What's My Line?

Two Approaches to Classifying Jobs

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Employment is an important driver of real estate demand. Market analysts track jobs to understand current market conditions and forecast future activity.

The most commonly used employment metrics are based on industrial classification. All workers in the U.S. can be classified by the industries in which they work. Firms that use similar production methods are grouped into industrial sectors, and all of their employees are counted in their respective industry. Employment by industry classifies workers based on the industry in which they do their work, regardless of the type of work they do. Two examples of industrial sectors include finance and insurance, and manufacturing.

Another way of classifying employment is by occupation. This approach classifies workers based on the job they do, regardless of which industry they are in. For example, an accountant is classified by occupation as a business and financial operations worker. That accountant might work for a bank, where she would be counted as a finance and insurance industry employee, or that accountant might work for a food processor and be classified as a manufacturing worker.

> **Takeaway**
>
> Considering both the North American Industrial Classification System industry data and the Standard Occupational Classification occupation data is key to understanding Texas' industrial real estate job markets.

The U.S. Bureau of Labor Statistics (BLS) conducts separate surveys to collect both the industry and occupational employment measures. Figures 1 and 2 summarize Texas employment by the highest-level categories in each of these systems. The analysis that follows presents the different perspectives each employment system can bring to industrial real estate market analysis. Three key findings emerge:

- Different ways of measuring employment can lead to different assessments of industrial markets. Measuring employment by industry may overstate the actual amount of factory or warehouse space needed.

- Occupational measures of employment may do a better job explaining the demand for industrial space, because
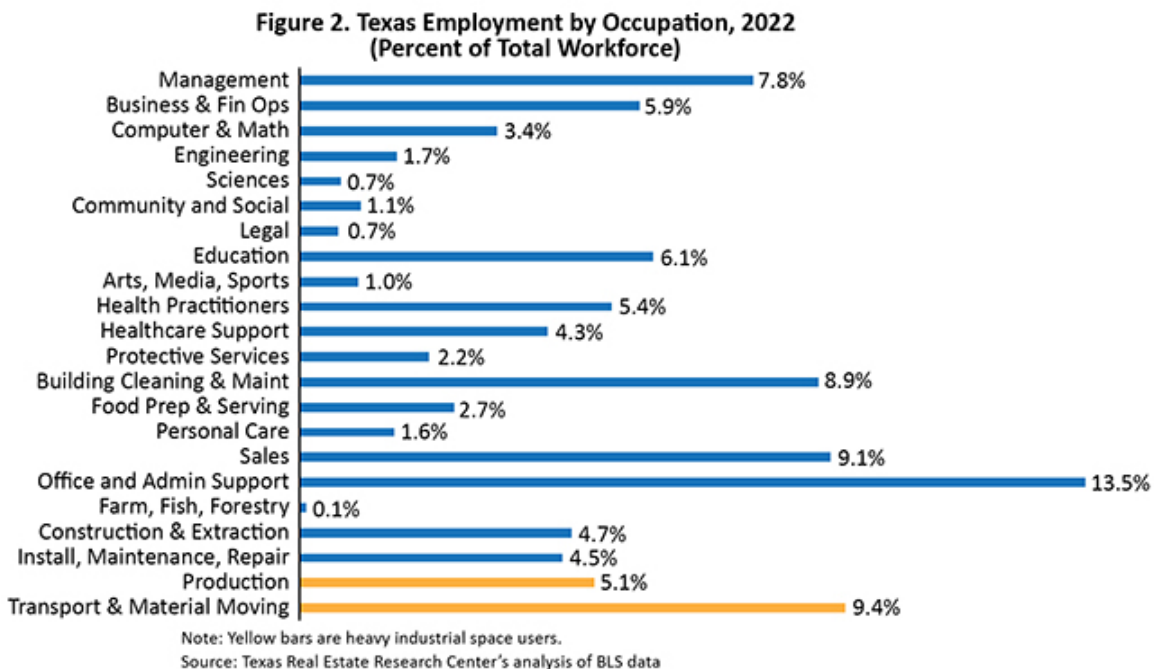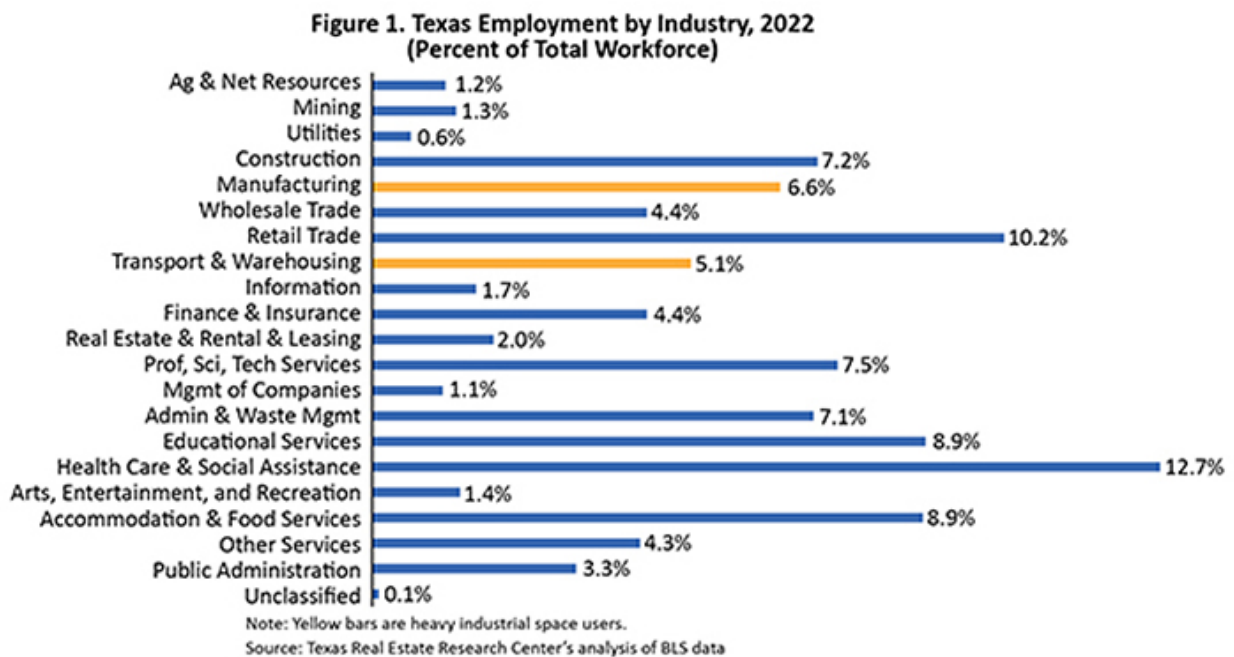
they isolate factory and warehouse floor jobs from overhead and administrative jobs that may be sited in office properties.

- Since 2012, Texas markets have seen mixed performance in terms of growth in production occupations, while all areas of Texas have seen great gains in transportation and material-moving occupations.

Classifying workers by occupation rather than industry offers some advantages, but both systems have pluses and minuses. A thorough market analysis will use both.

Industry employment is timelier, being tallied monthly, while occupational employment is only measured annually. The sampling used in industry employment gives more reliable total job estimates, but occupation employment gives more details at the local level for individual metropolitan and rural areas. Finally, if wage data are of interest, occupational employment data include details on mean, median, and various market percentiles, revealing a picture of the distribution of wages across markets.

Manufacturing, and transportation and warehousing industrial sectors (Figure 1) and production, and transportation

Figure 1. Texas Employment by Industry, 2022
(Percent of Total Workforce)

Industry	Percent
Ag & Net Resources	1.2%
Mining	1.3%
Utilities	0.6%
Construction	7.2%
Manufacturing	6.6%
Wholesale Trade	4.4%
Retail Trade	10.2%
Transport & Warehousing	5.1%
Information	1.7%
Finance & Insurance	4.4%
Real Estate & Rental & Leasing	2.0%
Prof, Sci, Tech Services	7.5%
Mgmt of Companies	1.1%
Admin & Waste Mgmt	7.1%
Educational Services	8.9%
Health Care & Social Assistance	12.7%
Arts, Entertainment, and Recreation	1.4%
Accommodation & Food Services	8.9%
Other Services	4.3%
Public Administration	3.3%
Unclassified	0.1%

Note: Yellow bars are heavy industrial space users.
Source: Texas Real Estate Research Center's analysis of BLS data

Figure 2. Texas Employment by Occupation, 2022
(Percent of Total Workforce)

Occupation	Percent
Management	7.8%
Business & Fin Ops	5.9%
Computer & Math	3.4%
Engineering	1.7%
Sciences	0.7%
Community and Social	1.1%
Legal	0.7%
Education	6.1%
Arts, Media, Sports	1.0%
Health Practitioners	5.4%
Healthcare Support	4.3%
Protective Services	2.2%
Building Cleaning & Maint	8.9%
Food Prep & Serving	2.7%
Personal Care	1.6%
Sales	9.1%
Office and Admin Support	13.5%
Farm, Fish, Forestry	0.1%
Construction & Extraction	4.7%
Install, Maintenance, Repair	4.5%
Production	5.1%
Transport & Material Moving	9.4%

Note: Yellow bars are heavy industrial space users.
Source: Texas Real Estate Research Center's analysis of BLS data

and material-moving occupation groups (Figure 2) each use a lot of industrial real estate and are, therefore, key categories for tracking industrial real estate markets. A total of 11.7 percent of employment measured by North American Industrial Classification System (NAICS) industry sector falls into the two industrial-using categories. A total of 14.5 percent of employment falls into the two major Standard Occupational Classification (SOC) occupation groups that are heavy users of industrial space (see sidebar for a brief explanation of the NAICS and SOC).

Measuring Industrial Real Estate Using Employment

The BLS publishes occupational details within each major NAICS industrial sector. Table 1 breaks down these details—at both the state and national levels—for the two industrial sectors most associated with industrial space. This allows one to compare one industry's employment structure with the other and to compare the Texas industry with the corresponding one nationally. These data have two notable features.

First, a large share of each industry includes jobs typically found in an office setting rather than a factory or warehouse setting. About two-thirds of transportation and warehousing employment and only about half of manufacturing employment involve tasks that require shop floor real estate (such as factories and warehouses). The remainder in each industry includes workers that may be sited in office space (onsite or at another location).

Table 1. Occupational Mix of Key Industrial-Using Industries 2022				
	Industry (and NAICS Codes)			
	Manufacturing (31-33)		Transportation and Warehousing (48-49)	
Occupation (and SOC Code)	U.S.	Texas	U.S.	Texas
Management (11)	6.4%	7.4%	3.7%	4.2%
Business and Financial Operations (13)	4.7%	4.9%	0.0%	0.0%
Computer and Mathematical (15)	2.4%	2.9%	0.0%	0.0%
Architecture and Engineering (17)	6.0%	6.4%	0.0%	0.0%
Life, Physical, and Social Science (19)	1.2%	1.1%	0.0%	0.0%
Community and Social Service (21)	0.0%	0.0%	0.0%	0.0%
Legal (23)	0.1%	0.1%	0.0%	0.0%
Educational Instruction and Library (25)	0.0%	0.0%	0.0%	0.0%
Arts, Design, Entertainment, Sports, and Media (27)	0.7%	0.6%	0.0%	0.0%
Healthcare Practitioners and Technical (29)	0.1%	0.1%	0.0%	0.0%
Healthcare Support (31)	0.0%	0.0%	0.0%	0.0%
Protective Service (33)	0.1%	0.1%	0.0%	0.0%
Food Preparation and Serving Related (35)	1.0%	0.6%	0.0%	0.0%
Building and Grounds Cleaning and Maintenance (37)	0.6%	0.7%	0.5%	0.5%
Personal Care and Service (39)	0.0%	0.0%	0.2%	0.0%
Sales and Related (41)	3.4%	3.5%	1.2%	0.9%
Office and Administrative Support (43)	7.8%	8.3%	20.9%	22.6%
Farming, Fishing, and Forestry (45)	0.2%	0.2%	0.0%	0.0%
Construction and Extraction (47)	1.6%	2.2%	0.5%	0.5%
Installation, Maintenance, and Repair (49)	5.2%	6.1%	5.0%	6.0%
Production (51)	49.3%	45.0%	1.2%	2.0%
Transportation and Material Moving (53)	9.2%	9.7%	66.7%	63.3%

Note: **Green** cell means Texas industry has a larger share of the occupation than national average. Occupations in **blue** are typically associated with industrial space (i.e., factory or warehouse floor occupations).
Source: Texas Real Estate Research Center analysis of BLS Occupational Employment and Wage Statistics (OEWS) data

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Second, these industries in Texas employ a smaller share of their workforce in the industry's "core" occupations. Nationally, 49 percent of manufacturing employees are in production occupations compared with 45 percent in Texas. Likewise, for transportation and warehousing firms, nationally 67 percent are in transportation and material moving occupations. In Texas, the share is 63 percent. This implies industry in Texas may consume relatively less factory or warehouse space than the industry nationally. Using industrial (that is, NAICS employment) to estimate demand for industrial space may overstate the actual demand for true warehouse or factory space.

Industrial space-using occupations are found in more than these two industries. Table 2 shows the top five NAICS industries that employ these types of workers in Texas. As expected, production workers are heavily concentrated in manufacturing industries. In Texas, 62 percent of production occupations work in those industries. The second-largest concentration of production workers is in the administrative and waste management industry (7 percent). This results from staffing agencies that supply many production workers to manufacturing firms. Production occupations are sometimes found in unexpected

sectors, such as wholesale, retail, and even construction. This reflects final assembly operations in goods distribution and construction job site work, among other factors.

Transportation and material moving workers are less concentrated. The actual transportation industry employs only 33 percent of these workers. Other important industrial sectors for these occupations are retail (20 percent), wholesale trade (12 percent), and, yet again, the administrative and waste support industry (9 percent). That these types of workers are found in a variety of industries is less surprising than the case of production workers given the commonality of warehouse space in many businesses.

Table 2. Distribution of Production and Transportation and Material Moving Occupations by Industry, 2022 (Percent of total occupation found in each NAICS industry)				
Production Workers (SOC 51)		Transportation and Material Moving Workers (SOC 53)		
Industry	Percent	Industry	Percent	
Manufacturing	61.8	Transportation and Warehousing	33.4	
Administrative and Support and Waste Management and Remediation Services	7.2	Retail Trade	20.0	
Wholesale Trade	6.8	Wholesale Trade	12.1	
Retail Trade	3.7	Administrative and Support and Waste Management and Remediation Services	9.1	
Construction	3.4	Manufacturing	7.2	
Remaining 15 Industries	17.1	Remaining 15 Industries	18.2	

Source: Texas Real Estate Research Center analysis of BLS Occupational Employment and Wage Statistics (OEWS) data

Changes in Industry and Occupational Employment 2012 to 2022

The implications of employment analysis for industrial market analysis can be seen by examining the differences in growth rates in terms of industries and occupations. Table 3 compares job growth nationally and in Texas for key industrial space-related industries and occupations.

Table 3. Change in Key Industrial Space-Using Employment: Industries and Occupations, 2012-22				
	U.S.		Texas	
	Change	Percent Change	Change	Percent Change
Manufacturing Industries (NAICS 31-33)	718,600	6.1	48,560	5.7
Transportation and Warehousing Industries (48-49)	1,886,190	37.6	202,830	46.1
Production Occupations (51)	144,800	1.7	9,490	1.5
Transportation and Material Moving Occupations (53)	4,788,760	54.6	491,610	67.6

Source: Texas Real Estate Research Center analysis of BLS Occupational Employment and Wage Statistics (OEWS) data

Over the ten years ending in 2022, manufacturing industries nationally grew their employment 6.1 percent. This exceeded the growth in manufacturing industries in Texas, which added 5.7 percent to their employment. Texas' slower growth is partly because of declines in oil and petrochemical industries after 2016. In the transportation and warehousing industries, the national employment growth was robust at 37.6 percent. Texas firms in these industries grew even faster at 46.1 percent.

Turning to changes in occupational employment, production jobs barely grew

nationally and in Texas. U.S. production employment increased by 1.7 percent, Texas by 1.5 percent. Of the few jobs manufacturing sectors added, most were off the factory floor. For occupations involved with transportation and material moving, growth was strong both nationally and in Texas. The workforce in these occupations grew by 54.6 percent nationally and by 67.6 percent in Texas. Job growth has been strong by industry and occupation in categories that deal with moving goods.

Alternative Employment Measures and Demand for Industrial Space

These differences in employment performance have implications for understanding the demand for industrial space. Comparing changes in each employment measure to two key industrial market metrics—change in inventory and cumulative net absorption—yields the correlations shown in Table 4.

In these cases, occupational employment is more highly correlated with these measures of industrial demand than industrial employment. For instance, the change in cumulative net absorption across Texas has a 92.9 percent correlation with the change in industrial employment over the same period. The cor-

relation of net absorption with occupation employment is 97.3 percent.

Occupational employment's better fit is likely because of those industries in which many workers, as noted earlier, do not use factory or warehouse space. These overhead or administrative workers may be housed in separate office buildings.

While these preliminary results need further scrutiny, they hint that only using NAICS industrial employment to track industrial markets may not be ideal. Occupational trends are also important.

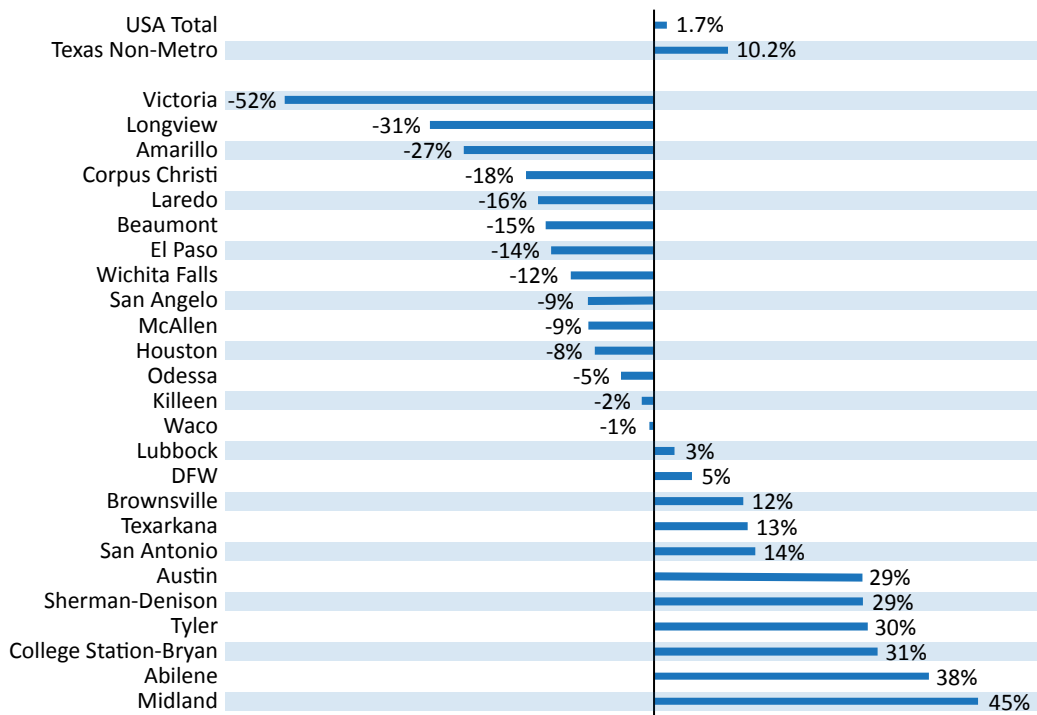| Table 4. Correlation Between Industrial Demand, Employment Metrics, 2012-22		
Employment Metric	Industrial Net Absorption	Industrial Inventory Change
Industrial Employment (NAICS)	92.9%	90.2%
Occupational Employment (SOC)	97.3%	95.7%

Source: Texas Real Estate Research Center analysis of BLS Occupational Employment and Wage Statistics (OEWS) data

Metropolitan Area Performance

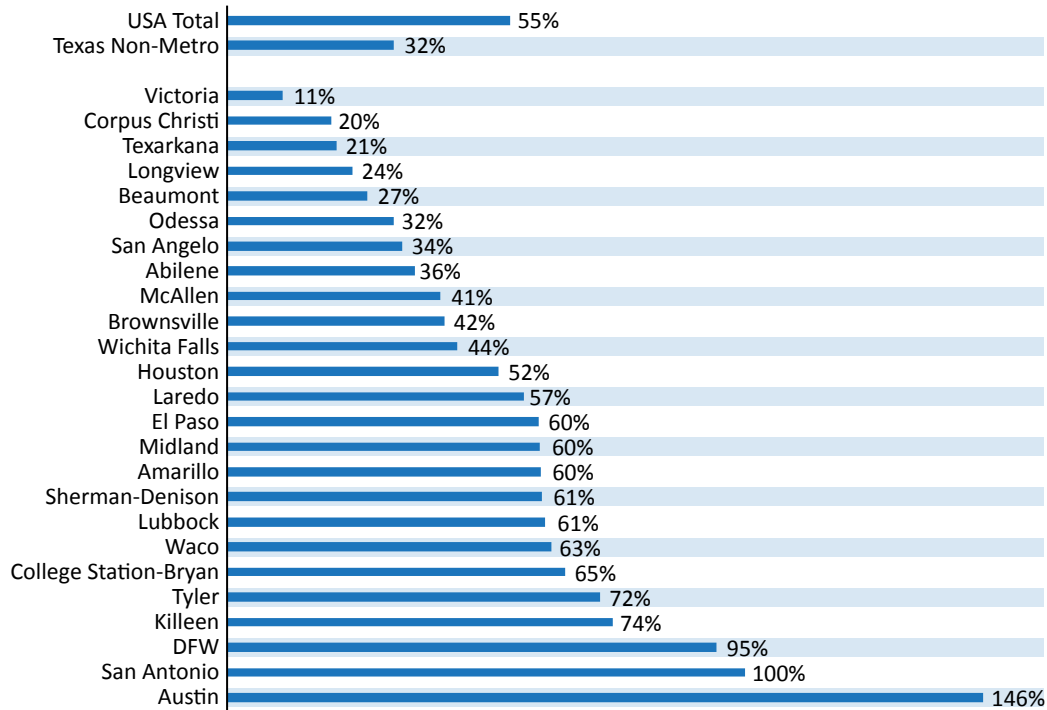Using occupational employment can highlight trends across Texas metro areas. Growth in industrial inventory has not been uniform across the state over the last decade. The rate of growth in production workers varied greatly between MSAs from 2012 to 2022 (Figure 3). Nine metro areas saw double-digit growth: Midland, Abilene, College Station-Bryan, Tyler, Sherman-Denison, Austin, San Antonio, Texarkana, and Brownsville-Harlingen. Fourteen of the state's 25 MSAs lost production workers over this interval. Oil-and-gas-focused markets were hit particularly hard.

Figure 3. Change in Production Workers (SOC 51), 2021-22

Area	Change
USA Total	1.7%
Texas Non-Metro	10.2%
Victoria	-52%
Longview	-31%
Amarillo	-27%
Corpus Christi	-18%
Laredo	-16%
Beaumont	-15%
El Paso	-14%
Wichita Falls	-12%
San Angelo	-9%
McAllen	-9%
Houston	-8%
Odessa	-5%
Killeen	-2%
Waco	-1%
Lubbock	3%
DFW	5%
Brownsville	12%
Texarkana	13%
San Antonio	14%
Austin	29%
Sherman-Denison	29%
Tyler	30%
College Station-Bryan	31%
Abilene	38%
Midland	45%

Source: Texas Real Estate Research Center's analysis of Occupational Employment and Wage Statistics (OEWS) data

Figure 4. Change in Transportation and Material Moving Workers (SOC 53), 2021-22

Area	Change
USA Total	55%
Texas Non-Metro	32%
Victoria	11%
Corpus Christi	20%
Texarkana	21%
Longview	24%
Beaumont	27%
Odessa	32%
San Angelo	34%
Abilene	36%
McAllen	41%
Brownsville	42%
Wichita Falls	44%
Houston	52%
Laredo	57%
El Paso	60%
Midland	60%
Amarillo	60%
Sherman-Denison	61%
Lubbock	61%
Waco	63%
College Station-Bryan	65%
Tyler	72%
Killeen	74%
DFW	95%
San Antonio	100%
Austin	146%

Source: Texas Real Estate Research Center's analysis of Occupational Employment and Wage Statistics (OEWS) data

All Texas MSAs, including those in rural areas, saw double-digit growth in transportation and material moving workers (Figure 4). The different results by these two occupation groups have direct impacts on local market supply and demand for industrial space. Historically, production workers require less industrial space than warehouse workers to perform their jobs.

The dramatic growth in transportation and material moving workers largely explains much of the increase in industrial inventory in Texas in recent years. In many Texas markets, the growth in industrial space has been almost completely due to distribution rather than manufacturing.

Implications for Employers Looking at Texas

Logical next steps in this research include examining the data at a finer level of detail.

For instance, the manufacturing sector can be broken down into sub-industries such as food processing or petrochemicals. Likewise, occupational groups such as production workers can be broken down into more specific occupations such as machinists or team assemblers.

The actual mix of workers by occupation has important implications for firms seeking to set up shop in Texas. Some markets will likely be better places to find those workers. Examining the differences across Texas metro areas may better explain why some metro areas grow faster than others. ☙

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