Women and Parents in the Texas Workforce:

Written by Emma Bittner, Rio Gonzalez, Aurora Harris, Aaron Hill, M.S., Matthew Eckel, M.A, and Christina Long Vail, M.A.

About Young Invincibles
Young Invincibles is a non-partisan, non-profit organization that works to expand economic opportunity for young adults -- ages 18 to 34 years old -- through policy analysis and advocacy. With offices in five states across the country, its research and organizing experts seek to elevate the voices of young adults in top policy debates and provide solutions to major economic challenges for young adults.

Building a Path to Apprenticeship
Acknowledgments

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Finally, we extend gratitude to the incredible organizations and stakeholders across Texas that we continue to learn from, including:

**Pre-Apprenticeship, Apprenticeship, and Education Programs**
American Youthworks, Austin Community College, Bombardier, Baylor, Scott, and White Medical Assistant Program, Skillpoint Alliance, Lonestar Construction, Project Lead the Way and Lockheed Martin, San Jacinto Community College, and The New Apprenticeship

**Organizations**
Children at Risk, Educate Texas, Institute for Women’s Policy Research, Jobs for the Future, The Urban Institute, The Ray Marshall Center, Texans Care for Children, Austin Opportunity Youth Collaborative (AOYC), Workforce Solutions Capital Area (WFSCA)

The opinions expressed in this report are those of the author(s) and do not necessarily reflect the views of Greater Texas Foundation or any director, officer or employee thereof. The opinions expressed in this report do not necessarily reflect the views of organizations included on this page.
Texas women and mothers are seeking opportunities to make a career transition or enter the workforce, particularly in light of barriers amplified by the pandemic, such as higher likelihood of job loss and increased child care responsibilities. Registered apprenticeships and work-based learning are a highly effective but underutilized tool to provide Texas women a cost-effective path to a new career and financial prosperity. Yet current apprenticeship programs often reveal a vast underrepresentation of women. A robust future for the state’s workforce demands a more robust and equitable approach to work-based learning initiatives.

This report analyzes the role that registered apprenticeships and work-based learning opportunities play in preparing Texas women for meaningful, productive, remunerative employment. According to data from the Department of Labor, women make up barely 10 percent of active federally registered apprentices in Texas. Further, the participants in programs that support the highest paying jobs, such as registered nursing, are disproportionately white.

Moving beyond DOL sourcing, we report results of an original survey of young adult women in Texas. Results show substantial desire for work-based learning opportunities and widespread dissatisfaction with current career choices, coupled with a low degree of awareness of opportunities available. Data from the survey, along with wide-ranging qualitative discussions with apprenticeship participants, suggest that women face particular barriers to entry that Texas must address if its work-based learning programs are to achieve equitable results.

Based on the data collected, Young Invincibles presents a series of action items to be taken up by state policymakers and program leaders. Recommendations include:

- Expanding the breadth of pre-apprenticeship, apprenticeship, and work-based learning opportunities across key industries in the state;
- Establishing state-level gender and racial equity goals in apprenticeship expansion;
- Growing resources to communicate work-based learning opportunities to participants, including apprenticeship navigators, community connectors, and more robust digital communications;
- Lowering barriers to entry for Texas women by supporting caregiving responsibilities among work-based-learning participants;
- Collecting more and better data about the offerings and outcomes of Texas work-based learning initiatives;
- Restructuring funding mechanisms to ensure stable multi-year budgets and the retention of institutional knowledge among apprenticeships and work-based-learning programs;
- Connecting work-based learning and apprenticeship programs with additional formal educational opportunities to ensure productive and remunerative career paths for all Texas workers.
Introduction

When Jennifer, a Texas mother, saw her brother achieve educational and financial success as an electrician, she was energized “to take on the challenge” herself. Jennifer enrolled in a pre-apprenticeship with Skillpoint Alliance in Central Texas, leading her to an electrical apprenticeship, where she is now in her third year. Upon completing the four year program, she will have enough credits for an Associate’s degree. Today, Jennifer is spreading the word about apprenticeships. She wants others, and especially women, to know opportunities like this exist, and believes they could be better informed. In her words, “women are creating a wave” in trade fields. As she looks forward, she hopes to be an instructor, an inspiration, and to teach her children as much as she can.

Jennifer’s story speaks to the power of apprenticeships, which provide an important solution for those who seek a new career, offering an ‘earn and learn’ model where one is able to learn a new skill or trade while being compensated. Texas is on the forefront of innovations and an expansion of work-based learning and apprenticeships, which address workforce gaps while fueling in-demand job opportunities.

However, despite innovations and expansion, there are gender and racial inequities in apprenticeship access. In Texas, only 9.9 percent of registered apprentices are women. The gender representation gap mirrors national trends, where only 12.5% percent of registered apprentices in the United States are women. And while the number of Black women and Latina apprentices in the trades almost doubled between 2016-2019, the numbers still remain low.

Women also navigate gender-specific workforce barriers, including student debt, decreased workforce participation amidst the pandemic, likelihood of lower wages, and a gender pay gap— the combination of which many refer to as a “she-cession.” The lingering unemployment as a result of the COVID-19 pandemic disproportionately impacts women, with the greatest impact on Black and Latina women. Data shows that although unemployment fell for Black women in Fall 2021, from 7.3 to 7.0 percent, this rate is still twice as high as the unemployment rate for white women.

The pandemic had a devastating career impact on working mothers. Mothers are more likely to work in roles impacted by the pandemic, such as the service

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3 The Brookings Institute, The relationship between school closures and female labor force participation during the pandemic, (2021)
4 Institute for Women’s Policy Research, Black women see unemployment rate fall sharply in November, but are still left behind in overall labor market recovery, (2021), https://iwpr.org/media/press-hits/black-women-see-unemployment-rate-fall-sharply-in-november-but-are-still-left-behind-in-overall-labor-market-recovery/
industry, and they are more likely to tend to childcare and household chores. During the onset of COVID-19, the share of mothers actively working declined 21.1 percent compared to fathers, whose share dropped by 14.7 percent. These impacts are still present. “Black, non-Hispanic mothers, who were not living with other working age adults, left or lost jobs at a rate 7.5 percentage points higher in January 2021 than in January 2020.”

Amidst these impacts, apprenticeship expansion in Texas is at an energizing turning point, with increasing federal and state investment. Agencies, policymakers, companies, and education systems alike are working to grow industry and education alignment. These efforts bring opportunity to ensure that high demand, high paying careers are designed with women, women of color, and working mothers in mind. As Texas expands apprenticeship, creating access for women is essential.

Our report sheds light on the experiences of women and mothers in Texas apprenticeships, with a focus on apprenticeship and pre-apprenticeship outreach and program design. Our research includes a statewide registered apprenticeship data analysis, Texas survey on apprenticeship outreach, a community-based qualitative landscape analysis, and focus groups with Texas apprentices. We worked in-depth with a group of twelve women apprentices in Texas to help build recommendations. We present key challenges faced by women and mothers in completing an apprenticeship, and offer solutions to bolster participation and success.

Registered Apprenticeships in Texas

Texas Apprenticeship Growth

Texas is in a time of innovation and growth in apprenticeship and work-based learning. The number of apprenticeships in Texas has grown by 81% since 2014, driven by initiatives of the Texas Workforce Commission to expand apprenticeship programs in the state, as well as workforce development boards and community-based organizations. In 2020, Texas had the fourth highest number of active apprentices in the nation. Texas was the third highest in the country for enrolling new apprentices (7,089 enrollees), and ranked 11th in the country for adding new programs.

In 2020, the Tri-Agency Task Force (comprising The Texas Education Association, Texas Higher Education Coordinating Board, and Texas Workforce Commission) published recommendations on how Texas can achieve improved education and workforce alignment. Recommendations included the creation of in-demand career pathways, increasing family and student supports, and improving state agency coordination through shared outcomes and data infrastructure.

Work-Based Learning
A training program that includes three key components: aligned classroom and workplace learning; application of classroom academic, technical, and employability skills in a work setting; support from classroom and/or workplace mentors. (Registered Apprenticeship Programs meet this definition because of their structure).

Registered Apprenticeship Program (RAP)
An apprenticeship program registered with the U.S. Department of Labor’s Office of Apprenticeship. Programs are designed to prepare individuals for careers and occupations using a combined approach of structured, on-the-job learning and classroom instruction. Programs are typically three-to-five years in length and typically require 144 hours per year in classroom instruction alongside 2,000 hours of on-the-job learning. Apprentices are paid during their training and are guaranteed pay increases as they progress. All RAPs consist of the following five core components: direct business involvement, OJL, related instruction, rewards for skill gains, and a national occupational credential.

References:
The Texas legislature passed policies advancing many of these recommendations, moving Texas toward an expansion of work-based learning. House Bill 3767, passed during the 2021 87th Legislative Session, solidifies the tri-agency partnership, and charges the state to develop unified goals and workforce data systems. House Bill 1247 establishes alignment of work-based learning goals across the three agencies, including the requirement for agencies to set a work-based learning best practice framework in order to define high quality opportunities. Utilizing American Rescue Plan Act funding, Texas appropriated funding toward the Texas Reskilling and Upskilling in Education Initiative (TRUE), which bolsters community college and industry partnerships. The legislature also established a Commission on Community College Finance that includes a working group dedicated to the topic of workforce. These bills pave the way for resources and strategy toward workforce and education alignment in Texas, making now an exceptionally critical time for Texas to ensure opportunities are accessible for those currently underrepresented in the apprenticeship landscape.
The Postsecondary Skills Gap

Texas opportunities for apprenticeship expansion are strengthened by the Texas economy, which produces 8% of the Gross Domestic Product of the United States and is the top exporting state in the country. However, the Texas labor market had become especially tight prior to the COVID-19 pandemic, and demand for qualified employees was increasingly difficult, raising concerns that companies’ ability to grow would be hampered as a result. Indeed, many sectors of the Texas economy are currently experiencing a skills shortage, despite the state’s strong population growth, which increased by 14% from 2010 to 2019.

Particular attention is focused on closing employment gaps in middle-skill occupations, which are occupations requiring postsecondary training, yet may not require a four-year degree. These occupations account for 56% of the labor market in Texas, but only 42% of Texans have the required level of training. According to the Federal Reserve’s Beige Book, in District 11, which includes Texas and a portion of New Mexico, “Wages continued to increase, with reports of significant upward pressure in industries having trouble finding and retaining workers.” This difficulty in finding and retaining skilled workers is evident throughout Texas. In the Austin Round-Rock Metropolitan Area, one of the state’s fastest-growing regions, the local workforce board identified a skill gap of 60,000 middle-skill jobs for the period of 2016 - 2021. Apprenticeships, which are commonly associated with middle-skill occupations, may be a solution to addressing the skill gaps currently experienced in many industries in Texas. As economic experts have noted, middle-skill occupations present opportunities for strengthening regional economies while simultaneously providing support for low-income, minority, and first-generation students, and represent a growing source of opportunity for workers leaving high school and those currently working in lower-income and low-skill employment.

Apprenticeship programs are also becoming more diverse as additional industries incorporate apprenticeship as a strategy for training its workforce. Apprenticeship is seen as a key strategy in Texas for ensuring the state remains economically competitive and addressing skill shortages plaguing many industries. While apprenticeship programs in Texas are largely in the construction and manufacturing industries, increasing attention is being paid to apprenticeship in other large and growing industries.

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16 Texas Demographic Center, "Texas Household Trends and Projections, 2010-2050".
High Growth Industries and Occupations

In 2020, the Texas Workforce Commission published a report which examines high-wage, high-demand occupations in large and growing industry sectors. The report defines these occupations as paying more than the Texas median annual wage of $38,013 and experiencing projected employment growth between 2018 and 2028. According to the Commission’s report, 56% of these occupations are apprenticeable.

The following tables explore Texas apprenticeship programs, examining industry, apprenticeable occupations, and the participation of women. The data in these sections includes only registered, active apprenticeship programs in Texas based on available RAPIDS data available from the United States Department of Labor.

Table 1: Percentage of Apprenticeable High-Growth, High Wage Occupations and Percent of Active Apprenticeship Programs in Texas, by Industry

<table>
<thead>
<tr>
<th>Industries</th>
<th>Percent of Apprenticeable High-Growth, High-Wage Occupations by Industry22</th>
<th>Percent of Apprenticeship Programs in Industry in Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining, quarrying, and oil and gas extraction</td>
<td>40%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Construction</td>
<td>75%</td>
<td>48.7%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>71%</td>
<td>26.5%</td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
<td>59%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Transportation and utilities</td>
<td>67%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Financial activities</td>
<td>50%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Professional and business services</td>
<td>75%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Education and health services</td>
<td>28%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Accommodation (hospitality) and food services (leisure)</td>
<td>50%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Agriculture and related industries</td>
<td>50%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

As the table illustrates, there is ample opportunity for increasing apprenticeship in Texas. The first column is the percent of high growth occupations by industry. The second column is the percent of active, registered apprenticeship programs in Texas in that industry. Currently, the largest industries with apprenticeship programs are those that have a long history of active programs, notably Construction (48.7%) and Manufacturing (26.5%), which combined comprise nearly 75% of all programs in Texas.23 Many industries, however, have occupations that are apprenticeable according to the Department of Labor. For example, 28% of Education and Health Services occupations are classified apprenticeable, yet only 7.7% of the active registered apprenticeship programs in Texas are in that industry.

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22 These industries are based on the Texas Workforce Commission’s Report on Texas Growth Occupations.
Table 2: Percent of Women in the Texas Workforce by Industry Compared to Percent of Apprenticeship Programs in Texas

<table>
<thead>
<tr>
<th>Industries</th>
<th>Percent of Apprenticeship Programs in Texas</th>
<th>Percent of Women in the Texas Workforce Employed in Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining, quarrying, and oil and gas extraction</td>
<td>0.9%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Construction</td>
<td>48.7%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>26.5%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
<td>3.3%</td>
<td>13.2%</td>
</tr>
<tr>
<td>Transportation and utilities</td>
<td>8.2%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Financial activities</td>
<td>0.3%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Professional and business services</td>
<td>2.9%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Education and health services</td>
<td>7.7%</td>
<td>36.8%</td>
</tr>
<tr>
<td>Accommodation (hospitality) and food services (leisure)</td>
<td>1.3%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Agriculture and related industries</td>
<td>0.3%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

This second table highlights the disconnect between women and apprenticeship programs. **Together, Construction and Manufacturing comprise 75.2% of all registered apprenticeship programs in Texas, yet only 6.9% of employees in these industries are women.** Industries that employ higher percentages of women, such as Wholesale and Retail Trade, have far fewer programs.

Interest in apprenticeship programs seems to be growing in high-growth industries that are not traditionally known for apprenticeship, including Education and Health Services, Professional and Business Services, and Cybersecurity which are seeing programs emerge in Texas. Texas is home to some of the first nationally-registered apprenticeship programs in the IT and Telecommunications industry. In 2016, TWC established its Apprenticeship Texas Office, which coincided with Texas receiving apprenticeship expansion funding from the U.S. Department of Labor. The Apprenticeship Texas Office provides services to Texas employers, helping them build and launch apprenticeship programs, and assisting them with the process to register with the U.S. Department of Labor. To increase access and encourage more women to enroll in these opportunities, more focus is needed on expanding the number of programs in industries where women make up a larger percent of the workforce, as well as providing pathways for women to enter fields that were previously male dominated.

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24 Data from Bureau of Labor Statistics, [https://www.bls.gov/opub/geographic-profile/#gp20_17f2](https://www.bls.gov/opub/geographic-profile/#gp20_17f2), Table 20. Data does not add up to 100% because only high-growth, high-demand industries are included.

25 Community Perspectives Informational Interview, led by Christina Long (Senior Southern Policy Manager) and Aaron Hill (Workforce Consultant) on Zoom, 2021.
Texas’ 28 regional workforce development boards play a key role in expanding and supporting apprenticeship. These boards, along with TWC and training providers, comprise a network collectively referred to as Texas Workforce Solutions. Each board is responsible for serving specific counties in Texas and maintains close connections to employers in their regions. Because of these employer connections, workforce boards are in a position to help employers explore apprenticeship models, connect to resources, fill out relevant paperwork, and design programs. Several workforce boards in Texas are implementing innovative practices in order to expand apprenticeship. For example, Workforce Solutions Central Texas near Fort Hood is the first workforce board to become an apprenticeship site, providing the benefits of apprenticeship to its own staff and becoming experts on how to design and operate a program. Workforce Solutions Gulf Coast in Houston makes an effort to speak with employers daily and has trained its staff on how to streamline the paperwork process, significantly reducing the burden on employers interested in starting a program.

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26 Community Perspectives Informational Interview, led by Christina Long (Senior Southern Policy Manager) and Aaron Hill (Workforce Consultant) on Zoom, 2021.
27 Community Perspectives Informational Interview, led by Christina Long (Senior Southern Policy Manager) and Aaron Hill (Workforce Consultant) on Zoom, 2021.
Texas Apprenticeship Data

Data on apprentices and apprenticeship programs is captured at different levels and depends on funding utilized by the program. At the highest level is the Registered Apprenticeship Partners Information Data System (RAPIDS) that is managed by the U.S. Department of Labor. RAPIDS is the federally-operated database for apprenticeship data management for the twenty-five states in which the Office of Apprenticeship manages RAPs, including Texas. A portion of RAPIDS data is publicly available and includes program details, individual apprentice enrollment and outcome data, and occupation and industry information.

The Texas Workforce Commission submits data to the U.S. Department of Labor following the Participant Individual Record Layout (PIRL), a layout that provides a standardized set of data elements used to describe the characteristics, activities, and outcomes of Workforce Investment and Opportunity Act (WIOA) participants. The Workforce Commission also collects and maintains its own performance data on registered apprenticeship programs that utilize Texas’ Chapter 133 funding. Texas has its own internal reporting system, The Workforce Information System of Texas (TWIST), which is used by local workforce boards and the Workforce Commission to track information on clients served.

Characteristics of Texas Apprentices

Apprenticeship data in this report came from the Department of Labor’s Registered Apprenticeship Partners Information Database System (RAPIDS). This federally-managed system collects information on participants and programs encompassed by the federally-registered apprenticeship system. Though national data collection into this system remains incomplete, and though the system by definition leaves out many non-federally-recognized work-based learning opportunities, these data nevertheless provide the most comprehensive available picture of the demographic profile, industry mix, and economic effectiveness of apprenticeship programs in Texas. The data in this report principally reflects apprentices in Texas listed as active in the system as of the second quarter of 2021.

Finding: Women are underrepresented in the Texas apprenticeship landscape.

Women make up roughly 48 percent of the Texas workforce.28 The latest RAPIDS data release (Q2 of 2021) records 20,683 active participants in federally-registered apprenticeship programs in the state of Texas.29 Of these, 2,228 (10.7 percent) are women. This is slightly lower than the national rate of 12.8 percent.

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29 Following DOL guidelines, these include apprentices currently listed as registered, suspended, or reinstated.
Active Texas Female Apprentices: Age at Start
Race/Ethnicity: Active Texas Male Apprentices

- Hispanic/Latinx, 42.2%
- White, 41.5%
- Black/African American, 10.0%
- Asian, 0.9%
- Multiple/Other/NA, 5.4%

Race/Ethnicity: Active Texas Female Apprentices

- White, 37.5%
- Hispanic/Latinx, 25.9%
- Black/African American, 21.7%
- Asian, 4.4%
- Multiple/Other/NA, 10.5%
Notably, **women made up 9.9 percent of those who completed a program in Texas** between June of 2020 and May of 2021 - similar to their proportion of active apprentices overall. Active women were, on average, older than their male counterparts when they started their program. Men had a median age of 26 at program start. Women’s median age was 28. When sharing this data with Young Invincibles Youth Apprenticeship Council (twelve Texas women who are completing or have completed an apprenticeship), they were not surprised by this age difference. Anecdotally, many commented that they found out about apprenticeships later than their male counterparts in the field.

### Race and Ethnicity

RAPIDS data provide an admittedly-incomplete but nevertheless valuable snapshot of racial and ethnic diversity among program participants. It bears noting that, as with the federal census, Hispanic identity is recorded separately from other racial categories. It may thus overlap with one or more of the other racial categories listed in the data. It also bears noting that there is no data on the race of roughly 19 percent of active Texas apprentices.

**Industry and Occupations**

The occupational profile of registered apprenticeship participants varies substantially by gender. Among active male apprentices, the most common occupations are electricians (37%), plumbers, pipefitters, and steamfitters (16%), structural iron and steelworkers (7%), telecommunications line installers and repairers (5%), sheet metal workers (4%), elevator and escalator installers and repairers (3%), and heavy and tractor-trailer truck drivers (3%).

Among women, the most popular programs are for registered nurses (37%), electricians (10%), nursing assistants (7%), heavy and tractor-trailer truck drivers (5%), structural iron and steelworkers (5%), graphic designers (4%), and carpenters (4%). Notably, the programs with some of the highest post-apprenticeship wage potential, such as those in registered nursing, plumbing, and electrical work, have among the highest proportion of white participants. Those with lower pay scales, such as childcare and nursing assistant programs, see heavier enrollment from students of color.

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30. This may not reflect a gendered difference in commitment to program completion so much as a gendered difference in the typical length of apprenticeships. Active female apprentices in Texas have an average minimum term length of 3,750 hours. Male apprentices, by contrast, have an average minimum term of 7,276 hours. This would naturally lead to an overrepresentation of women completers over a given period of time. These differences are in turn driven substantially by the gap between the hours requirements for electricians (nearly 8,000) and registered nurses (2,000), both of which are highly popular and highly gendered in their respective student populations.

32. These distributions are slightly right-skewed, with mean ages higher than median ones among both men and women.

32. The registered nursing programs that show up in the federal data do require more substantial pre-participation credentials, and thus draw from a pool of participants with more formal training than other programs with less extensive prerequisites.
**Program Participation by Race/Ethnicity: Active Texas Female Apprentices**
(in order of median industry wage, high to low)

<table>
<thead>
<tr>
<th>Program</th>
<th>White</th>
<th>Hispanic/Latinx</th>
<th>Black/African American</th>
<th>Asian</th>
<th>Multiple/Other/NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurses</td>
<td>47.9%</td>
<td>17.6%</td>
<td>12.8%</td>
<td>7.7%</td>
<td>14.0%</td>
</tr>
<tr>
<td>Training and Development Specialists</td>
<td>41.9%</td>
<td>27.4%</td>
<td>25.8%</td>
<td>1.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Plumbers, Pipefitters, and Steamfitters</td>
<td>56.1%</td>
<td>25.8%</td>
<td>12.1%</td>
<td>0.0%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Electricians</td>
<td>41.6%</td>
<td>42.2%</td>
<td>11.9%</td>
<td></td>
<td>3.8%</td>
</tr>
<tr>
<td>Graphic Designers</td>
<td>63.5%</td>
<td>17.6%</td>
<td>10.8%</td>
<td>0.0%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Heavy and Tractor-Trailer Truck Drivers</td>
<td>26.5%</td>
<td>8.2%</td>
<td>53.1%</td>
<td></td>
<td>12.2%</td>
</tr>
<tr>
<td>Structural Iron and Steel Workers</td>
<td>27.8%</td>
<td>47.8%</td>
<td>18.9%</td>
<td></td>
<td>3.3%</td>
</tr>
<tr>
<td>Carpenters</td>
<td>25.0%</td>
<td>34.7%</td>
<td>37.5%</td>
<td>1.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Nursing Assistants</td>
<td>15.5%</td>
<td>26.4%</td>
<td>48.6%</td>
<td>5.4%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Childcare Workers</td>
<td>6.5%</td>
<td>41.3%</td>
<td>26.1%</td>
<td>17.4%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

The figure above illustrates the substantial ethnic and racial disparities that exist within Texas apprenticeship programs. The top ten most popular programs among Texas women are ordered top-to-bottom based on the median wage for the program-associated occupation according to the most recent data from the Bureau of Labor Statistics. Among Texas women who participate in apprenticeships, women of color are overrepresented in the fields with the lowest median wages, such as nursing assistants and childcare workers, while being relatively scarce in higher-return programs such as registered nursing and plumbing.

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Wages

Starting Wages
Men currently active in Texas apprenticeships had an average starting wage of $15.86 per hour, with the median wage slightly lower ($14.92). Women’s starting wages are somewhat higher on average ($18.80, with a median of $17.31). Notably, however, the distribution of starting wages for male apprentices in Texas is largely unimodal, with a high degree of concentration around the $15 range, followed by a fast and steady tapering off as wages climb. Starting wages for female apprentices, by contrast, follow a bimodal distribution, with a cluster around $15 followed by a steep dropoff, and then another cluster in the $22-$25 range. This largely reflects the prominence of apprenticeships in registered nursing among Texas women. Women are, on the whole, more likely to enter apprenticeship programs with this higher cluster of starting wages, though these do not represent the majority of apprenticeship opportunities overall.

Race/Ethnicity: Active Texas Female Apprentices in Registered Nursing

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>47.9%</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
<td>17.6%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>12.8%</td>
</tr>
<tr>
<td>Asian</td>
<td>7.7%</td>
</tr>
<tr>
<td>Multiple/Other/NA</td>
<td>14.0%</td>
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</tbody>
</table>

Race/Ethnicity: Active Texas Female Apprentices as Nursing Assistants

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Black/African American</td>
<td>48.6%</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
<td>26.4%</td>
</tr>
<tr>
<td>White</td>
<td>15.5%</td>
</tr>
<tr>
<td>Asian</td>
<td>5.4%</td>
</tr>
<tr>
<td>Multiple/Other/NA</td>
<td>4.1%</td>
</tr>
</tbody>
</table>
Finding: Exit Wages

Note that the summary statistics reported here reflect exit wages of those apprentices who are listed as having completed their program, and have an exit wage date listed between June 1, 2020 and May 31, 2021. Apprentices with exit wages lower than $7.25 or higher than $60 are excluded from the analysis.
Men have a mean exit wage of $26.96 per hour, with a slightly lower median ($25.84). Women's mean exit wage is $27.21, with a slightly higher median of $28. The distribution of men's exit wages remains largely unimodal, while for women, the distribution is far more widely dispersed. In contrast to men, women's exit wages notably cluster at the low, medium, and high ends of the wage scale, suggesting a relatively more wage-stratified set of apprenticeship options among women participants.


During the course of its research, Young Invincibles spoke with over twenty entities that support work-based learning and apprenticeship efforts in Texas, including agencies, apprenticeship programs, and pre-apprenticeship programs. The goal of these conversations was to develop an understanding of the landscape of apprenticeship programs in Texas, particularly for women and parents. Conversations focused on two areas: program outreach and program design, with an analysis of strengths and opportunities.

**Snapshot of Community Conversations**

<table>
<thead>
<tr>
<th>Community Perspectives</th>
<th>Government entities</th>
<th>Texas apprenticeship programs or sponsors</th>
<th>Community colleges</th>
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<tbody>
<tr>
<td>Work-based learning and pre-apprenticeship programs</td>
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<td><img src="image" alt="Icon" /></td>
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<tr>
<td>Non-profit and research organizations</td>
<td><img src="image" alt="Icon" /></td>
<td><img src="image" alt="Icon" /></td>
<td><img src="image" alt="Icon" /></td>
</tr>
<tr>
<td>Organizations championing women and children</td>
<td><img src="image" alt="Icon" /></td>
<td><img src="image" alt="Icon" /></td>
<td><img src="image" alt="Icon" /></td>
</tr>
</tbody>
</table>
Program Outreach Strengths

Two distinct core audiences in need of outreach were identified: participants, including women and mothers, as well as businesses in order to encourage the creation of apprenticeship programs. The apprenticeship ecosystem in Texas has many strengths for reaching out to both of these distinct audiences.

Word-of-Mouth Communication
A consistent theme of our interviews was the power of word-of-mouth efforts to bring people into apprenticeship programs. Anecdotally, word-of-mouth marketing was referenced as the most effective way to share information about apprenticeships and recruit program participants.

Local Recruitment
State agencies and other stakeholders recognize the importance of ground-level capacity and are working to improve these efforts, particularly to recruit women and mothers into apprenticeship programs. Community-based organizations, workforce boards, and pre-apprenticeship programs effectively share information about apprenticeship programs with populations that otherwise may not know about them. Such local outreach is critical to women and mothers who may be connected to community resources but have not yet heard of apprenticeship opportunities.

Outreach and Collaboration with Business
Similarly, Texas has a strong network of ground-level stakeholders who provide education to businesses about apprenticeship. Many workforce boards in the state employ staff whose responsibility is to outreach to businesses, educate them on the benefits of apprenticeship, and assist with filling out required paperwork for the Department of Labor. Consortiums like the Houston Area Apprenticeship Advisory Committee drive important work in their regions, bringing together industry, community colleges, and other apprenticeship stakeholders to advance the adoption of the apprenticeship model.

Program Outreach Opportunities

The following areas of opportunity were identified through a qualitative coded analysis of each interview:

Digital Outreach
Multiple stakeholders recommended increasing the use of social media and mobile tools, so that career pathways information is readily available in digital format. Young people are often online, yet strategically outreaching to young people in the virtual landscape or providing useful digital tools to make career decisions is underutilized. The most prominent websites for career information include My Next Move, O*Net Online, and Career One Stop, which are sponsored by the U.S. Department of Labor Employment & Training Administration.

Centralized and Accessible Career Information
Even when job information is searchable, there may be missing details important to making a career transition. Such information includes salary expectations, long-term trajectory, as well as education and training requirements. Many programs we connected with include this information as part of their recruitment process, to ensure that pre-apprentices and apprentices are entering a field with full information. However, throughout our interviews, it was clear that more centralized mobile information is needed.

We also heard from multiple stakeholders that apprenticeships are often misunderstood, particularly as apprenticeship widens into new fields, such as the technology sector. The Digital Creative Institute, a program that specializes in digital marketing and tech apprenticeships, noted that many young people may not realize apprenticeship programs are paid, or that you do not need a college degree to enter the tech industry. With more programs such as this on the horizon, it’s important for young people to quickly assess their options. Consolidating information about career exploration, with direct information about which apprenticeship programs are available, how to enroll, and prerequisites, is an urgent need.
Communicating Value
Apprenticeships have the potential to bring enormous value to young women, organizations, companies, and the greater economy alike. However, the difficulty pinpointed by many organizations we spoke with is communicating this value and misconceptions about apprenticeship. For example, young women may not realize that apprenticeship training is paid, with many fields having longer-term opportunities for advancement. There is an opportunity to craft outreach that speaks to the long-term benefits of apprenticeship, such as career demand and projected industry growth. Similarly, there is a need to share information to companies about the merits of apprenticeship, such as the ability to create specialized training for their company and a local workforce pipeline. Businesses may not be aware that apprenticeship is being used in emerging fields, such as technology, or of the support at state and local levels to build a program.

Strengthening Community Connection Points
Organizations discussed the importance of intermediaries or navigators—individuals who make direct connections between community members in search of career opportunities, as well as those who connect businesses to apprenticeship resources. Expanding the number of leaders who can drive the connections between education institutions, community organizations, workforce resources, and businesses is a key area of consideration. Some businesses may be worried about the paperwork involved with a federally recognized registered apprenticeship, and as such there is a continued need for support in both setting up and maintaining the administration of a program.
Program Design Strengths

During conversations with Texas apprenticeship stakeholders, several program design strengths were identified that illustrate how programs can support female students, including mothers.

Mentorship and Instruction
Program instructors who also serve mentors to program students are critical, as it helps create a connection to the company. Multiple successful programs with high completion and placement rates utilize a cohort model which drives relationship building. By grouping apprentices as a cohort and providing cohort-specific training (both in pre-apprenticeship and apprenticeship), there is more time for direct support and ability to build a community in which apprentices are learning from and working with one another.

Holistic Curriculum
Using a curriculum that focuses on both technical and soft skills can help students obtain the skills needed to advance in their careers. Every program site we spoke with mentioned the importance of students developing competencies beyond industry-sector technical competencies. A holistic curriculum addresses personal effectiveness skills, academic competencies, workplace skills, and interpersonal skills as well as technical skills specific to the industry. Strong apprenticeship programs include multifaceted skillbuilding.

Power of Pre-Apprenticeship
Pre-apprenticeships bridge gaps between someone seeking a career transition and a direct connection to an apprenticeable field. Pre-apprenticeship programs we spoke with approach the work with consideration not just of content curriculum, but a full support network to help someone connect with future career goals. Pre-apprenticeships often introduce participants to new skills and pathways.

Spotlight on Baylor Scott & White Apprenticeship Program at Austin Community College: Baylor Scott & White’s Medical Assistant apprenticeship program stands out as an exemplary public-private partnership program. In conjunction with Austin Community College, this apprenticeship program trains cohorts of Baylor Scott & White employees to become Medical Assistants. Curriculum and instruction are provided by Austin Community College and Baylor Scott & White manages the student selection process. This condensed apprenticeship model includes career advancement, small classes, rigorous curriculum, industry certifications, and high success rates. All five of the program’s cohorts have had a 100% pass rate for certification and apprenticeship.

Spotlight on Skillpoint Alliance: Skillpoint Alliance is a non-profit based in Austin, TX whose mission is to help individuals transform their lives through rigorous skills-based training and education. Its evidence-based programming includes pre-apprenticeship programs in the skilled trades. Pathways are in place with local registered apprenticeship programs in the electrical, plumbing, and HVAC industries. Programs are designed for rapid entry into these industries and are free for those who qualify. The goal of its programming is to strengthen the local economy by working with employers to build a quality workforce through pre-apprenticeship, adult training, and education initiatives that help the region’s community. Nearly 80% of program graduates obtain employment in industry after graduating, and about 40% enroll in an apprenticeship program within 12 months of graduating.

Pre-Apprenticeship Program
A program or set of strategies designed to prepare individuals to enter and succeed in a RAP. May last a few weeks to months and may or may not include wages or a stipend.
Opportunities in Program Design

One of the greatest needs for women and mothers emerging in our community analysis is a heightened integration of workforce opportunities and community support systems. Specific opportunities to improve work-based learning program design include high quality and accessible child care, streamlining access to support services, sustainable funding, and starting new apprenticeship programs.

Child Care and Support Services
Despite resources connecting young women and mothers to child care, apprenticeship and pre-apprenticeship programs shared challenges within the child care landscape, such as child care hours and availability. One problem identified is the matching of child care and school hours of operation alongside hours of operation in apprenticeship fields. For example, work schedules in the plumbing trade often start at 6:00 a.m. or earlier before most child care facilities are open. Similarly, health care apprenticeships may require hours outside of the typical business day. This can be a deterrent for those reliant on child care. Programs also cited difficulty with enough child care availability as they are unable to meet current demand, particularly in the wake of the COVID-19 pandemic. There continues to be a clear need for increased expansion of high quality child care centers, with the location of a child care center close to public travel options of importance.

Stakeholders also overwhelmingly discussed streamlining additional supports such as mental health, housing, and other wraparound resources. Particularly for young adults and young women experiencing a career transition, such services are vital in program retention and success. In particular, program design may overlook the need for transportation. Pairing apprenticeship or job assignment locations to meet the needs of women and mothers managing school, child care, and extracurricular activity drop-off is a vital consideration for program design.

Providing case management services to students, which includes connecting with wraparound services if the employer is unable to shoulder additional expenses, is critical. This is especially true for students needing access to child care, which can be accessed for qualified individuals through the local workforce board.

Sustainable Funding Streams
Texas has secured federal apprenticeship grants and provides dedicated resources to support state apprenticeship growth. However, an insight from our interviews is that funding to operate programs, particularly pre-apprenticeship programs, is often short-term, leading to continued application processes and funding pieced from multiple sources. The challenges with funding operating in this way are that it can be hard to predict future availability of a pre-apprenticeship program in a given area, it requires significant time to maintain, and there is difficulty pursuing expansion with highly time-limited funding. Opportunity exists to create more sustainable, predictable funding, particularly for pre-apprenticeship and preparation programs which directly support apprenticeship pathways in Texas. It should be noted that since interviews were conducted, Texas appropriated an additional $4 million dollars towards new apprenticeship programs in Texas.

Challenges in Creating and Operating New Programs
Stakeholders cited challenges with the initial creation of new apprenticeship programs, such as a perceived high amount of paperwork, not being sure where to start, and concerns about program funding. Perhaps what is most critical is the need for resources to help businesses walk through these processes.
Alongside program creation is the difficulty of hiring and retaining high quality apprenticeship instructors. One apprenticeship program we spoke with discussed how, in many ways, the pandemic helped the problem of trainer hiring as they were able to consider applicants who did not necessarily live in one particular location, thus growing the expertise and trainers available for the program. Other stakeholders commented on the need for women to have the opportunity to interact with other women who are in their desired career path. Instructor quality remains important, especially as women and mothers benefit from direct mentorship.

Confronting Gender Underrepresentation

In many current registered apprenticeship fields, such as construction, women are underrepresented and thus face a system that is not designed by or for them. One stakeholder described the reality that a woman may arrive at a construction site to be the only woman working that day. Job sites may not consider needs for those menstruating.\(^3\) There may also be bias against women pursuing certain occupations which are currently dominated by men, thus impacting a woman’s experience in applying for or completing an apprenticeship. Therefore, in addition to ensuring that apprenticeship programs themselves include Diversity, Equity, and Inclusion and Sexual Harassment Prevention training, it is of utmost importance that such training be integrated into the companies and entities supporting apprenticeships. Discussion of how to support inclusion for women, people of color, and non-binary apprentices should be tackled head on at every level of program design.

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\(^3\) Community Perspectives Informational Interview, led by Christina Long (Southern Policy Manager) and Aaron Hill (Workforce Consultant) on Zoom, 2021.
Envisioning Accessible Apprenticeship: Youth Perspectives

Statewide Survey

In late 2021, Young Invincibles conducted a statewide survey of Texas women between the ages of 18 and 34, asking them about their current educational and employment experiences, career goals, career obstacles, and how apprenticeships and work-based learning fit into those experiences and plans. The sample was diverse, with a median age of 26, and 60 percent reporting some non-white racial or ethnic identity. 46 percent reported having children 17 or younger in their home, with 33 percent having a child under the age of 5. While the survey results show a complex array of experiences, there are several key takeaways with important implications for the future of Texas apprenticeships.

Familiarity with Registered Apprenticeships

<table>
<thead>
<tr>
<th>Familiarity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all familiar</td>
<td>33.0%</td>
</tr>
<tr>
<td>Not very familiar</td>
<td>30.3%</td>
</tr>
<tr>
<td>Somewhat familiar</td>
<td>30.6%</td>
</tr>
<tr>
<td>Extremely familiar</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

36 The survey was administered online in October of 2021 on a diverse sample of 1,004 non-male-identifying Texans between the ages of 18 and 34, with recruitment done via the sample vendor Lucid. The vast majority of the respondents self-identified as female, with just under 2 percent identifying as genderqueer or as some other gender identity. The final sample size was 1,004. Data quality and attentiveness checks guarded against the possibility of insincere or dishonest respondents.
Familiarity with apprenticeship programs is low
Young women in Texas do not, by their own account, have a high degree of familiarity with registered apprenticeships. 63 percent of respondents in the sample reported being either not at all or not very familiar with registered apprenticeship programs. Furthermore, half of the respondents (50 percent) somewhat or strongly agreed that they would not know how to find a registered apprenticeship in their area.

Young women in Texas are looking for new career opportunities
This unfamiliarity is not for lack of latent or potential interest. 61 percent of respondents reported that, if there were no obstacles, they would like to pursue additional education or training within the next 2 years. Slightly more than half (55 percent) reported having plans to pursue additional education or training during that period. 68 percent of respondents reported wanting employment in some industry other than that where they currently work. This suggests a disjuncture between the ambitions of young adult women in Texas and the opportunities available to pursue them.

Cost and care responsibilities are major obstacles to education and training
The survey asked respondents about potential obstacles to their pursuing further education or training. The most frequently-mentioned obstacle was cost, with 71 percent of the sample citing tuition as a barrier to their future goals (non-tuition expenses were mentioned less frequently, with 16 percent of the sample identifying them as an obstacle). A further 30 percent specifically identified debt as a preventative factor.

In addition, 42 percent of the sample cited family care responsibilities as a major barrier to further education and training. Among respondents with children, the frequency jumps to 68 percent. This suggests that, for women in particular, the lack of affordable and high-quality child care represents a serious impediment to individual career trajectories, and suggests a major unmet need.

Interest in Earn-While-You-Learn

- Not At All Interested: 5.4%
- Not Very Interested: 8.7%
- Somewhat Interested: 33.4%
- Very Interested: 52.5%

68% of respondents reported wanting employment in some industry other than that where they currently work.
Young women in Texas find work-based learning opportunities attractive.

When presented with basic information about registered apprenticeships and other work-based learning opportunities, young adult women in Texas expressed a high degree of interest. 86 percent of survey respondents reported being either somewhat or very interested in earn-while-you-learn opportunities such as registered apprenticeships. Given the high degree of interest in additional education and training, the substantial latent desire to shift careers, and the preponderance of concern about cost, young adult women in Texas would have much to gain from expanded access to and knowledge of apprenticeship opportunities.

Voices of Texas Women Apprentices

Young Invincibles established The Texas Youth Apprenticeship Council, a six month paid opportunity to help make apprenticeship opportunities more accessible and equitable for young people, women, and mothers. YI Texas welcomed its first cohort in Fall 2021, featuring twelve apprentices from across Texas who have completed a form of apprenticeship or work-based learning training. Council meetings included storytelling, reflection, and design-driven projects to generate ideas for apprenticeship outreach and support. Due to the overwhelming interest in joining the Council—which confirmed the desire for women in apprenticeship to connect with other women—YI also hosted a paid storytelling training for all who applied to the program. In total, YI spoke directly with twenty Texas women who are enrolled in or have completed an apprenticeship and/or pre-apprenticeship within fields of construction, electricity, aviation engineering, health care, digital marketing, and chemical engineering.

Council members participated in key projects and consultation throughout the development of our report and recommendations. Every council member created a Journey Map, a visual and detailed description of their journey prior to, during, and after completing a pre-apprenticeship or apprenticeship program. Council members continue to share their story on platforms both locally and nationally.
Apprenticeship is life changing for women, paving a way to financial security and career satisfaction.

“There would be no way I would be able to take care of my children if I didn’t get my CNA (Certified Nursing Assistant).”

Joselyne, CNA

“I feel like it’s good to have more women in the trades because we can do these things too. I’m a single mother, in school, in a trade. I do feel more empowered knowing that I’m able to juggle these things.”

LeeAnn

“I love that my job is very hands-on. Based on the speciality or setting you work in depends on the level of care you’ll be able to give. I’ve met women who have been on this career path for decades and love it and don’t want to change a thing about what they do. That inspires me to know I made the right decision.”

Brazia, Certified Medical Assistant and Current Bachelor of Science in Nursing Student

“I love that it is completely out of my comfort zone but encouraging that I am succeeding in a field that is known to be just for men.”

Rosa, Aerostructures

“Apprenticeship programs offer many advantages for those like me that want to pursue a good salary and develop skills in real work-based life.”

Diana, Digital Marketing

“In 2016, I graduated from college and began looking for my first “big girl” job in marketing. I had worked internships and part-time jobs in my field during college, some of them unpaid even, but the more jobs I applied for, the more I realized I didn’t have the real experience employers were looking for. Luckily for me, I found an apprenticeship program that both helped me secure a good digital marketing job and trained me on the skills I needed to be successful.”

Amantha, Digital Marketing

Apprenticeship opportunities have allowed women to support themselves and their families, as well as make desired career changes. For example, many trades fields that are traditionally male dominated provide opportunities for women to discover their passions and build a financially stable future. Council members shared that their individual apprenticeships provided opportunities for them to grow within the company and build their skillset.
Women in apprenticeships seek to inspire other women toward these opportunities.

The narrative around women in apprenticeships, especially women in trades, is often that certain fields “aren’t meant for them.” Women in the council shared that they want other women to feel empowered the same way they do in their apprenticeship.

“Encourage more women to join trades because although accepted, it still isn’t totally “normal.” Women in trades, especially construction, should be the norm! We think differently than men, therefore we can bring different skills, a new way of thinking, change the dynamics of the work place for the positive, and reach solutions more quickly when we join forces.”

Jennifer, Electrical Apprentice

“I appreciated the diversity in regards to minority women in my digital marketing apprenticeship who were thriving. Having more conversations with these women prior to the apprenticeship would have helped me make more of my experience. Specifically, the challenges that perhaps men do not face, such as childcare and the balance of home life with work life.”

Ana, Digital Marketing
Learning about and starting the apprenticeship was often described as the most challenging part of the journey.

Information surrounding apprenticeships is not easily accessible. Finding opportunities is one of the most challenging aspects of the apprenticeship journey. Within their journey maps, nearly every woman noted that finding the apprenticeship was the hardest part. They shared that they found these opportunities nearly exclusively through word of mouth and there was no one place to go to find out about apprenticeships.

“People don’t know how apprenticeship programs work and the process to find a job through these programs. Reason why I consider that will be valuable is to let people know the jobs offered in the state and how the apprenticeship program complements those role training, plus, have the possibilities to earn a certification that counts in the future to continue studies like masters.”

Rosa, Aerostructures

“I would love to see advertising in the media [for apprenticeships] such as Billboards or TV. I don’t think it’s publicized enough...Getting into a trade has been welcoming, rewarding and challenging. If you are a woman in search of something new in your life, a new career path, unsure if there is a next level within your current place of employment...find a trade! Women are creating a wave in trades today. I would encourage you to find a trade that interests you. Talk with family and friends who have established a career within a trade. Search trade schools within your area.”

Jennifer, Electrical Apprentice

More specific information about apprenticeships, such as long-term pay and career demand, is needed.

Discussions in the Youth Apprenticeship Council centered not just on the amount of outreach, but also on the quality of information shared about apprenticeship. Specific information about salary and career demand are critical for women when making employment decisions.

“Discussions in the Y outh Apprenticeship Council centered not just on the amount of outreach, but also on the quality of information shared about apprenticeship. Specific information about salary and career demand are critical for women when making employment decisions.

“I was not aware of apprenticeship programs ...if I was informed when I was in high school it would have opened me to what career path I had interests to without jumping into a school and having an expense to worry about paying off and not know if it is something I wanted for the rest of my life. In simplicity, having options to what is out there and what one can succeed in.”

Rosa, Aerostructures

“Knowledge is power but equally true is accurate and helpful knowledge leads to wise choices. The job I have now as a freelance digital marketer didn’t even cross my mind when I graduated high school much less after college. This was due to a lack of exposure. Some of that was due to my social economic background and lack of support from my educators that I could succeed in advertising or a field like that.”

Ana, Digital Marketing

“For me, better pre apprenticeship information and support would have made my journey even more successful. Having someone mentor and guide me from the start would have made the transition smoother.”

Amantha, Digital Marketing
Mentors are essential in providing support as well as helping women reach success in their specific programs. In addition to traditional mentorship, peer-to-peer mentorship is indispensable to equitable inclusion and success of women. Within the council there were women who were previously peer mentors to one another. They reflected on how this support was incredibly helpful, and that they simply wouldn’t have gotten as much out of their program without it. Council members also commented on the importance of environments like the council itself, which provides a supportive community.

“Mentors are invaluable in apprenticeship.

“One thing that could have been fixed or changed about my experience would be having more mentors to help me out because I felt like sometimes I wish I could talk to some other people and what they think. Another thing would be having the right people telling me what an apprenticeship was going to be about, what are some of the benefits and how you could get paid and learn different things for a career you would like to study for in college.”

Rebeka

“I had the fortune to have not only mentors that helped me to be more involved in the Digital Marketing field as well as mentorship that allowed me to develop self-awareness, and foster passions in my career... I was learning new things based on my marketing career. Mentorship helped me to understand how the concepts I learned could be translated into my workplace and different ways to manage my communication with an executive team to have effective career outcomes.”

Diana, Digital Marketing

“Having people successful in their field being there to help pick us back up over the next couple months was incredibly vindicating. Having a mentor willing to tell us about their mess ups and struggles from day one to ones they’ve made 40 years later told me that my career was going to be a battle. However, having mentors helped me see that I’d have other journeymen, apprentices, and foreman who were in the same shoes at one point and are now strong enough to bring you back up when you needed it.”

Catherine
Affordability and accessibility of childcare is a barrier for many women entering the workforce, especially apprenticeships. Many women shared that financial challenges for childcare held them back from pursuing apprenticeship opportunities.

“It’s so expensive to find childcare if you want to participate in an apprenticeship. It’s so difficult not to mention when you go into the workforce. It could be a part of the apprenticeship structure in admissions and financial assistance. Either a stipend or onsite care.”

Ana, Digital Marketing Apprentice

“Attending my apprenticeship during the summer ensured I didn’t have to pick up my children from school or pay for childcare otherwise it would have been difficult because I did not have any income to cover such things. Providing childcare and paid apprenticeships could be great incentives to recruit women and young people as well.”

Jennifer, Electrical Apprentice

“It is a hard decision to leave children in the care of another person in order to work and not having the means to even find childcare makes the situation a heavy burden. If a woman does not have someone she trusts to care for her children then it is highly likely that furthering her education would take a backseat...Apprenticeships can be improved tremendously by providing reliable, safe and consistent childcare.”

Ana, Digital Marketing Apprentice

Council members expressed problems with acquiring comprehensive health care coverage. For many programs, full health coverage isn’t available as a first or even second year apprentice. Health coverage is essential for apprentices regardless of the amount of time in the program, especially in trade industries which pose a higher risk of injury. Health coverage of course extends beyond injury prevention, and should be comprehensive. Pregnancy, postpartum care, and mental health care are critical for pregnant people and parents, and essential parts of coverage that must be included in all health plans.

“There should be affordable healthcare available to people in trades that all tradespeople qualify for.”

Youth Apprenticeship Council Member

“[At my apprenticeship] you can’t even apply for health insurance until you are a third year apprentice, and my company doesn’t provide health insurance, they just have workers COMP. So if something happens to you on the job site then you’re covered, but for just general health insurance they don’t give it to you until you’re a third year apprentice...I don’t have insurance and I’m a carpenter and that’s a little concerning.”

Youth Apprenticeship Council Member
Recommendations

Federal Overview

Federal policy plays an important role in funding apprenticeship growth, as well as initiatives to increase access to apprenticeship for underrepresented communities. In March 2021, the Department of Labor announced $87.5 million dollars for states to expand and diversify apprenticeship programs. Additionally, over $3 million dollars was awarded to five community organizations through the Women in Apprenticeship and Nontraditional Occupations Program (WANTO) with the specific goal to expand access to apprenticeship for women. One of the 2021 recipients is SER Jobs for the Progress of the Gulf Coast, Inc, located in Houston, Texas. In addition to direct funding, WANTO equips organizations to grow practices for equitable reach through technical assistance such as training and support groups. Young Invincibles supports continued investment of federal funding toward state apprenticeship expansion, which is instrumental in adding capacity for program development and access.

Young Invincibles also recommends direct federal economic investment for women and parents in Texas. Texas families annually spend almost $16,000 on child care, amounting to 25% of their income. Access to child care impacts if women can pick up more shifts, invest in finding a higher paying job or enter the workforce at all. Federal support of parents in the economic recovery can help women make career transitions. Important policy levers include the Child Tax Credit, continued funding and support for child care expansion, access to early learning and Pre-K, and access to affordable and comprehensive health coverage.

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37 US Department of Labor, US Department of Labor Announces Availability of $875M in Funding to States to Expand, Diversify Registered Apprenticeship Programs (Washington, DC, 2021), https://www.dol.gov/newsroom/releases/eta/eta20210318-0
38 US Department of Labor, WANTO Grant Program (Washington, DC, 2021), https://www.dol.gov/agencies/eta/grants/wanto
State Growth and Apprenticeship Equity Initiatives

Set state-level gender and racial equity goals in apprenticeship expansion. We recommend that Texas intentionally study and support initiatives to grow racial and gender representation in apprenticeship. Statewide equity goals for registered apprenticeships and work-based learning provide a strong basis for planning and action toward measurable outcomes.

Other states have adopted strategies focused on workforce equity goals. Led by an executive action to grow Diversity, Equity, and Inclusion planning in state programs, Illinois created equity task forces within existing state agencies. The Illinois Department of Commerce and Economy was further selected to participate in the Maher & Maher Cohort Initiative, which comprised eight states focused on achieving diversity in apprenticeship. The cohort gave Illinois tools to implement DEI principles, including the establishment of a process to collect and analyze demographic apprenticeship data. As Texas carries out policy toward apprenticeship expansion, we recommend leaders include equity goals and committees as critical to apprenticeship data collection and evaluation.

Seek young adult voices, especially the voices of Black and Latina women and parenting apprentices, in outreach and apprenticeship design. Apprenticeship program design should include young adult voices, and most particularly those who are currently underrepresented in apprenticeship programs. Youth voice brings critical dialogue at every stage of apprenticeship— from outreach to career advancement and will strengthen the quality of programming. There are many models to bring youth voice into apprenticeship design, such as forming a youth council, creating an alumni network, and seeking out the testimonies and stories of young people. By incorporating the voices of workers within strategizing and decision-making, opportunities for innovation in the workforce soar.

We recommend that policy leaders, program sponsors, and educators alike seek out youth voice during key decision-making.

Grow pre-apprenticeship programs, as well as paid internships or other initiatives that provide exposure to in-demand careers. Texas appropriated $4 million dollars toward the expansion of apprenticeships in February 2022, and continues to invest in apprenticeship initiatives. With this growth, we recommend aligned efforts for pre-apprenticeship and initiatives to ensure young women, and especially women of color, have access to new programs. Pre-apprenticeship programs are critical because they provide career exposure and often work alongside apprenticeship programs to ensure graduates are prepared for the next step within a pathway. For many, a pre-apprenticeship program is the primary reason they were able to enter into an apprenticeship field. Pre-apprenticeship is an evidence-based practice within youth apprenticeship pathways which serve as a place where young people explore their interest in a particular field, and are thus prepared for successful entry into a registered apprenticeship or technical degree program. The Chicago Jobs Council and Young Invincibles Equitable Apprenticeships Model created in Illinois illustrates the way pre-apprenticeships act as a launch pad into the workforce.

Grow apprenticeships in new and emerging fields, such as the technology sector, with a focus on creating exposure for young people. There is an exciting opportunity to grow programs in emerging and high paying fields that may not traditionally be considered an apprenticeable pathway. For example, there are a growing number of earn and learn programs that equip participants to start in digital marketing, coding, or other tech roles. In addition to programs themselves, it is imperative to support exposure and training in these fields to those who have been underrepresented— such as minority students and women.

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Targeted Outreach and Communication

Continue to expand the number of apprenticeship navigators and community connectors directly interacting with young people. We resoundingly heard that it is difficult to explore new career pathways, and we heard this from current apprentices, young Texans enrolled in postsecondary education, and in our statewide survey. Texas is expanding navigators within the state, providing critical resources for apprenticeship growth. We recommend the state prioritize community-facing apprenticeship advocates that can help those interested in apprenticeship connect to a program. Additional contacts placed in outward facing positions, such as schools, workforce boards, high schools, community colleges, historically Black colleges and universities, and minority serving institutions are integral connection points for career exploration.  

Create more digital communications about apprenticeship. Young people seek more immediate and accurate resources to explore what career options in apprenticeship or work-based learning exist. While we acknowledge that there are websites on these topics, the clear, resounding message is that young people aren’t yet fully connected to them. We recommend digital tools such as a searchable library available by mobile phone, and would encourage designers to seek young adult feedback during the design process.

Launch a state-wide apprenticeship campaign that includes opportunities for women and parents to share their story. When discussing apprenticeship outreach within the Young Woman’s Apprenticeship Council, we received feedback that more visible and bold messaging is needed. A state campaign with a clear message could be featured on commercials, billboards, and social platforms such as Twitter or Instagram. Within such marketing, it is important to uplift the stories of those who are underrepresented in apprenticeship, and to ensure stories—such as those in this report—are centered in outreach.

Emphasize details such as salary information and long-term career advancement options in marketing materials. Young people need information about salary expectations, training costs, school or credentials required for a program, and long-term opportunities for advancement. In a study by LinkedIn, 68% of women stated that salary range and benefits are the most important part of a job posting. When pay is directly stated, it makes the choice to pursue apprenticeship more attractive.

Re-engage parenting students through data collection and direct outreach. Work-based learning and apprenticeship programs offer immediate solutions for parents seeking a new career. Nationally, one in five adults hold some credit and no degree, and a third of these adults are parents with a child under age 18. Best practice supports identifying and reaching out to parenting students who have unenrolled in their education. Colleges have an opportunity to reach back out to parents who have unenrolled and can educate them on work-based learning coursework or programs that provide financial support. “Earn and learn” models can be instrumental to ensuring parents can earn a degree while providing for their family.

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Strengthen Statewide Data

Gather, report, and share state-level apprenticeship data disaggregated by field, demographics, and outcomes. Our state data analysis was conducted by gathering Department of Labor statistics on reported registered apprenticeships through the RAPIDS system. While useful, RAPIDS only captures a subset of Texas work-based learning data, leaving out key programs such as pre-apprenticeships. There are also inconsistencies in the RAPIDS data available, such as missing wage, race, and ethnicity information. We believe that comprehensive and updated state-level data, including the number of apprenticeships, locations, and demographics of those enrolled in apprenticeship and pre-apprenticeship is essential to understanding the apprenticeship and career pathways landscape in Texas.

We recommend that as Texas develops state-level systems to create publicly accessible apprenticeship outcome data, to include geographic, gender and racial demographic data reporting, including parenting status, to understand the accessibility of apprenticeships. This data would provide lawmakers information about which regions would most benefit from grant programs such as WANTO or other growth initiatives, and help to recognize opportunities for program growth.

Gather and report data on pre-apprenticeship programs. While state data on apprenticeships can be accessed through RAPIDS and AIMS, there is a need for more data specifically centered on pre-apprenticeship programs and outcomes. As the TWIST data system houses local workforce board information, we acknowledge that some of this data may be currently included within the system. It would be useful to evaluate pre-apprenticeship data alongside apprenticeship data, to understand where and how the strongest pathways into the workforce occur.
Child Care Expansion

Continue investment in the child care workforce, in order to promote sustainability and expansion of child care services. Texas has nearly 2.5 million children ages 0-5, yet only has 89,000 members of the early childhood working force.\(^{54}\) Child care workers pay the price for working with young children, as they make “36% less than their colleagues in the K-8 system,” and have a poverty rate of 18.6 percent, which is 7.3 times higher than K-8 teachers (2.5 percent).\(^{55}\) Investing in the child care workforce would not only reduce poverty levels among early childhood educators, but also in turn create a more sustainable and thus higher quality child care system.

Align child care availability with apprenticeship programming. One current barrier with child care is that open hours often do not align with apprenticeship working hours. Many trade apprenticeships, such as plumbing, have an early start time close to 6 a.m., prior to school and child care center start times, posing a burden to working parents. Aligning child care availability and hours with apprenticeship programming would relieve part of the challenges posed with child care and allow for parents to enter the workforce. Incentivizing child care centers, through items such as public subsidies, to open earlier would promote the child care industry and stimulate the workforce.

Engage apprenticeship sponsors to understand the importance of child care and when possible, create flexible training options to support parenting apprentices. We encourage apprenticeship sponsors to embrace the responsibility of parenting, learn about their apprentices, and create programs that offer appropriate flexibility. Examples of flexibility include virtual learning options when appropriate, and altered hours to match child care center and school times. Using surveys or other methods to understand responsibilities of those enrolled in a program can help sponsors and program leaders recognize time barriers and generate solutions.

Explore on-site childcare. On-site child care offers maximum accessibility- we recommend companies and colleges alike research ways to provide this service. In situations where on-site child care may not be ideal or safe, such as at chemical plants, home child care is another option to explore. Texas can engage in efforts to study and research best practice in home care, exploring child care grant programs and best practice home-based child care training.

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54 Center for the Study of Child Care Employment, Texas State Profile, University of California, Berkeley. [https://cscce.berkeley.edu/workforce-index-2020/states/texas/](https://cscce.berkeley.edu/workforce-index-2020/states/texas/)

55 Center for the Study of Child Care Employment, Texas State Profile, University of California, Berkeley.
Inclusive Programming and Supports

Prioritize high quality mentorship as integral to apprenticeship program design. The importance of mentorship, and the power of instructors who listen to your story was evident throughout our research. Sponsors and program designers should include mentorship as a component of apprenticeship program design, rather than an added expectation. Apprenticeship mentors should be supported to create proactive relationships with apprentices, such as engaging in active listening and learning how to provide constructive feedback.56

There are resources to help apprenticeship sponsors design successful onboarding programs that include a strong mentorship framework, such as Urban Institute’s Youth Apprenticeship Mentor Guide. As the guide notes, the mentorship relationship is especially critical for young people ages 16-24, as they may not have had a job prior to beginning an apprenticeship.57 Since young people may be learning many aspects of the workplace all at once, the mentorship relationship is an invaluable part of their growth. Additionally, state leadership can intervene by creating models for best practice mentorship as it relates to work-based learning and creating mentorship requirements. This would allow for the scaling of mentorship as a practice within high quality apprenticeship and work-based learning programs.

Bolster wraparound services for apprenticeship. In addition to child care, other resources including housing, transportation, and healthy food are critical to ensuring access to apprenticeship. While resources do exist, connecting to them is not always straightforward. We recommend making it easier for people to access a range of services through their local workforce boards, and directly connecting registered apprenticeship programs with these resources.

Furthermore, registered apprenticeship programs should continually collect data on the support services apprentices need to in order to succeed and complete their programs. As recommended by Jobs for the Future (JFF), apprenticeship programs should, “Continually review, tweak, and modify the curriculum to address the needs of apprentices.”58 Lastly, support services must be offered for every step of the process starting with pre-apprenticeships and continuing with post-apprenticeships to assist with transitions.

Grow Diversity, Equity, and Inclusion instruction for apprenticeship programs and sponsors. In order to grow DEI initiatives, apprenticeship programs must collect data on current DEI initiatives to measure successes and determine areas of growth. Similar to wraparound services, DEI needs to be embedded on all the steps of an apprenticeship starting at recruitment and selection, training and steps towards completion, and post-apprenticeship. Programs should continuously review the design of their program and examine more carefully broader organizational policies and practices including: examining internal HR policies, educating hiring managers to avoid unconscious bias, flexibility with the programming, and building an inclusive workplace culture that fosters a sense of belonging.59

56 The Urban Institute, Mentor Guide for Youth Registered Apprenticeships (2021), 8.
57 The Urban Institute, Mentor Guide for Youth Registered Apprenticeships (2021), 3.
**Invest in Sustainable Long-Term Career Pathways**

**Restructure funding mechanisms to prioritize predictability.** Short funding horizons lead to unstable programs without institutional memory and consistent application of educational best practices. Funding instability also undermines the relationship-building with key employers that is crucial for career success. Longer-term funding horizons will allow for programmatic excellence and ensure participants are connected with viable career pathways.

**Expand work-based learning and microcredential opportunities, with longer term advancement options.** The passage of the TRUE Initiative during 2021, and increased alignment of education and workforce goals, excitingly sets the stage for community colleges to grow work-based learning pathways on campuses. Short-term certificates and credentials can be life changing for young people to gain an immediate skill to apply in the workforce. We recommend ensuring that the expansion of credentialing is done with a view to create broader trajectories that connect to long-term earning increase potential. Shorter degrees, such as a Certified Nursing Assistant program, may play an important role in preparing candidates for other medical fields, such as registered nursing.

**Future Considerations**

We recommend future study centered on the relationship between apprenticeship, the Texas Criminal Justice system, and justice-impacted youth. There is a need for more state research to examine and report on solutions for women during incarceration and the availability of career advancement in Texas, as well as career exploration and pathways for all justice impacted youth. We also recommend more research on connecting youth who are in the conservatorship of the Texas Department of Family and Protective Services to pre-apprenticeship and apprenticeship programs in Texas.
Conclusion

The Texas women we spoke with in trade fields and apprenticeships want others to know about these programs. All too often, the career opportunities that work-based learning programs present are unknown, out of reach, or both. Despite the data showing gender gaps in participation, and despite the inequitable distribution of program participation in many cases, every apprentice we met highlighted the financial and educational benefits of their program. We find that a deliberate and consistent effort for outreach and program design must be made in order to provide more access for women and parents. We encourage stakeholders in Texas to create apprenticeship goals and strategies which amplify opportunities for women and parents. Growth in pre-apprenticeships, emerging fields, child care resources, and digital outreach could transform the landscape, building prosperity for women and parents in the Texas workforce.
Appendix A: Key Terms and Definitions

While our report focuses on registered apprenticeships, we discuss various types of programs and work-based learning models. We have defined the following terms for the purposes of our report.

**Work-Based Learning**: A training program that includes three key components: aligned classroom and workplace learning; application of classroom academic, technical, and employability skills in a work setting; support from classroom and/or workplace mentors. (Registered Apprenticeship Programs meet this definition because of their structure).

**Apprenticeable Occupation**: An occupation approved for apprenticeship by the US DOL.

**Apprentice**: An individual enrolled in an apprenticeship program (RAP or IRAP).

**Apprenticeship**: an industry-driven, high-quality career pathway that combines paid work with education and results in a portable, nationally-recognized credential. Differs from work-based training in that apprenticeships are jobs; includes on-the-job learning and job-related classroom training; on-the-job learning takes place in a work setting; and training results in a credential.

**Apprenticeship Committee**: an autonomous local group consisting of members appointed by one or more employers of apprentices, or by one or more bargaining agents representing members of an apprenticeable trade, or by a combination of the two. A Committee is designated for each apprenticeship training program to establish instruction standards and goals for a particular craft or crafts, interview and select applicants, and monitor the program and apprentices. This is described in Texas Education Code 133.003.

**Apprenticeship Information Management System (AIMS)**: TWC’s participant data collection application for TWC-funded apprenticeship activities and services. This is a relatively new database.

**Journeyman**: An apprentice who has successfully completed an official apprenticeship qualification, usually by passing a test and demonstrating skill proficiency. This is industry-specific, e.g., in the electrical industry the pathway is apprentice, journeyman, and master.

**Master**: In some industries, this represents the highest credential offered by an apprenticeship program. Depending on the industry, a Master may be able to do things an apprentice and journeyman are not, such as overseeing the work of others or signing off on projects.

**National Apprenticeship Act (Fitzgerald Act)**: Enacted by the U.S. Congress in 1937, this act ensured labor and safety standards for apprentices and laid the framework for registered apprenticeship as it is used today.

**Pre-Apprenticeship Program**: A program or set of strategies designed to prepare individuals to enter and succeed in a RAP. May last a few weeks to months and may or may not include wages or a stipend.
**Registered Apprenticeship Partners Information**

**Management Data System (RAPIDS):** Provides individual apprentice and sponsor data. A subset of the data (which includes data from the federally-administered states, including Texas, as well as national program data) is referred to as the “Federal Workload.” This data subset can be disaggregated to provide additional specificity.

**Registered Apprenticeship Program (RAP):** An apprenticeship program registered with the U.S. Department of Labor’s Office of Apprenticeship. Programs are designed to prepare individuals for careers and occupations using a combined approach of structured, on-the-job learning and classroom instruction. Programs are typically three-to-five years in length and typically require 144 hours per year in classroom instruction alongside 2,000 hours of on-the-job learning. Apprentices are paid during their training and are guaranteed pay increases as they progress. All RAPs consist of the following five core components: direct business involvement, OJL, related instruction, rewards for skill gains, and a national occupational credential.

**Sponsor:** An employer, association, committee, or organization that operates a Registered Apprenticeship Program. This entity assumes full responsibility for the administration and operation of the apprenticeship program, including designing and executing programs, overseeing training development, and providing technical instruction and hands-on learning. Can be a single business or a consortium of businesses; an intermediary (such as a labor association or labor-management association); a Community College; or a Community-Based Organization.
Appendix B: 2021 Statewide Survey Demographics

The sample was recruited from a mix of online panels through the professional survey firm Lucid. Substantial quality checks were included in the survey to ensure respondents were attentive and truthful throughout the process. The survey itself was delivered via the online survey tool Qualtrics. Data analysis was conducted by Young Invincibles staff.

**Age**
The sample of 1,004 respondents was limited to non-male-identified Texans between the ages of 18 and 34.

**Race/Ethnicity**
40 percent of respondents identified as non-Hispanic white, with another 16 percent identifying as Black or African-American, 32 percent identifying as Latinx or Hispanic, 5 percent identifying as Asian, and another 7 percent reporting other identities.

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**Race/Ethnicity**

- NH White, 40.4%
- Latinx/Hispanic, 32.2%
- Black/African American, 15.7%
- Asian, 5.1%
- Multiple/Other, 6.7%
Family Structure
30 percent of the sample reported being married at the time of the survey. 64 percent had never been married, with another 5 percent being widowed, separated, or divorced.

Employment
40 percent of respondents reported being employed full-time, with another 17 percent reporting part-time employment. 13 percent were students, and 15 percent reported being unemployed or temporarily laid off at the time of the survey.

Income
The majority of respondents reported household incomes below the state median ($61,874 in 2019 dollars), with the modal reported household income range being between $20,000 and $29,999 annually.
Appendix C: Model for Equitable Apprenticeship