings of the Federal Open Market Committee in '22 and will likely continue raising them in '23. Those hikes have already hit the housing market.

Demand for housing soared as the U.S. emerged from the lockdowns imposed in the early stages of the pandemic. The Millennial Generation was in its prime home-buying years (and still is). Renters in high-cost metros of the Northeast and West Coast relocated to the low-cost suburbs of the South and Southwest. Americans wanted more space when working remotely, so they bought larger houses. The ultra-low mortgage rates at the time made buying that home more affordable.

As a result, the housing market grew very tight. Homes which sat on the market for weeks prior to the pandemic sold in a few days, many for well above their list prices. The inventory of available homes fell to record lows. Prices climbed. In May '20, the median price for a single-family home in Houston was $298,439. By May '22, the price had jumped to $350,000.

Mortgage rates were already ticking up late in '21. The Fed accelerated the pace. As the Partnership prepared this forecast, the 30-year fixed-rate hit 7.08 percent, the highest level in nearly two decades.

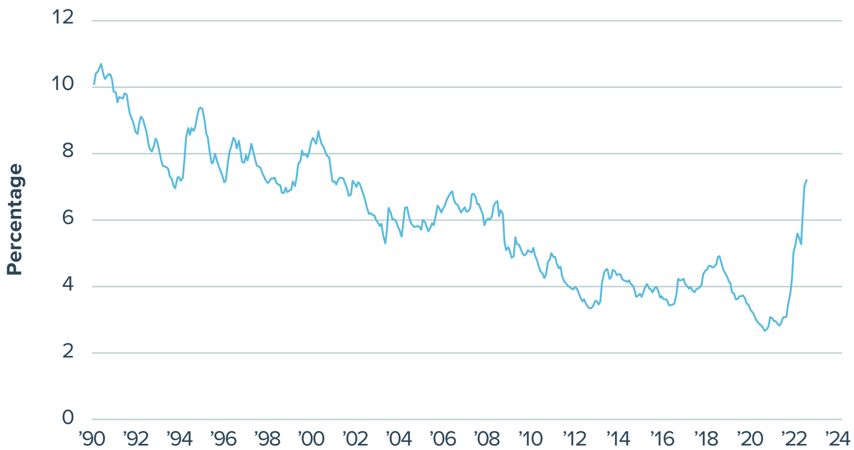
The best time to buy a house in Houston was January '21. The interest on a 30-year fixed-rate mortgage hovered at 2.60 percent, the median price of a single-family home was $263,000, and the monthly principal and interest were $842. By October '22, the mortgage rate had more than doubled, the price of that home was $330,000, and the monthly principal and interest climbed to $1,773. That doesn't include taxes, insurance, or homeowners' association fees.

The law of supply and demand has already kicked in. In September, single-family starts were down 18.5 percent nationwide compared to the prior year. Existing home sales were down 23.8 percent. And loan applications were down 29.2 percent (Q2/22 v Q3/22). As interest rates continue rising, demand will fall further.

The housing market provides a glimpse of what can be expected in other sectors of the economy, especially those sensitive to interest rates.

- Orders for consumer durables (e.g., appliances, electronics, furniture) are already flat, have been that way since June, and are likely to decline in coming months.
- The construction industry has seen projects canceled that won't generate sufficient cash flow to service debt issued at higher rates.
- Valuations for existing office, industrial, and retail properties have fallen in several markets.
- Banks have begun setting aside reserves to cover losses on expected loan defaults.

INTEREST ON AVERAGE 30-YEAR FIXED RATE MORTGAGE



Source: Freddie Mac

In a recent survey by the National Association for Business Economics, roughly one-third (31 percent) of respondents indicated higher interest rates posed the greatest risk to their firms in ’23. Only 16 percent replied that inflation/cost pressures were the greatest risk.

Economists worry that the Fed will raise rates too high and hold them there for too long, extending the pain longer than necessary. They note that rate hikes have contributed to three of the past six U.S. recessions.

RECENT U.S. RECESSIONS

Recession Date	Causes
1980	Interest rate hikes
1981-1982	Oil price hike, interest rate hikes
Early 1990s	Oil price hike, elevated debt, consumer pessimism, interest rate hikes
Early 2000s	Dot-com bubble collapse, drop in business investments, 9/11
Great Recession, 2008-2010	Subprime mortgage crisis
COVID Recession, 2020	Global pandemic

Source: Greater Houston Partnership Research

HISTORY WON’T REPEAT ITSELF

This time should be different, however. First, the current bout of inflation hasn’t been around long. When the Fed aggressively raised rates in the late ‘70s, inflation had averaged 6.0 percent or higher for nearly a decade. By comparison, the current spate of inflation has tracked above 6.0 percent only since October of ’21.

Second, inflation isn’t as high as it was back then. The rate touched 14.6 percent in March ’80, forcing the Fed to hike rates to 19.1 percent before inflation began to fall. By comparison, inflation peaked at 9.0 percent in June ’22 and has declined since. It slipped to 7.7 percent in October ’22, but that’s still too high for the Fed’s liking.

Third, the quality, timeliness, and availability of economic data have greatly improved, helping the bank follow trends, recognize inflection points sooner, and act more quickly than in the past.

The Federal Reserve Bank of St. Louis (www.stlouisfed.org) maintains a database of over 810,000 U.S. and international economic indicators.

The Federal Reserve Bank of Atlanta (www.frbatlanta.org) produces a “nowcast” of Gross Domestic Product (GDP). Referred to as “GDPNow,” it provides economists with a weekly forecast of GDP prior to the official measure that the Bureau of Economic Analysis (BEA) releases each quarter. In the weeks leading up to BEA’s Q3/22 estimate, the Atlanta Fed forecasted that real U.S. GDP growth would range between 2.4 and 2.9 percent for the quarter. When BEA released its official estimate, the rate was 2.6 percent.

And the Federal Reserve Bank of Dallas (www.dallasfed.org) has developed what many consider to be a more accurate measure of inflation than the Consumer Price Index (CPI). The Dallas Fed’s “Trimmed Mean PCE Inflation Rate” excludes price changes at both ends of the spectrum to eliminate the influence any outliers have on the inflation calculation. The Trimmed Mean PCE also accounts for changes in consumer behavior due to changes in prices. For instance, if the price of beef goes up, consumers might shift to eating pork. In August, the annualized Trimmed Mean rate was 4.7 percent.

DIFFERENT CAUSES, DIFFERENT OUTCOMES

Interest rate recessions tend to be milder than those caused by economic events or pandemics. Take two recent examples. The bursting of the U.S. housing bubble and the collapse of U.S. financial institutions precipitated the Great Recession. The nation shed 8.7 million jobs and GDP shrunk by 4.0 percent. Since then, institutions have adopted stricter lending standards, banks are more carefully regulated, and they have healthier balance sheets. And unlike 15 years ago, today’s housing market is not overbuilt. A surge in loan defaults won’t collapse the U.S. financial system as it nearly did in the Great Recession.

Fear of contagion shut down the economy in the early stages of the pandemic. Over two months, more than 22.0 million Americans lost their jobs. U.S. GDP shrank by over 10 percent.

If there's another serious outbreak, policy makers won't take such draconian measures. They fear the political backlash. Vaccinations have made the virus less lethal. And the nation has learned how to live with and work around the virus.

By contrast, recessions caused by rate hikes tend to be less severe and end more quickly, as shown in the first three rows in the table on the right. Hopefully, that will be the case with the next recession.

RECENT U.S. RECESSIONS

Dates	Duration (months)	Drop in GDP (%)	Job Losses (millions)	Unemployment Peak (%)
Jan '80 – Jul '80	6	2.2	1.2	7.8
Jul '81 – Nov '82	16	2.6	2.7	10.8
Jul '90 – Mar '91	8	1.4	1.6	7.8
Mar '01 – Nov '01	8	0.4	2.6	6.3
Dec '07 – Jun '09	18	4.0	8.7	10.0
Feb '20 – Apr '20	2	10.1	22.0	14.7

Source: Greater Houston Partnership Research

BETTER PREPARED

Houston has developed considerable muscle mass since the last downturn. Employment in September hit a record high. The region created more jobs in the first nine months of '22 (108,600) than it creates in a normal year. And initial claims for unemployment benefits, a proxy for layoffs, remain well below pre-pandemic levels.

By comparison, only 34 of the nation's 50 most populous metros have recouped all their pandemic losses, 12 of them just barely. If a recession arrives on their doorsteps, they're not as well prepared to greet it.

Next year's downturn will likely be a glancing blow for Houston, not a head-on collision. Jobs will be lost in a few sectors while others expand. During the Fracking Bust ('15-'16), Houston shed over 100,000 energy-related jobs. Other sectors of the economy expanded as energy contracted. Despite the hemorrhaging, total job losses amounted to fewer than 5,000 over the two years. A similar situation will play out in '23. Houston's interest-rate-sensitive industries will shed jobs as growth in other sectors offsets those losses.

The U.S. may avoid significant job losses as well. The national labor market is tight, with over 10.7 million job openings in September. Prior to the pandemic, job openings averaged 6.5 million a month.

In a recent CEO survey, The Conference Board found that 98 percent of respondents expect a recession in 12-18 months, yet 86 percent plan to maintain or increase their capital budgets and 44 percent plan to continue hiring during the downturn.

And a recent survey by the National Federation of Independent Businesses found that 46 percent of respondents had job openings they could not fill. With such difficulty replacing workers laid off in the last recession, employers will be reluctant to let them go in the next.

A DARKER VIEW

But the downturn could also be worse than expected. Factors the Fed has no control over could crash the economy. These include global food shortages, intractable supply chain disruptions, severe energy shortages, a more deadly COVID variant, or a steep escalation of the war in Ukraine.

China and Europe pose the biggest threats. Fifteen years ago, China grew at double-digit rates. Over the last five years, growth slowed to between 6.0 and 8.0 percent. Economists expect growth of 2.0 to 3.0 percent this year. The nation continues to lock down large swaths of its economy during COVID outbreaks. An overbuilt real estate market may lead to widespread loan defaults further stifling its economy. And Chinese President Xi Jinping's recent consolidation of power has rattled Asian financial markets. It wouldn't take much to tip the world's second-largest economy into recession.

The European Union imposed sanctions on Russia over its invasion of Ukraine, Russia has retaliated by halting natural gas deliveries. Closing the valves has already forced some manufacturing plants in Europe to shut down. Soon, Europe will stop importing Russian crude and refined products as well. Energy shortages and higher prices could tip the EU into a recession if it's not there already.

The U.S. will follow one of three paths in '23. The baseline scenario is for a short and shallow downturn, with growth resuming in Q3/23. The best-case is for slower growth but no recession. The worst-case is for a recession that begins in '23, is exacerbated by factors outside the Fed's control, and drags into '24. The Partnership assigns a 50 percent probability to a mild recession, a 30 percent probability to slower growth, and 20 percent to a prolonged recession. The scenarios are outlined below.

A NEAR MISS

In the best-case, Fed rate hikes have the desired effect and consumers reduce their spending. Supply quickly catches up with demand and price pressures ease. Employers, facing labor shortages, avoid layoffs. Job losses occur, but only in interest-rate-sensitive industries. The Fed scales back rate hikes in Q1 and halts them in Q2. Markets recognize the signal and investment and hiring picks up. By Q3, growth resumes. The year finishes with unemployment under 5.0 percent and real GDP growth just under 2.0 percent.

Implications for Houston

Momentum from '22 carries Houston into '23 buffering the region from a serious downturn. Crude shortages and high prices stimulate hiring and investment in the energy sector. Plant shutdowns in Europe boost demand for Houston-made chemicals and plastics. The Port of Houston logs its busiest year on record. New home construction drifts down to pre-pandemic levels. Home price appreciation resets to a single-digit pace. Nonresidential construction remains strong. Another 50,000 residents move to Houston seeking affordable housing, career opportunities, and warmer winters. Employment growth continues uninterrupted.

SHORT AND SHALLOW

Inflation proves stubborn and the Fed raises interest rates well into the new year. Interest-rate-sensitive industries (e.g., real estate, construction, durable goods manufacturing) suffer. The decline spills over into sectors that support those industries (e.g., finance, engineering). Firms reduce their workforces accordingly. The economy contracts in Q1 and Q2. The Fed halts rate hikes before the damage worsens. Growth resumes late in '23. The year finishes with unemployment under 6.0 percent and real GDP growth under 1.0 percent.

Implications for Houston

The U.S. slump impedes Houston's momentum but does not stop its growth. Construction leverages a deep backlog of projects. Energy benefits from higher prices and shortages overseas. The region continues to attract job seekers from other metros. Population growth lifts the demand for health care, education, and government services. An improving U.S. economy provides a mid-year boost to Houston. The year ends with net job growth across all sectors of the local economy.

DEEPER AND LONGER

Forces beyond the Fed's control take over. The war in Ukraine drags on. Food shortages worsen. High energy prices tip Europe into a deep recession. Beijing's zero-COVID policy continues to disrupt supply chains. The Chinese real estate market collapses. Beijing exerts greater control over the economy. Investors shun the country. China slips into recession. In the U.S., labor shortages persist and wages spiral upward. Inflation remains stubbornly high. The Fed continues to hike rates. The recession worsens. As the presidential election approaches, partisan politics prevent Congress from enacting any relief package. Job losses mount. U.S. real GDP contracts more than 2.0 percent. By December, the unemployment rate exceeds 7.0 percent.

Implications for Houston

Momentum carries Houston through mid-year before the national recession begins to weigh on the region. Businesses postpone hiring and investment decisions. Crude consumption falls. Exports taper off. The year ends with marginal gains in all but a handful of sectors. Gains in the first half of the year are whittled down by job losses in the second half. Most sectors manage to eke out gains, but just barely. Businesses and consumers look to '24 with cautious optimism.

To summarize:

- The baseline forecast calls for a short and shallow recession, growth resuming in Q3, the year ending with a net gain of 60,800 jobs. The long-term average for Houston is 65,000 to 70,000 jobs per year.
- The best-case assumes the U.S. recession misses Houston entirely. The year ends with a net gain of 79,200 jobs.

RECESSION SCENARIOS

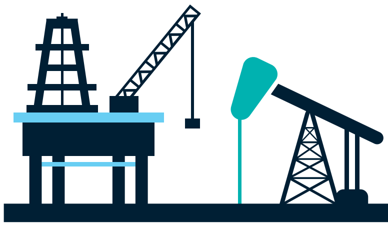
Scenario	Likelihood	Jobs Gains
Near Miss	30%	79,200
Short and Shallow	50%	60,800
Deeper and Longer	20%	30,400

Source: Greater Houston Partnership Research

- The worst-case recognizes that factors outside the Fed's control might prolong the recession. Houston is well-buffered to handle the downturn, but growth slows considerably. The year ends with a net gain of 30,400 jobs.

Growth will be strongest in Houston's construction, energy, government, health care, professional, services, and restaurant sectors across all scenarios.

Job losses will occur in only a handful of sectors, and then only in the worst-case scenario. Now the details behind the forecast.



ENERGY (EXPLORATION, OIL FIELD SERVICES)

Oil prices have more than doubled from where they were two years ago. The spot price for West Texas Intermediate (WTI), the benchmark for U.S. light, sweet crude, averaged $88 per barrel in October '22, up from $40 per barrel in October '20.

Normally, rising prices signal the need to boost production. OPEC+ has provided an additional incentive, announcing it would soon pull 2.0 million barrels per day (b/d) of production off the market. And the Biden Administration has released nearly 180 million barrels from the U.S. Strategic Petroleum Reserve. Eventually, that oil will need to be replaced.

As recently as November '18, the U.S. led the world in crude production, ahead of #2 Russia and #3 Saudi Arabia. The U.S. currently has over 32.2 billion barrels of proven reserves. And over the last six months, crude prices have ranged from $80 to $120 per barrel on the spot market, well above the break-even price of $60 to $70 per barrel, depending on the well. Yet as of October, U.S. daily production remained 1.2 million barrels below its recent peak.

Boosting domestic production remains difficult for many reasons. For one, mergers, bankruptcies, and voluntary liquidations have shrunk the industry. There are 500 fewer oil and gas firms operating in Texas today than five years ago.

The industry has seen a massive exodus of talent. Statewide, headcount has dropped by over 16,000 workers since Q1/17. It also struggles to attract talent. Recent college graduates see oil and gas as a dying industry.

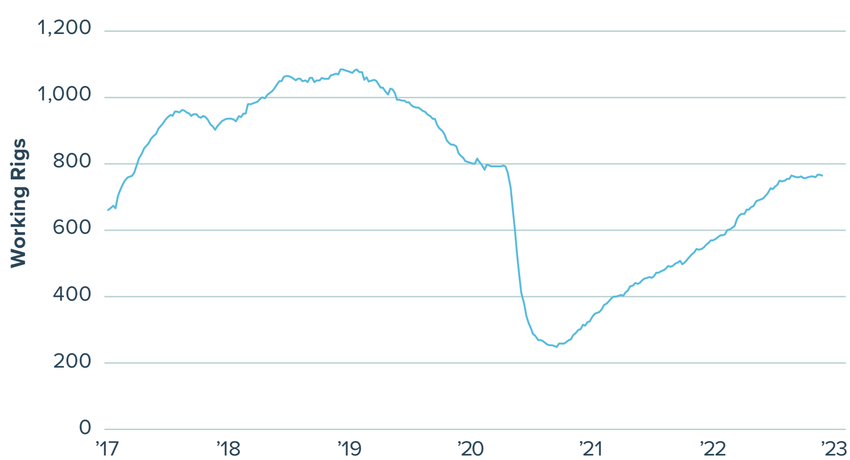
Many of the best sites have already been drilled. The Permian rig count has more than doubled over the past two years, but production is up a little more than 50 percent. The U.S. Energy Information Administration's Drilling Productivity Report (DPR) for October '22 shows the average output from a new well in the Permian Basin peaked in December '20 and has trended down since.

Investors have also imposed capital discipline on the industry. After years of financing wells anywhere and everywhere, investors insist firms focus on growing profits not production. This has precipitated a decline in drilling activity which began four years ago, when the rig count peaked at 1,083 in December '18. As of early November, only 779 rigs were working in the U.S.

Profits that a few years ago would have been plowed back into exploration programs are being redeployed to alternative energy projects. Any increase in exploration budgets quickly gets eaten up by higher materials and labor costs.

The Biden Administration has promulgated new rules and regulations which have increased costs without increasing production.

U.S. RIG COUNT



Source: Baker Hughes

Finally, many investors have dropped oil and gas from their portfolios because of the industry's association with climate change.

Energy is one of the few sectors in Houston still struggling to recoup all the jobs lost in the COVID recession. As of September '22, the industry remained 10,000 jobs below pre-pandemic levels. Strong demand, U.S. production growth, and prices at or above current levels will narrow that gap. EIA's Short-Term Energy Outlook suggests that might happen in '23. The agency forecasts:

- Global consumption to rise 1.5 million barrels per day (b/d),
- Domestic crude production to average 12.4 million b/d, up from 11.7 million b/d in '22, and
- WTI to average $89 per barrel in '23, down slightly from $96 in '22.

If the U.S. skirts a recession, the energy industry will, too. Only if the world sinks into a deep recession would the industry face significant job losses. But then so would every other industry in Houston.

In the baseline scenario, the forecast calls for a gain of 4,500 jobs; in the best-case, a gain of 5,500; in the worst case, 2,000.

MANUFACTURING

Manufacturing is another sector that has yet to recover all of its pandemic job losses. As of September '22, employment was 7,200 jobs below where it stood in February '20.

Blame the sector's laggard performance on energy. Most of the missing jobs are tied to the manufacture of oil field equipment and fabricated metal products (e.g., pipes, valves, and flanges). Energy-related manufacturing won't see job growth until drilling activity climbs past pre-pandemic levels.

Houston's chemical sector has done well recently. The region has 67 more chemical plants and employs 1,600 more workers than it did five years ago. Fracking generates a steady supply of natural gas, the main feedstock of U.S. petrochemicals, and has rejuvenated what two decades ago was considered a dying U.S. industry.

Goodman Daiken, the Tokyo-based manufacturer of heating and cooling systems, is an industry unto itself. Employment at the firm has more than doubled to nearly 10,000 workers since the opening of its massive plant in northwest Houston. The company continues to hire.

A few other sectors—food processing, textiles, clothing, furniture, electronics, industrial machinery, and paper—round out the industry.

Houston's manufacturing sector faces multiple challenges in '23. A U.S. recession would lead to a drop in energy consumption; demand for oil field equipment would fall. A broader recession would lead to a drop in global manufacturing; demand for chemicals and plastics would fall. The U.S. housing slump has already cut into the demand for piping, insulation, flooring, and building

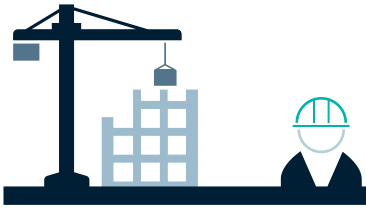
METRO HOUSTON MANUFACTURING, Q1/22

Industry	Plants	Employment
Textilles and Apparel	224	2,465
Wood, Paper, Printing	673	9,908
Petroleum Products	94	8,608
Chemicals	647	39,851
Plastics and Rubber	236	10,972
Nonmetallic Minerals	290	6,982
Primary Metals	132	3,159
Fabricated Metal Products	1,756	44,993
Industrial Machinery	843	39,264
Computers and Electronics	419	13,266
Electrical Equipment	191	5,878
Transportation Equipment	151	4,341
Furniture	180	3,067
Misc. Manufacturing	496	7,556
Total	**6,332**	**200,310**

Source: Texas Workforce Commission

components. A recession would also lead to reduced business and leisure travel, curbing the demand for gasoline, diesel, and aviation fuels.

In the baseline scenario, the forecast calls for a gain of 4,600 jobs; in the best-case, a gain of 6,100; in the worst case, 1,500.



CONSTRUCTION

Houston's construction industry will enter '23 with a considerable backlog. Dodge Data & Analytics reports nearly $31.0 billion in construction contracts were awarded in the first nine months of '22, up from $23.3 billion over the comparable period in '21. That's a 22.7 percent increase after adjusting for inflation.

The region has seen a surge in commercial, manufacturing, hospital, multifamily, and infrastructure projects. Single-family construction is flat. Institutional work (e.g. schools, libraries and museums, for instance) has slipped but remains elevated.

Over 27.3 million square feet (MSF) of industrial space, more than 4.6 MSF of retail space, and 3.2 MSF of office space was under construction at the start of Q4/22, according to Partners Real Estate. Vacancy rates for industrial and retail, 5.6 and 5.3 percent respectively, support the need for additional space. The rate for office, 29.9 percent, does not. Still, there's office construction underway, mostly in niche markets, like the Texas Medical Center, or for tenants willing to pay a premium for new space full of amenities.

As the Partnership prepared this forecast, builders were on pace to construct 40,000 single-family homes in '22. Rising interest rates, higher home prices, and greater economic uncertainty will reduce that to around 30,000 in '23. This would be a return to normal for the region. Most single-family work is done by independent contractors, so the slowdown isn't

CONSTRUCTION CONTRACTS AWARDS, $ MILLIONS, METRO HOUSTON

	Sep '22 YTD	Sep '21 YTD	% Change
Commercial	4,063.2	2,857.9	42.2
Manufacturing	6,253.6	1,023.9	510.8
Education & Science	1,437.8	1,611.9	-10.8
Hospitals & Health	1,827.4	500.5	265.1
Religious	178.5	57.7	209.4
Amusement	315.2	312.3	0.9
Single-Family	9,384.0	9,799.0	-4.2
Multi-Family	1,974.0	1,541.2	28.1
Infrastructure	4,808.3	4,749.1	1.2
Other	750.1	880.5	-14.8
Total	**30,992.1**	**23,334.0**	**32.8**

Source: Dodge Data & Analytics

captured in payroll employment data which this forecast focuses on.

Apartment Data Services reports that Houston had over 19,600 apartment units under construction in November '22. Roughly 5,600 were slated for completion by the end of the year, another 12,600 by tend of '23, and the remainder in '24. Apartment Data is tracking 113 projects containing over 35,000 units that developers have proposed for Houston over the next few years.

Class A rents have risen 20 percent since October '20 but peaked in the late summer. Occupancy for properties open a year or more was 93.5 percent in October. Rents for all property classes appear to have peaked in August. The national media reports that rents have fallen significantly in other metros. If that happens here, multifamily construction will slow but not halt entirely.

Work is underway on the Texas Medical Center's Helix Park. Billed as "The World's Most Advanced Research Campus at the World's Largest Medical Center," the 37-acre park will eventually include over 5.0 million square feet of proprietary research centers, multidisciplinary labs, healthcare institutions, a hotel and conference center, a residential tower, retail, restaurants, and a unique double-helix green space. The project is estimated to have a $5.4 billion impact on Houston, support over 19,000 jobs during construction, and create 23,000 permanent jobs.

The $7.9 billion North Houston Highway Improvement Project would provide an enormous boost to the region's economy. If the Texas Department of Transportation decides to rebuild I-45 near downtown from U.S. 59 to Beltway 8 North, the work would support thousands of construction jobs over several years.

On average, a single-family home can be completed in three to six months once construction begins. Industrial developers can finish a warehouse in a year. A moderate-size suburban apartment complex requires 12 or more months. A hospital takes three to six years. Chemical plants require an equal amount of time. Given the current backlog, construction employment should hold steady for some time, hopefully until interest rates decline and a host of new projects are financed.

In the baseline scenario, the forecast calls for a gain of 6,300 jobs; in the best-case, a gain of 7,500; in the worst case, 3,800.

WHOLESALE TRADE

Wholesalers are key to the global supply chain. They acquire goods in bulk, hold them in warehouses, then redistribute those goods to builders, hospitals, manufacturers, offices, restaurants, and retailers. In Houston, wholesale activity focuses on chemicals, fuels, furniture, groceries, household appliances, industrial machinery, lumber, metals, oil field equipment, and plastics.

Wholesalers interact with every industry in the U.S., which makes them the canary in the coal mine for the nation's economic health. Sales have tracked above pre-COVID levels since October '20 but appear to have plateaued in July. No sign of a recession but definite signs of a slowdown.

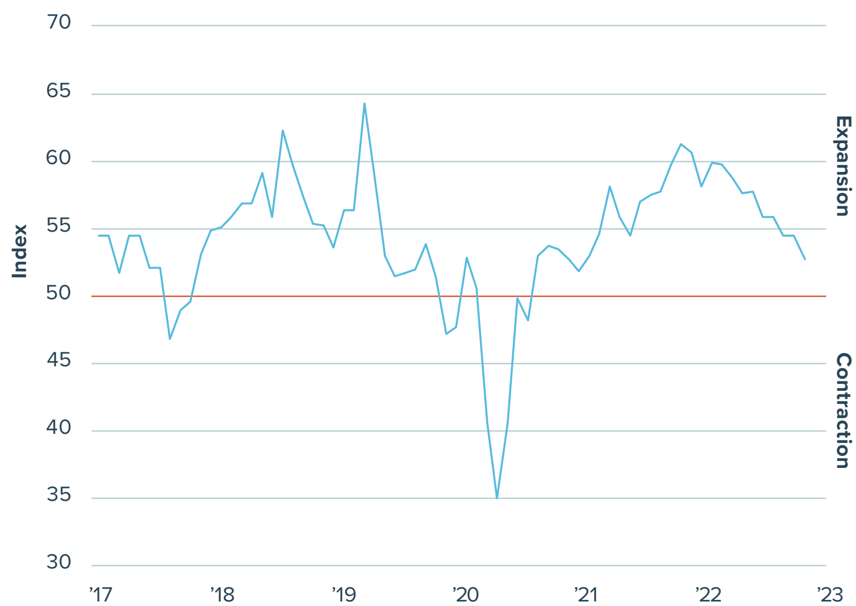
Local wholesale data is only available with a 12-month lag, so it's not the canary for Houston's economic health. The Houston Purchasing Manager's Index serves that purpose. Readings above 50 indicate the economy is growing and will likely continue to do so over the next three to four months. Readings under 50 signal contraction. The PMI registered 52.9 in October. Since rising above 50 in August '20, it's indicated strong to moderate growth for 28 consecutive months.

Next year's wholesale outlook depends on the industries it serves. Construction and health care will prosper. The prospects for retail and restaurants are strained. Weakness in China and a recession in Europe may dampen chemicals and plastics exports. There will be a steady flow of orders from the energy sector to replace and upgrade equipment.

In the best-case, job growth maintains a steady pace throughout the year. In a short, shallow downturn, job growth would flatten early on, turn negative mid-year, and resume in the fall. If a sharp, deep recession hits, wholesale like most other sectors would suffer serious job losses.

In the baseline scenario, the forecast calls for a gain of 3,800 jobs; in the best-case, a gain of 5,000; in the worst case, 2,500.

HOUSTON PURCHASING MANAGERS INDEX
Above 50 = Expansion



Source: Institute for Supply Management-Houston

RETAIL TRADE

Retail has recouped all 39,800 jobs lost in the pandemic, added more than 700 stores and outlets since Q1/20, and seen a dramatic increase in sales from the low point of the pandemic.

Houston's retail sector owes its recovery to population growth (200,000 new residents since July 1, 2019), employment growth (over 450,000 jobs since May '20), the housing boom (100,000 new homes over three years), Congress's generosity (three stimulus packages during the pandemic), and pent-up demand.

Inflation remains a threat, however. Consumers are prioritizing food over purchases of discretionary items. Some are drawing down savings to maintain their lifestyles. Others are running up credit card debt. At some point, they will exhaust their savings or max out their cards and retail sales will fall.

The drop in home sales has already led to a drop in furniture, electronics, and garden equipment sales. Next year, workers who go from receiving paychecks to receiving unemployment benefits will reduce their spending. And while consumer sentiment has improved in recent months, it remains below pre-pandemic levels.

Historically, retail employment has followed a pattern. The sector sheds jobs in January as workers hired for the holidays are released. Employment rebuilds in the spring as the overall economy expands. By late summer, January's losses have been recouped. Another hiring surge starts in the fall and the pattern repeats itself come January. The pattern may not repeat itself in '23, however. If a recession hits, retailers won't rebuild their teams. Even the threat of a recession could chill retailers' plans. Hiring might not occur until the holiday season arrives next fall.

There's a real estate adage that "retail follows rooftops." As families move to the suburbs, store operators follow. Houston's housing boom has supported much of the sector's growth over the past two years. It will continue to do so in '23 but at a slower pace.

In the baseline scenario, the forecast calls for a gain of 3,800 jobs; in the best-case, a gain of 4,900; in the worst case, 2,500.

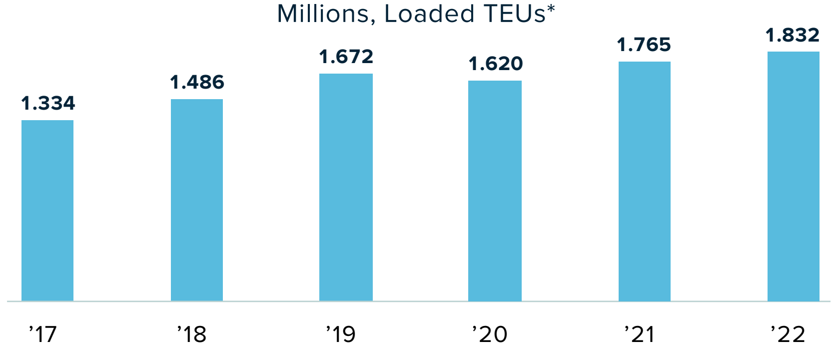
TRANSPORTATION, WAREHOUSING, AND UTILITIES

The sector includes airlines, trucking companies, barge operators, bus lines, taxis, limousines, pipelines, couriers, freight services (crating, forwarding), and warehousing. The sector is a key link in the supply chain; it was the first in Houston to recover all its pandemic losses.

Activity in the transportation sector doesn't suggest a downturn is imminent. Passenger traffic is approaching pre-pandemic levels at Bush Intercontinental and Hobby airports. The same holds true for air cargo. The Port of Houston will handle a record number of containers this year. Overall tonnage through the region's ports (Houston, Galveston, Texas City, Freeport) continues to grow. And developers continue to build warehouses and distribution centers.

PORT OF HOUSTON CONTAINER TRAFFIC, SEP YTD

Millions, Loaded TEUs*



Source: Port Houston

* twenty-foot equivalent units

The sector faces a severe labor crisis. Airlines are grappling with a dearth of pilots, flight attendants, baggage handlers, and mechanics. The shortage forced thousands of flight cancellations this summer. The American Trucking Association (ATA) estimates the industry needs at least another 80,000 drivers. According to BLS, one in every 22 jobs in the sector remains unfilled and all the new warehouses need forklift drivers, shipping clerks, and managers.

Leisure travel may be impacted next year as inflation eats into family budgets. Business travel will pick up, however. A recent (October '23) travel manager survey by the Global Business Travel Association found that 78 percent of respondents expect business travel at their firms to increase in '23.

Given the labor shortages, the sector is unlikely to shed workers in '23, even in the direst of situations. In the baseline scenario, the forecast calls for a gain of 3,700 jobs; in the best-case, a gain of 4,900; in the worst case, 2,500.

INFORMATION

The information sector includes newspaper, magazine, and book publishers; software publishers; motion picture and video production; movie theatres, sound recording; radio and television broadcasting; telecommunications; data processing; news services, web hosting, and related services.

Employment peaked in December '00 and has trended down since. The sector employs 17,200 fewer workers today than it did then. There are numerous reasons. Social media has reduced the role of print and broadcast media. Technology continues to replace labor in telecommunications. Houston hasn't emerged as a center for motion picture production. And many consumers prefer streaming at home to watching a movie in a packed theatre.

Job growth, when it does occur, is meager, and only happens when the rest of Houston's economy is booming. The sector may add a few hundred jobs if consumers return to the cinema, otherwise losses are more likely.

In the baseline scenario, the forecast calls for a gain of 300 jobs; in the best-case, a gain of 600; in the worst case, a loss of 800.

FINANCE AND INSURANCE

The sector includes commercial banks, credit unions, insurance brokers, insurance carriers, investment advisors, mortgage bankers, and security brokerages.

The hike in interest rates should boost the sector's profitability. As rates rise, the spread between what banks pay depositors and what they charge borrowers widens. And they have plenty to lend. Deposits at Houston's FDIC-insured banks topped $374.8 billion in June '22, up from $179.1 billion ten years ago.

There's a flip side. As borrowing costs rise, businesses and consumers take out fewer loans. An October survey by the Dallas Fed found loan demand falling across all categories, especially residential real estate. That's likely to continue. The drop in mortgage applications has already led to layoffs at several financial institutions.

Job growth has been tepid for years as banks open fewer branches, channeling the resources into online banking instead. Competition from nontraditional lending sources (e.g., online banks, crowdsourcing) has also siphoned away customers.

METRO HOUSTON BANK DEPOSITS*

Year	$ Millions
'22	374,809
'21	333,722
'20	305,954
'19	249,551
'18	245,688
'17	240,933
'16	219,160
'15	215,215
'14	242,540
'13	208,033

* as of June 30 each year
Source: Federal Deposit Insurance Corporation

Inflation continues to undermine the insurance sector's profitability. A steady increase in auto, home, life, and health policies led by population and employment growth has helped mitigate that. The sector has added jobs nine of the past 10 years.

In the baseline scenario, the forecast calls for a gain of 1,000 jobs; in the best-case, a gain of 1,600; in the worst case, a gain of 800.

REAL ESTATE AND EQUIPMENT RENTALS

The sector primarily focuses on what transpires after construction—the lease, sale, and management of properties. Activity has rebounded significantly from the pandemic doldrums.

- Brokers leased 53.4 million square feet (MSF) of office, industrial, and retail space over the first three quarters of '22, according to Partners Real Estate. That's up from 40.2 million in '20.
- Real Capital Analytics reports office, industrial and retail sales volumes topped $1.2 billion Q3/22. That's up from $464 million in Q3/20.
- Developers have added 54.4 MSF of industrial space, 6.7 MSF of office space, and 7.1 MSF of retail space to the market over the past two years.
- Over 26.8 MSF of industrial space, 3.2 MSF of office space, and 4.6 MSF of retail space was under construction in Q3/22, much of it to be delivered in '23.

The adage "build it and they will come" will be tested next year. Tenants worried about the recession may be reluctant to sign new lease agreements.

Equipment rental involves the leasing of appliances, furniture, vehicles, heavy machinery, trucks, and recreational equipment. Any increase in business travel will boost car rentals. The near-record volume of contracts awarded in '22 will drive the demand for construction equipment. On-going supply chain issues support more truck leasing.

Inflation tends to hit low-income households the hardest, the typical market for furniture, appliance, and electronics rentals. The subsector will likely see a drop in business next year.

In the baseline scenario, the forecast calls for a gain of 1,300 jobs; in the best-case, a gain of 1,700; in the worst case, a gain of 900.

PROFESSIONAL, SCIENTIFIC, AND TECH SERVICES

The sector includes law, accounting, bookkeeping, engineering, geophysical surveying, testing labs, computer systems design, advertising, marketing, public relations, and management consulting services. It has one of the highest concentrations of college-educated, white-collar workers in Houston. Until recently, most of them were "office" workers, but that's less common now that white-collar work can easily be done from home.

Energy, construction, and manufacturing are typically the sector's biggest clients. That hasn't changed, but the nature of the engagements has. Professional service firms are creating social media campaigns, guarding against cyber-attacks, building strategies to reduce carbon footprints, and developing plans to facilitate the energy transition for their clients.

In boom times, billable hours soar. In lean times, clients slash their consulting budgets. The sector will find itself in the middle of those two extremes next year. Work to reduce carbon footprints, develop transition strategies, and prevent cyber-attacks will continue even in a prolonged downturn, but marketing, public relations, and social media campaigns will be scaled back.

In the baseline scenario, the forecast calls for a net gain of 5,900 jobs; in the best-case, a gain of 7,900; in the worst case, a gain of 2,500.

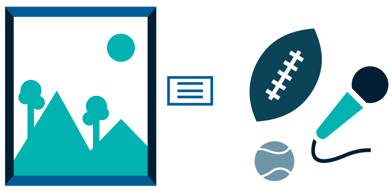
ADMINISTRATIVE SUPPORT, WASTE MANAGEMENT

This sector includes firms that provide clerical, human resource, cleaning, security, bill collection, trash hauling, and employment services (i.e., temporary and contract workers).

The sector serves as a bellwether for the broader economy. Businesses often rely on contract workers during a recovery to handle the initial uptick in demand. Once the firm realizes it has enough business to sustain a larger workforce, contract and temporary employees are offered full-time or permanent status. Conversely, when a recession sets in, contract workers are the first to be laid off.

Employment in the sector trended up most of ’22, reinforcing the premise that Houston has considerable momentum going into ’23. However, if the downturn proves worse than anticipated, layoffs will occur.

In the baseline scenario, the forecast calls for a gain of 4,700 jobs; in the best-case, a gain of 6,300; in the worst case, a loss of 3,500.



ARTS, ENTERTAINMENT, AND RECREATION

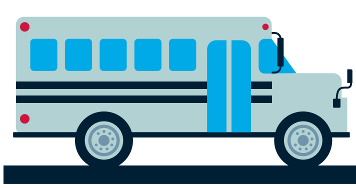
“Arts and Rec” includes a little bit of everything: amusement parks, arcades, botanical gardens, bowling alleys, fitness centers, golf courses, marinas, museums, music groups, parks, performing arts companies, racetracks, spectator sports, theater companies, and zoos. The sector suffered more than most in the early stages of the pandemic, laying off nearly half its workforce. It has since fully recovered and in the summer briefly set a record for employment.

Two shifts in consumer behavior have facilitated the recovery. One, consumers are less worried now about catching COVID while at the theatre or fitness center. Second, consumers have shifted from “buying” things to “doing” things. That’s lifted ticket sales and boosted gym memberships.

The sector now faces a new set of challenges. Inflation has reduced consumer purchasing power. Concert tickets and gym memberships are discretionary purchases. If funds are limited and consumers must choose between bread or Bach, most will choose bread. Sports teams and arts organizations also depend on sponsorships to supplement box office revenues. If the nation slips into recession, corporate profits will drop, and donors may be less generous.

Timing will be critical in ’23. Employment in recreational activities spikes in the summer and trails off in the fall. Employment in the arts climbs in the fall and trails off in the spring. If the recession ends by mid-year, the downturn’s impact will be negligible. If the downturn drags into summer, recreation will suffer. If it lingers into the fall, the arts will as well.

In the baseline scenario, the forecast calls for a gain of 600 jobs; in the best-case, 1,200 jobs; in the worst case, a loss of 400.



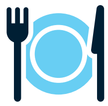
EDUCATIONAL SERVICES

Educational services includes private colleges, universities, elementary and secondary schools, sports instruction, exam preparation, fine arts academies, and technical and trade schools. (Public education is included in Government.)

Employment growth remains strong, driven by parents seeking alternatives to public schools, workers needing to build skill sets, students (and parents) wanting better test scores, athletes trying to improve their performance on the field, and teenagers learning how to drive.

Even in a weak economy, the sector is more apt to grow than not. Educational services has added jobs in 26 of the last 30 years.

In the baseline scenario, the forecast calls for a gain of 2,300 jobs; in the best-case, 2,900 jobs; in the worst case, 1,200.



FOOD SERVICES AND DRINKING PLACES

Consumers no longer fear dining out. It's the check that now frightens them. Since restaurants reopened in May '20, the cost of the typical restaurant meal has climbed nearly 17 percent. As a result, more Houstonians opt for casual over fine dining, select less-expensive items from the menu, don't purchase alcohol, and use coupons when possible.

Owners have a different fear. Will their staff show up? Restaurants have the highest quit rate in the U.S., 6.5 percent in September, more than double the rate for the economy in general. Many workers who left the industry during the pandemic found better pay, better hours, better working conditions, or all three and have not returned. The sector has the highest rate of job openings in the nation. Restaurateurs have responded to the labor shortage by cutting menu options, reducing hours, and adapting operations to require fewer workers.

Even in a downturn, Houston will see a net increase in restaurants, though not necessarily an increase in employment. During the Great Recession of '09, the region logged a net gain of 300 cafes, restaurants, and bars, but no new jobs.

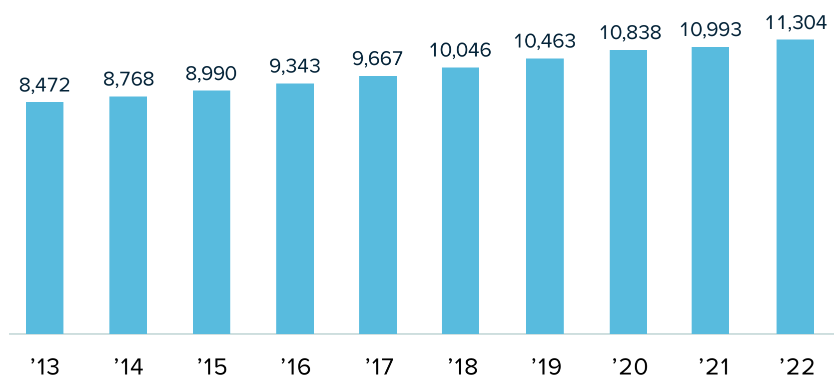
According to an '18 Zagat survey, Houstonians dine out more often than any other major city in America, 7.0 times per week versus the major city average of 5.9. Houston has over 80 categories of cuisine, including Cajun, French, Italian, Latin American, Polish, and Vegan restaurants, according to Yelp.com.

The region would welcome a few more dining options.

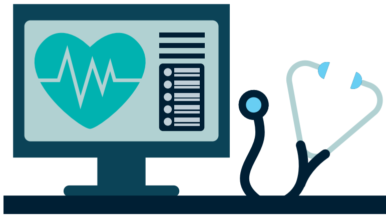
Location has always been the key to a restaurant's success. Next year, timing will matter as well. The first half of the year will be a difficult time to open and operate a restaurant, the second half less so because by then the recovery should be underway.

In the baseline scenario, the forecast calls for a gain of 4,800 jobs; in the best-case, 6,400 jobs; in the worst case, 1,500.

NUMBER OF HOUSTON-AREA RESTAURANTS



Sources: Texas Workforce Commission



HEALTH CARE AND SOCIAL ASSISTANCE

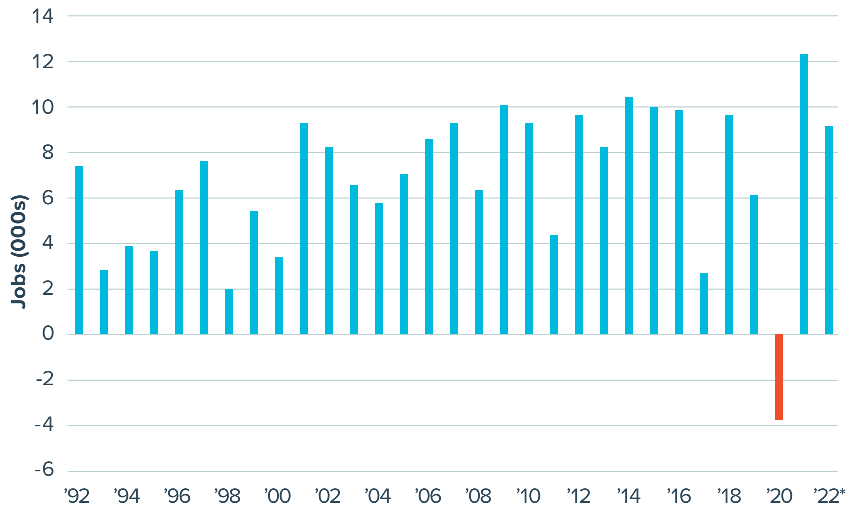
The only sure bet in Houston is health care. The sector has logged employment gains in 29 of the past 30 years. The one loss occurred during the pandemic and then amounted to less than 3,000 jobs.

The sector faces a series of ongoing challenges. Health care providers are under constant pressure from consumers, insurers, and the government to reduce costs. The industry remains chronically understaffed, a situation aggravated by burnouts caused by the pandemic. And one in five Houstonians lacks health insurance. The cost of their treatment is absorbed by the hospitals or passed on to other patients through higher medical bills.

In ’22, health care enjoyed a bounce as patients rescheduled visits and procedures postponed during the pandemic. That has subsided. The industry must now rely on traditional drivers—job creation, births, immigration, and an aging population.

- The region will create between 30,000 and 80,000 jobs in ’23. Roughly 75 percent of these jobs will come with health insurance coverage.
- Houston will record roughly 100,000 births next year. Every new baby starts a cycle of checkups, vaccinations, and treatments for typical childhood illnesses.
- On net, 40,000 to 60,000 people will relocate to Houston in ’23, each needing to find a doctor, dentist, and ophthalmologist after they arrive.

ANNUAL JOB GAINS/LOSSES, HOUSTON HEALTH CARE



Source: U.S. Bureau of Labor Statistics *September YTD

- Houston’s over-65 population will expand by roughly 30,000 residents next year. As seniors deal with the maladies of aging, they visit the doctor, clinic, and hospital more often.

The outlook for health care is strong regardless of the recession’s depth and duration. In the baseline scenario, the forecast calls for the sector to add 7,400 jobs next year; in the best-case, 9,100; in the worst-case, 6,100.

HOTELS

Try booking a suite in one of Houston’s upper-end hotels and you’ll have your pick of rooms. Try booking a ballroom and you’ll have to wait in line. Business travel has been slow to recover from the pandemic, but the weddings, proms, galas, conferences, and meetings have surged. Some organizations have contracted with hotels three years in advance to ensure they have a venue for their galas.

Employment has been slow to recover, however. As of September, the sector had recouped only 80.9 percent of its pandemic losses.

Domestic leisure travel has returned, but business travel won’t recover until ’24, according to the U.S. Travel Association.

Room occupancy has averaged 58.0 percent in ’22, still below the 62.8 percent recorded in ’19. McCaslin Hotel Consulting expects occupancy to average 60.5 percent in ’23, not returning to pre-COVID levels until ’24.

Inflation will cut into leisure travel. Any loss in leisure will be partially offset by increased business travel. Seventy-eight percent of respondents to a Global Business Travel Association survey indicated their firms will book more trips in ’23. Convention attendance will approach 90 to 100 percent of pre-pandemic levels. And energy-related bookings have begun to pick up.

In the baseline scenario, the sector adds 1,000 jobs next year; in its best-case, 1,300 jobs; in its worst-case, 700.

OTHER SERVICES

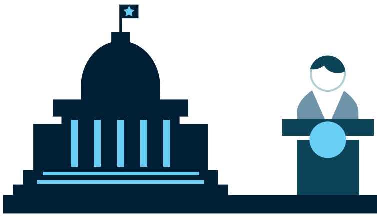
The sector includes repair shops (automotive, electronic equipment, household appliances), personal care (barbers, beauty shops, nail salons, weight loss centers), funeral parlors and cemeteries, dry cleaners and laundries, and membership organizations. It has yet to recoup all jobs lost in the pandemic. As of September '22, it remained 6,300 below its February '20 level. The reason for the gap is unclear.

TWC reports that fewer Houstonians work at barber shops, beauty salons, dry cleaners, and civic organizations than prior to the pandemic. But employment at churches, funeral parlors, and automobile and equipment repair shops has grown enough over the past two years to more than offset those losses.

The sector is dominated by firms with 10 or fewer employees. When TWC queries employers each month, it may lack enough small businesses in its sample to provide an accurate reading of trends in the sector. Given that nearly every other sector has recovered, it's likely that Other Services has as well. The gap may simply be due to survey error.

Inflation poses the biggest threat to the sector in '23. Consumers will look for ways to cut costs. Routine vehicle maintenance will be delayed. Homeowners will teach themselves how to repair broken appliances. Memberships in civic and social organizations will be a luxury and allowed to expire. Women will do their own nails. Men will launder their own shirts.

Small businesses always struggle in a recession. Persistent inflation will magnify the impact. Congress is unlikely to offer another round of Payroll Protection Program loans to help them out. In the baseline scenario, the sector loses 1,500 jobs, in its best-case the loss is limited to 1,000, and in the worst-case losses exceed 2,500.



GOVERNMENT

Just under two-thirds (62.1 percent) of all government employees in the region work for a school district, community college, or public university. Less than a third of government workers (30.4 percent) work for a city, county, or the state. The remainder (7.5 percent) are federal employees.

The region's school-age population continues to grow. Metro Houston has added 82,000 residents ages five to 19 over the past four years. Clearly, there's a need for more teachers, aids, and instructors.

School district property values, the primary source of funding in Texas, have soared in recent years. The Houston Independent School District's tax base has jumped from $174.2 billion in '17 to $230.5 billion in '21. CyFair's has jumped from $53.4 billion to $65.7 billion, Fort Bend ISD's from $36.9 billion to $47.0 billion. And when the Texas State Legislature convenes for its 88th session in January, lawmakers will have a $27.0 billion surplus to work with. Funds should be available to hire more educators.

Houston has nine publicly funded community colleges, six publicly funded four-year colleges, and six publicly funded medical schools. The region's four-year colleges have seen enrollments jump 2.0 to 4.0 percent over the past few years. Growth would have been more substantial if not for the pandemic. Community college enrollment, however, fell nearly 10 percent and has yet to recover.

The region has nine counties and 123 cities and municipalities. Over the past five years, the metro area has added over 400,000 residents. This translates into a need for additional police and firefighters, sanitation and maintenance workers, librarians and nurses.

Sales tax collections are well above pre-pandemic levels even after adjusting for inflation. However, a tax cap passed by voters in '04 limits the amount of property tax revenue the City of Houston can collect and thus the city's ability to expand services. Other jurisdictions are under no such constraints.

Federal employment in Houston is spread across dozens of agencies, e.g., the Drug Enforcement Administration, Federal Aviation Administration, Federal Bureau of Investigation, Internal Revenue Service, National Aeronautics and Space Administration, Social Security Administration, U.S. Customs and Border Protection, etc. The federal payroll in Houston typically expands by 500 to 600 workers a year. That pattern is likely to hold in ’23.

Typically, recessions don’t impact property tax rolls until well after the initial downturn. If the downturn is short, they’re not impacted at all. Local sales tax revenues continue to trend up. And as noted, Texas will enter the next biennium with a substantial budget surplus. Any slip in tax revenues is a year or so away.

In the baseline scenario, the forecast calls for the public sector to add 6,400 jobs, in its best-case, 7,500. There is no worst-case scenario for this sector.

SALES TAX COLLECTIONS, METRO HOUSTON*

12-Month % Change

Source: Texas Comptroller of Public Accounts *12 most populous cities

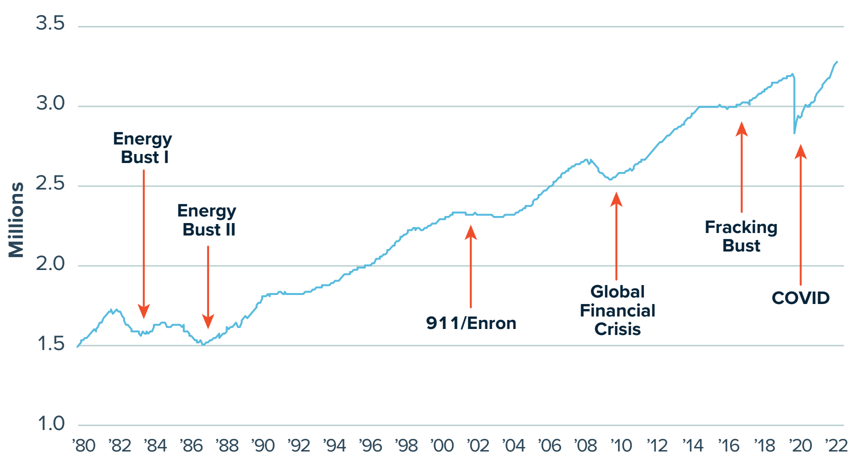
PAST PERFORMANCE, FUTURE RESULTS

In the depth of the ‘80s oil bust, one in seven Houstonians lost their jobs. At the time, it seemed there was no end in sight. But the economy eventually stabilized and growth resumed. Since then, Houston’s population and employment have more than doubled.

Investment advisors caution that “Past performance is not indicative of future results.” That doesn’t apply to Houston. Over the past 40 years, the region has suffered through six recessions, starting with the oil bust. Houston has enjoyed six recoveries, the most recent being the current post-pandemic surge that started mid-’20.

No matter how dire the situation may seem at the time, Houston always bounces back. That will be the case again in ’23. The Partnership expects the next recession to be short and shallow, with minimal impact on the local economy. Momentum from ’22 and the region’s remarkable resilience will set the tone over the next 12 months. By the time ’24 arrives, job growth will again be robust, and Houston will be seven-for-seven in recessions and recoveries.

METRO HOUSTON EMPLOYMENT



Source: Texas Workforce Commission

METRO HOUSTON 2023 EMPLOYMENT GROWTH

Industry/Sector	Baseline 50% Probability	Best Case 30% Probability	Worst Case 20% Probability
Health Care and Social Assistance	7,400	9,100	6,100
Government	6,400	7,500	6,400
Construction	6,300	7,500	3,800
Professional, Scientific and Tech Services	5,925	7,900	2,500
Food Services and Drinking Places	4,800	6,400	3,200
Administrative Support, Waste Management	4,725	6,300	-3,500
Manufacturing	4,575	6,100	1,525
Energy (Exploration, Oil Field Services)	4,500	5,500	2,000
Retail Trade	3,800	4,750	2,850
Wholesale Trade	3,750	5,000	2,500
Transportation, Warehousing	3,675	4,900	2,450
Educational Services	2,300	2,875	1,150
Real Estate and Equipment Rentals	1,275	1,700	850
Finance and Insurance	1,000	1,600	800
Hotels	975	1,300	650
Arts, Entertainment, and Recreation	600	1,200	400
Information	300	600	-800
Other Services	-1,500	-1,000	-2,500
Total Nonfarm Payroll Jobs	**60,800**	**79,225**	**30,375**

Source: Greater Houston Partnership Research

SOURCES

Data used in the analysis and forecast came from the following sources: American Chemistry Council, American Trucking Association, Apartment Data Services, Associated Builders & Contractors, Associated General Contractors of America, Baker Hughes, Biznow Commercial Real Estate News, Bloomberg, CenterPoint Energy, Chemical Week, City of Houston Aviation Department, Colliers International, CoStar, The Conference Board, Dodge Data & Analytics, Engineering News Record, Federal Deposit Insurance Corporation, Federal Reserve Bank of Dallas, Federal Reserve Bank of St. Louis, Forbes, Freddie Mac, Houston Association of Realtors, Houston Business Journal, Houston Chronicle, Houston First, Houston: The Economy at a Glance, Houston Facts, Institute for Supply Management, International Energy Agency, International Air Transport Association, JLL, John Burns Real Estate Consulting, McCaslin Hotel Consulting, Moody's, Morning Consult, Partners (formerly NAI), Mortgage Bankers Association, National Association for Business Economics, National Association of Manufacturers, National Federation of Independent Businesses, National Restaurant Association, Organisation for Economic Co-operation and Development, Oil & Gas Journal, Organization of Petroleum Exporting Countries, Port Houston, Rigzone, TexAuto Facts, Texas Comptroller of Public Accounts, Texas Medical Center, Texas Workforce Commission, The Perryman Group, The Wall Street Journal, Transwestern, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, U.S. Census Bureau, U.S. Energy Information Administration, WISERTrade, World Trade Organization, Yelp, Zagat, and various company websites.

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