



UPSKILL HOUSTON

April 2020

Dear Reader:

UpSkill Houston commissioned a labor market study in 2019 to understand the future projected demand for Greater Houston's occupations requiring education and skills beyond a high school diploma and less than a four-year college degree — "middle skill" occupations. The results of that research are captured in "Middle Skills Matter to Greater Houston." This report reflects an analysis of Houston's labor market using historical trends and models to project long-term employment trends at a time when the Houston and national economies were growing and near or at full employment levels.

Within the last month, the regional and national economies have shed significant numbers of jobs as a result of COVID-19. The specific economic and employment impacts of COVID-19 are profoundly serious and are still evolving and developing. It is clear that we won't know the full impacts for another several months, and we won't know how quickly the Houston or national economies will recover. Only time will tell.

"Middle Skills Matter to Greater Houston" is a long-term strategic document that is informing current and future strategies of UpSkill Houston and its partners. The report seeks to identify high-priority occupations — over the next two to five years — that can position the Greater Houston region to be competitive in the 21st century and create increased economic opportunity and mobility for Houstonians. Specifically, the report identifies nearly 50 middle-skill occupations that should be considered "good jobs" because they are in high demand, need a high volume of workers over time, and pay livable wages.

Unfortunately, this report cannot answer near-term questions related to COVID-19, such as: 1) Which employers or industries are hiring today? and 2) Are there or will there be openings in these high-priority occupations in the next year?

Over the coming months, UpSkill Houston will work with its employer and industry partners, Gulf Coast Workforce Solutions, and the Texas Workforce Commission to provide more current labor market information and insights on the region's middle-skill occupations as Houston recovers from COVID-19.

Peter Beard
Senior Vice President
Regional Workforce Development
Greater Houston Partnership

Middle Skills Matter to Greater Houston



Introduction

Houston's dynamic economy and its employers are powered by the region's residents, who possess a broad spectrum of education and skills.

There is a virtuous cycle whereby better education and skills create a higher caliber workforce. That, in turn, strengthens Houston's economy, which leads to job growth and new businesses. All of this ultimately increases the region's gross domestic product and its prosperity.

The demand-side data and analysis presented in this report¹ underscore that middle skills matter in Greater Houston and that middle-skill occupations and careers are the foundation for sustaining the region's dynamic economy. Furthermore, these careers create critical pathways to economic mobility and prosperity for Houstonians.

Key Findings in Brief:

- Middle skills matter in Greater Houston, as evidenced by the region's utilization of the core middle-skill workforce.
- Of Houston's 3.1 million employed workers, more than 921,000 or 30 percent are employed in core middle-skill occupations.
- The region's recent overall rapid job growth included meaningful growth in middle-skill occupations, and this trend is expected to continue into the future.
- Eight regional industry clusters have particularly strong concentrations of middle-skill employees.
- Nearly 50 middle-skill occupations in Greater Houston should be considered "good jobs" because they are in high demand, need a high volume of workers, and pay livable wages that exceed the region's overall median wage.

UpSkill Houston, an initiative of the Greater Houston Partnership, is sharing these findings to support decisions and actions that can both position the region to be competitive in the 21st-century economy and create increased economic opportunity and mobility for all of its residents, now and into the near future.

UpSkill Houston's leadership believes these data have implications for the work of employers, K-12 and com-

munity college educators, leaders of community-based organizations, government officials, and executives at philanthropic institutions — within and beyond UpSkill Houston's coalition of such stakeholders.

Ensuring that Greater Houston has the finest workforce in the world and provides economic opportunity for future generations of Houstonians will require communicating the competencies and skills industry needs, so community and education partners can support the region's workers and students. Achieving those two goals will require continuously improving the educational curricula and programs that help workers and students develop skills necessary for the good jobs the region's employers offer. This work will require providing information and tools to the people who guide individuals along the career pathways that lead to rewarding occupations. It also will require helping individuals explore career pathways that can lead to a good life for them and their families. This includes ensuring everyone understands that a four-year college degree is not the only pathway to a good-paying career.

UpSkill Houston worked with TEconomy Partners, LLC to conduct the research highlighted in this report and in additional reports to follow. TEconomy conducted this analysis in the summer of 2019.

PROJECTIONS

The projections for demand are based on historical trends and models and, therefore, may have limitations. They can be influenced by a number of factors including current economic conditions and workers switching to new careers or retiring, thereby creating vacancies.

Background

Greater Houston's rapid growth and strong economic gains placed strains on the regional labor market during the long economic expansion. Since 2010, Greater Houston's private-sector employment base had increased by 19 percent, compared with 15 percent nationally. Further, since 2001, Greater Houston's private-sector employment had increased by 30 percent, compared with 12 percent for the U.S. Likewise, the gross regional product for Greater Houston had increased by 51 percent since 2001, compared with 32 percent nationwide.

While this growth was exciting and even enviable for many competitor regions, it was not without growing pains. Not the least of the challenges was the strain on the labor market to fill the many new jobs. These strains had been exacerbated in an economic expansion during which the unemployment rate reached 3.6 percent for the region in 2019. That represents the lowest seasonally adjusted rate recorded since 1990,² according to Workforce Solutions.

Of particular concern for Greater Houston (and the nation): The growing number of unfilled middle-skill jobs. Filling these jobs is challenging on several fronts. There is a strong push for students to pursue four-year college degrees. Certain industry sectors struggle with outdated perceptions about their work. Awareness and counseling around these careers can be lacking. Incumbent workers with necessary skills are retiring. In addition, current workers who are unemployed or under-employed face multiple challenges as they seek to upskill and reskill.

A Workforce with Wide-Ranging Skills Powers Greater Houston's Businesses and Economy

The strength of Houston's economy and employers relies on a workforce with skills that span a broad spectrum. Economic researchers, policymakers, business leaders, and other stakeholders who profile regional labor markets often employ a high-level framework for characterizing the composition and skill mix of an economy's workforce. This framework helps to:

- Determine the composition of industry demand for talent; and
- Organize workforce development initiatives or other interventions for key segments of workers.

Skill groups are most often delineated by the typical level of education, work experience, and on-the-job training required to enter a specific occupation. These characteristics are defined on an occupation-by-occupation basis by the U.S. Bureau of Labor Statistics (BLS).³ The skill groups usually are segmented into low-, middle-, and high-skill occupation categories defined as follows:

- **High-skill occupations** generally require bachelor's and higher degrees (and work experience such as residencies)
- **Middle-skill occupations** require moderate education, experience, and/or training beyond high school but less than a bachelor's degree, such as:
 - o High school diploma plus moderate to long-term on-the-job training
 - o High school diploma plus an apprenticeship
 - o Postsecondary non-degree award (e.g., industry-recognized credential)
 - o Some college, though no degree
 - o Associate degree
- **Low-skill occupations** generally require less than a high school diploma or a diploma and only short-term training

While useful, the BLS skills framework does not convey the nuances necessary to understand and appreciate specific pathways and career opportunities available in middle-skill occupations. For this reason, TEconomy developed a more detailed depiction and classification of the middle-skill context in Greater Houston. TEconomy applied this more detailed skills spectrum, defined in Figure 1, throughout the research to understand occupational demand for the region. TEconomy also used this spectrum to code and classify the skill level of nearly 900 occupations included in the federal government's Standard Occupational Classification system.

TEconomy's research focused on the two areas viewed as the core segments of the middle-skill workforce — the "entry" and "advanced" groups depicted in Figure 1. These segments stand out as possessing true middle-skill job requirements in that they demand moderate to longer-term on-the-job training in addition to a high school diploma. By contrast, the "emerging" group can include jobs that require only a minimum level of short-term on-the-job training.⁴

The Challenge with “Middle Skills” Terminology

One challenge in making students and incumbent workers aware of the breadth of occupations that require more education and experience than a high school diploma but less than a four-year college degree is terminology, which affects how these jobs are described and perceived. The terms “low,” “middle,” and “high” do not capture the valuable technical and soft skills required in any occupation. Also, UpSkill Houston has found that using the term “middle skills” does not elicit the excitement and interest from students, parents, educators, or incumbent workers that it should, given the rewarding opportunities associated with these occupations and related career pathways. So, UpSkill Houston is exploring new and better terminology. In the meantime, this study continues to use the “middle skills” terminology.

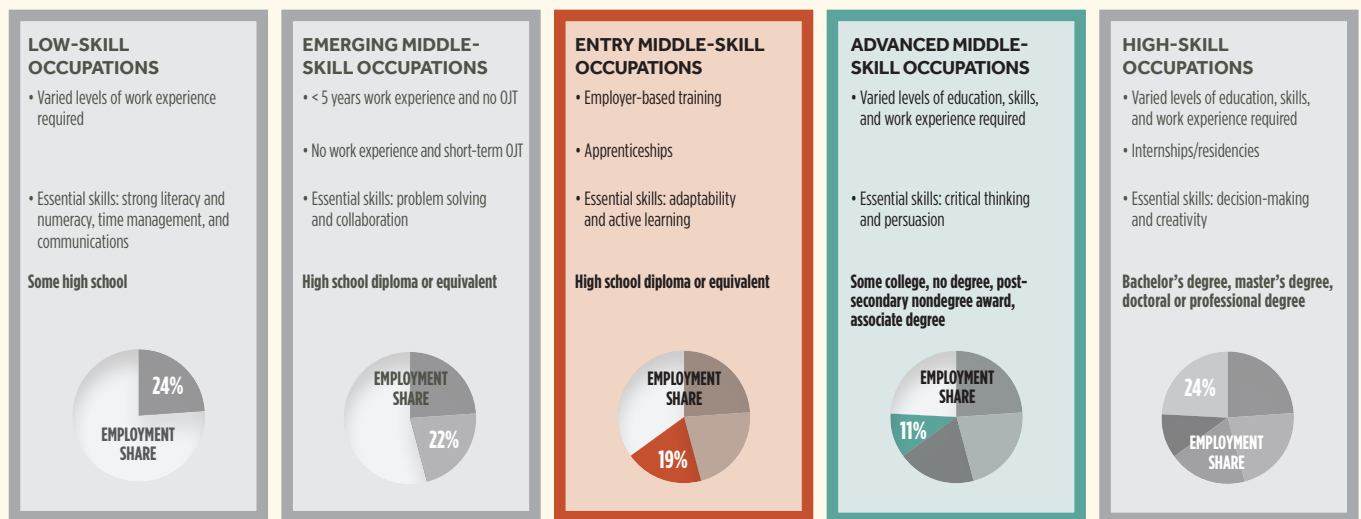
(This is a significant refinement from the original skill-based concept for middle-skill workers set out in a previous study for the Greater Houston Partnership and has ramifications for measuring the size and scale of the core middle-skill group in Greater Houston.⁵)

This focus should not downplay the importance of engaging individuals in the emerging middle-skill category for interventions. As the name suggests, this group is on the cusp of upskilling/reskilling and moving into entry or advanced middle-skill occupations. In addition,

this group is at risk for significant changes in employment due to automation, technology, and other forces. (A subsequent UpSkill Houston report will address the importance of helping workers improve their skills, so they can advance along the skills spectrum.)

Providing pathways for workers to enter and advance in all segments of the middle-skill workforce will be critical to the economic mobility and prosperity of the region’s residents as well as to the competitiveness of its economy.

Figure 1: The Skills Spectrum Needed by Greater Houston’s Employers



Source: TEconomy Partners, LLC.

Middle Skills Matter in Greater Houston's Economy

In 2018, there were 3.1 million workers employed in Greater Houston, across the private and public sector employers. The nation's fifth largest metropolitan region, Greater Houston had a workforce similar in composition to the workforce in Texas and across the nation, as shown in Figure 2. Figure 2 also shows that **the regional economy relies on the core middle-skill workforce groups (entry and advanced).**

More than 921,000 regional workers, representing 30 percent of Greater Houston's workforce, are employed in core middle-skill occupations, compared with 28 percent for the nation (Figure 2). To provide a sense of the magnitude of this difference, if Greater Houston mirrored the nation in its skills makeup, the regional middle-skill workforce would have 51,000 fewer workers.

The region's rapid job growth included meaningful growth in middle-skill occupations, and this trend is expected to continue into the future* (Figure 4). During Greater Houston's economic expansion:

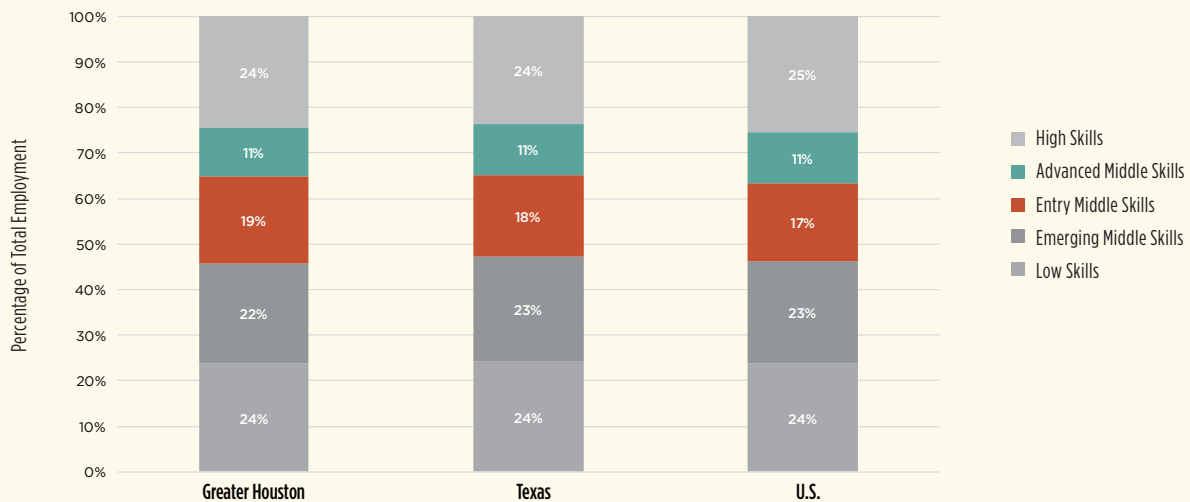
- The region outpaced the nation in overall job growth (across all skill levels), with regional employment increasing by 19 percent since 2010 as compared to 13 percent for the nation in the same period.
- Net growth in core middle-skill occupations (entry and advanced) in Greater Houston also outpaced the national trend since 2010, 16 percent to 12 percent. Both entry and advanced middle-skill segments grew at similarly high rates.

Looking ahead, employment projections reveal:

- The region is expected to continue to outpace national growth over the next five years, with projected growth for Greater Houston at 6 percent, compared to 5 percent for the nation.
- The region's number of middle-skill jobs is expected to increase slightly faster over the next five years than the number for the nation, with a net projected gain for Greater Houston of 5 percent, compared to 4 percent for the nation.

*The projections for demand are based on historical trends and models and, therefore, may have limitations.

Figure 2: Greater Houston Relies on Middle-Skill Workers to Power Its Economy (2018)



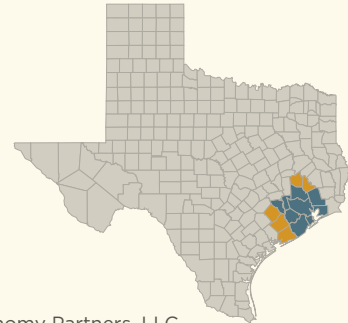
Source: TEconomy's analysis of EMSI 2019.2 occupational employment data.

Defining the Greater Houston Region for this Study

This study defined Greater Houston to include, as shown in Figure 3:

- Nine counties of the core Houston Metropolitan Statistical Area: Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller
- Five adjacent counties: Colorado, Matagorda, San Jacinto, Walker, and Wharton

Figure 3: The 14-County Greater Houston Region for This Study



Source: TEconomy Partners, LLC.

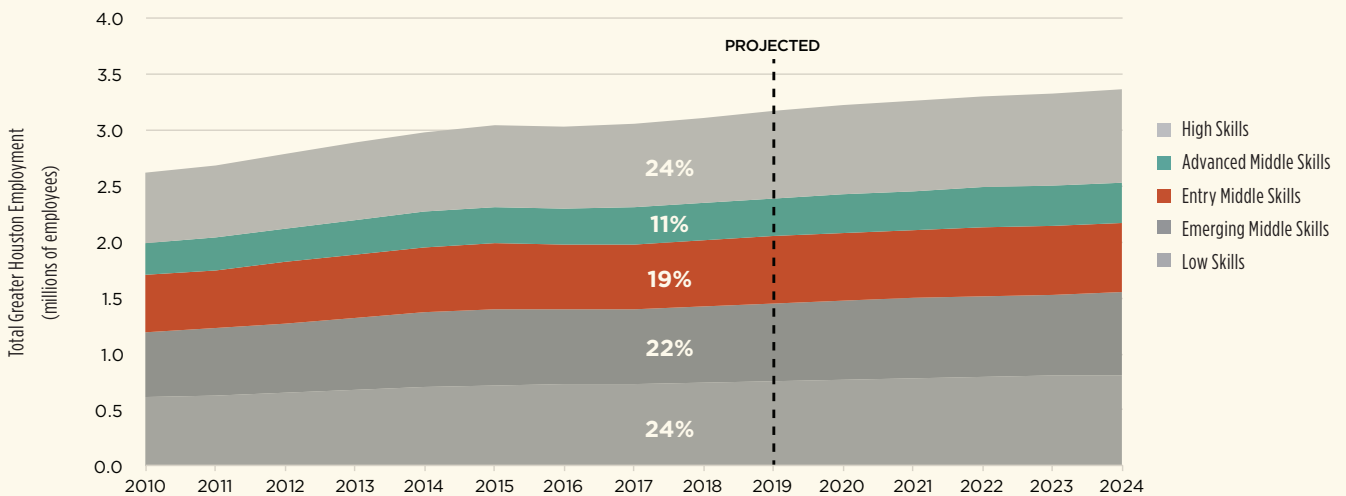
To summarize these initial high-level findings, middle-skill occupations clearly matter in Greater Houston.

- They account for a larger share of regional jobs than the national average (30 percent vs. 28 percent).
- Their growth in the region outpaced their growth nationally during the economic expansion (16 percent vs. 12 percent).

- They are expected to continue to have meaningful growth over the next five years.

Recognizing that middle skills matter to the regional economy, this analysis now turns to the specific skills and occupations in high demand among Greater Houston employers.

Figure 4: Job Growth in the Region is Expected to Continue, Including Among Middle-Skill Occupations (2010-2018 Actual/2019-2024 Projected)



Source: TEconomy's analysis of EMSI 2019.2 occupational employment data.

Regional Middle-Skill Occupations are in High Demand, Projected to Need High Volumes of Workers, and Concentrated in Key Clusters

Current data on the characteristics of the region's occupations are crucial for multiple reasons, including to:

- Provide effective career guidance and coaching to students planning careers as well as employed or displaced workers seeking new careers.
- Support educational institutions and community organizations in improving education and training programs to prepare individuals for these careers.
- Connect individuals pursuing employment with occupations crucial to regional companies and industries.
- Align investments in developing Greater Houston's workforce with those occupations crucial to the region.

- Provide Greater Houston employers with skilled workers ready to succeed at crucial occupations and grow a competitive and dynamic regional economy.

TEconomy considered the following characteristics of middle-skill jobs in Greater Houston:

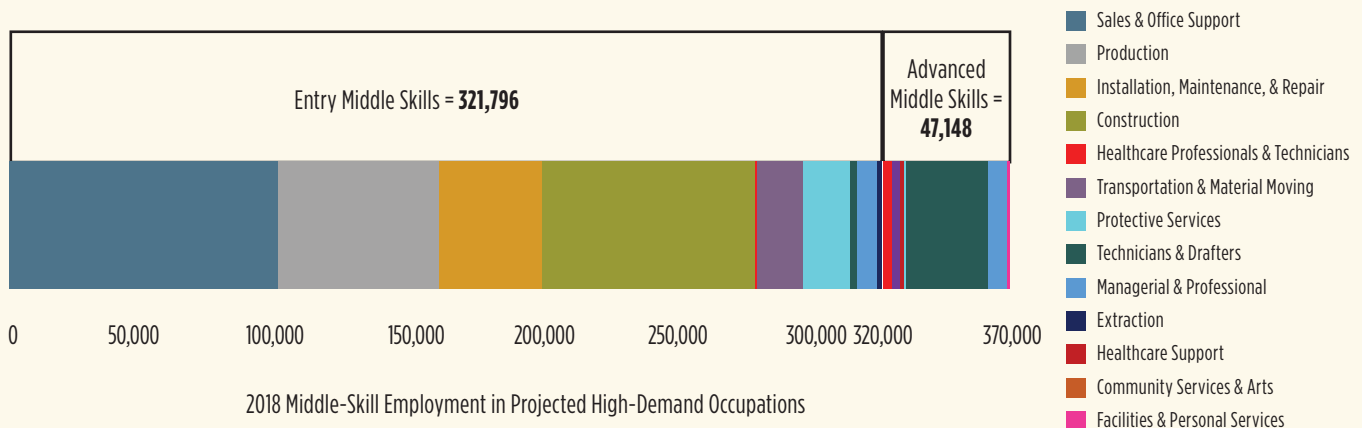
- Projected strength of demand
- Projected volumes needed
- Concentration in key industry clusters

Middle-Skill Occupations Identified to be in High Demand

TEconomy used three demand-side characteristics to analyze the relative strength of occupational demand.⁶

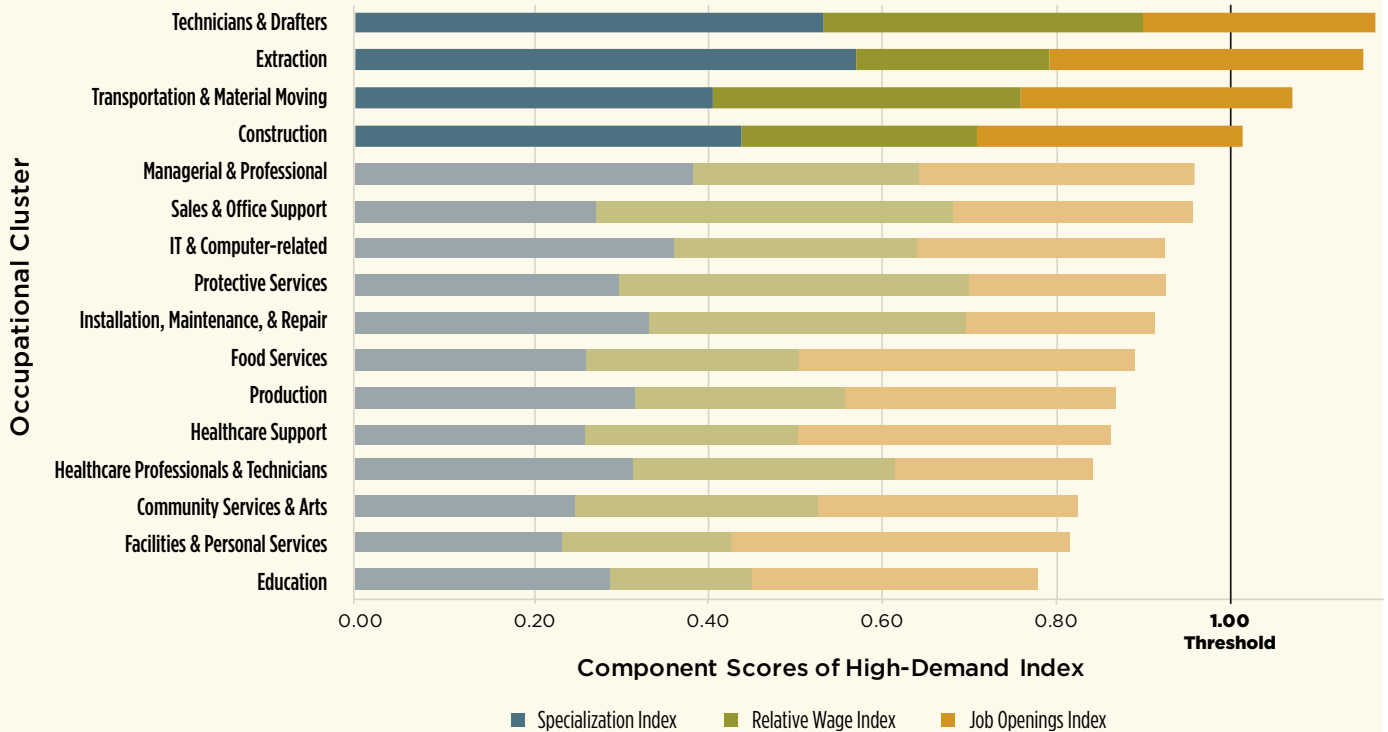
TEconomy also calculated an index of the contribution of each demand-side characteristic to driving occupational demand.

Figure 5: Most Regional High-Demand Middle-Skill Occupations Found in Entry Middle-Skill Segment



Source: TEconomy's analysis of EMSI 2019.2 occupational employment data.

Figure 6: Greater Houston’s High-Demand Index Scores by Occupation



Source: TEconomy’s analysis of EMSI 2019.2 occupational employment data.

The three-demand side characteristics are:

- **Regional concentration and specialization**, which signal the importance of an occupation to the region’s economy and, therefore, how critical it is to fill those jobs
- **Relative wages**, which signal the jobs with attractive wages for workers or wage pressures (due to high demand)
- **Projected job openings**, which signal upcoming demand as a result of growth and the need to replace employees leaving the workforce or the occupation

A combined high-demand index of 1.0 or greater indicates an occupation is likely to experience high demand from 2019-2024.⁷

Forty percent of all middle-skill jobs in Greater Houston are identified as in high demand. That’s 369,000 of the total 921,000 middle-skill jobs across the region. This assessment is based on applying the high-demand index

and the index threshold of 1.0 or greater. The vast majority of high-demand jobs fall within the entry middle-skill group, as shown in Figure 5, which illustrates the distribution of these jobs between skill groups and among major occupational clusters.

Requirements to move into these entry middle-skill opportunities typically include a high school diploma, moderate to longer-term on-the-job training, an industry-recognized credential, and/or an apprenticeship. Regional occupations that stand out as in high demand for the entry middle-skill group include construction; installation, maintenance, and repair; production; and sales and office support. These occupations show the highest sheer volume of employment (Figure 5).

In the advanced middle-skill category, technicians and drafters form the largest segment of high-demand occupations, which typically require at least some college or technical education or a postsecondary credential. Many occupations in the technician segment fall into Houston’s energy, petrochemical, and biomedical (including health-care and industrial life sciences) industries.

Table 1: Projected Annual Job Openings in Regional Occupational Clusters (2019–2024)

Occupational Clusters	Job Openings	High-Demand Clusters
Sales & Office Support	24,428	
Production	16,402	
Installation, Maintenance, & Repair	12,752	
Construction	11,809	✓
Transportation & Material Moving	7,683	✓
Healthcare Support	7,069	
Healthcare Professionals & Technicians	5,957	
Education	4,648	
Technicians & Drafters	3,220	✓
Protective Services	3,168	
Managerial & Professional	1,976	
Facilities & Personal Services	1,781	
IT & Computer-related	1,659	
Community Services & Arts	803	
Extraction	386	✓
Food Services	345	

Source: TEconomy's analysis of EMSI 2019.2 occupational employment data.

Technicians and drafters, extraction, transportation and material moving, and construction are in particularly high demand in Greater Houston (Figure 6). Each of these four occupational clusters exceeds the 1.0 high-demand index threshold and includes numerous underlying occupations, as shown in Table 1.

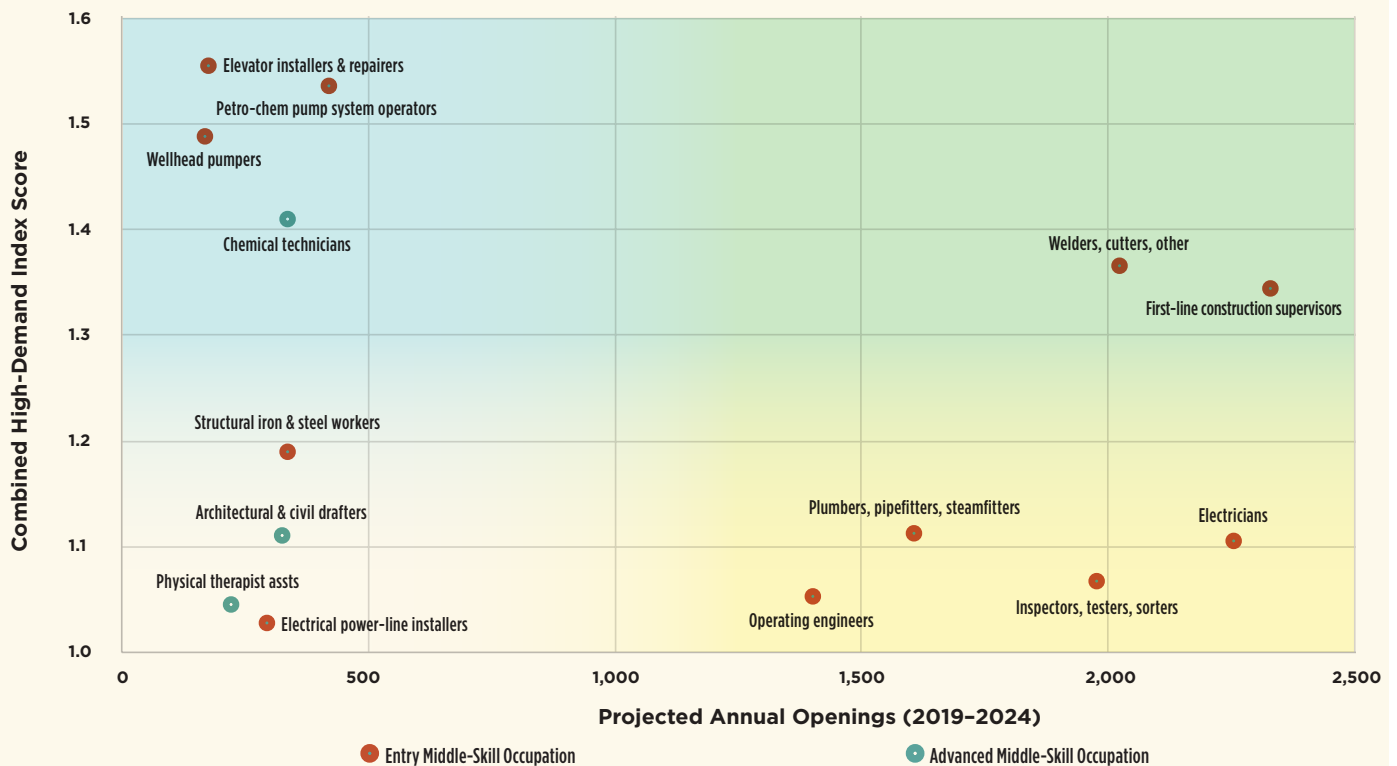
Many Regional High-Demand Occupations are Projected to Need High Volumes of Workers

TEconomy studied each occupational cluster for insights on specific occupations and for actionable intelligence. **After calculating the high-demand index for each specific regional occupation and determining the middle-skill occupations at or above the 1.0 high-demand threshold, TEconomy plotted a second variable — the number of projected annual job openings across the region — over the coming five-year period.**

TEconomy established 150 projected annual job openings in Greater Houston as the threshold for a high-volume need for workers.⁸ **Fifty-two of the high-demand, middle-skill occupations are likely to need high volumes of workers into the near future.**

Figure 7 shows occupations projected to be in high demand and needed in high volume over the five-year period. Specific examples can help clarify how to read Figure 7. For example, elevator installers and repairers are in high demand regionally (i.e., they rate considerably above the 1.0 threshold for high demand on the high-demand index). However, the projected annual number of openings (an indication of high-volume need) for those occupations is close to the threshold for high volume, at about 200 openings. Conversely, inspectors and testers are in lower demand on the high-demand index, yet those occupations are expected to need a higher volume of workers. An occupational group such as first-line construction supervisors is characterized by both higher demand and higher-volume need across the region.

Figure 7: Sample Middle-Skill Occupations with High Demand and High-Volume Need in Greater Houston (2019–2024)



Note: “High-volume” demand includes those occupations with 150 or more expected job openings annually for Greater Houston.

Source: TEconomy’s analysis of EMSI 2019.2 occupational employment data.

Middle-Skill Occupations are Concentrated in the Region’s Key Industry Clusters

Greater Houston’s industry base and mix of industry clusters⁹ (groups of companies from the same industry) are key factors in the region’s strong economic growth. Working with UpSkill Houston and considering data from the Greater Houston Partnership’s “Houston Next” strategic plan,¹⁰ Workforce Solutions, and the initial 2014 study for UpSkill Houston,¹¹ **TEconomy identified 10 industries and their major subsectors to analyze for this research:**

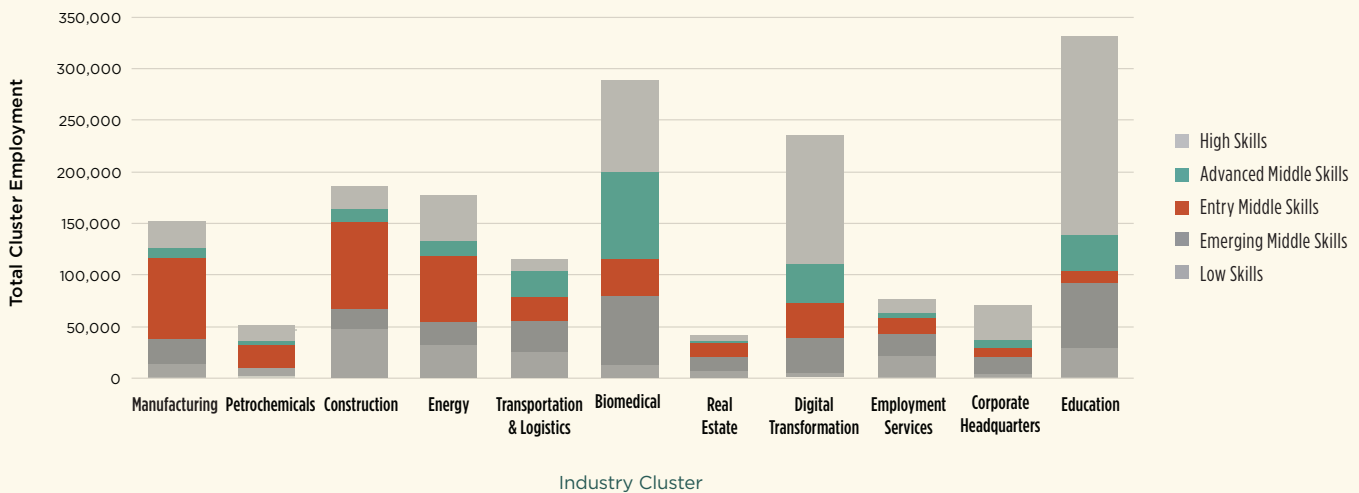
- **Biomedical**, which includes healthcare and industrial life sciences
- **Construction**, which includes civil, commercial/industrial, and residential construction
- **Corporate headquarters**, which includes headquarters operations, facilities support services, and office administrative services
- **Digital transformation**, which includes advanced business services, IT, and telecommunications
- **Education**, which includes elementary through postsecondary schools, spanning both public and private institutions, as well as educational support services

- **Energy**, which includes oil and gas extraction and production as well as machinery and energy-related distribution
- **Manufacturing**, which includes all those manufacturing segments not part of other clusters
- **Petrochemicals**, which includes chemical products obtained from petroleum and coal products
- **Real estate**, which includes agents and brokers, real estate lease holders, and those engaged in related activities
- **Transportation and logistics**, which includes warehousing and storage, e-commerce, freight transportation, and other logistics and transportation subsectors

Of the 10 clusters, TEconomy found that **eight regional industry clusters have particularly strong concentrations of middle-skill employees** (Figure 8). Seven of these industry clusters have a concentration *above* the 30 percent regional average for middle-skill employees in an industry cluster: biomedical, construction, energy, manufacturing, petrochemicals, real estate, and transportation and logistics. An eighth industry cluster, digital transformation, *meets* the 30 percent regional average for middle-skill employees.

Educators, leaders of community-based organizations, human relations experts, and others designing curricula and programs, coaching or counseling individuals, and providing on-the-job training can consider those industry clusters as likely pathways of opportunity for the individuals they support.

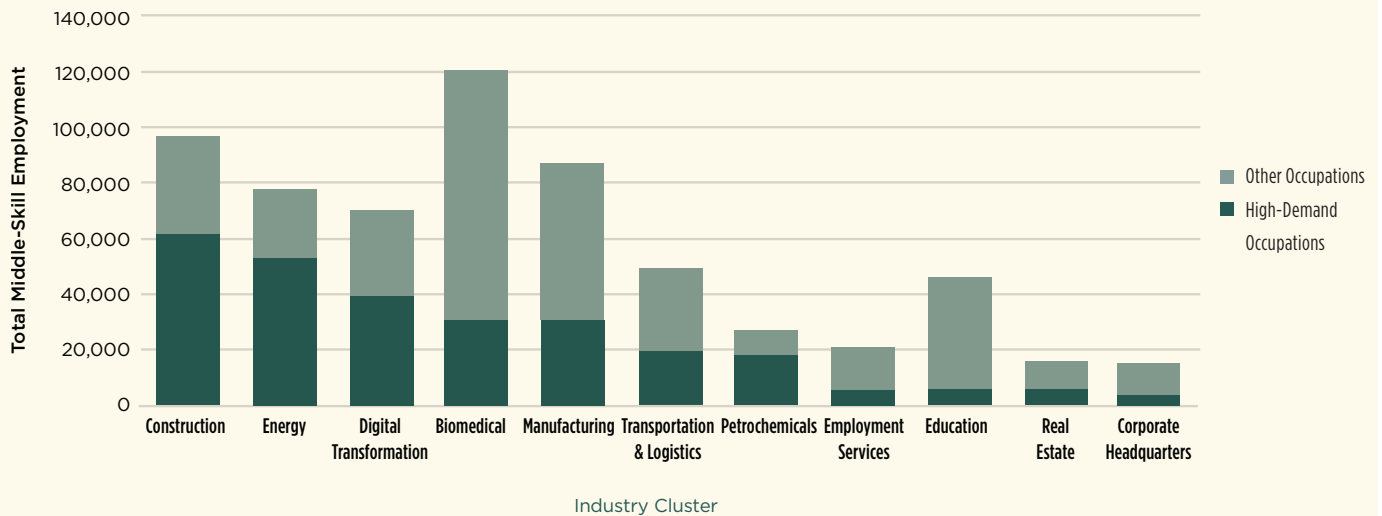
Figure 8: Eight Regional Industry Clusters Have Strong Concentrations of Middle-Skill Employees (2018)



*Note: Education cluster includes both private and public employees.

Source: TEconomy's analysis of EMSI 2019.2 industry staffing patterns data.

Figure 9: Five Regional Industry Clusters Have Strong Concentrations of High-Demand Middle-Skill Occupations (2018)



**Note: Education cluster includes both private and public employees.*

Source: TEconomy's analysis of EMSI 2019.2 industry staffing patterns data.

Further, **five regional industry clusters have especially strong concentrations of high-demand, middle-skill occupations** (Figure 9). Four of these industry clusters employ a concentration of middle-skill workers in *high-demand* occupations above the regional average

of 40 percent: construction, digital transformation, energy, and petrochemicals. A fifth industry cluster, transportation and logistics, employs middle-skill workers in high-demand occupations at the 40 percent regional average.

Most High-Demand, High-Volume Middle-Skill Occupations in Greater Houston are Also “Good Jobs”

In focusing attention on middle-skill occupations critical to Greater Houston’s economic competitiveness, **elevating those jobs that also offer prospects for growth and a healthy standard of living — in other**

words, “good jobs” — provides a pathway to economic mobility for the region’s residents. TEconomy examined various concepts for identifying “good jobs.”

Considering Wages and the Concept of “Good Jobs”

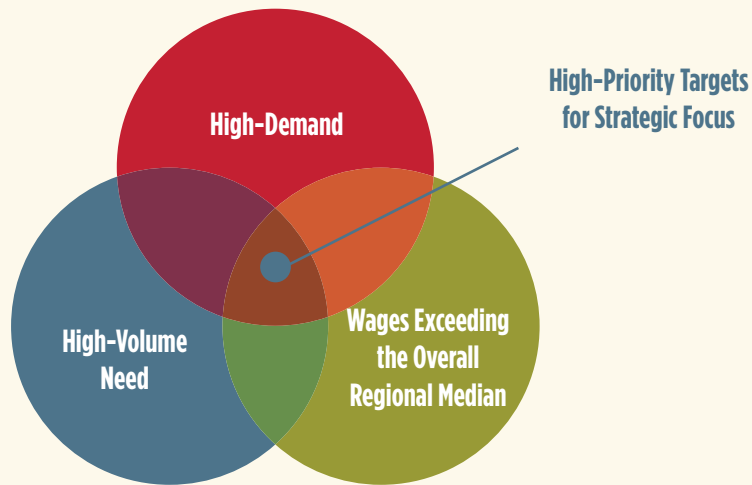
A number of institutions have considered concepts for identifying “good jobs.” Various approaches take into account the regional cost of living and “living wages,” age and familial characteristics of the household, and wages relative to the average or median of a region — among other methodologies. This research considered several of these benchmarking approaches, including:

- The National Employment Law Project (NELP) wage segments, which are used to define “good jobs” in many occupational studies. The wage level for the floor of a mid-wage industry segment range provides a reference point for a lower threshold of jobs that could provide a good standard of living. However, NELP’s wage segments do not consider Houston area conditions.
- MIT’s living wage calculator, which utilizes Houston metro area data to show the level of wages that can support a family’s expenses, for various family sizes and configurations. (See: <https://livingwage.mit.edu/>)
- United Way’s Asset Limited, Income Constrained, Employed (ALICE) threshold, which provides an alternative benchmark to the federal poverty level when assessing survival wages for a basic household of two adults and two children. (See: <https://www.unitedforalice.org/texas>)
- Greater Houston’s regional median annual earnings, which provide a context for middle-skill wages within the overall area wage distribution.

The wages for most middle-skill jobs in Houston are above both the lower range for “good jobs” used by NELP (approximately \$30,000) and the median annual earnings level for the Houston area (\$39,832).

(Definitions that include additional family members show that supporting more children rapidly makes sustaining a living wage unattainable for many middle-skills occupational segments that rely on a sole income earner.)

Figure 10: A Strategic Focus on Greater Houston’s Good Middle-Skill Jobs Can Create Opportunity for All



Source: TEconomy Partners, LLC.

TEconomy applied a wage context to further refine its analysis. **TEconomy filtered the 52 high-demand occupations with projected high volumes of need against a threshold of median wages that exceed the region’s overall median wage of \$39,832.** Adding a livable wage consideration addresses concerns about ensuring workers are prepared for and directed to regional career opportunities with both good prospects into the future and wages that enable a healthy standard of living. These high-demand, high-volume need middle-skill occupations with livable wages are “good jobs” and therefore a high-priority for targeted, near-term interventions from industry, education, community-based organizations, government, and philanthropy.

Forty-seven middle-skill occupations in Greater Houston should be considered “good jobs” because they are in high demand, projected to need a high volume of workers, and pay livable wages that exceed the overall regional median wage. That’s 47 of the 52 high-demand, high-volume need middle-skill occupations cited above.¹² These 47 occupations are listed in Table 2. (Occupations with a check in the Industry Cluster Employment column represent a noteworthy share of the industry’s total employment in the region.)

Conclusion

By working to improve skills-based education and training, career guidance, and career exploration to help attract, train, place, and grow workers in these 47 occupations, stakeholders can put Greater Houston on the road to sustained economic competitiveness and its residents on pathways to upward economic mobility. Focusing on these 47 “good jobs” and eight clusters with concentrations of high-demand, middle-skill occupations will enable employers, educators, leaders of community-based organizations, executives at philanthropies, and government officials to accelerate the effort to fill crucial middle-skill occupations and create opportunity for all. Investing now in upskilling and reskilling Greater Houston’s existing workforce, in the education and skills of its future workforce, and in bringing untapped populations into its economy are necessary to sustain the quality of life in the region.

Table 2: Greater Houston's 47 High-Priority Middle-Skill Occupations

Occupational Title	Middle-Skill Level	High-Demand Index	Projected Annual Openings, 2019-2024	Median Annual Earnings	High Avg. Share of Overall Industry Cluster Empl.
Construction					
Elevator Installers and Repairers	Entry	1.57	173	\$77,517	
Insulation Workers, Mechanical	Entry	1.41	170	\$43,174	
First-Line Supervisors of Construction Trades and Extraction Workers	Entry	1.34	2,378	\$69,598	✓
Structural Iron and Steel Workers	Entry	1.19	335	\$42,837	
Construction and Building Inspectors	Entry	1.13	326	\$62,297	
Electricians	Entry	1.11	2,259	\$54,424	✓
Plumbers, Pipefitters, and Steamfitters	Entry	1.11	1,602	\$53,513	✓
Operating Engineers and Other Construction Equipment Operators	Entry	1.06	1,421	\$40,072	✓
Healthcare Support					
Physical Therapist Assistants	Advanced	1.04	211	\$68,510	
Installation, Maintenance, and Repair					
Control and Valve Installers and Repairers, Except Mechanical Door	Entry	1.31	234	\$43,376	
Industrial Machinery Mechanics	Entry	1.14	1,097	\$58,277	✓
Mobile Heavy Equipment Mechanics, Except Engines	Entry	1.14	532	\$48,261	
Electrical Power-Line Installers and Repairers	Entry	1.03	291	\$61,198	
Bus and Truck Mechanics and Diesel Engine Specialists	Entry	1.00	787	\$48,281	
Telecommunications Line Installers and Repairers	Entry	1.00	269	\$54,645	

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Occupational Title	Middle-Skill Level	High-Demand Index	Projected Annual Openings, 2019-2024	Median Annual Earnings	High Avg. Share of Overall Industry Cluster Empl.
Managerial and Professional					
Title Examiners, Abstractors, and Searchers	Entry	1.31	163	\$80,232	
Transportation, Storage, and Distribution Managers	Entry	1.25	261	\$110,020	
Tax Preparers	Entry	1.09	250	\$56,284	
Paralegals and Legal Assistants	Advanced	1.02	797	\$58,401	
Production					
Chemical Equipment Operators and Tenders	Entry	1.57	815	\$71,855	✓
Chemical Plant and System Operators	Entry	1.54	292	\$70,498	
Petroleum Pump System Operators, Refinery Operators, and Gaugers	Entry	1.54	403	\$69,302	
Gas Plant Operators	Entry	1.50	167	\$63,529	
Welders, Cutters, Solderers, and Brazers	Entry	1.35	2,007	\$48,043	✓
Structural Metal Fabricators and Fitters	Entry	1.22	337	\$43,153	
Inspectors, Testers, Sorters, Samplers, and Weighers	Entry	1.08	1,959	\$41,468	✓
Protective Services					
Police and Sheriff's Patrol Officers	Entry	1.01	1,401	\$66,116	
Sales and Office Support					
Real Estate Sales Agents	Entry	1.20	648	\$61,556	✓
Sales Representatives, Services, All Other	Entry	1.14	4,102	\$52,223	✓
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	Entry	1.08	3,655	\$65,066	✓
Brokerage Clerks	Entry	1.01	164	\$55,900	

Table 2: Greater Houston's 47 High-Priority Middle-Skill Occupations

Occupational Title	Middle-Skill Level	High-Demand Index	Projected Annual Openings, 2019-2024	Median Annual Earnings	High Avg. Share of Overall Industry Cluster Empl.
Technicians and Drafters					
Geological and Petroleum Technicians	Advanced	1.54	252	\$68,893	
Chemical Technicians	Advanced	1.42	323	\$63,975	
Mechanical Engineering Technicians	Advanced	1.33	164	\$73,638	
Surveying and Mapping Technicians	Entry	1.26	250	\$45,878	
Mechanical Drafters	Advanced	1.21	190	\$67,352	
Civil Engineering Technicians	Advanced	1.20	278	\$51,573	
Life, Physical, and Social Science Technicians, All Other	Advanced	1.20	348	\$42,866	
Architectural and Civil Drafters	Advanced	1.14	314	\$52,726	
Environmental Science and Protection Technicians, Including Health	Advanced	1.11	152	\$42,717	
Electrical and Electronics Engineering Technicians	Advanced	1.09	340	\$62,856	
Engineering Technicians, Except Drafters, All Other	Advanced	1.02	189	\$59,830	
Transportation and Material Moving					
Captains, Mates, and Pilots of Water Vessels	Advanced	1.86	241	\$133,029	
Wellhead Pumpers	Entry	1.48	162	\$50,414	
Flight Attendants	Entry	1.35	557	\$56,478	
Transportation Inspectors	Entry	1.26	154	\$56,853	
Crane and Tower Operators	Entry	1.25	221	\$54,265	

Note: A check mark means the occupation accounts for 0.4% or more of total industry cluster employment in Greater Houston.

Source: TEconomy's analysis of EMSI 2019.2 industry staffing patterns data.



About UpSkill Houston

UpSkill Houston — an employer-led initiative of the Greater Houston Partnership — mobilizes the collective action of more than 200 critical stakeholders to strengthen the pipeline of skilled workers that employers need and to create better pathways to opportunity and prosperity for all Houstonians. Our focus is on the good careers in Houston that require skills beyond high school, but less than a four-year college degree.

www.houston.org/upskillhouston

About Greater Houston Partnership

The Greater Houston Partnership works to make Houston one of the best places to live, work and build a business. As the economic development organization for the Houston region, the Partnership champions growth across 11 counties by bringing together business and civic-minded leaders who are dedicated to the area's long-term success. Representing 1,100 member organizations and approximately one-fifth of the region's workforce, the Partnership is the place business leaders come together to make an impact.

www.houston.org

About TEconomy Partners, LLC

TEconomy Partners, LLC helps clients compete in an economy that is increasingly global, knowledge-based, and driven by innovation. The firm has a proven, 25-year track record of successful research, deep quantitative and qualitative analysis, and developing actionable strategies and insights.

www.teconomypartners.com

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Notes

- ¹ The demand-side analysis in this study was developed by TEconomy Partners, LLC, to refresh the landscape for UpSkill Houston's employer-led efforts to attract, train, and place skilled workers in occupations requiring skills beyond high school but less than a four-year college degree.
- ² Workforce Solutions, Current Employment and Local Area Unemployment Statistics Houston-The Woodlands-Sugar Land, July 2019.
- ³ See Bureau of Labor Statistics, Office of Employment Projections: <https://www.bls.gov/emp/documentation/education/tech.htm>.
- ⁴ BLS defines the typical on-the-job training (OJT) periods as follows: short-term OJT is one month or less; moderate OJT is more than one month and up to 12 months; long-term OJT is more than 12 months.
- ⁵ Greater Houston Partnership and TIP Strategies, "Addressing Houston's Middle Skills Jobs Challenge: A Plan by the Greater Houston Partnership Regional Workforce Development Task Force," April 2014.
- ⁶ Projections for demand were based on historical trends and models and, therefore, could have limitations. Employers and industry could provide additional information related to the projections. In addition, key indicators related to supply — including graduation rates in key degree fields and educational attainment of the existing workforce — could offer further insights.
- ⁷ This approach does not estimate any measurements of labor supply required to fill demand. Rather, it focuses attention on occupations likely to be in high demand given current and projected future economic conditions and need.
- ⁸ The threshold of 150 or more openings per year was chosen to balance the need for a significant volume of annual openings to qualify an occupation as high volume while also acknowledging that an overly restrictive threshold can quickly limit the number of occupations that can be prioritized for effective policy intervention. This threshold was chosen as a slightly less conservative cutoff than the median of 171 projected annual openings through 2024 across all occupations in the Greater Houston region. Note that a more conservative cutoff value of 200 projected annual openings yields only 38 high-volume, high-demand occupations and omits a number of occupation codes that are highly relevant to Houston's advanced industry clusters.
- ⁹ According to *The Economist*, "clustering is the phenomenon whereby firms from the same industry gather together in close proximity." (*The Economist*. "Clustering." August 24, 2009. Accessed online at: <http://www.economist.com/node/14292202>.) The explanation of a cluster is much more complex in reality and requires a highly interconnected ecosystem for clustered firms not only to come together at a meaningful density, but also to thrive and hold together. Industry typically clusters geographically where an ecosystem offers key ingredients, including shared markets and supply chains, shared workforce and talent needs, and proximity to an infrastructure for research and innovation.
- ¹⁰ See: <https://www.houston.org/next>.
- ¹¹ Greater Houston Partnership and TIP Strategies, "Addressing Houston's Middle Skills Jobs Challenge: A Plan by the Greater Houston Partnership Regional Workforce Development Task Force," April 2014.
- ¹² This represents a reduction from the set of 52 high-demand occupations identified earlier in the report—five detailed occupations were eliminated once the median wage threshold was applied.

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