# Texas Frontline Workers during the COVID-19 Pandemic

*Prepared by the Texas Research-to-Policy Collaboration Project*[1]
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## Approach

This data brief describes and compares the number of individuals providing frontline essential services in Texas, Texas House Districts (HDs), and Texas Senate Districts (SDs) during the COVID-19 pandemic. Frontline worker estimates are generated using labor and population statistics from the American Community Survey (ACS).[2]

The following calculations are **estimates** generated by extrapolating data that is available based on a sample of individuals who participate in the American Community Survey. As a result, the provided estimates may vary from the true counts or rates.

## Insights

- Approximately 18.1% of the workforce in Texas are in a frontline industry, approximately 2.7 million individuals.
    - In Texas SDs, this proportion ranges from 14.1% to 24.1% (Fig 3)(Table 1).
    - In Texas HDs, this proportion ranges from 12.5% to 26.7% (Fig 6)(Table 2).

- Female workers represent 62.8% of frontline industry workers in Texas. Female workers represent 45.5% of the general Texas workforce (Fig 1).

- Non-white workers represent 61.9% of frontline industry workers in Texas (Fig 2). Non-white workers represent 55.6% of the general Texas workforce.

- Among frontline workers in Texas,[3]
    - 30% are over the age of 50.
    - 9% live below the poverty line.
    - 27% live below the <200% poverty line.

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[2]https://www.census.gov/programs-surveys/acs.

[3]https://cepr.net/a-basic-demographic-profile-of-workers-in-frontline-industries/.

**Data Notes**

Industries considered "frontline" for this analysis include: (1) Grocery, Convenience and Drug Store, (2) Public Transit, (3) Trucking, Warehouse, and Postal Service, (4) Building Cleaning Services, (5) Health Care, and (6) Child Care and Social Services.

The definitions of "frontline essential services" are challenging to translate and apply to available labor force data sources. Several research institutions have noted that the Department of Homeland Security advisory list, upon which the Texas Executive Order GA-08 is based,[4] does not specify occupations and industries with standardized codes typically used in large-scale labor analyses.[5][6][7] The definition used in this analysis is based on an analysis completed by the Centre for Economic Policy Research.[8]

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[4]https://gov.texas.gov/news/post/governor-abbott-issues-executive-order-implementing-essential-services-and-activities-protocols

[5]https://www.brookings.edu/research/how-to-protect-essential-workers-during-covid-19/#cancel

[6]https://www.brookings.edu/research/to-protect-frontline-workers-during-and-after-covid-19-we-must-define-who-they-are/

[7]https://www.newamerica.org/public-interest-technology/blog/tens-millions-americans-are-risking-their-lives-less-15hr/

[8]https://cepr.net/a-basic-demographic-profile-of-workers-in-frontline-industries/

**Methodology**

Workforce estimates are generated using the American Community Survey Public Use Microdata Sample (PUMS) files.[9]

The PUMS files contain a sample of the individual responses to the American Community Survey that maintain the confidentiality of the survey takers. The PUMS files used for this analysis cover a five-year period and contain data on approximately 5% of the United States population.

The PUMS files provide data that can be organized by state and by Public Use Microdata Areas (PUMAs). PUMAs are statistical geographic areas designed to contain at least 100,000 individuals and do not correspond directly to county geography or another census geography.

To generate statewide estimates, all individual records in the PUMS file are summarized while accounting for a person-level weight that is provided by the Census Bureau to ensure the PUMS data accurately represents the entire state population.

To generate legislative district level estimates, individual records in the PUMS files are first summarized by PUMA accounting for the same person-level weights as with the state-level analysis. The PUMA estimates are then converted to legislative district estimates by taking a weighted average of the estimates for PUMAs that intersect with a given legislative district with a new weight based on the estimated population count of a PUMA that resides inside the legislative district. Code for this analysis in the R programming language is available upon request.

Each individual survey taker recorded in the PUMS files has recorded, among other topics, information regarding their personal demographics, their current work status, and the industry of current employment. These data form the foundation of the statistics included in this data brief.

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[9]https://www2.census.gov/programs-surveys/acs/tech_docs/pums/ACS2014_2018_PUMS_README.pdf?

# Statewide Frontline Worker Figures

**Figure 1. Frontline Workers by Sex in Texas**
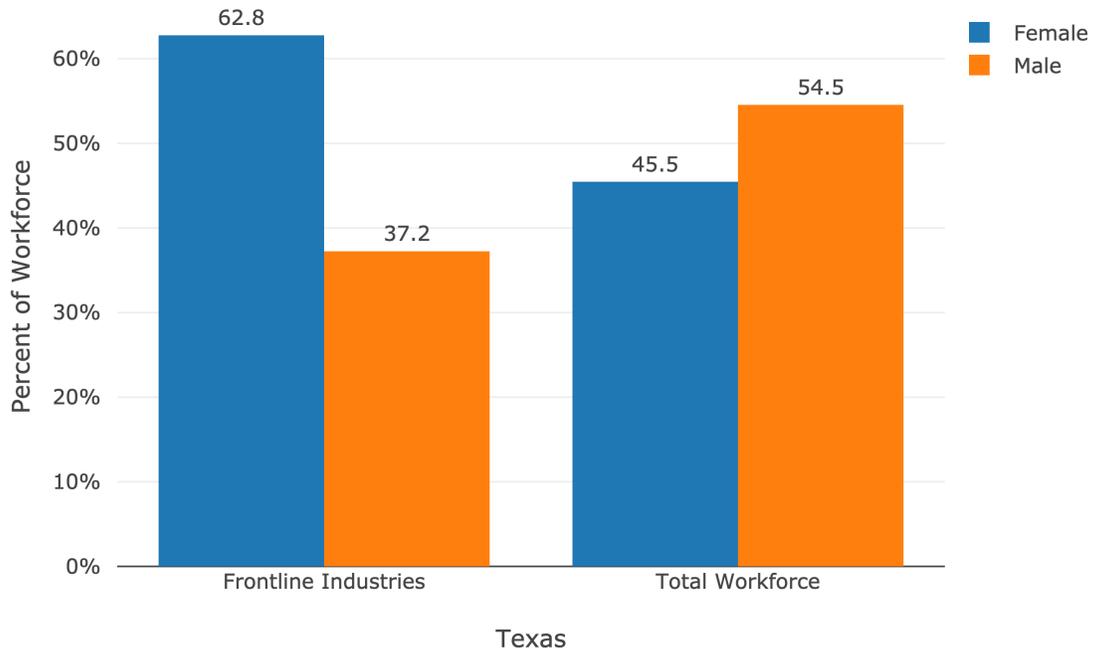


**Figure 2. Frontline Workers by Race-Ethnicity in Texas**
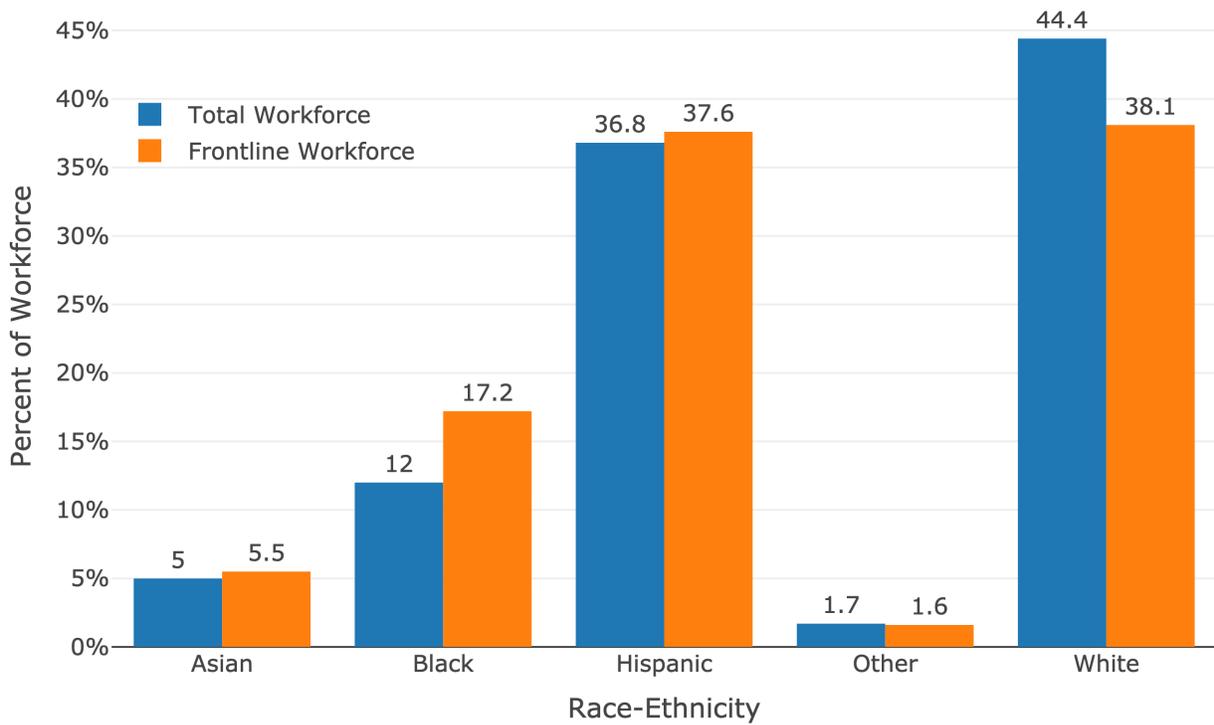
# Texas Senate District Frontline Worker Figures

**Figure 3. Est. Percentage of Workforce in Frontline Industries in Texas Senate Districts**

Average District:
18.4%

Percentage of Workforce in Frontline Industries in TX Senate Districts
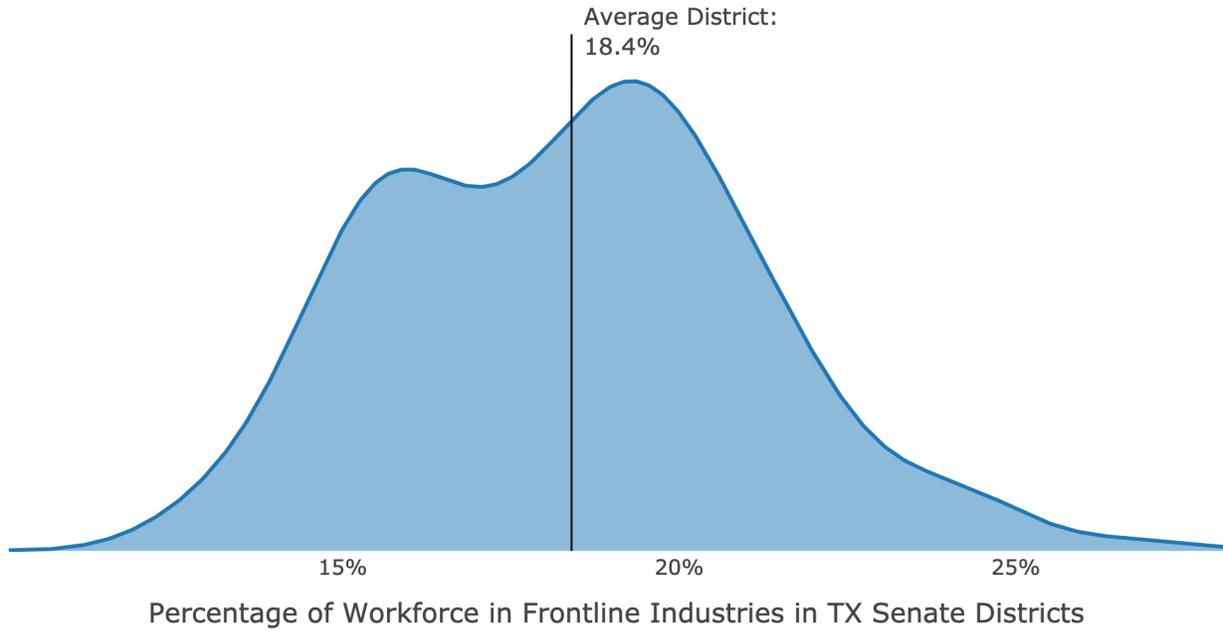
**Figure 4. Est. Workforce in Frontline Industries in Texas Senate Districts**

Average District:
80,584 Frontline Workers

Size of Workforce in Frontline Industries in TX Senate Districts
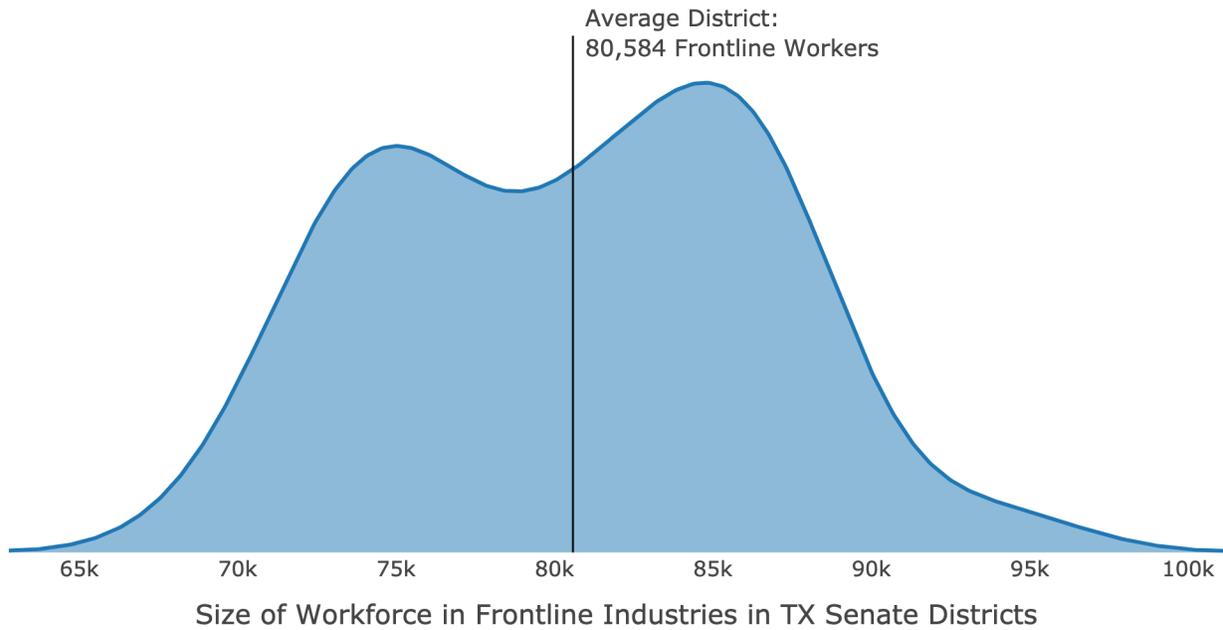
**Figure 5. Est. Percentage of Workforce in Frontline Industries by Senate District**
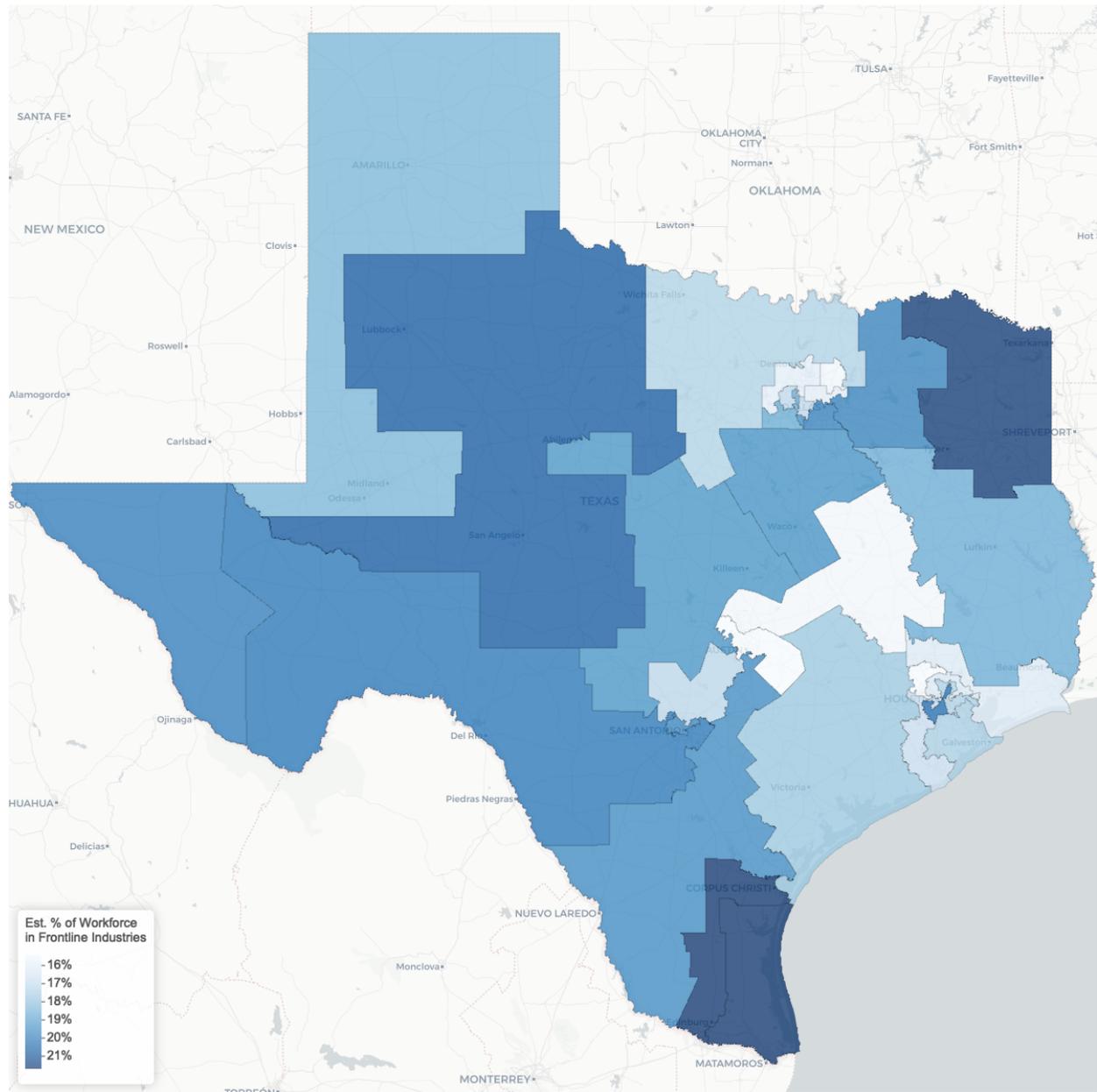
# Texas House District Frontline Worker Figures

**Figure 6. Est. Percentage of Workforce in Frontline Industries in Texas House Districts**

Average District:
18.4%

Percentage of Workforce in Frontline Industries in TX House Districts
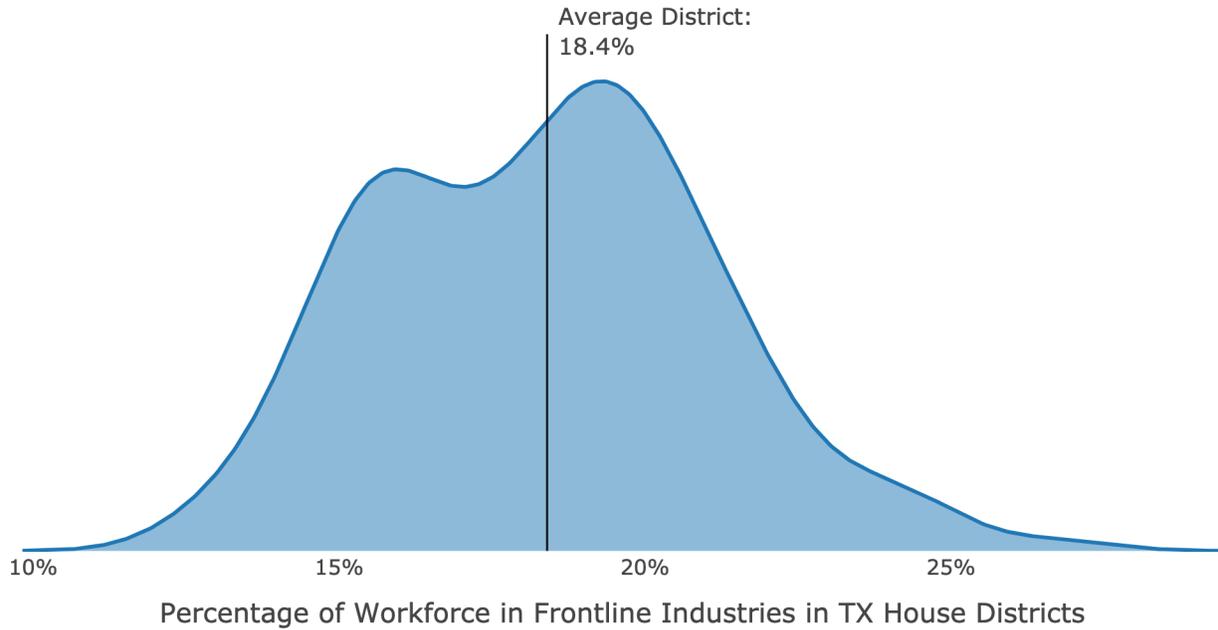
**Figure 7. Est. Percentage of Workforce in Frontline Industries in Texas House Districts**

Average District:
16,654 Frontline Workers

Size of Workforce in Frontline Industries in TX House Districts
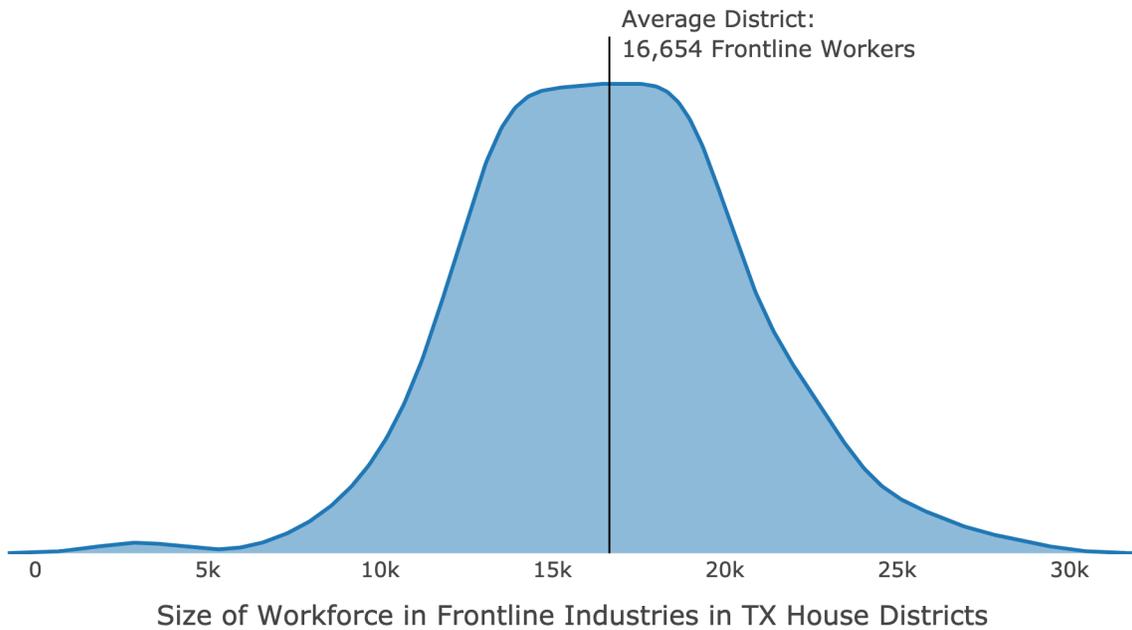
**Figure 8. Est. Percentage of Workforce in Frontline Industries by House District**
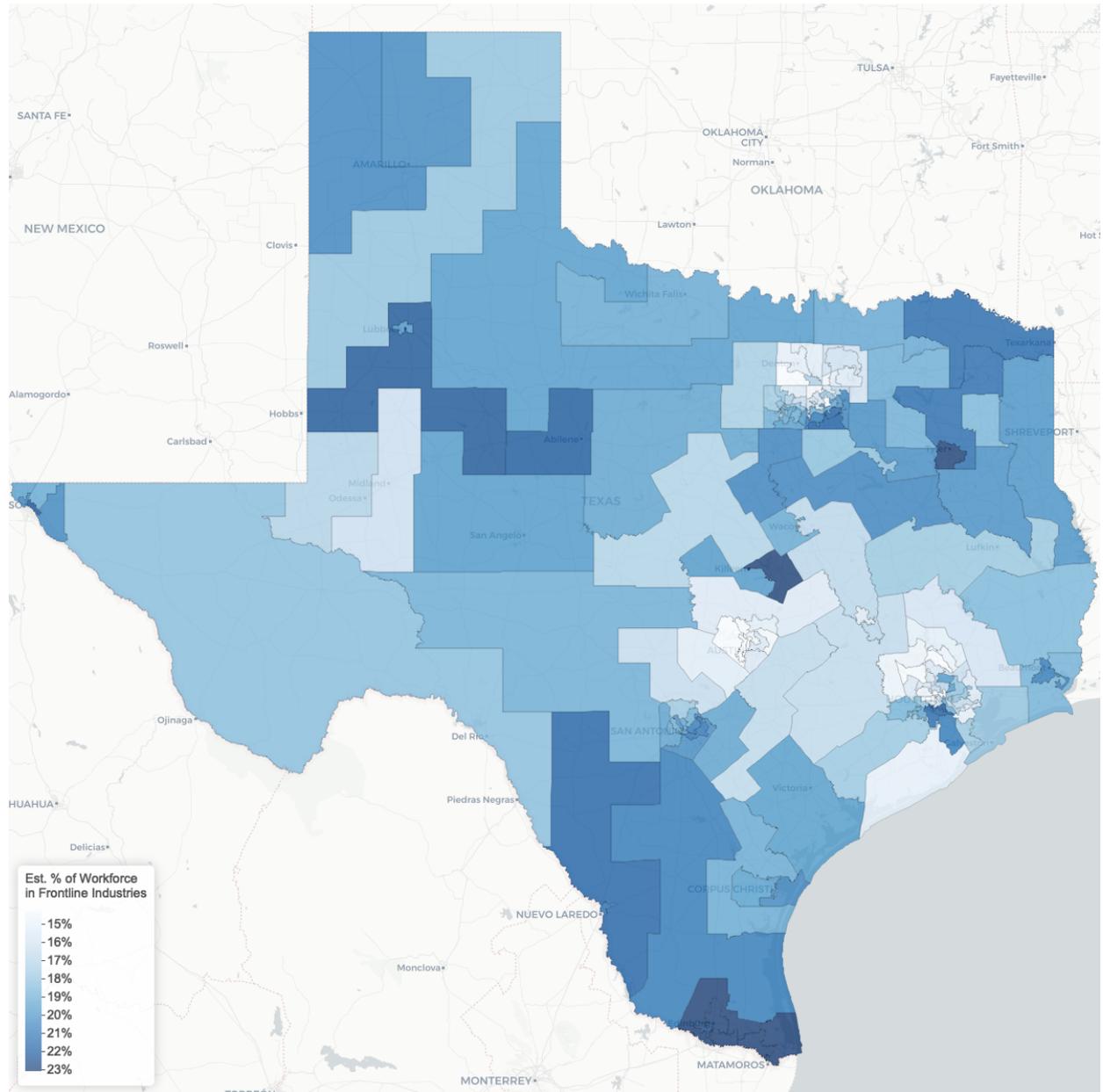
**Table 1: Frontline Workers by Texas Senate District**

| Senate District | Est Frontline Workers | Pct Workforce Frontline (%) | Pct Frontline Non-White (%) | Senate District | Est Frontline Workers | Pct Workforce Frontline (%) | Pct Frontline Non-White (%) |
|---|---|---|---|---|---|---|---|
| SD 1 | 81,841 | 21.6 | 35.2 | SD 17 | 82,533 | 17 | 70.9 |
| SD 2 | 86,965 | 19.8 | 48.9 | SD 18 | 93,941 | 17.9 | 61 |
| SD 3 | 72,942 | 18.7 | 32.8 | SD 19 | 84,796 | 20.1 | 79.9 |
| SD 4 | 74,707 | 16.3 | 46 | SD 20 | 85,933 | 21.8 | 87.3 |
| SD 5 | 73,265 | 15.6 | 42.8 | SD 21 | 75,554 | 19.6 | 75.5 |
| SD 6 | 69,969 | 17.5 | 87.6 | SD 22 | 80,201 | 19.4 | 41.9 |
| SD 7 | 76,459 | 15.2 | 64 | SD 23 | 88,283 | 19.8 | 82.5 |
| SD 8 | 72,750 | 15.6 | 52 | SD 24 | 81,371 | 19.4 | 44.4 |
| SD 9 | 73,119 | 17.1 | 57.7 | SD 25 | 86,046 | 17.3 | 52.7 |
| SD 10 | 87,339 | 18.7 | 59.5 | SD 26 | 77,541 | 19.7 | 81.3 |
| SD 11 | 75,264 | 17.7 | 56.6 | SD 27 | 80,948 | 24.1 | 95.3 |
| SD 12 | 86,165 | 16 | 44.7 | SD 28 | 84,439 | 20.8 | 46 |
| SD 13 | 85,978 | 20.3 | 87.3 | SD 29 | 81,641 | 19.9 | 89.7 |
| SD 14 | 78,390 | 14.1 | 53.2 | SD 30 | 86,989 | 17.5 | 29.9 |
| SD 15 | 75,899 | 16.3 | 78.9 | SD 31 | 73,198 | 18.4 | 52 |
| SD 16 | 83,650 | 16 | 64.2 | | | | |

## Table 2: Frontline Workers by Texas House District

| House District | Est Frontline Workers | Pct Workforce Frontline (%) | Pct Frontline Non-White (%) | House District | Est Frontline Workers | Pct Workforce Frontline (%) | Pct Frontline Non-White (%) |
|---|---|---|---|---|---|---|---|
| HD 1 | 14,305 | 21.5 | 32.5 | HD 76 | 11,500 | 22.2 | 95.2 |
| HD 2 | 21,601 | 19.0 | 22.8 | HD 77 | 7,686 | 20.6 | 88.3 |
| HD 3 | 13,434 | 14.9 | 36.1 | HD 78 | 21,227 | 19.5 | 83.9 |
| HD 4 | 15,875 | 20.3 | 37.0 | HD 79 | 21,108 | 19.2 | 92.3 |
| HD 5 | 16,880 | 21.4 | 23.5 | HD 80 | 22,537 | 21.8 | 90.8 |
| HD 6 | 18,374 | 26.7 | 50.6 | HD 81 | 14,402 | 17.3 | 69.8 |
| HD 7 | 13,948 | 18.6 | 39.2 | HD 82 | 15,451 | 16.4 | 60.0 |
| HD 8 | 13,398 | 20.6 | 33.4 | HD 83 | 26,265 | 22.2 | 47.4 |
| HD 9 | 18,199 | 20.1 | 30.7 | HD 84 | 10,942 | 19.8 | 53.3 |
| HD 10 | 16,226 | 18.3 | 36.1 | HD 85 | 25,338 | 17.9 | 67.4 |
| HD 11 | 15,140 | 20.2 | 37.4 | HD 86 | 20,158 | 20.6 | 35.5 |
| HD 12 | 28,169 | 17.0 | 42.7 | HD 87 | 13,655 | 20.4 | 45.9 |
| HD 13 | 15,276 | 16.8 | 47.0 | HD 88 | 10,736 | 18.1 | 53.1 |
| HD 14 | 2,992 | 15.4 | 44.8 | HD 89 | 12,991 | 15.6 | 49.6 |
| HD 15 | 12,212 | 14.3 | 38.5 | HD 90 | 13,150 | 18.1 | 67.3 |
| HD 16 | 16,581 | 15.3 | 39.7 | HD 91 | 11,451 | 17.5 | 43.8 |
| HD 17 | 12,186 | 16.9 | 46.7 | HD 92 | 14,255 | 16.5 | 54.7 |
| HD 18 | 8,938 | 16.1 | 35.0 | HD 93 | 22,554 | 17.9 | 54.0 |
| HD 19 | 16,409 | 18.5 | 26.7 | HD 94 | 16,129 | 18.9 | 58.0 |
| HD 20 | 22,123 | 15.7 | 39.6 | HD 95 | 17,199 | 19.2 | 70.0 |
| HD 21 | 12,865 | 18.8 | 39.8 | HD 96 | 19,670 | 19.7 | 54.8 |
| HD 22 | 12,851 | 20.9 | 68.2 | HD 97 | 18,707 | 18.9 | 55.2 |
| HD 23 | 13,910 | 18.1 | 47.2 | HD 98 | 20,264 | 15.5 | 34.8 |
| HD 24 | 18,686 | 17.8 | 46.9 | HD 99 | 18,698 | 17.7 | 41.6 |
| HD 25 | 15,593 | 15.2 | 48.0 | HD 100 | 16,536 | 19.2 | 77.5 |
| HD 26 | 15,727 | 19.3 | 75.1 | HD 101 | 18,387 | 19.8 | 74.9 |
| HD 27 | 16,897 | 21.5 | 83.7 | HD 102 | 13,029 | 15.6 | 61.6 |
| HD 28 | 19,134 | 18.7 | 73.3 | HD 103 | 16,734 | 15.7 | 67.3 |
| HD 29 | 19,414 | 20.9 | 63.0 | HD 104 | 14,468 | 18.6 | 85.8 |
| HD 30 | 19,174 | 19.7 | 54.8 | HD 105 | 12,430 | 16.0 | 77.6 |
| HD 31 | 18,504 | 21.0 | 87.3 | HD 106 | 20,235 | 15.4 | 47.3 |
| HD 32 | 16,965 | 20.5 | 76.1 | HD 107 | 15,444 | 19.9 | 72.0 |
| HD 33 | 13,831 | 16.1 | 41.2 | HD 108 | 14,379 | 14.2 | 45.2 |
| HD 34 | 18,689 | 19.6 | 76.4 | HD 109 | 23,407 | 21.9 | 88.0 |
| HD 35 | 22,327 | 24.8 | 96.5 | HD 110 | 13,598 | 21.8 | 89.2 |
| HD 36 | 18,936 | 23.3 | 95.5 | HD 111 | 20,483 | 20.9 | 90.5 |
| HD 37 | 19,044 | 23.5 | 95.9 | HD 112 | 19,006 | 16.9 | 66.2 |
| HD 38 | 13,514 | 24.2 | 94.8 | HD 113 | 23,239 | 20.6 | 70.6 |
| HD 39 | 15,602 | 24.6 | 97.4 | HD 114 | 21,024 | 17.9 | 64.6 |
| HD 40 | 18,609 | 23.5 | 95.8 | HD 115 | 18,469 | 14.5 | 68.2 |
| HD 41 | 14,474 | 22.6 | 93.8 | HD 116 | 19,390 | 20.1 | 77.3 |
| HD 42 | 11,001 | 21.3 | 96.6 | HD 117 | 22,479 | 19.5 | 77.7 |
| HD 43 | 9,546 | 19.2 | 68.3 | HD 118 | 19,325 | 20.4 | 80.2 |

| House District | Est Frontline Workers | Pct Workforce Frontline (%) | Pct Frontline Non-White (%) | House District | Est Frontline Workers | Pct Workforce Frontline (%) | Pct Frontline Non-White (%) |
|---|---|---|---|---|---|---|---|
| HD 44 | 16,473 | 19.5 | 51.9 | HD 119 | 16,802 | 21.1 | 83.8 |
| HD 45 | 18,779 | 15.5 | 47.1 | HD 120 | 17,590 | 20.8 | 75.2 |
| HD 46 | 15,860 | 15.8 | 67.0 | HD 121 | 19,576 | 18.9 | 61.8 |
| HD 47 | 17,807 | 13.1 | 42.3 | HD 122 | 20,570 | 17.8 | 56.2 |
| HD 48 | 15,160 | 13.0 | 41.7 | HD 123 | 15,694 | 19.3 | 80.6 |
| HD 49 | 12,951 | 12.5 | 45.0 | HD 124 | 18,320 | 19.1 | 85.2 |
| HD 50 | 17,721 | 14.6 | 63.0 | HD 125 | 17,047 | 18.9 | 79.7 |
| HD 51 | 18,471 | 15.7 | 66.6 | HD 126 | 14,725 | 15.8 | 68.0 |
| HD 52 | 14,214 | 15.3 | 50.2 | HD 127 | 11,663 | 16.5 | 60.2 |
| HD 53 | 17,759 | 19.0 | 56.5 | HD 128 | 15,309 | 15.6 | 57.6 |
| HD 54 | 21,740 | 19.9 | 61.2 | HD 129 | 16,741 | 15.2 | 61.2 |
| HD 55 | 16,748 | 24.1 | 48.5 | HD 130 | 20,165 | 14.4 | 55.3 |
| HD 56 | 13,913 | 19.2 | 42.2 | HD 131 | 24,295 | 21.8 | 92.4 |
| HD 57 | 15,420 | 17.9 | 36.0 | HD 132 | 13,142 | 15.7 | 70.0 |
| HD 58 | 18,702 | 20.7 | 29.8 | HD 133 | 13,085 | 13.5 | 69.6 |
| HD 59 | 14,319 | 17.3 | 28.6 | HD 134 | 21,326 | 16.3 | 61.2 |
| HD 60 | 11,576 | 19.4 | 27.5 | HD 135 | 16,827 | 15.7 | 74.9 |
| HD 61 | 12,351 | 17.6 | 18.2 | HD 136 | 9,788 | 14.2 | 43.9 |
| HD 62 | 13,700 | 19.3 | 22.5 | HD 137 | 13,625 | 15.6 | 86.2 |
| HD 63 | 14,052 | 14.1 | 30.5 | HD 138 | 18,402 | 14.7 | 74.1 |
| HD 64 | 16,409 | 15.2 | 37.6 | HD 139 | 16,335 | 16.7 | 89.8 |
| HD 65 | 20,014 | 17.3 | 61.5 | HD 140 | 13,255 | 17.0 | 93.7 |
| HD 66 | 14,292 | 14.6 | 49.1 | HD 141 | 22,364 | 19.8 | 89.9 |
| HD 67 | 17,986 | 15.3 | 54.8 | HD 142 | 18,908 | 18.0 | 81.5 |
| HD 68 | 25,371 | 19.8 | 33.2 | HD 143 | 12,986 | 18.0 | 84.6 |
| HD 69 | 18,055 | 19.2 | 26.7 | HD 144 | 14,773 | 16.7 | 78.4 |
| HD 70 | 22,898 | 16.3 | 43.5 | HD 145 | 11,880 | 16.9 | 88.1 |
| HD 71 | 17,299 | 22.1 | 36.0 | HD 146 | 19,264 | 22.1 | 84.9 |
| HD 72 | 15,591 | 19.8 | 51.1 | HD 147 | 19,202 | 18.9 | 80.2 |
| HD 73 | 15,674 | 16.7 | 35.1 | HD 148 | 10,170 | 14.0 | 80.0 |
| HD 74 | 13,467 | 18.3 | 78.7 | HD 149 | 20,251 | 18.0 | 85.3 |
| HD 75 | 16,677 | 20.5 | 96.2 | HD 150 | 16,817 | 15.8 | 60.6 |