



Closing the Divide

Making Illinois a Leader in Equitable Apprenticeships

YOUNG 
INVINCIBLES

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.

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INTRODUCTION

Apprenticeships are gaining momentum in Illinois, creating new opportunities for both young adults and employers. The Prairie State has the second highest youth unemployment rate in the country,¹ and one of the highest unemployment rates in the country for people of color of all ages.² This is fueled in part by diminishing job opportunities in communities of color.³ Employers are also struggling to fill positions due to a middle-skills gap. Fifty-three percent of jobs in Illinois require more training than a high school degree but less than a college degree, yet only 42 percent of the workforce is trained at that level.⁴ Apprenticeships are one of the few proven strategies for closing the middle-skills gap, and are a pathway for young adults to stable, long-term employment. After registered apprenticeships end, 91 percent of apprentices retain employment with a median salary of \$50,000.⁵

In response to the promise apprenticeships hold, Illinois has expanded apprenticeships across the state. Governor Rauner has repeatedly noted apprenticeships' value, designating apprenticeships as one of the three priorities for the Governor's Cabinet on Children and Youth.⁶ Illinois also received \$1.3 million to expand apprenticeships under Department of Labor's ApprenticeshipUSA State Expansion Grant Program,⁷ and may expect more funding in the near future, as Congress increased apprenticeships funding by \$50 million in the latest budget.⁸ Through the ApprenticeshipUSA grant, Illinois committed to increasing the number of women, people of color, opportunity youth, low-income individuals, and others participating in apprenticeships across the fields of manufacturing, health care, and transportation, distribution, and logistics.⁹ To move towards statewide coordination, the Illinois Workforce Innovation Board Apprenticeship Committee has created a work plan for expanding apprenticeships. This work plan provides an opportunity to drive growth that aligns with the state's goal of increasing the earning potential of diverse populations.

Reaching and retaining diverse populations will not happen unless Illinois commits to this outcome, plans accordingly, and builds cross-sector engagement to move that plan forward. Despite the tremendous potential apprenticeships present to the workforce, they have a poor track record of employing women and people of color. Both women's and people of color's participation in apprenticeships is disproportionately low relative to their participation in the workforce as a whole. Nationwide in registered apprenticeships, ten percent of apprentices are women,¹⁰ and 30 percent are people of color.¹¹ Given that workforce development budgets are increasingly shifting towards apprenticeships, we will leave behind women and people of color unless we ensure we are recruiting and retaining these populations in apprenticeship programs.

In this report, Young Invincibles ("YI") provides recommendations on how Illinois can create apprenticeships that achieve gender and racial equity. Our recommendations are based on a review of state and local strategies for scaling apprenticeships that serve women and people of color, examining work in Oregon, South Carolina, New York, and Massachusetts. YI also identified strong practices in Illinois, learning from the apprenticeship and work-based learning programs of YouthBuild Mclean County; OAI, Inc.; thyssenkrupp; District 214; Harper College; One Million Degrees; and Harold Washington College. For a full list of interviewees, please see the appendix. We vetted our findings with 45 young adults in five apprenticeship programs in Illinois, ensuring our recommendations drew from their direct experience with these programs.

The report starts by outlining the apprenticeship landscape in Illinois, including highlighting Illinois' commitment to creating equitable apprenticeships that reach women, people of color, and other populations with barriers to employment. Despite this

commitment, Illinois, like other states, faces significant challenges to achieving its objectives on inclusion. Apprenticeships fail both to recruit and to retain women and people of color. The second section provides an equity vision for Illinois with inclusion targets for increasing the number of female apprentices and apprentices of color. YI recommends that:

- In ten years, Illinois achieves racial equity in apprenticeship participation.
- In twenty years, Illinois reaches gender equity in apprenticeships participation.

Illinois should not only set these targets, but should also create accountability tools that support programs in reaching these targets. The third section outlines strategies for scaling apprenticeships that benefit diverse populations, and recommends actions the legislature, administrative bodies, employers, and education systems can take. Key actions include:

- Creating apprenticeship consultants who educate and train employers on best practices for creating inclusive worksites
- Setting up employers to use recruitment strategies that appeal to diverse audiences
- Ensuring education partners provide wraparound supports

These recommendations would not only increase the number of apprenticeship opportunities, but also ensure women and people of color fully participate in the earn-and-learn model.

APPRENTICESHIPS IN ILLINOIS: OPPORTUNITIES AND CHALLENGES

Definitions

- *Registered apprenticeships* are administered by the Department of Labor. Participants are paid for their work-based training, receive incremental wage increases as their skills improve, and earn nationally-recognized industry credentials.
- *Pre-apprenticeships* train participants on the skills they need to be prepared at day one in other apprenticeship opportunities.¹³
- In some other states, *youth apprenticeships* serve high school students between the ages of 16 and 18. Apprentices are paid for work-based learning. They learn in a classroom, and receive industry-recognized credentials. Youth apprenticeships are either pre-apprenticeships (linking to registered apprenticeships), registered apprenticeships (adhering to Department of Labor standards), or state-administered youth apprenticeships with a state definition of quality.¹⁴

Opportunities: Commitment & Momentum

Across the state and across employers, education systems, and local and state agencies, we are seeing demonstrable support for apprenticeships. In the last two years, the state developed the Apprenticeship Plus framework to guide the state's expansion of apprenticeships.¹² Apprenticeship Plus is a comprehensive framework that leverages the value of several apprenticeship models ranging from youth apprenticeships, pre-apprenticeships, and registered apprenticeships (RA), to other work-based training programs that result in industry-recognized credentials. This framework is shaping how the Illinois Department of Commerce and Economic Opportunity, the Illinois State Board of Education, the Illinois Community College Board, and other agencies support apprenticeships.

Definitions

- In Illinois, *youth apprenticeships* are for young adults between the ages of 16 and 24. Participants learn in-demand skills through 450 hours of paid on-the-job training and two semesters of related instruction. They earn industry-recognized credentials, and explore various positions at a company to facilitate career exploration.¹⁵ Illinois has a state definition for youth apprenticeships, but could also have youth apprenticeships that meet registered apprenticeship standards.
- Throughout the report, we use the term “apprenticeships” to refer to all of these apprenticeship strategies collectively, and indicate where our recommendations are specific to one apprenticeship strategy only. Data on apprenticeships, however, is specific to registered apprenticeships as this is currently the only apprenticeship programming with publicly available data.

supporting apprenticeships: 84 percent of the state’s registered apprenticeships are in construction and nine percent are in manufacturing.²⁴ While this cross-sector leadership provides a strong foundation for Illinois to bring apprenticeships to scale, Illinois will have to diversify the sectors participating in apprenticeships if it intends to publicly show that apprenticeships are a workforce development strategy for a wide range of fields. With apprenticeships growing nationwide in health care, information technology (IT), financial services, and more, Illinois’ economy would benefit from increasing opportunities in a wide range of additional fields that are well-positioned to serve employers and young adults through apprenticeships.

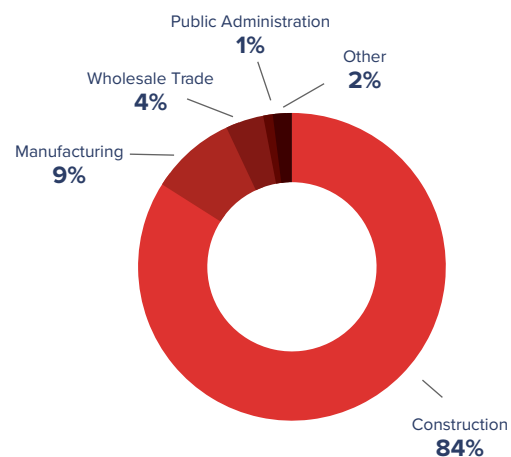
Challenges: Barriers in Launching Equitable Apprenticeships

Illinois has two significant apprenticeship goals. First, the Prairie State aims to create apprenticeships in a variety of fields, which requires overcoming employers’ misconceptions and addressing their needs around apprenticeships. Second, Illinois is committed to reaching a wide range of young adults, which requires overcoming the dynamics that prevent young adults from enrolling in and completing apprenticeship programs.

Employers are also charging ahead: for example, firms including Aon have launched the Chicago Apprenticeships Network for white collar employers,¹⁶ and the German-American Chamber of Commerce is supporting employers in launching manufacturing apprenticeships.¹⁷ Education systems are also driving expansion, with Harper Community College running eight programs,¹⁸ and the City Colleges of Chicago recently creating programs with Aon and Accenture.¹⁹ Finally, cities and regions are stepping up as well: the City of Peoria is running a youth apprenticeship program²⁰ and the City of Chicago announced a new earn-and-learn program partnership with employers.²¹

This momentum has translated into over 15,000 active registered apprentices participating in one of the 431 programs offered in Illinois in 2017.²² This means the state has the 11th highest number of registered apprenticeships in the country.²³ Illinois’ apprenticeships are largely in fields that have a historic tradition of

Illinois Apprenticeships by Industry Sector, 2017



Source: The Registered Apprenticeship Partners Information Management Data System (RAPIDS)

Employers: Employers not only misunderstand apprenticeships but also need financial and programmatic support. Key barriers include:

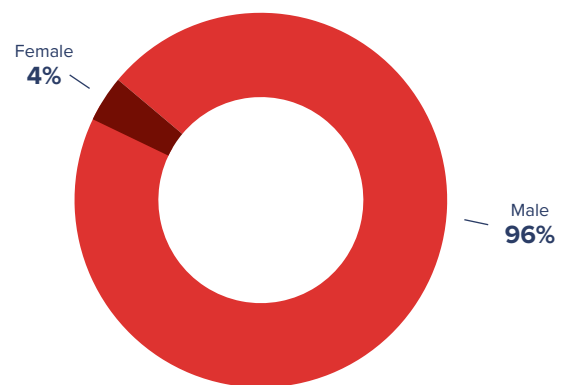
- Misconceptions that apprenticeships cannot meet their businesses' needs due to incorrect beliefs that apprenticeships only work in the building and construction trades, that they require unionized workplaces, that they have a one-size fits all approach, and that apprentices will quickly leave once the program wraps up.²⁵
- Employers would like support with starting and paying for apprenticeship programs. A survey of 400 employers by Skills for America's Future found that a lack of funding support for creating apprenticeship programs was the top concern for 62 percent of employers.²⁶
- Employers also need additional support on: the roles partners should play (21 percent); stronger pathways between apprenticeships, pre-apprenticeships, and higher education (21 percent); and stronger industry-specific guidance, especially for innovative apprenticeship programs (15 percent).²⁷

Underrepresented Young Adults: Over the last three years, YI has spoken with and surveyed 350 young adults from across Illinois to explore what they want from young adult-friendly apprenticeships. From this, we have learned that young adults hold important misconceptions that limit their interest in apprenticeships, with many believing that apprenticeships do not pay or do not result in a college degree.²⁸ YI also learned that current marketing efforts are failing to reach young adults by neglecting to use key messages that young people care about (including that apprenticeships pay) or not using communication channels young adults prefer (including social media or having peers lead in-person outreach).²⁹ Finally, YI found Illinois' youth apprenticeships will fail to serve young adults with barriers to employment unless the state provides wraparound supports, trains young people on professional and technical skills, trains employers on best practices in developing and mentoring young people, and leads a marketing campaign designed to reach these populations.³⁰

Representation Challenge: Not only is it difficult to put apprenticeships within reach of employers and young adults, it is particularly difficult to do so in a way that is equitable.

In Illinois, only four percent of registered apprentices are women and only 27 percent are people of color.³¹ However, people of color comprise of 39 percent of the total population for the state.³² Illinois' gender and racial disparities are worse than the national average, where 10 percent of registered apprentices are women³³ and 30 percent are people of color.³⁴ Women and people of color are not only less likely to enroll in apprenticeships, but also less likely to complete them. Over 47 percent of white apprentices complete their registered apprenticeships, while only 39 percent African American and 32 percent of Latinx apprentices complete the program.³⁵ When women and people of color do participate in apprenticeships, they are largely employed in positions with lower-than-average pay.³⁶

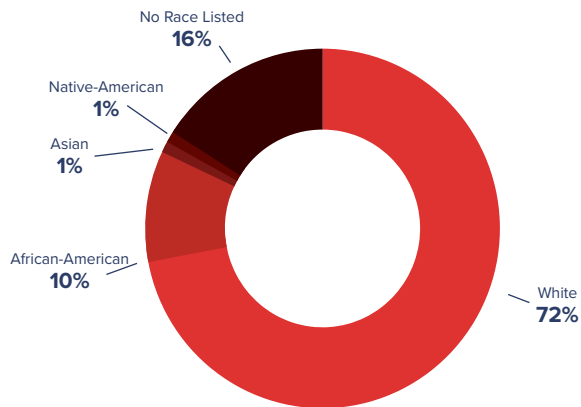
Illinois Apprenticeships by Gender, 2017



Source: The Registered Apprenticeship Partners Information Management Data System (RAPIDS)

In the highest paid RA positions, around eight percent of the apprentices are African American and 16 percent are Latinx, while in the lowest paid apprenticeships, 17 percent of apprentices are African American and 22 percent are Latinx.³⁷

Illinois Apprenticeships by Race, 2017



Source: The Registered Apprenticeship Partners Information Management Data System (RAPIDS)

Various factors contribute to the low participation rates and the higher dropout rates for women and people of color. First, recruitment methods often fail to reach and attract women and people of color. Male³⁸ and white-dominated fields often rely on word of mouth for recruitment, and this means people connected to current apprentices are the most likely to hear about the positions.³⁹ Furthermore, some programs fail to include images of women and people of color in marketing programs.⁴⁰ Second, women and people of color face discrimination in training or advancement opportunities and can face hostile workplaces.⁴¹ Hostile work environments can undermine their confidence and the training program as a whole, increasing the likelihood that

people of color and women drop out.⁴² Third, women and people of color are more likely to require wraparound supports (e.g. child care, transportation, or career counseling) to enroll in and complete the programs.⁴³

Some barriers are specific to women. Most apprenticeship programs appear in industries that are traditionally dominated by men (e.g. 84 percent of Illinois registered apprenticeships are in construction).⁴⁴ Yet, the issues go beyond this. Nearly 30 percent of manufacturing positions are held by women, yet only 10 percent of manufacturing apprentices are women.⁴⁵ Women may also face inappropriate facilities (e.g. no bathrooms for women) or equipment (e.g. gear designed only for men).

Unless Illinois addresses the variety of challenges that prevent women and people of color from entering and completing apprenticeship programs, apprenticeships will leave behind critical cross-sections of society.

ENVISIONING INCLUSIVE APPRENTICESHIPS

Apprenticeship programs are responding to this crisis by setting goals for reaching women and people of color, and by using a variety of strategies to reach and retain this diverse talent. For example, a sheet metal apprenticeship program in New York with three percent female apprentices in 2011 committed to hiring 20 percent women apprentices by 2020, and successfully reached 16 percent in the 2017 cohort.⁴⁶ This practice is used often in the building and construction trades through project labor agreements. For decades, the City of Boston has required that city-funded projects have 25 percent of workforce hours going to people of color and 10 percent to women.⁴⁷ Oregon has also set numeric targets for the gender and racial diversity of apprentices in the building trades. In 2014 - 2015, Oregon aimed to have 10 percent women (eight percent white women and two percent women of color) and 20.6 percent men of color.⁴⁸

Illinois Targets

Several state RA offices recommend that states move beyond making good-faith efforts and instead set concrete targets and monitor progress on those targets. They made this recommendation after finding that good faith efforts without accountability often fail.⁴⁹ Illinois should move from trailing the national average to becoming a leader in apprenticeship diversity in the next two decades. To do this, the state needs to set clear targets and use accountability measures that push continuous growth in women and people of color's participation in apprenticeships.

By reviewing the few systems-level examples of increasing gender and racial equity in apprenticeships, and reviewing market trends in Illinois, we can create a roadmap for Illinois. The systems-level success stories break into two categories: diversity driven by creating apprenticeships in fields that traditionally employ high numbers of women and people of color, and improving the inclusion rates of programs that historically underrepresented women and people of color.

As example of the first strategy, South Carolina went from ten percent to 33 percent participation for female apprentices in nine years, largely due to adding registered apprenticeships in the health care field.⁵⁰ Health care has the highest reach with female apprentices, with women holding over 95 percent of registered apprenticeships in the health care and social assistance field.⁵¹ As an example of the second strategy, Oregon increased gender diversity by two percent and racial diversity by eight percent in highway construction apprenticeships in a decade by improving recruitment methods, tracking discrimination on the job, and providing wraparound supports.⁵² Similarly, Massachusetts increased the number of female apprentices by 141 percent between 2012 and 2015 by tracking diversity and creating commissions that helped apprenticeship programs improve their inclusion practices.⁵³

Illinois should use this two-pronged approach to increase gender and racial diversity, developing apprenticeship programs in fields that employ large numbers of women and people of color, while also improving the diversity of fields in which women and people of color have been historically underrepresented. Both strategies are critical. The building trades have a significant reach in Illinois, meaning there are well-paying positions that women and people of color can benefit from now. To support this, Illinois should follow the lead of other states like Massachusetts and commit to having women hold 20 percent of construction apprenticeships in a decade.⁵⁴ By also creating apprenticeships in fields that already employ large numbers of women and people of color, Illinois can quickly hire diverse apprentices as those new apprenticeship programs are launched.

To determine key fields for gender and racial diversity, we reviewed the diversity of RA programs nationwide and identified fields that not only have above average representation of women and people of color but are also large fields in Illinois. Key fields for increasing gender diversity in Illinois are health care (71 percent of apprentices nationwide are women), retail trade (72 percent), warehousing (59 percent), and finance and insurance (47 percent).⁵⁵ With racial diversity, we do not see equitable representation in any sector (around 36 percent of working-aged adults are people of color).⁵⁶ Nonetheless, Illinois should focus on fields with above average rates of reaching people of color. These fields are health care (35 percent of apprentices are people of color), administrative support and waste management (31 percent), finance and insurance (29 percent), and public administration (28 percent).⁵⁷ Many of the fields that reach women and people of color pay less than average apprenticeship programs. This means Illinois must strike a balance in prioritizing fields that reach women and people of color but that also enable apprentices to increase their earning potential.

Consequently, YI recommends Illinois focus on the health care, finance and insurance, and public administration fields for apprenticeships. These fields have the potential to employ large numbers of women and people of color and are also large, growing, pay well, or have a high number of middle-skill positions. The health care and social assistance field employs more people in Illinois than any other sector (784,581) and added nearly 39,000 jobs between 2012 and 2017.⁵⁸ The finance and insurance field has the highest average monthly wage (\$9,219) and is the ninth largest sector (employing 292,000).⁵⁹ The public administration sector has the highest number of middle-skill positions (23 percent) and around average monthly

wages (\$5,000).⁶⁰ Because women and people of color disproportionately work in lower-paying apprenticeships,⁶¹ Illinois should only encourage growth in apprenticeship tracks with living wages.

Based on success in other systems and market trends in Illinois, YI recommends Illinois commit to reaching gender equity in 20 years and racial equity in ten years. This would result in women holding half of apprenticeship positions by 2039 and people of color holding a representative number of apprenticeship positions by 2029. Illinois can draw approximate parallels from successes in other systems. The South Carolina case study demonstrates that a 23 percent increase in female participation is possible in just nine years largely by adding health care positions.⁶² The Massachusetts case study illustrates that a 141 percent increase in female apprentices in the construction sector is possible in three years by tracking progress and creating commissions that guide programs' success.⁶³ Illinois is closer to racial equity than gender equity, with a 12 percentage point gap in participation between whites and people of color. The Oregon case study shows that an eight percent point increase in participation by people of color in the building trades is possible in ten years by tracking progress, evaluating discrimination on the job, and providing wraparound supports.⁶⁴ This commitment would equitably grow our economy and help fields facing a talent shortage secure the personnel they need.

Accountability Tools

While inclusion targets provide a critical benchmark for Illinois to work towards, the state must also use accountability and incentive measures to ensure the state meets its targets. Strategies used in other regions include continuous monitoring, creating inclusion committees, and providing incentives like tax credits for hiring underrepresented populations.

To enable accountability, Illinois should require all programs publicly release disaggregated data on who participates in apprenticeships at the state and program level and track discrimination at the worksite. In Massachusetts, contractors are required to release monthly reports on the number of hours women and people of color have worked.⁶⁵ The Oregon highway construction trades also tracks apprentices' perception of gender and racial discrimination on the job.⁶⁶

Illinois should also create implementation committees driving progress on large projects and on a sectoral basis. In Massachusetts, large construction projects with an impact on the community have committees consisting of community groups, contractors, unions, and underrepresented populations that are tasked with ensuring projects reach their inclusion goals and providing recommendations for improving diversity.⁶⁷ The committees are critical for tracking progress and ensuring timely, effective intervention.

Finally, Illinois should consider incentives or penalties to encourage diversity in apprenticeships. Incentives could include providing tax credits for apprenticeships for underserved populations. For example, New York has a two-tiered tax credit with a larger tax credit available to employers serving disadvantaged youth.⁶⁸ Illinois could also reserve state grants on apprenticeships for programs that have a track record of serving women and people of color. One trade organization has recommended penalizing programs that repeatedly fail to diversify their apprentices.⁶⁹ This should include withholding tax credits or grant opportunities from programs significantly failing to serve diverse populations. Illinois should withhold public funds as needed because it will ensure public resources are reserved for advancing Illinois' goals. Another option is issuing a fine, though this should be a last resort as it would also discourage employers from participating in apprenticeships altogether.

KEY STRATEGIES FOR EQUITABLE EXPANSION

This is a critical moment to identify equitable growth strategies that allow Illinois to reach its inclusion targets. Given the wide array of challenges that prevent employers from considering apprenticeships and programs from serving diverse populations, Illinois needs a multi-pronged approach to grow apprenticeships that reach women and people of color rapidly. In this section, YI outlines critical actions the legislature, agency administrators, employers, and educational systems should take to address the challenges that prevent employers from launching apprenticeship programs with broad reach, and that prevent young women and young people of color from participating.

Critical Legislative, Administrative, Private Sector, and Educational Actions

Legislature:

Drawing from successes in other states, the legislature could increase the number of apprenticeships by a total of 14,000 positions in ten years with a \$20 million annual budget. This budget should go towards apprenticeship consultants, a tax credit, and a barrier reduction fund. Most immediately, we recommend \$1 million for apprenticeship consultants. This strategy had swift, significant results in South Carolina⁷⁰ where the number of apprentices increased by 13,500 in 11 years.⁷¹

Apprenticeship Consultants

Apprenticeship consultants should provide employers with the information and support they need to sponsor an apprenticeship program. Consultants help employers identify the apprenticeship model that best meets their needs, ranging from youth apprenticeships to registered apprenticeships, or other work-based learning models. Once a company has decided to develop a program, the consultant walks businesses through the process and supports the employer in developing the necessary partnerships. This strategy has a high impact for a relatively low budget. South Carolina increased the number of apprenticeships programs ten-fold over 11 years⁷² with a \$1 million annual budget for apprenticeship consultants and a tax credit for employers.⁷³

Apprenticeship consultants should drive equity by enabling apprenticeship development in diverse sectors and encouraging programs in using best practices with recruiting and supporting women and people of color. YI recommends Illinois consultants prioritize developing apprenticeships in the health care, finance and insurance, and public administration fields, as these sectors traditionally employ a high number of women and people of color and provide growth opportunities.⁷⁴ Consultants should also train apprenticeship sponsors on best practices in supporting women and people of color. The trainings should address recruitment, hiring practices, providing adequate workplace facilities, data-driven evaluation and promotion practices, and creating inclusive workplaces that minimize instances of apprentices feeling isolated. With a \$1 million budget, Illinois could hire a team of at least five apprenticeship consultants who market apprenticeships and provide technical assistance.

Tax Credits

While apprenticeships require significant investment from employers to cover classroom and work-based learning expenses, apprentices' wages, and more, the Department of Labor has found apprenticeships can have a 40 to 50 percent internal return on investment.⁷⁵ Despite this, start-up costs remain a concern for employers and the price tag can prompt employers to decide apprenticeships are out of reach.⁷⁶ States have used tax credits and funding flexibility to address this challenge. For example,

Montana increased apprenticeships by 30 percent by creating a tax credit for employers hiring apprentices and aligning content taught in schools to the skills employers demand.⁷⁷

At least ten states provide employers tax credits for supporting apprenticeships with credits ranging from \$1,000⁷⁸ to up to \$7,000 per apprentice.⁷⁹ The tax credit or other employer subsidies may offset wages, tuition, or training costs.⁸⁰ Illinois should create a tax credit that not only encourages employers to launch apprenticeships, but also to reach underserved populations. YI recommends Illinois follow New York's lead in creating a two-tiered tax credit, at \$2,000 per apprentice employed per year and \$5,000 per apprentice from a disadvantaged background (e.g. disconnected, formerly in foster care, veteran, or living within 200 percent of the poverty line).⁸¹ The tax credit should go towards offsetting related instruction including tuition costs to encourage robust training and help employers offer apprenticeships that include a college education. With a budget of \$18 million, a two-tiered tax credit in Illinois could support over 5,000 apprenticeship positions.

Barrier Reduction Fund

Women and people of color are more likely to face barriers to employment. Being a single parent, the primary income earner for the family, or low-income can make it difficult to participate in an apprenticeship and overcoming these challenges requires additional supports. An apprenticeship program in Oregon designed to bring women into construction apprenticeships directly addresses financial barriers by covering childcare and transportation costs, providing supportive services (including job readiness supplies), and offering non-financial support (including counseling and mentoring).⁸² Oregon's funding comes from the U.S. Department of Transportation, which allows states to use one-half of one percent of federal transportation dollars on supportive services.⁸³ Over 72 percent of the female apprentices reported that the supports allowed them to take positions they could not otherwise accept, and apprentices receiving the financial supports completed the apprenticeship program at nearly double the rate of those who did not.⁸⁴ Illinois should create a barrier reduction fund like Oregon's with a budget of \$1 million, ensuring around 180 young adults each year have the ability to access and complete the apprenticeship programs.

Administrative Solutions:

In the last few years, Illinois workforce and education agencies have demonstrated their capacity to support apprenticeship expansion. Although Illinois has not created a new state funding source, agencies have leveraged existing state and federal resources for apprenticeships. The Illinois Department of Commerce and Economic Opportunity (DCEO) uses Workforce Innovation and Opportunity Act (WIOA) funds to support apprenticeship programs for youth with barriers to employment.⁸⁵ The agencies that support youth career pathways, including DCEO, the Illinois Community College Board, and the Illinois State Board of Education, have collaborated on creating new career pathway definitions to ensure all the agencies are approaching youth apprenticeships in the same manner.⁸⁶ YI recommends agencies build on this momentum by working together to create a pipeline for apprenticeship expansion that ensures growth in key sectors and provides employers the tools they need to create inclusive workplaces where apprentices who are women and people of color can succeed.

Aligned Apprenticeship Pipeline

Workforce development and education agencies can play a critical role in identifying sectors that are primed for apprenticeship development and creating complementary programming that creates a pipeline of apprentices. Several states have selected specific industries to target for apprenticeships, often using this strategy to expand apprenticeships' brand to industries beyond the building trades.⁸⁷ Illinois agencies should identify fields well-positioned to support diverse and equitable apprenticeship

growth and funnel resources into developing resources in these fields. A state vision on critical fields for diverse and equitable growth will not only send a clear message to those sectors that apprenticeships are an effective strategy for them, but will also allow Illinois to target resources effectively. Critical programming includes directing grants to programs reaching priority sectors, focusing employer outreach on top sectors, and developing state expertise in launching apprenticeships in those fields, including identifying aligned curriculum at the high school and college level.

Bridge Programming

Illinois must create articulation agreements between youth apprenticeships, registered apprenticeships, and other postsecondary options to support a seamless transition into programming that leads to a job. The state should also create pre-apprenticeship and youth apprenticeship programs to ensure women and people of color are ready to step into registered apprenticeships.

Illinois has a state definition for youth apprenticeships (available on page 4) and this ensures youth apprentices not only learn professional and interpersonal skills, but also specific occupational skills. The on-the-job experience also facilitates valuable career exploration that prepares young adults to understand their career options better. However, Illinois does not yet have a way for postsecondary options to recognize the skills gained in a youth apprenticeship. This means that as youth apprentices transition into registered apprenticeships, they may take classes or receive training that is unnecessary because they are re-learning skills they have already mastered in the youth apprenticeship.

Wisconsin addressed this by creating articulation agreements between specific youth apprenticeship programs and RA positions. The state is slowly “bridging” youth apprenticeship programs with RA programs, identifying highly related positions where a youth apprentice transitioning into a registered apprenticeship can test out of a year of instruction or receive credit for on-the-job training.⁸⁸ For example, a carpentry youth apprentice enrolling in a carpentry RA program can receive credit for 75 to 100 percent of the on-the-job hours they worked as a youth apprentice.⁸⁹ With RA programs requiring over 5,000 hours of on-the-job training,⁹⁰ this puts the youth apprentice significantly closer to completing the RA program, and recognizes the skills they have already mastered. Articulation agreements will encourage young adults to transfer into related programming that results in employment, and will help young adults get to the full-employment phase as quickly as possible.

Organizations like the Chicago Women in Trades have also found it critical to create a pipeline of talent prepared to step into positions through pre-apprenticeships.⁹¹ Pre-apprenticeships and youth apprenticeships can allow women and people of color to determine whether a field is a good fit and gain the skills they need to succeed. Without a focus also on training people, sectors like construction that has historically hired few women and people of color will have a small pool to recruit from. Employers will continue finding that women and people of color are either disinterested in the field due to misconceptions or not prepared due to limited training.

Inclusive Worksites

Illinois will not reach its inclusion targets unless the building and construction trades, which currently represent 84 percent of Illinois’ registered apprenticeships and have traditionally hired mostly white males, attract and retain more women and people of color.⁹² States have addressed this by training apprenticeship programs on best practices in mentoring apprentices and by providing apprentices wraparound supports.

YI has found in previous research and recent focus groups that mentors play a critical role in not only developing apprentices' professional and technical skills, but in also reassuring apprentices who may otherwise feel isolated that they have a point of contact they can rely on.⁹³ Maryland and Wisconsin have developed guides for worksite mentors,⁹⁴ and Wisconsin provides webinar trainings for mentors.⁹⁵ Harper College in Illinois requires employer mentors go through a four-part training.⁹⁶ Illinois should build from these examples, providing a training at least once a year for work-site mentors to ensure they not only are well-equipped to develop apprentices' skills, but are also made aware of best practices in preventing bias from impacting their mentorship work.

Illinois should also use public resources to encourage apprenticeship programs to provide the wraparound supports YI has found critical for young adults from under-resourced communities receive to enroll in and complete apprenticeships. Based on feedback from young adults and service providers, YI recommends grant funding prioritize supporting programs that provide services such as childcare, transportation, and worksite gear and accommodations such as staggering the workplace schedule to complement child care needs.⁹⁷

Employer Solutions:

Apprenticeships are an employer-driven model. Employers turn to apprenticeships when they need to meet their workforce needs. Given the critical role employers play in apprenticeships, the private sector should also commit to creating a diverse talent pool by marketing positions to women and people of color. Industry intermediaries can support recruitment efforts and create spaces for peer support for people who face isolation on the job or struggle to secure equitable training and advancement opportunities.

Recruitment

There is extensive research on best practices in leading marketing campaigns that resonate with women and people of color. Chicago Women in Trades has found a range of key practices, including conducting in-person outreach,⁹⁸ using diverse images (including pictures of women and people of color), and language (noting that you are looking for women and people of color).⁹⁹ If the sector is non-traditional or commonly misunderstood, employers should create opportunities for the general population to learn about the field. For example, the Manufacturing Renaissance has a manufacturing pre-apprenticeship program on the South Side of Chicago. Several young women at the high school reported being interested in the program only after they toured the company and saw firsthand the nature of manufacturing work.¹⁰⁰ Similarly, one union developed a workshop designed to introduce African Americans to the electrical trades.¹⁰¹ The workshop flyers targeted either African-American men or women, and included images and language that reflected the target audiences and highlighted the field's high pay.¹⁰² They distributed flyers to African-American community institutions like churches.¹⁰³ During the workshop, participants did a simple wiring exercise, allowing them to experiment with the basic concepts that electricians work with.¹⁰⁴ This workshop series increased the apprenticeship program's diversity, with women now holding 13 percent of apprenticeship positions and people of color holding 22 percent of positions.¹⁰⁵

Peer Support Groups

Peer support groups are a powerful tool for supporting apprentices in building a community. Peer support groups meet throughout the year, creating a space for people to network with others with a similar identity. A peer network can build apprentices' confidence on the job and provide a space for them to troubleshoot workplace challenges with people they

trust and that may have experienced similar challenges.¹⁰⁶ While individual employers may struggle to provide this, industry intermediaries who support several employers (e.g. Chicago Women in Trades or a Chamber of Commerce) should provide this service to support the field.

Example from the Field: Education Partnerships

Youth Apprenticeship in a High School¹⁰⁸

thyssenkrupp offers a two-year manufacturing youth apprenticeship to high school students in central Illinois. Students receive dual credit for courses taken at the community college, with tuition covered by a grant. Apprentices are considered employees and paid for the time they are on the job. thyssenkrupp starts recruitment in the sophomore year with current apprentices leading the outreach by making announcements in classrooms. Worksite supervisors work closely with teachers and counselors to ensure that apprentices' grades are on track and that apprentices receive the supports they need to complete the program. At the end of the youth apprenticeship, apprentices receive an industry-recognized certificate (National Incident Management System).

Education Systems:

High schools and colleges have a responsibility and unique ability to guide students towards the best education and workforce options available. However, the U.S. currently lacks a systemic approach like that in other countries that provides pathways to apprenticeships and vocational training to young students.¹⁰⁷ Long stuck in a narrative that apprenticeships are from another era, we must shift to making apprenticeships another clear route to postsecondary education and long-term financial security. In the same way that schools track metrics towards graduation, guide students through college applications, and facilitate post-secondary testing processes, schools can also act as connectors and facilitators of apprenticeship opportunities. Integrating education systems that reach diverse student bodies into apprenticeships can help drive equitable representation in apprenticeships by ensuring that young adults from a wide range of communities and demographics are exposed to apprenticeship pathways.

Female students and students of color exposed to youth apprenticeships or pre-apprenticeships will have the benefit of exposure to industry culture, completing some entry-level coursework for postsecondary apprenticeship programs, and gaining competitive skills for future career opportunities.¹⁰⁹

Connectors and Intermediaries

High schools and colleges should make apprenticeships an additional option for students, and education systems can facilitate making these programs available at both the high school and college level. In order to better incorporate apprenticeships into the dialogue about options for students, schools should act as intermediaries to apprenticeship paths, making it easy for employers to launch apprenticeships and for students to access them.

On the student side, schools can drive employer outreach, adjust schedules to balance apprenticeship and academic responsibilities, provide dual credit that allows students to work toward a degree, and act as a case manager and advocate for student success. For employers, schools can drive outreach, recruit participants, recognize skills learned through course credit, manage registration with the Department of Labor, and coordinate with community colleges.

Examples from the Field: Education Systems Acting as Intermediaries

District 214¹¹⁰

District 214, the second-largest school district in Illinois, offers opportunities to all students to participate in work-based learning opportunities before they graduate from high school. The district also offers industry-recognized credentials or certifications and early college credit. The school district acts as an intermediary with nearly 950 employers supporting this program. Key positions are job placement specialists who develop employer partnerships, career advisors who help students choose a career, and on-site job coaches who meet students' individual needs. In the next academic year, District 214 is launching RA programs in automotive maintenance, manufacturing, HVAC maintenance, cybersecurity, information technology, and education where students will receive dual credit for the classroom instruction.

Harper Community College¹¹¹

Harper Community College offers eight RA programs in traditional and non-traditional fields, including banking and finance, graphic arts, and industrial maintenance mechanic. Harper Community College is the apprenticeship sponsor that acts as an intermediary, linking employers and potential apprentices and completing all paperwork required by the Department of Labor Office of Apprenticeship. Harper recruits employers, identifies relevant curriculum, offers support with recruiting apprentices by identifying students appropriate for the program, and trains worksite mentors. They also support apprentices, providing them an academic coach who meets with students regularly.

Provide Wraparound Supports that Help Students Complete Programs

High schools and colleges should support students to enter and complete apprenticeship tracks that reflect their interests and financial goals by providing students with the resources they need. Through our research with hundreds of young adults across Illinois, YI has learned that wraparound supports are critical for young adults' success, particularly for young adults with barriers to success.¹¹² While the state should support wraparound funds through a barrier reduction fund, education systems are also particularly well-positioned to integrate this into their apprenticeship programming given the supportive services they have in-house.

These supports can work to mitigate daily challenges that disproportionately affect low-income families including securing transportation support, childcare, and professional clothing. Resources should also address the mental health and social needs of young people, including providing case managers who act as advocates for young people on job sites and provide a safe space for young people to speak freely about circumstances that might affect their success (e.g. pregnancy or financial hardships). These case managers can function as course correctors on both the academic and employment sides, flagging when students are struggling. This will minimize the risk of dropping out. Finally, these services can serve as a baseline to develop a community amongst apprentices to foster peer-to-peer support systems, provide for mentorship opportunities, and create a more welcoming environment for women and minorities in traditionally white and male trades.

Example from the Field: Supportive Services

Harold Washington College, One Million Degrees, & Aon¹¹³

Harold Washington College and One Million Degrees (OMD) have partnered with Aon for a registered apprenticeship program in insurance, technology, and human resources that reaches over 20 apprentices a year. Harold Washington provides classroom instruction and provides weekly professional development. Aon partners with OMD to provide monthly trainings on professional skills, financial literacy, and leadership. OMD also meets weekly with students individually to provide personalized support on apprentices' challenges with the curriculum, on-the-job training, or their personal life. Additionally, apprentices in their second year mentor apprentices in their first year. This structure allows apprentices to develop soft, professional, and technical skills while building community with their peers.

OAI, Inc.¹¹⁴

OAI, Inc. offers pre-apprenticeship training programs to in-school and out-of-school youth.

OAI partners with Rich Township High School to provide a manufacturing training program to seniors with individualized education programs or who have been assigned to the district's alternative school due to disciplinary issues. These students are highly likely to drop out or graduate with limited employment opportunities. The program connects participants to a social worker at school who provides daily support on personal challenges and academics. They also receive an industry certification. The personal and professional development significantly increases the young adults' employability.

The relationship between high school and college education systems and career paths is clear, and schools are interested in providing alternative post-secondary options to better meet student goals and needs to fulfill the workforce needs of tomorrow. The value of apprenticeships as a direct pathway to a career for students who see their talents suited to on-the-job learning – and increasing participation in apprenticeships by women and young people of color – is also clear. What remains is a shift in the perception of the role schools play in preparing students of all backgrounds for the workforce, and a commitment to providing the funding necessary to help schools reach their potential as incubators of long term student workforce success.

CONCLUSION

Illinois is at a crossroads. We are becoming a leader in apprenticeships as the state articulates their vision and plan for reaching scale. Yet, Illinois has failed to reach women and people of color, meaning this pathway with long-term financial benefits is leaving populations behind. Illinois can do better, and should aim to reach racial equity in a decade and gender equity in two decades. Illinois must first become laser-focused on these targets, tracking the state's progress, and developing apprenticeships in fields that pay well and traditionally reach women and people of color, while simultaneously improving apprenticeship diversity in the building and construction trades. The legislature, agencies, employers, and education systems can support inclusion targets with each player taking two to three key actions. Fortunately, equity does not come at the expense of growth, with strategies that drive growth also spurring greater inclusion. This equitable growth will create a significant win for Illinois, building greater growth in our economy by reaching young adults who have been put on the sidelines for decades and enabling them to reach their potential in exciting fields.

APPENDIX

YI greatly appreciates the opportunity to speak with the following parties.

Industry Associations

German American Chamber
AHIMA Foundation
Illinois Manufacturers Association
CompTIA
Associated Builders & Contractors, Illinois
World Business Chicago

Youth Apprenticeship Pilot Programs

Manufacturing Renaissance
Phalanx Family Services
YouthBuild Mclean
OAI, Inc.

Employers

Thyssenkrupp
Schneider Trucking Association
Four ICATT Companies, including Scot Forge & Wieland Companies

State Systems

Wisconsin Department of Workforce Development
Pennsylvania Department of Labor and Industry

Workforce Intermediaries

United Way, Metropolitan Chicago
Chicago Women in Trades

Education Systems

Illinois State Board of Education
Illinois Community College Board
Harper Community College
Harold Washington College
District 214

Other

Department of Rehabilitative Services, Illinois Department of Human Services,
Illinois Department of Commerce and Economic Opportunity
Illinois Workforce Innovation Board Apprenticeship Committee, which includes
education and workforce development agencies, employers,
industry associations, foundations, and non-profits.

END NOTES

1. “Youth Unemployment Rate, Figures by State.” *Governing Magazine: State and Local Government News for America’s Leaders*. Accessed June 15, 2018.
2. Benjamin Yount. “Illinois’ Minority, Youth Unemployment among Highest in U.S.” *Illinois News Network*. May 25, 2017. Accessed June 15, 2018.
3. Alexia Elejalde-Ruiz. “Report Says Youth Unemployment Chronic, Concentrated and Deeply Rooted.” *Chicago Tribune*. January 30, 2017. Accessed June 15, 2018. <http://www.chicagotribune.com/business/ct-youth-unemployment-data-0129-biz-20170127-story.html>
4. “Illinois’ Forgotten Middle. Middle- Skill Jobs State by State.” *National Skills Coalition*. Accessed June 15, 2018.
5. “Making ApprenticeshipUSA Work for the Public Workforce System: Performance Outcomes.” *Department of Labor*. Accessed June 15, 2018.
6. “About the Governor’s Cabinet on Children and Youth (Children’s Cabinet).” *Governor’s Cabinet on Children and Youth*. Accessed June 15, 2018.
7. “ApprenticeshipUSA State Expansion Grant Summaries.” *Department of Labor*. Accessed June 15, 2018.
8. Mike DeBonis, Ed O’Keefe, and Erica Werner. “Here’s what Congress is stuffing into its \$1.3 trillion spending bill.” *Washington Post*. March 22, 2018. https://www.washingtonpost.com/news/powerpost/wp/2018/03/22/heres-what-congress-is-stuffing-into-its-1-3-trillion-spending-bill/?noredirect=on&utm_term=.bae4624bd975
9. “ApprenticeshipUSA State Expansion Grant Summaries.” *Department of Labor*. Accessed June 15, 2018.
10. Hande Inanc, Karen Needels, and Jillian Berk. “Gender Segregation in Training Programs and the Wage Gap.” *Mathematica Policy Research*. 2. October 30, 2017.
11. Debbie Reed, Albert Yung-Hsu Liu, Rebecca Kleinman, Annalisa Mastri, Davin Reed, Samina Sattar, Jessica Ziegler. “An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States.” *Mathematica Policy Research*. 17. July 25, 2012.
12. “Apprenticeship: A Strategy to a Career Pathway.” *ApprenticeshipPlus*. Accessed June 15, 2018. <https://www.illinoisworknet.com/ApprenticeshipPlus>
13. “Illinois State Definitional Framework for Career Pathways.” *Project of the Governor’s*
14. Brent Parton. “Youth Apprenticeship in America Today.” *New America*. 13. December 2017.
15. Illinois State Definitional Framework for Career Pathways.” *Project of the Governor’s*
16. Lisa Bertagnoli. “Not just for trades: Aon wants other white-collar firms to adopt its apprenticeship program.” *Crain’s Chicago Business*. September 18, 2017.
17. Alexia Elejalde-Ruiz. “Apprenticeship Programs Enjoy New Life As A Workplace Solution.” *Chicago Tribune*. October 26, 2017. <http://www.chicagotribune.com/business/ct-biz-apprenticeship-expansion-1029-story.html>
18. “Available Apprenticeships.” *Harper College*. Accessed June 15, 2018. <http://www.harperapprenticeships.org/available-apprenticeships/>
19. Alexia Elejalde-Ruiz. “Apprenticeship Programs Enjoy New Life As A Workplace Solution.” *Chicago Tribune*. October 26, 2017. <http://www.chicagotribune.com/business/ct-biz-apprenticeship-expansion-1029-story.html>
20. Jacquelyn Reineke. “DCEO Announces Apprenticeship PLUS Program Pilot Locations.” *Illinois Department of Commerce and Economic Opportunity*. July 27, 2017. <https://www.illinois.gov/dceo/Media/PressReleases/Pages/PR20170727.aspx>
21. “Mayor Emanuel Announces New Initiative to Build Careers for Chicago Youth.” *Skills for Chicagoland’s Future*. <https://www.skillsforchicagolandfuture.com/news/mayor-emanuel-announces-new-initiative-to-build-careers-for-chicago-youth/>
22. “Data and Statistics.” *United States Department of Labor*. Accessed June 15, 2018. https://doleta.gov/oa/data_statistics.cfm
23. YI analysis of 2017 RAPIDS data: “Data and Statistics.” *United States Department of Labor*. Accessed June 18, 2018. https://doleta.gov/oa/data_statistics.cfm
24. YI analysis of U.S. Department of Labor 2017 RAPIDS data
25. “Registered Apprenticeships: A Guide for Business Services Representatives.” *United States Department of Labor*. 6 - 9. <https://www.dol.gov/apprenticeship/docs/guide-for-bsr.pdf>
26. John Colborn and Nneka Jenkins. “Recasting American Apprenticeship: A Summary of the Barriers to Apprenticeship Expansion Research Project.” *Aspen Institute*. 5. November 2015. <http://www.aecf.org/m//resourcedoc/AI-RecastingAmericanApprenticeship-2015.pdf>
27. Ibid, 21.
28. Eve Rips. “From Medieval to Millennial: Building & Marketing Modern, Youth-Oriented Apprenticeship.” *Young Invincibles*. 10 - 11. August 2016.
29. Ibid, 15 - 16.
30. Erin Steva. “Making Youth Apprenticeships Work for Illinois Young Adults.” *Young Invincibles*. 11. July 2017. http://younginvincibles.org/wp-content/uploads/2017/07/YI-Apprenticeships-Report_final.pdf
31. YI analysis of U.S. Department of Labor 2017 RAPIDS data and 39 percent of the Illinois population are people of color “Quick Facts Illinois.” *United States Census Bureau*. Accessed June 18, 2018. <https://www.census.gov/quickfacts/IL>
32. “Gender Segregation in Training Programs and the Wage Gap.” 2.
33. Quick Facts Illinois.” *United States Census Bureau*. Accessed June 18, 2018. <https://www.census.gov/quickfacts/IL>
34. “An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States.” 17.
35. “29 CFR Parts 29 and 30 RIN 1205–AB59 Apprenticeship Programs; Equal Employment Opportunity.” *Department of Labor*. 8. December 19,

- 2016.
36. Ibid, 3, 7.
37. Ibid, 7-8
38. “Gender Segregation in Training Programs and the Wage Gap.” 3.
39. “29 CFR Parts 29 and 30 Apprenticeship Programs; Equal Employment Opportunity; Proposed Rules.” 8.
40. Interview with Chicago Women in Trades, March 5, 2018.
41. “An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States.” xx.
42. <https://www.gpo.gov/fdsys/pkg/FR-2016-12-19/pdf/2016-29910.pdf>
43. Matt Helmer and Dave Alstadt. “Apprenticeship Completion and Cancellation in the Building Trades.” Aspen Institute and Workforce Strategies Initiative. 2013. 37 - 39. http://www.aspenwsi.org/wordpress/wp-content/uploads/aspenn_apprenticeship.pdf
44. Ibid. YI analysis of RAPIDS data
45. “29 CFR Parts 29 and 30 Apprenticeship Programs; Equal Employment Opportunity; Proposed Rules.” Department of Labor. Federal Register Vol. 80 No. 215. 6. November 6, 2015. <https://www.gpo.gov/fdsys/pkg/FR-2015-11-06/pdf/2015-27316.pdf>
46. “Forging Gender Equity in the Sheet Metal Workers Local 28: The Importance of Leadership, Goals, and Regular Review.” Chicago Women in Trades. 1. Accessed May 10, 2018.
47. Courtney Hutchinson. “These Boston Apprenticeships Are Pushing the Economy Toward Equity.” Next City. June 28, 2017.
48. Lindsey Wilkinson and Maura Kelly. “(Still) Building A More Diverse Workforce in the Highway Trades: 2016 Evaluation of the ODOT/BOLI Highway Construction Workforce Development Program.” Portland State University. 22. October 2016. <http://www.oregon.gov/boli/siteassets/pages/press/still%20building%20a%20more%20diverse%20skilled%20workforce%20in%20the%20highway%20trades.pdf>
49. “An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States.” 55.
50. Daniel Kuehn. “Diversity and Inclusion in Apprenticeship Expansion Lessons from South Carolina.” Urban Institute. 4 - 6. October 2017. <https://www.urban.org/sites/default/files/publication/93831/diversity-and-inclusion-in-apprenticeship-expansion.pdf>
51. “29 CFR Parts 29 and 30 Apprenticeship Programs; Equal Employment Opportunity; Proposed Rules.” 6. <https://www.gpo.gov/fdsys/pkg/FR-2015-11-06/pdf/2015-27316.pdf>
52. “(Still) Building A More Diverse Workforce in the Highway Trades: 2016 Evaluation of the ODOT/BOLI Highway Construction Workforce Development Program.” vi
53. Erin Johansson and Benjamin Woods. “Building Career Opportunities for Women and People of Color:
54. <https://buildalifema.org/about-the-program/>
55. “29 CFR Parts 29 and 30 Apprenticeship Programs; Equal Employment Opportunity; Proposed Rules.” Federal Register Vol. 81, No. 243. 4. <https://www.gpo.gov/fdsys/pkg/FR-2016-12-19/pdf/2016-29910.pdf>
56. Crosby Burns, Kimberly Barton, and Sophia Kerby. “The State of Diversity in Today’s Workforce.” Center for American Progress. July 12, 2012. <https://www.americanprogress.org/issues/economy/reports/2012/07/12/11938/the-state-of-diversity-in-todays-workforce/>
57. “29 CFR Parts 29 and 30 Apprenticeship Programs; Equal Employment Opportunity; Proposed Rules.” 6. <https://www.gpo.gov/fdsys/pkg/FR-2016-12-19/pdf/2016-29910.pdf>
58. YI Analysis of NAICS 2012 and 2017 data
59. YI Analysis of NAICS 2012 and 2017 data
60. YI Analysis of NAICS 2012 and 2017 data
61. Angela Hanks. “Apprenticeship Programs Are Leaving Out Women and People of Color. Here’s How to Fix That.” Talk Poverty. August 30, 2016. <https://talkpoverty.org/2016/08/30/apprenticeship-programs-leaving-women-people-color-heres-fix/>
62. Daniel Kuehn. “Diversity and Inclusion in Apprenticeship Expansion Lessons from South Carolina.” Urban Institute. 4. October 2017. <https://www.urban.org/sites/default/files/publication/93831/diversity-and-inclusion-in-apprenticeship-expansion.pdf>
63. “Building Career Opportunities for Women and People of Color: Breakthroughs in Construction.” 22 - 25. http://www.jwj.org/wp-content/uploads/2016/12/JWJEDU_NABTU_Report_2016_OnlineVersion_small.pdf
64. “(Still) Building A More Diverse Workforce in the Highway Trades: 2016 Evaluation of the ODOT/BOLI Highway Construction Workforce Development Program.” vi <http://www.oregon.gov/boli/siteassets/pages/press/still%20building%20a%20more%20diverse%20skilled%20workforce%20in%20the%20highway%20trades.pdf>
65. “Massachusetts’ Supply & Demand Strategy: A Successful Model For Increasing Gender Diversity in the Trades.” Chicago Women in Trades. 5. Accessed June 5, 2018.
66. “(Still) Building A More Diverse Workforce in the Highway Trades: 2016 Evaluation of the ODOT/BOLI Highway Construction Workforce Development Program.” vii. <http://www.oregon.gov/boli/siteassets/pages/press/still%20building%20a%20more%20diverse%20skilled%20workforce%20in%20the%20highway%20trades.pdf>
67. “Massachusetts’ Supply & Demand Strategy: A Successful Model For Increasing Gender Diversity in the Trades.” 6. http://womensequitycenter.org/wp-content/uploads/2017/10/BIP-Equity-Best-Practice_revision2.pdf
68. “Empire State Apprenticeship Tax Credit Program.” New York State Department of Labor. 1. Accessed June 12, 2018. <https://labor.ny.gov/>

apprenticeship/pdfs/ESATC-Factsheet.pdf

69. "Finishing the Job: Best Practices for a Diverse Workforce in the Construction Industry." Policy Group on Tradeswomen Issues. 24. July 20, 2016. <https://pgtiblog.files.wordpress.com/2016/07/ftj-v-6-1.pdf>
70. Joseph Parilla, Jesus Leal Trujillo, and Alan Berube. "Skills and Innovation Strategies to Strengthen U.S. Manufacturing Lessons from Germany." Brookings Institution. 25. Accessed June 17, 2018.
71. "By the Numbers." Apprenticeship Carolina SC Technical College System. Accessed June 5, 2018.
72. Ibid.
73. "Skills and Innovation Strategies to Strengthen U.S. Manufacturing Lessons from Germany." 25. <https://www.brookings.edu/wp-content/uploads/2016/06/LessonsFromGermany.pdf>
74. "29 CFR Parts 29 and 30 Apprenticeship Programs; Equal Employment Opportunity; Proposed Rules." 4 and 6. <https://www.gpo.gov/fdsys/pkg/FR-2016-12-19/pdf/2016-29910.pdf>
75. "The Benefits and Costs of Apprenticeships: A Business Perspective." United States Department of Commerce. November 16, 2016. <http://www.esa.doc.gov/reports/benefits-and-costs-apprenticeships-business-perspective>
76. "Recasting American Apprenticeship: A Summary of the Barriers to Apprenticeship Expansion Research Project." 5.
77. "States Equip Employers to Drive Apprenticeship."
78. Bryan Wilson and Sapna Mehta. "Work-Based Learning Policy: 50 State Scan." National Skills Coalition. 7 and 9. April 2017. <https://www.nationalskillscoalition.org/resources/publications/file/WBL-Learning-Policy-50-State-Scan.pdf>
79. "Empire State Apprenticeship Tax Credit Program." 1.
80. "Work-Based Learning Policy: 50 State Scan." 5, 10, and 18.
81. "Empire State Apprenticeship Tax Credit Program." 1.
82. "(Still) Building A More Diverse Workforce in the Highway Trades: 2016 Evaluation of the ODOT/BOLI Highway Construction Workforce Development Program." 2 - 3.
83. "Title 23: United States Code." Federal Highway Administration. 115. Accessed June 18, 2018.
84. "Increasing Diversity in Oregon's Heavy Highway Construction Workforce." 23 - 24.
85. "Agency Specific Content for the Notice of Funding Opportunity #75-186 2017 WIOA Youth Career Pathways." Illinois Department of Commerce & Economic Opportunity. 1. Accessed June 18, 2018. <https://www.illinoisworknet.com/WIOA/programs/Documents/NOFO%2075-186%20Supplement%20-%202017%20Youth%20Career%20Pathways.pdf>
86. "Illinois State Definitional Framework for Career Pathways." 5, 7, and 10.
87. South Carolina prioritizes seven industries including energy, health care, advanced manufacturing and tourism. Colorado is focusing on business operations, financial services, advanced manufacturing, IT, and health care.
88. Bridging Youth to Registered Apprenticeship." State of Wisconsin Department of Workforce Development. Accessed June 18, 2018. https://dwd.wisconsin.gov/youthapprenticeship/bridging_apprenticeship.htm
89. Ibid.
90. National Guidelines for Apprenticeship Standards." United Brotherhood of Carpenters and Joiners of America. 20. Accessed June 18, 2018. <https://www.doleta.gov/OA/bul05/Bulletin%202005-23-att.pdf>
91. "Massachusetts' Supply & Demand Strategy: A Successful Model For Increasing Gender Diversity in the Trades." 1.
92. YI analysis of U.S. Department of Labor 2017 RAPIDS data
93. "Making Youth Apprenticeships Work for Illinois' Young Adults." 12.
94. "Youth Apprenticeship Advisory Committee Annual Report 2016." Maryland Department of Labor, Licensing & Regulation. 18. Accessed June 18, 2018. <https://www.dllr.state.md.us/employment/appr/youthapprannrep2016.pdf>
95. "Youth Apprenticeship Core Skills & Safety Online Modules." State of Wisconsin Department of Workforce Development. Accessed June 18, 2018. https://dwd.wisconsin.gov/youthapprenticeship/training/skills_safety.htm
96. William Rainey. "Train the Trainer." Harper College. 1. Accessed June 18, 2018. http://www.harperapprenticeships.org/wp-content/uploads/TTT-Manual_-2.2018.pdf
97. "Making Youth Apprenticeships Work for Illinois' Young Adults." 11.
98. "Women's Committees: A Key to Recruiting and Retaining Women Apprentices." Chicago Women in Trades. 3. Accessed June 18, 2018. http://womensequitycenter.org/wp-content/uploads/2017/10/Womens-Committees-Best-Practice_revision1.pdf
99. "Registered Apprenticeship Equity Survey." Chicago Women in Trades and National Center for Women's Equity in Apprenticeship and Employment. Accessed June 19, 2018.
100. Young Invincibles Interview with Manufacturing Renaissance Program Participants on December 2017
101. "Wire a Light: A Workshop Designed to Increase Apprentice Diversity." Chicago Women in Trades. 1. Accessed June 18, 2018.
102. Ibid, 1 - 2
103. Ibid, 2
104. Ibid, page 2

105. Ibid, page 2

106. “Women’s Committees: A Key to Recruiting and Retaining Women Apprentices.” 6.

107. Clio Chang, “The Case for Expanding Youth Apprenticeships,” The Century Foundation, January 11, 2016, <https://tcf.org/content/commentary/the-case-for-expanding-youth-apprenticeships/>

108. Kagan Institute “Should I do a Pre-Apprenticeship Before an Apprenticeship?” Accessed, May 31, 2018, <https://www.kangan.edu.au/students/blog/preapprenticeship-before-an-apprenticeship>

109. “thyssennkrupp Youth Apprenticeship Program.” thyssennkrupp. 3, 6 - 7, 14 - 15. Accessed June 18, 2018. https://www.illinoisworknet.com/ApprenticeshipPlus/Documents/Apprenticeships_thyssennkrupp%20Presta%20Danville,%20LLC.pdf

110. Young Invincibles Interview with Dan Weidner, District 214’s Director of Academic Programs and Pathways on March 23, 2018.

111. Young Invincibles Interview with Dr. Rebecca Lake, Harper Community College Dean of Workforce and Economic Development. April 3, 2018.

112. “Making Youth Apprenticeships Work for Illinois Young Adults.” 11 - 12.

113. Young Invincibles Interview with Liz Jones, Senior Career Advancement Coordinator, at One Million Degrees April 5, 2018 and Paul Thompson, Director of Apprenticeship and Workforce Solutions at City Colleges of Chicago February 21, 2018.

114. Interview with Don Brozeck, MakerLab Program Manager at OAI February 12, 2018