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THE UNION ADVANTAGE DURING THE CONSTRUCTION LABOR SHORTAGE

Evidence from Surveys of Associated General
Contractors of America Member Firms

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Executive Summary

The United States is currently facing a tight labor market, and the construction industry has not been immune to its effects. Contractors have turned down work and suffered project delays due to workforce supply issues, which may stem from workers' desire for high-quality jobs. At the same time, demand for construction workers is expected to rise as federal funds from the \$1.2 trillion bipartisan Infrastructure Investment and Jobs Act are used to rebuild America over the next eight years.

An analysis of four years of survey data from the Associated General Contractors of America (AGC)—which includes responses from 1,768 union contractors and 3,893 nonunion contractors—reveals that the roots of the construction labor shortage were planted long ago.

According to actual surveys of construction contractors, the skilled labor shortage is much less severe in the union segment of the industry.

- Union contractors are 21 percent less likely to experience delays in project completion times due to shortages of workers compared to nonunion contractors.
- Union contractors are 14 percent less likely to experience difficulty in filling craft worker positions.
- Union contractors have been 8 percent more likely to add workers over the past year, indicating a stronger ability to staff up and recruit new workers even in a tight labor market.
- Meanwhile, supply-chain issues have affected the entire industry, with materials shortages and delivery delays affecting both union and nonunion contractors at statistically equal rates.

Pre-pandemic survey results provide clues on the labor market competitiveness of union and nonunion contractors.

- Nonunion firms' greater difficulty in filling craft worker positions has been a persistent problem that preceded the COVID-19 pandemic.
- Nonunion contractors were 27 percent more likely to report that their local pipeline for supplying well-trained craft workers was "poor" compared to their union peers.
- Union contractors were 13 percent less likely to be losing their workers to other industries.
- Union contractors were more diverse—as examples, they were 10 percent more likely to employ Black and African American workers and 8 percent more likely to employ military veterans.

Research has shown that, because they invest in job quality and apprenticeship programs, union contractors are better able to attract, develop, and retain skilled construction workers.

- On average, union construction workers earn 46 percent higher incomes, are 6 percent less likely to live in poverty, are 34 percent more likely to have private health insurance coverage, and are 6 percent less likely to rely on Medicaid.
- Union contractors jointly operate registered apprenticeship training programs that require 30 percent more hours of training than bachelor's degrees, have higher completion rates, and deliver competitive earnings on par with other types of workers with college degrees.
- On average, union worksites have 34 percent fewer health and safety violations and fewer on-the-job fatalities when compared to their nonunion peers.

To better compete in the labor market, construction firms in need of craft workers could become union contractors to access readily-available pools of skilled workers in search of high-quality jobs. This would ensure robust expansion of registered apprenticeship programs, apprenticeship readiness programs, and pre-apprenticeship programs. Lawmakers and policymakers could consider enacting and strengthening prevailing wage laws, project labor agreements, responsible bidder ordinances, and affordable childcare and paid sick leave policies that institutionalize competitive labor market practices in the construction industry.

Table of Contents

Executive Summary	i
Table of Contents	ii
About the Authors	ii
Introduction	1
Labor Market Differences Between the Union and Nonunion Segments in Construction	2
Analysis of Recent Workforce Surveys by the Associated General Contractors	3
Potential Recommendations to Address Skilled Labor Shortages in Construction	8
Conclusion	11
Sources	12
Cover Photo Credits	15

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Introduction

The United States is currently facing a significant labor shortage. While employers' demand for workers has returned to pre-pandemic levels, the number of people in the labor force has not yet fully recovered (Fowers & Van Dam, 2021). The drop in workers has been driven by an array of factors, including the 2.4 million excess worker retirements due to COVID-19, the 460,000 families still without child care who have been forced to reduce their hours, a 1.4 million drop in foreign-born immigration to the United States in 2020 and 2021 compared with 2018 and 2019, the 1.1 million workers suffering from long-term COVID-19 symptoms, and the 1 million COVID-19-related deaths—of whom more than 250,000 were between the working ages of 18 and 64 years old (Faria e Castro, 2021; Furst, 2022; Dickson et al., 2021; Schacter et al., 2021; Bach, 2022; CDC, 2022).

Labor market competitiveness has become the number one issue for businesses. In 2021, more than 47 million workers quit their jobs, often seeking higher-quality jobs with better pay, improved work environments, safer workspaces, and enhanced work-life balance (Liu, 2022). The highest quit rates have been in industries with the lowest pay and benefits (Schweitzer & Khattar, 2021). In March 2022, workers who switched jobs experienced median wage gains of 5 percent over the year while median wage growth was 4 percent for workers who stayed in the same job—both at their highest levels in over a decade (Atlanta Fed, 2022). However, consumer prices have risen even faster, at around 8 percent, effectively offsetting these gains (Iacurci, 2022).

The construction industry has not been immune to these problems. In 2021, over 40 percent of construction firms reported that they turned down work due to labor shortage issues (Swanek, 2021). Based on pre-pandemic trends, construction industry employment in January 2022 was about 600,000 jobs below its expected level, and 4 percent of construction jobs remained unfilled (Natarelli & Basu, 2022). By the end of 2021, the turnover rate was higher in construction than in the manufacturing, natural resources and mining, financial activities, professional and business services, information, education, and healthcare sectors (Popli, 2022). Other industries, such as warehousing and transportation, “have been offering increasingly competitive compensation for unskilled and semi-skilled workers,” absorbing many workers who have left unstable construction jobs (Natarelli & Basu, 2022).

Even though the industry faces a skilled labor shortage, demand for construction workers is expected to rise as funds from the federal Infrastructure Investment and Jobs Act are distributed. The bipartisan law will invest a historic \$1.2 trillion over eight years, including \$550 billion in new spending, to repair and modernize roads, bridges, airports, public transit systems, railways, water infrastructure, and energy systems as well as to expand broadband internet access and invest in climate resiliency (Ponciano, 2021). Overall, the Infrastructure Investment and Jobs Act is expected to increase U.S. employment by between 800,000 and 900,000 jobs, many in direct construction positions (Zandi & Yaros, 2021; Henney, 2021).

This report, conducted by researchers at the Illinois Economic Policy Institute (ILEPI) and the Project for Middle Class Renewal (PMCR) at the University of Illinois at Urbana-Champaign, draws on four years of Associated General Contractor (AGC) of America surveys—2018, 2019, 2020, and 2021—to assess the extent of the construction labor shortage in the United States (AGC, 2021). A brief summary of background research on the labor market differences between the union and nonunion segments of the construction industry is discussed first. Then, an analysis of whether union contractors or nonunion contractors have been better able to adapt to workforce disruptions during the COVID-19 pandemic ensues. Results from pre-COVID-19 surveys are also presented in this section to help explain extant differences. An analysis of potential recommendations based on the findings follows before a concluding section recaps key findings.

Labor Market Differences Between the Union and Nonunion Segments in Construction

Numerous studies have found that collective bargaining boosts wages for workers, particularly for low-income workers, middle-class workers, and people of color (Callaway & Collins, 2017; Bivens et al., 2017; Long, 2013; Walters & Mishel, 2003). On average, union households earn between 10 percent and 20 percent more than nonunion households—an income premium that has been consistent since the 1930s (Farber et al., 2018). Union members are much more likely to have access to health insurance and retirement plans. Fully 95 percent of union workers have access to health care coverage and 95 percent have access to retirement plans compared with just 69 percent health care access and 68 percent retirement plan access for nonunion workers (BLS, 2021). Perhaps even more striking than the pay and benefits gaps between union and nonunion workers is the wealth difference between their households. Union households are 8 percent more likely to own their homes and their median wealth is 125 percent higher than nonunion households (Glass et al., 2021). Unions have also been found to reduce poverty, lower worker turnover, and reduce taxpayer costs for government assistance programs (Nunn et al., 2019; Sojourner & Pacas, 2018).

While union membership has declined nationally since the late 1970s, construction remains one of the most unionized private-sector industries in the United States. Across the United States in 2020, median weekly wages were \$1,244 for union construction workers and \$920 for nonunion construction workers, a 35 percent difference (BLS, 2022). In Illinois, union journeyworkers who participate in joint labor-management construction apprenticeship programs earn an average of \$40 per hour upon completion—a difference of 72 percent compared to nonunion construction workers (\$23 per hour) (Manzo & Bruno, 2020). Similarly, in Minnesota, only 3 percent of union construction workers earn less than \$15 per hour compared with 14 percent of nonunion construction workers (Manzo et al., 2021a).

A primary reason why union construction workers earn solidly middle-class wages and benefits is the collectively bargained investments that union signatory contractors make in job quality. This extends beyond just wages and benefits paid to workers and includes long-term investments in training that boost safety and productivity on the jobsite and attach workers to in-demand careers in the industry. These registered apprenticeships are industry-driven programs in which employers and unions train and develop skilled workers. Participating apprentices get the opportunity to “earn while they learn” and obtain portable, nationally recognized credentials through on-the-job training and classroom instruction tailored to meet the needs of employers. Registered apprentices graduate these programs with minimal or no out-of-pocket tuition costs. In return for these investments, businesses gain access to pools of skilled labor. Robust registered apprenticeship programs have proven to be effective at raising wages and connecting workers to jobs (Reed et al., 2012; Bertschy et al., 2009; Ryan, 2001; Ryan, 1998; Clark & Fahr, 2002).

Apprenticeship training is particularly important in the construction industry (Olinsky & Ayres, 2013). Construction apprenticeship programs are sponsored either jointly by labor unions and employers who are signatories to collective bargaining agreements (joint labor-management programs) or solely by employers. Joint labor-management programs are cooperatively administered with standards, trainee wages, and apprentice-to-worker ratios established in collective bargaining agreements (CBAs). Funding for training in joint labor-management apprenticeship programs is financed by “cents per hour” contributions that are part of the total wage and fringe benefits package negotiated with signatory contractors. Under this system, investments in training the next generation of skilled tradespeople are institutionalized, included in project bids, and paid for by project owners. By contrast, employer-only programs are sponsored by an employer or a trade association who unilaterally determines program content, sets entry requirements, and monitors trainee progress. Funding for employer-only programs

relies on voluntary contributions from contractors, who have financial incentives to forgo long-term workforce training investments and slash labor costs to win project bids.

Through registered apprenticeship programs, the construction industry operates “the largest privately-financed system of higher education in the country” (Philips, 2014). Nearly all of this investment, however, comes from joint labor-management programs cooperatively administered by labor unions and signatory employers. Joint labor-management programs account for 97 percent of all active construction apprentices in Illinois, 93 percent in Minnesota, 92 percent in California, 85 percent in Pennsylvania, 82 percent in Ohio, 81 percent in Wisconsin, 79 percent in Kentucky, 79 percent in Michigan, 63 percent in Oregon (including 72 percent in the greater Portland area), and 55 percent in Iowa (Manzo & Bruno, 2020; Manzo & Duncan, 2018; Calamuci, 2020; Herzenberg et al., 2018; Onsarigo et al., 2017; Manzo et al., 2021b; Duncan & Manzo, 2016; Bilginsoy, 2017; Stepick & Manzo, 2021; Petrucci, 2021; Manzo & Gigstad, 2021). Research also indicates that joint labor-management construction apprenticeship programs tend to have high standards, requiring about 30 percent more average hours of training than the typical bachelor’s degree at public universities (Manzo & Bruno, 2020; Stepick & Manzo, 2021). Despite their rigorous training standards, joint labor-management programs have 17 percent to 28 percent higher completion rates than employer-only nonunion programs, and also have better completion rates for women and people of color (Manzo & Bruno, 2020; Duncan & Manzo, 2016; Manzo & Gigstad, 2021; Petrucci, 2021).

Registered apprenticeship programs in the construction industry have also been linked to improved safety outcomes on jobsites. Their curricula include health and safety courses that cover how to identify and report health and safety problems, use scaffolding, work safely with hazardous materials, operate machinery, prevent silica exposure, prevent electrocutions, and prevent burns on construction and demolition projects (e.g., ASIP, 2019). Because their workers are better trained, union worksites tend to deliver better safety outcomes than nonunion worksites. For example, an analysis of more than 37,000 Occupational Safety and Health Administration (OSHA) inspections in the construction industry in 2019 found that union worksites have 34 percent fewer violations per inspection and union worksites are less likely to have an OSHA violation in each of the eight major construction sectors (Manzo et al., 2021c). Another study found that a 1 percent increase in unionization is associated with a 3 percent decline in the rate of occupational fatalities (Zoorob, 2018). Similarly, states with low construction union densities have a fatality rate that is higher by between 3 deaths and 7 deaths per 1,000 construction workers compared to states with high construction union densities (Zullo, 2011). Furthermore, 86 percent of construction fatalities occur at nonunion worksites in New York and nonunion workers account for 87 percent of all construction deaths in Massachusetts (Oberbauer, 2020; Laing et al., 2019).

Analysis of Recent Workforce Surveys by the Associated General Contractors

Each year, the Associated General Contractors of America (AGC) surveys about 2,000 member firms on the state of the construction labor market (AGC, 2021). The AGC survey is the largest national survey of construction companies that breaks down data by the firm’s union signatory status. Since 2018, the AGC has released data specifically for respondent contractors who report that they “always operate as union contractor” or “always operate as an open-shop contractor” (or nonunion contractor). Contractors who “primarily operate as a union contractor but not always,” “primarily operate as an open-shop contractor but not always,” and “do not self-perform construction work” are excluded from the crosstabs released by the AGC. From 2018 and 2021, a total of 1,768 union contractors and 3,893 nonunion contractors

responded to the AGC’s surveys. Responses in 2021 included 385 union contractors, with a margin of error of ±5 percent, and 899 nonunion contractors, with a margin of error of ±3 percent (Figure 1).

Figure 1: Samples and Margins of Error of Union and Nonunion Contractors in AGC Surveys, 2018-2021

AGC Workforce Surveys	Union Contractors: "We Always Operate as a Union Contractor"		Nonunion Contractors: "We Always Operate as an Open-Shop Contractor"	
	Year	Sample Size	Margin of Error	Sample Size
2018	665	±3.8%	1,371	±2.6%
2019	288	±5.8%	859	±3.3%
2020	430	±4.7%	764	±3.5%
2021	385	±5.0%	899	±3.3%
<i>Four-Year Totals</i>	<i>1,768</i>	<i>±2.3%</i>	<i>3,893</i>	<i>±1.6%</i>

Source(s): Authors’ analysis of Associated General Contractors (AGC) of America’s 2018, 2019, 2020, and 2021 Workforce Survey results, based on responses from 3,893 nonunion contractors and 1,768 union contractors (AGC, 2021).

Contractors who respond to the AGC’s survey tend to engage in similar work regardless of whether they employ union or nonunion workers (Figure 2). Over the past four years, 72 percent of union contractors report that they perform building construction projects compared to 67 percent of nonunion contractors. Among union contractors, 34 percent say that they complete highway and transportation projects and 28 percent do utility infrastructure work versus respective shares of 31 percent and 25 percent among nonunion contractors. The biggest difference between union contractors and their nonunion counterparts is that union firms tend to be larger companies: About 80 percent of union contractors perform over \$10 million in annual construction value compared to just 64 percent of nonunion contractors—a 16 percent difference.

Figure 2: Type of Construction Work Performed by and Market Participant Size of Union and Nonunion Contractors in AGC Surveys, 2018-2021

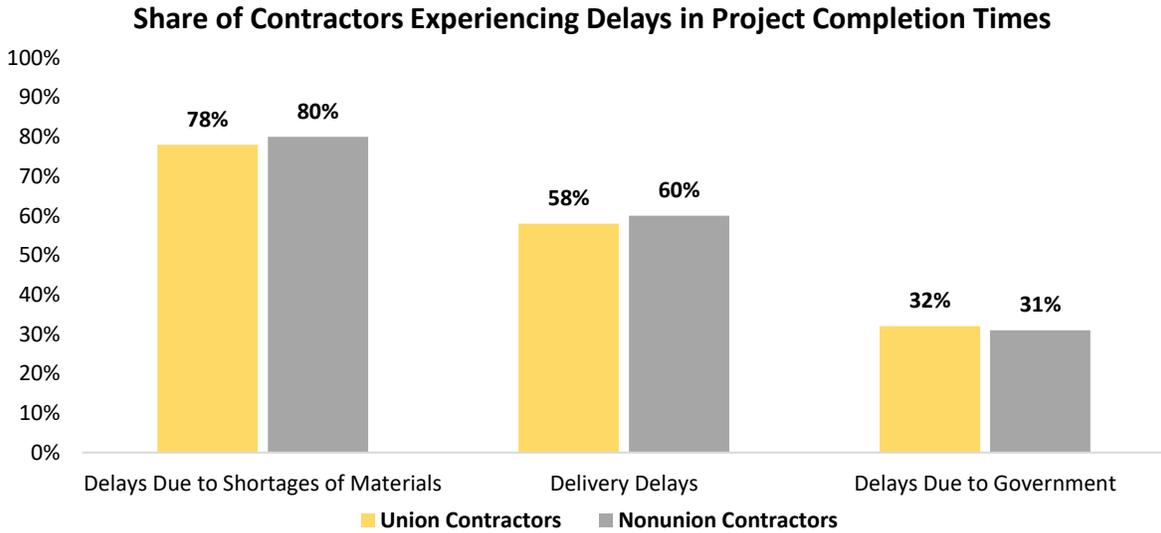
Year	Type of Contractor	Building Construction	Highway and Transportation Construction	Utility Infrastructure Construction	Contractors Performing \$10M or More in Work
2018	Union	70%	32%	23%	83%
	Nonunion	64%	29%	20%	64%
2019	Union	69%	36%	28%	80%
	Nonunion	66%	34%	27%	63%
2020	Union	75%	34%	32%	77%
	Nonunion	71%	31%	28%	64%
2021	Union	73%	35%	33%	76%
	Nonunion	67%	33%	28%	63%
<i>Four-Year Average</i>	<i>Union</i>	<i>72%</i>	<i>34%</i>	<i>28%</i>	<i>80%</i>
	<i>Nonunion</i>	<i>67%</i>	<i>31%</i>	<i>25%</i>	<i>64%</i>

Source(s): Authors’ analysis of Associated General Contractors (AGC) of America’s 2018, 2019, 2020, and 2021 Workforce Survey results, based on responses from 3,893 nonunion contractors and 1,768 union contractors (AGC, 2021). The “Four-Year Average” is the weighted average based on the sample size for each type of contractor.

Results from the AGC’s 2021 workforce survey expose the negative impact of supply-chain issues on all construction companies (Figure 3). When asked what impacts on project completion times their firms are experiencing, about 8-in-10 contractors said that they are experiencing delays due to materials

shortages—regardless of whether they are union contractors (78 percent) or nonunion contractors (80 percent). Another 6-in-10 are experiencing delivery delays that postpone completion times in both the union segment (58 percent) and the nonunion segment (60 percent) of the industry. Delays due to government, such as a lack of approvals, also affect union contractors (32 percent) and nonunion contractors (31 percent) at essentially equal rates.

Figure 3: Supply Chain and Regulatory Issues Impacting Completion Times, by Union Status, 2021



Source(s): Authors’ analysis of Associated General Contractors (AGC) of America’s Workforce Survey results, based on responses from 899 nonunion contractors and 385 union contractors (AGC, 2021).

However, the same survey revealed that union contractors have been better able to meet their workforce needs and make adjustments in the face of a tightening national labor market (Figure 4). Only 47 percent of union contractors report that they are experiencing delays in project completion times due to shortages of workers compared to 68 percent of nonunion contractors, a statistically significant difference of 21 percent. While 72 percent of union contractors have job openings for craft workers and are having a hard time filling those positions, the share of nonunion contractors reporting difficulty finding workers is 86 percent. As a result, a total of 46 percent of union contractors have added workers in the past 12 months compared to just 38 percent of nonunion contractors.

Figure 4: Share of Contractors Experiencing Labor Shortage Issues, by Union Status, 2021

Share of Contractors Experiencing Labor Shortage Issues	Union Contractors	Nonunion Contractors	Union Advantage
Project Completion Time Delays Due to Shortages of Workers	47%	68%	-21%
Difficulty Filling Some or All Craft Positions	72%	86%	-14%
Increased Headcount (Workers) in Past 12 Months	46%	38%	+8%

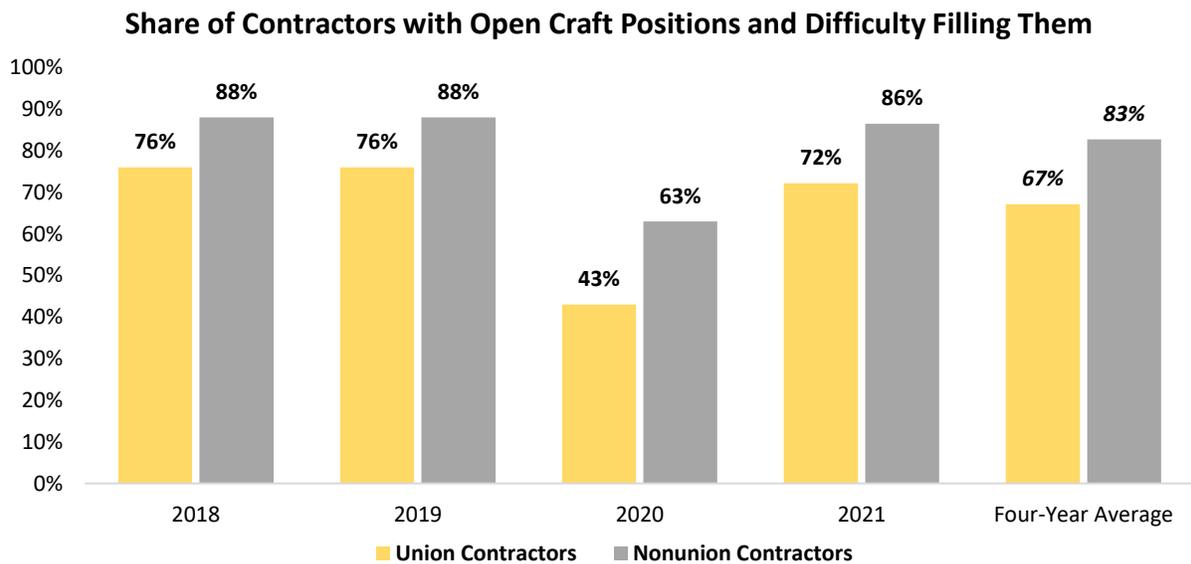
Source(s): Authors’ analysis of Associated General Contractors (AGC) of America’s Workforce Survey results, based on responses from 899 nonunion contractors and 385 union contractors (AGC, 2021).

The construction labor shortage is much less severe in the union segment of the industry. Because they have access to local hiring halls and because their training investments are institutionalized in well-funded joint labor-management apprenticeship programs, union contractors have been 8 percent more likely to add workers, 14 percent less likely to experience difficulty filling craft positions, and 21 percent less likely

to have project delays than nonunion contractors over the past 12 months. Importantly, this access to a stable supply of skilled, safe, and productive construction workers helps more projects get completed on time. Survey responses clearly indicate that hiring union contractors can reduce the chances of delays in project completion times.

Exploring multiple years of AGC workforce surveys provides clues as to why the shortage of skilled workers is less acute among union contractors. Nonunion firms’ greater difficulty in filling craft worker positions has been a persistent problem that preceded the COVID-19 pandemic (Figure 5). Union contractors have been between 12 percent and 20 percent less likely to have a hard time filling some or all positions every year since 2018. The four-year average share of union contractors reporting that they have open craft worker positions and are having difficulty filling them is 67 percent versus a comparable share of 83 percent for nonunion contractors—an average difference of 16 percent. Each of these differences is statistically significant at the 95 percent level of confidence.

Figure 5: Share of Contractors that Have Open Craft Worker Positions and Are Experiencing Difficulty in Filling Some or All Positions, by Year and by Union Status, 2018-2021



Source(s): Authors’ analysis of Associated General Contractors (AGC) of America’s 2018, 2019, 2020, and 2021 Workforce Survey results, based on responses from 3,893 nonunion contractors and 1,768 union contractors (AGC, 2021). The “Four-Year Average” is the weighted average based on the sample size for each type of contractor.

In 2018 and 2019, the AGC asked construction firms to rate the adequacy of the local pipeline for supplying craft personnel who are well-trained or skilled (Figure 6). Respondents could answer that they felt the local pipeline was “poor,” “fair,” “good,” or “excellent.” A majority of nonunion contractors reported that the local pipeline for supplying well-trained tradespeople was “poor” in both 2018 (58 percent) and 2019 (54 percent). By contrast, less than a third of union contractors said that their local pipelines were “poor” at delivering well-trained workers in 2018 (29 percent) and 2019 (30 percent). The two-year averages reveal that union contractors (29 percent) were 27 percent less likely to say that their available pool of skilled workers was “poor” than nonunion contractors (56 percent). Once again, this is likely due to the fact that joint labor-management apprenticeship programs deliver a more robust training regimen, higher completion rates, and better earnings and social outcomes than employer-only nonunion apprenticeship programs (Manzo & Thorson, 2021; Manzo & Bruno, 2020). These institutionalized workforce issues were

festering before the COVID-19 pandemic and have likely contributed to the fact that 64 percent of nonunion contractors in 2021 said they could not fill craft worker positions because available candidates are not qualified to work in the industry, which is 13 percent higher than the share of union contractors (51 percent) offering a similar response (Figure 6).

Figure 6: Share of Contractors with Workforce Quality Issues, by Union Status, 2018-2019 and 2021

Share with Workforce Quality Issues	Local Pipeline for Supplying Well-Trained Craft Workers Is “Poor”			Available Candidates Are Not Qualified to Work in the Industry
	2018	2019	Two-Year Average	2021
Union Contractors	29%	30%	29%	51%
Nonunion Contractors	58%	54%	56%	64%
Union Advantage	-29%	-24%	-27%	-13%

Source(s): Authors’ analysis of Associated General Contractors (AGC) of America’s 2018, 2019, and 2021 Workforce Survey results, based on responses from 2,230 nonunion contractors and 953 union contractors in 2018 and 2019 and 899 nonunion contractors and 385 union contractors in 2021 (AGC, 2021). The “Two-Year Average” is the weighted average for 2018 and 2019 based on the sample size for each type of contractor. The “Available Candidates Are Not Qualified to Work in the Industry” represents the share of contractors in 2021 with open craft worker positions who are having a hard time filling some or all of those positions and who report that candidate quality is a reason why they are having a hard time.

The AGC’s 2018 survey results also provide insights that may be particularly relevant to the so-called “Great Resignation” or “Great Refusal” or “Great Upgrade” of workers choosing to quit their jobs for new employment opportunities (Figure 7). Contractors were asked whether their firm is losing hourly craft personnel to other construction employers and to other industries. Respondents could mark both. Among union contractors, 57 percent were losing blue-collar tradespeople to other employers, including 51 percent who were losing them to other construction firms and 17 percent who were losing them to other industries. In comparison, fully 70 percent of nonunion contractors were losing their blue-collar workers to other employers, including 54 percent to other construction firms and 30 percent to other industries entirely. While both types of contractors faced comparable levels of competition for workers within the industry, the union contractors were 13 percent less likely to report losing craft workers—a statistic that matches the fact that they reported being 13 percent less likely to lose workers to other industries.

Figure 7: Share of Contractors Losing Craft Personnel, by Source of Loss and Union Status, 2018

Share of Contractors Reporting that They Are Losing Hourly Craft Workers	Union Contractors	Nonunion Contractors	Union Advantage
To Other Construction Employers	51%	54%	-3%
To Other Industries	17%	30%	-13%
To All Other Employers	57%	70%	-13%

Source(s): Authors’ analysis of Associated General Contractors (AGC) of America’s 2018 Workforce Survey results, based on responses from 1,371 nonunion contractors and 665 union contractors (AGC, 2021). *NOTE: Respondents could mark more than one answer.

Data from the *Current Population Survey Annual Social and Economic Supplement* from the U.S. Census Bureau and U.S. Department of Labor sheds light on why nonunion construction companies were more likely to lose workers to other industries (Figure 8). Between 2010 and 2020, union construction workers earned incomes of \$58,000 per year on average, 46 percent more than nonunion construction workers (\$39,700 per year). Fully 89 percent of union construction workers have private health insurance coverage compared to just 55 percent of nonunion construction workers, a difference of 34 percent. Additionally, union construction workers are 43 percent more likely to have access to pension plans (68 percent) than their nonunion counterparts (25 percent). Union construction workers are also 6 percent less likely to live

in poverty and 6 percent less likely to rely on Medicaid than their nonunion peers. Across the board, the economic and social outcomes of union construction workers are competitive with other types of workers with bachelor’s degrees while the nonunion segment of the construction industry is not on par (Figure 8).

Figure 8: Economic and Social Outcomes of Construction Workers vs. Other Workers, 2010-2020

Economic and Social Outcomes of Construction Workers and Other Types of Workers by Education	Union Construction Workers	Nonunion Construction Workers	All Workers with Bachelor’s Degrees (Only)	All Workers with High School Degrees
Inflation-Adjusted Incomes	\$58,000	\$39,700	\$68,600	\$38,100
Private Health Insurance Coverage	89%	55%	90%	73%
Pension Plan Access at Work	68%	25%	57%	44%
Below the Official Poverty Line	4%	10%	2%	7%
Medicaid Health Insurance Coverage	4%	10%	3%	9%

Source(s): Authors’ analysis of 2010-2020 data from the Current Population Survey Annual Social and Economic Supplement (CPS-ASEC) (Flood et al., 2021). Construction workers are defined by those in blue-collar construction occupations, such as carpenters, electricians, laborers, operating engineers, and plumbers. For more, see Union Apprenticeships: The Bachelor’s Degrees of the Construction Industry – Data for the United States, 2010-2020 (Manzo & Thorson, 2021).

Lastly, the 2018 AGC survey results show that union contractors tend to have more diverse workforces than nonunion contractors (Figure 9). The AGC asked member firms what percent of their employees fall into specific demographic categories. Women account for at least a quarter of all employees in only 14 percent of union construction companies and in just 7 percent of nonunion construction companies, a difference of 7 percent. While 17 percent of union contractors have no Black or African American employees, the equivalent share of nonunion contractors is 27 percent—a 10 percent difference. Likewise, 11 percent of union contractors do not employ a military veteran compared to 19 percent of nonunion contractors, an 8 percent difference. Generally speaking, the market-competitive union contractors are better positioned to diversify the workforce of the construction industry.

Figure 9: Share of Contractors in Selected Categories of Diversity Metrics, by Union Status, 2018

Share of Contractors Reporting Selected Diversity Metrics	Union Contractors	Nonunion Contractors	Union Advantage
Over 25% of Employees Are Women	14%	7%	+7%
Firm Employs No African American or Black Workers	17%	27%	-10%
Firm Employs No Military Veterans	11%	19%	-8%

Source(s): Authors’ analysis of Associated General Contractors (AGC) of America’s 2018 Workforce Survey results, based on responses from 1,371 nonunion contractors and 665 union contractors (AGC, 2021).

Potential Recommendations to Address Skilled Labor Shortages in Construction

Contractors in need of a more reliable and stable supply of skilled tradespeople could adopt and advocate for the following seven (7) evidence-based measures to address the labor shortage.

1. **Becoming signatory to collective bargaining agreements (CBAs).** While labor costs account for just 23 percent of total costs in the construction industry, these expenditures directly improve an employers’ ability to attract and retain sufficiently skilled workers who can deliver efficiency on jobsites (Census, 2022). Every year, the union construction sector trains tens of thousands of new apprentices and journeyworkers to meet industry standards of safety and craftsmanship. As a

result, union productivity has been found to be between 17 percent and 22 percent higher than nonunion productivity in the construction industry, including 30 percent higher for office building construction and up to 20 percent higher on school projects (Allen, 1984; Allen, 1986). At the same time, data shows that union contractors are no more expensive than nonunion contractors due to the offsetting effects of skill, safety, productivity, and workforce retention relative to wages and benefits (Atalah, 2013; Manzo et al., 2021a). Stronger partnerships between businesses and unions are perhaps the most effective way to resolve skilled labor shortages in the U.S. construction industry.

2. **Expanding U.S. Department of Labor-approved registered apprenticeship programs.** Not all young people are able or willing to earn college degrees. For many, the path to upward economic mobility is through registered apprenticeship programs in the construction trades. Registered apprenticeship programs enhance worker skills, improve productivity and safety, raise wages, and reduce construction worker poverty and reliance on food stamps, Medicaid, and other public assistance programs (Manzo & Thorson, 2021). However, any outside monetary support for registered apprenticeship programs, including from governments, should reward successful programs with high graduation rates, acceptable levels of diversity and inclusion, and family-sustaining wage standards. Spending public funds on ineffective or unproven programs would be an inefficient use of taxpayer dollars.
3. **Encouraging and expanding apprenticeship readiness programs and pre-apprenticeship programs across the United States.** State and local governments could partner with existing programs to increase training course offerings in apprenticeable occupations at public high schools and community colleges, especially in low-income communities (Olinsky & Ayers, 2013). For example, in Wisconsin, Destinations Career Academy of Wisconsin is an online public charter school that includes both traditional academics and career readiness education, with state-licensed teachers who teach both full-time and part-time high school students (DCAWI, 2022). Upon graduation, students achieve applicable skills required to transition into positions in registered apprenticeship programs. In Illinois, the Illinois Department of Transportation (IDOT) has operated the Highway Construction Careers Training Program (HCCTP) at 12 community colleges since 2011. The goal of this program is to increase the participation of women, people of color, and disadvantaged individuals in the highway construction industry (IDOT, 2021). The 14-week program includes math curriculum for the trades and technical skills training such tool usage, and helps place certified graduates in jobs on IDOT project sites. In total, more than 3,000 students have completed the program and nearly 1,200 have been placed in registered apprenticeship programs across Illinois. Mentoring programs within both apprenticeship readiness programs and registered apprenticeship programs are also key to addressing challenges that are unique to people of color, which can help improve racial diversity (Bruno et al., 2016).
4. **Improving access to affordable childcare options, early childhood education programs, and paid sick leave to increase female workforce participation, including in the construction trades.** Women report that the lack of access to affordable child care is a significant barrier to participating in registered apprenticeship programs (Reed et al., 2012). In construction, for example, apprentices often wake up very early to travel to a worksite, receive on-the-job training all day, and then attend classroom instruction after work. Expanding early childhood education programs has also been found to boost employment overall, especially among women (Schocet, 2019). Additionally, paid sick leave policies are associated with improvements in public health, worker productivity, and employment growth (Manzo et al., 2020).

5. **Institutionalizing workforce training investments by enacting and strengthening state and local prevailing wage laws.** Currently, 28 states and the District of Columbia have prevailing wage laws (WHD, 2022). Prevailing wage laws establish minimum wages for different types of skilled construction workers on taxpayer-funded and taxpayer-subsidized projects based on wages, benefits, and training investments that are actually paid in local communities. Prevailing wage laws level the playing field for all construction contractors by ensuring that public expenditures reflect local market standards of compensation and craftsmanship. Economic research has shown that prevailing wage laws increase apprenticeship training in construction (Duncan & Ormiston, 2017). The number of apprentices, as a share of the overall construction workforce, is 8 percent higher in states with prevailing wage laws (Bilginsoy, 2005). Apprentices have also been found to complete graduation requirements at a faster rate in states with prevailing wage laws than states without prevailing wage laws (Bilginsoy, 2005). After West Virginia repealed its state prevailing wage law in 2016, the number of active apprentices fell by 28 percent and the on-the-job construction worker injury rate increased by 26 percent (Kelsay & Manzo, 2019). Expanding prevailing wage laws to the 22 other U.S. states, including these labor standards on projects that indirectly receive government support through tax credits, and extending coverage to ratepayer-funded wind, solar, and broadband infrastructure projects would increase funding for apprenticeship programs and help expand training opportunities for the next generation of construction workers while attaching them to in-demand careers in the industry.

6. **Implementing project labor agreements (PLAs) to create jobs for local tradespeople while introducing apprenticeship ratios and targeted hire goals.** PLAs are local pre-hire agreements covering all crafts on large and complex construction projects that establish comprehensive employment terms and conditions for construction projects. A PLA “operates as a ‘job-site constitution,’ establishing safe working conditions and rules, project execution and accountability on the job, and protocols for resolving labor disputes without resorting to strikes and lockouts” (Waheed & Herrera, 2014). The principal aim of a PLA is to promote stability and productivity while managing large projects (Kotler, 2009). For project owners, PLAs include provisions for eliminating strikes and lockouts during construction, providing access to pools of skilled labor, and instituting uniform work rules and consistent shift work to improve efficiency.

7. **Promoting investments in workforce training by passing local responsible bidder ordinances (RBOs).** RBOs establish objective criteria and verifiable standards for contractors bidding on public construction projects. These provisions typically require proof of participation in apprenticeship training programs among other items like proof of certificates of insurance, prequalification surveys, and compliance with all local, state, and federal laws. As a result, RBOs often serve as a sort of “insurance policy” for project owners, ensuring that projects are built by professional, competent contractors with proven track records. Case studies from across the country have found that RBOs promote higher quality and more reliable services and reduced back-end reconstruction costs (Sonn & Gebreselassie, 2010). RBOs have also been found to encourage 8 percent more bid competition, particularly from contractors who are most likely to contribute to apprenticeship training programs (Manzo, 2020). RBOs are “effective way[s] to improve employment conditions and living standards of construction workers without significantly raising costs for taxpayers” (Waddoups & May, 2014).

Conclusion

Many of the roots of the construction labor shortage were planted long ago. Contractors have been reporting difficulties in filling craft worker positions well before the onset of the COVID-19 pandemic. However, the labor shortage has been less acute for the union segment of the construction industry, according to actual surveys of contractors themselves. Compared to nonunion firms, union contractors are 14 percent less likely to have trouble filling open positions and 21 percent less likely to have project delays due to a lack of workers. Union contractors are 27 percent less likely to say that their local pipeline for providing well-trained workers is poor and are 13 percent less likely to lose their blue-collar construction workers to other industries. Union contractors have been 8 percent more likely to add workers over the past year, further indicating that union contractors have been better able to staff up in a tight labor market.

By and large, union contractors offer market-competitive earnings and participate in robust registered apprenticeship training programs that deliver safe, productive workers who complete jobs on time and on budget. Construction firms in need of skilled tradespeople could become union contractors to access these pools of skilled workers. Lawmakers and policymakers could also take steps to grow registered apprenticeship programs, expand apprenticeship readiness and pre-apprenticeship programs, increase access to affordable childcare options, implement paid sick leave policies, and enact prevailing wage laws, project labor agreements, and responsible bidder ordinances that improve overall job quality for construction workers and strengthen the labor market competitiveness of construction contractors. This would institutionalize and strengthen America's system of registered apprenticeship training that attaches workers to increasingly in-demand careers in the skilled construction trades.

Sources

- Allen, Steven. (1984). "Unionized Construction Workers are More Productive," *The Quarterly Journal of Economics*, 99(2): 251-274.
- Allen, Steven. (1986). *Unionization and Productivity in Office Building and Elementary and Secondary Schools*. NBER Working Paper.
- Apprenticeship and Skill Improvement Program (ASIP). (2019). *2019-2020 Training Schedule and Course Catalog*. International Union of Operating Engineers Local 150.
- Associated General Contractors of America (AGC). (2021). "Surveys." Data from the years 2021, 2020, 2019, and 2018 under the "Workforce Survey" category.
- Atalah, Alan. (2013). "Comparison of Union and Nonunion Bids on Ohio School Facilities Commission Construction Projects," *International Journal of Economics and Management Engineering*, 3(1): 29-35.
- Atlanta Fed. (2022). "Wage Growth Tracker." Federal Reserve Bank of Atlanta.
- Bach, Katie. (2022). "Is 'Long Covid' Worsening the Labor Shortage?" *Brookings Institution*.
- Bertschy, Kathrin; M. Alejandra Cattaneo; and Stefan Wolter. (2009). "PISA and the Transition into the Labour Market." *LABOUR*, 23(1): 111-137.
- Bilginsoy, Cihan. (2005). *Wage Regulation and Training: The Impact of State Prevailing Wage Laws on Apprenticeship*. University of Utah.
- Bilginsoy, Cihan. (2017). *The Performance of ABC-Sponsored Registered Apprenticeship Programs in Michigan: 2000-2016*. University of Utah.
- Bruno, Robert; Emily E. LB. Twarog; and Brandon Grant. (2016). *Advancing Construction Industry Diversity: A Pilot Study of the East Central Area Building Trades Council*. University of Illinois at Urbana-Champaign.
- Bureau of Labor Statistics (BLS). (2021). *Employee Benefits in the United States – March 2021*. U.S. Department of Labor.
- Bureau of Labor Statistics (BLS). (2022). *Union Members – 2021*. U.S. Department of Labor.
- Calamuci, Dan. (2020). *Training the Golden State: An Analysis of California Apprenticeship Programs*. Smart Cities Prevail.
- Callaway, Brantly and William J. Collins. (2017). *Unions, Workers, and Wages at the Peak of the American Labor Movement*. Temple University; Vanderbilt University.
- Census. (2022). *2017 Economic Census of Construction*. U.S. Census Bureau.
- Centers for Disease Control and Prevention. (2022). "Provisional Death Counts for Coronavirus Disease 2019 (COVID-19)." U.S. Department of Health and Human Services.
- Clark, Damon and Rene Fahr. (2002). *The Promise of Workplace Training for Non-College-Bound Youth: Theory and Evidence from German Apprenticeship*. Institute for the Study of Labor (IZA); University of Bonn.
- Destinations Career Academy of Wisconsin (DCAWI). (2021). "Welcome to Our School!"
- Dickson, Alison; Frank Manzo IV; Robert Bruno; Jill Gigstad; and Emily E. LB. Twarog. (2021). *Women and Child Care in Illinois: A Survey of Working Mothers During the COVID-19 Pandemic*. University of Illinois at Urbana-Champaign; Illinois Economic Policy Institute.

- Duncan, Kevin and Frank Manzo IV. (2016). *The Economic, Fiscal, and Social Effects of Kentucky's Prevailing Wage Law*. Colorado State University-Pueblo; Midwest Economic Policy Institute.
- Duncan, Kevin and Russell Ormiston. (2017). *Prevailing Wage Laws: What Do We Know?* Institute for Construction Economic Research (ICERES); Colorado State University-Pueblo; Allegheny College.
- Farber, Henry; Daniel Herbst; Ilyana Kuziemko; and Suresh Naidu. (2018). *Unions and Inequality Over the Twentieth Century: New Evidence from Survey Data*. Princeton University; Columbia University.
- Faria e Castro, Miguel. (2021). "The COVID Retirement Boom." Federal Reserve Bank of St. Louis.
- Flood, Sarah; Miriam King; Renae Rodgers; Steven Ruggles; and J. Robert Warren. (2021). Integrated Public Use Microdata Series, Current Population Survey: Version 8.0 [dataset]. Minneapolis, MN.
- Flowers, Alyssa and Andrew Van Dam. (2021). "The Most Unusual Job Market in Modern American History, Explained." *The Washington Post*.
- Furst, Camille. (2022). "Nearly Half a Million Families Are Hurt by the Child-Care Labor Shortage." *The Wall Street Journal*.
- Glass, Aurelia; David Madland; and Christian Weller. (2021). *Unions Help Increase Wealth for All and Close Racial Wealth Gaps*. Center for American Progress.
- Henney, Megan. (2021). "Bipartisan Infrastructure Plan Could Create Over 800K New Jobs by 2030, S&P Analysis Shows." *FOX Business*.
- Herzenberg, Stephen; Diana Polson; and Mark Price. (2018). *Construction Apprenticeship and Training in Pennsylvania*. Keystone Research Center.
- Iacurci, Greg. (2022). "Inflation Eroded Pay by 1.7% Over the Past Year."
- Illinois Department of Transportation (IDOT). (2021). "Highway Construction Careers Training Program." State of Illinois.
- Kelsay, Michael and Frank Manzo IV. (2019). *The Impact of Repealing West Virginia's Prevailing Wage Law: Economic Effects on the Construction Industry and Fiscal Effects on School Construction Costs*. University of Missouri – Kansas City; Midwest Economic Policy Institute.
- Kotler, Fred. (2009). *Project Labor Agreements in New York State: In the Public Interest*. Cornell University.
- Laing, James; Jill Janocha Redmond; Michael Fiore; and Letitia Davis. (2019). *Collecting Union Status for the Census of Fatal Occupational Injuries: A Massachusetts Case Study*. Bureau of Labor Statistics (BLS) from the U.S. Department of Labor.
- Liu, Jennifer. (2022). "Roughly 47 Million People Quit Their Jobs Last Year: 'All of This is Uncharted Territory.'" *CBNC*.
- Long, George. (2013). *Differences Between Union and Nonunion Compensation, 2001–2011*. U.S. Bureau of Labor Statistics (BLS).
- Manzo IV, Frank. (2020). *The Impact of Responsible Bidder Ordinances on Bid Competition and Public Construction Costs: Evidence from Illinois and Indiana, 2018-2019*. Illinois Economic Policy Institute.
- Manzo IV, Frank and Robert Bruno. (2020). *The Apprenticeship Alternative: Enrollment, Completion Rates, and Earnings in Registered Apprenticeship Programs in Illinois*. Illinois Economic Policy Institute; University of Illinois at Urbana-Champaign.

- Manzo IV, Frank and Kevin Duncan. (2018). *An Examination of Minnesota's Prevailing Wage Law: Effects on Costs, Training, and Economic Development*. Midwest Economic Policy Institute; Colorado State University-Pueblo.
- Manzo IV, Frank and Jill Gigstad. (2021). *Apprenticeship Training in Iowa: Enrollment, Completion Rates, and Earnings of Registered Apprentices in Iowa*. Midwest Economic Policy Institute.
- Manzo IV, Frank; Jill Gigstad; Robert Bruno; and Kevin Duncan. (2021). (a). *Building a Strong Minnesota: An Analysis of Minnesota's Union Construction Industry*. Midwest Economic Policy Institute; University of Illinois at Urbana-Champaign; Colorado State University-Pueblo.
- Manzo IV, Frank; Nathaniel Goodell; and Robert Bruno. (2021). (b) *The Impact of Unions on Construction Worksite Health and Safety: Evidence from OSHA Inspections*. Illinois Economic Policy Institute; University of Illinois at Urbana-Champaign.
- Manzo IV, Frank; Michael Jekot; and Robert Bruno. (2021). (c) *Apprenticeship as a Career Development Alternative: Enrollment, Hours, and Earnings in Registered Apprenticeship Programs in Wisconsin*. Midwest Economic Policy Institute; University of Illinois at Urbana-Champaign.
- Manzo IV, Frank; Robert Bruno; and Jill Gigstad. (2020). *Enacting Paid Sick Leave in Illinois: COVID-19 and the Impact of Workplace Standards on Public Health*. Illinois Economic Policy Institute; University of Illinois at Urbana-Champaign.
- Manzo IV, Frank and Erik Thorson. (2021). *Union Apprenticeships: The Bachelor's Degrees of the Construction Industry – Data for the United States, 2010-2020*. Illinois Economic Policy Institute.
- Natarelli, Joseph and Anirban Basu. (2022). *2021 Marcum JOLTS Analysis*. Marcum, LLP.
- Nunn, Ryan; Jimmy O'Donnell; and Jay Shambaugh. (2019). *The Shift in Private Sector Union Participation: Explanation and Effects*. The Brookings Institution; The George Washington University.
- Obernauer, Charlene. (2020). *Deadly Skyline: An Annual Report on Construction Fatalities in New York State*. New York Committee for Occupational Safety and Health (NYCOSH).
- Olinsky, Ben and Sarah Ayres. (2013). *Training for Success: A Policy to Expand Apprenticeships in the United States*. Center for American Progress.
- Onsarigo, Lameck; Alan Atalah; Frank Manzo IV; and Kevin Duncan. (2017). *The Economic, Fiscal, and Social Effects of Ohio's Prevailing Wage Law*. Kent State University; Bowling Green State University; Illinois Economic Policy Institute; Colorado State University-Pueblo.
- Petrucci, Larissa. (2021). *Constructing a Diverse Workforce: Examining Union and Non-union Construction Apprenticeship Programs and their Outcomes for Women and Workers of Color*. University of Oregon.
- Philips, Peter. (2014). *Kentucky's Prevailing Wage Law: An Economic Impact Analysis*. University of Utah.
- Ponciano, Jonathan. (2021). "Everything In The \$1.2 Trillion Infrastructure Bill: New Roads, Electric School Buses And More." *Forbes*.
- Popli, Nik. (2022). "These Industries Saw the Greatest Pay Bumps in 2021." *Time*.
- Reed, Debbie; Albert Yung-Hsu Liu; Rebecca Kleinman; Annalisa Mastri; Davin Reed; Samina Sattar; and Jessica Ziegler. (2012). *An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States*. Mathematica Policy Research. Submitted to the U.S. Department of Labor Employment and Training Administration (DOLETA).

- Ryan, Paul. (2001). "The School-to-Work Transition: A Cross-National Perspective." *Journal of Economic Literature*, 39(1): 34-92.
- Ryan, Paul. (1998). "Is Apprenticeship Better? A Review of the Economic Evidence." *Journal of Vocational Education & Training*, 50(2): 289-329.
- Schachter, Jason; Pete Borsella; and Anthony Knapp. (2021). "New Population Estimates Show COVID-19 Pandemic Significantly Disrupted Migration Across Borders." United States Census Bureau.
- Schocet, Leila. (2019). *The Child Care Crisis Is Keeping Women Out of the Workforce*. Center for American Progress.
- Schweitzer, Justin and Rose Khattar. (2021). "It's a Good Jobs Shortage: The Real Reason So Many Workers Are Quitting." Center for American Progress.
- Sojourner, Aaron and Jose Pacas. (2018). *The Relationship between Union Membership and Net Fiscal Impact*. University of Minnesota; Institute of Labor Economics.
- Sonn, Paul K and Tsedeye Gebreselassie. (2010). "The Road to Responsible Contracting: Lessons from States and Cities for Ensuring That Federal Contracting Delivers Good Jobs and Quality Services," *Berkeley Journal of Employment & Labor Law*. 31(2): 460-488.
- Stepick, Lina and Frank Manzo IV. (2021). *The Impact of Oregon's Prevailing Wage Rate Law: Effects on Costs, Training, and Economic Development*. University of Oregon; Illinois Economic Policy Institute.
- Swanek, Thaddeus. (2021). "Many U.S. Construction Contractors are Turning Down Work Because They Don't Have Enough Workers." U.S. Chamber of Commerce.
- Waddoups, Jeffrey C. and David C. May. (2014). "Do Responsible Contractor Policies Increase Construction Bid Costs?" *Industrial Relations*, 53(2): 273-294.
- Wage and Hour Division (WHD). (2022). "Dollar Threshold Amount for Contract Coverage." U.S. Department of Labor.
- Waheed, Saba and Lucero Herrera. (2014). *Exploring Targeted Hire: An Assessment of Best Practices in the Construction Industry*. University of California, Los Angeles.
- Walters, Matthew and Lawrence Mishel. (2003). *How Unions Help All Workers*. Economic Policy Institute.
- Zandi, Mark and Bernard Yaros. (2021). *Macroeconomic Consequences of the Infrastructure Investment and Jobs Act & Build Back Better Framework*. Moody's Analytics.
- Zoorob, Michael. (2018). "Does 'Right to Work' Imperil the Right to Health? The Effect of Labour Unions on Workplace Fatalities." *Occupational and Environmental Medicine*, 75(10): 736-738.
- Zullo, Roland. (2011). "Right-to-Work Laws and Fatalities in Construction." *WorkingUSA*, 14(2): 225-234.

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