

THE IMPACTS OF PROJECT LABOR AGREEMENTS ON COSTS, COMPETITION, AND CONTRACTORS IN ILLINOIS

Evidence from Capital Development Board Projects

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Frank Manzo IV
Economist
Illinois Economic Policy Institute



Robert Bruno, PhD
Director and Professor
Project for Middle Class Renewal
University of Illinois at Urbana-Champaign



Executive Summary

Project labor agreements (PLAs) are pre-hire agreements that establish terms and conditions of employment for all crafts on large and complex infrastructure projects. The mutual agreements are between construction owners—such as contractors, developers, governments, or public bodies—and coalitions of labor unions supplying skilled workers for the duration of specific projects. The main purpose of PLAs is to promote predictability, productivity, and efficiency on construction projects. PLAs can also enhance opportunities to bid on public works for previously underrepresented businesses while expanding employer access to new domestic labor supply pools.

In January 2019, Illinois Governor JB Pritzker issued Executive Order Number 2019-02, requiring all state agencies to comply with the Project Labor Agreements Act and include PLAs on public projects to ensure that they are “completed with highly skilled workers.” As a result, Governor Pritzker oversaw more than 800 PLA-covered projects during his first term in office, including hundreds at the Capital Development Board (CDB).

An analysis of 2,574 total bids on 773 public building projects valued at \$1.2 billion awarded by the Illinois Capital Development Board from 2017 through 2023—including 499 with PLAs and 274 without PLAs—reveals that:

- PLAs increased bid competition by an average of 14 percent, after accounting for project size and complexity, project location, project type, and other factors.
- Projects awarded immediately following Governor Pritzker’s PLA Executive Order had more bids (3.8 per project) than those just before (3.1 per project).
- PLAs had no effect on total construction costs, after accounting for project size and complexity, bid competition, project location, project type, and other factors.
- Because PLAs statistically strengthened bid competition during a period with a tightening labor market and greater demand for construction services, they helped to lower costs for taxpayers—with each additional bid improving the likelihood that projects would come in below their engineer’s estimates by 6 percent.
- Market shares of businesses owned by people of color, women, and military veterans were all between 1 percentage point and 2 percentage points higher on projects with PLAs.

This first-of-its-kind study adds to the public dialogue on project labor agreements in three ways:

1. It assesses the impact of PLAs on all types of state building projects.
2. It examines 10 times more total bids than any study published in a peer-reviewed academic journal.
3. It offers direct evidence on the effect of PLAs on boosting the success of minority-owned, women-owned, and veteran-owned businesses.

The data show that project labor agreements are valuable construction management tools. Project labor agreements serve as de-risking mechanisms that ban strikes and lockouts during construction, harmonize and coordinate workplace on complex projects, boost apprenticeship training, and deliver access to domestic labor supply pools. Project labor agreements encourage more bid competition, stabilize public construction costs, and expand business opportunities to more construction owners from all backgrounds.

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About the Authors

Frank Manzo IV, M.P.P. is an Economist at the Illinois Economic Policy Institute. He earned a Master of Public Policy from the University of Chicago Harris School of Public Policy and a Bachelor of Arts in Economics and Political Science from the University of Illinois at Urbana-Champaign. He can be contacted at fmanzo@illinoisepi.org.

Robert Bruno, Ph.D. is a Professor at the University of Illinois at Urbana-Champaign School of Labor and Employment Relations and is the Director of the Project for Middle Class Renewal. He earned a Doctor of Philosophy in Political Theory from New York University, a Master of Arts from Bowling Green State University, and a Bachelor of Arts from Ohio University. He can be contacted at bbruno@illinois.edu.

Introduction

Project labor agreements (PLAs) are pre-hire agreements covering all types of construction trades on large infrastructure projects, establishing terms and conditions of employment. The mutual agreements are between construction owners—such as general contractors, developers, governments, or public bodies—and coalitions of labor unions for the duration of project. A PLA “operates as a ‘job-site constitution,’” establishing safety standards, work rules, project execution and accountability measures, and protocols for resolving labor disputes ([Waheed & Herrera, 2014](#)).

The main purpose of a project labor agreement is to promote predictability, productivity, and efficiency on large and complex construction projects. Construction is a highly skilled, labor-intensive industry that often requires coordination between different types of contractors and workers. The success of any construction project requires a dependable, qualified workforce that is trained in specific types of craft work. For project owners, PLAs are risk minimization tools that typically include provisions for banning strikes and lockouts during construction, instituting uniform work rules and consistent shift work, and providing access to domestic pools of skilled workers to reduce the chances of labor shortages ([Ormiston & Duncan, 2022](#)).

In January 2019, Governor JB Pritzker issued Executive Order Number 2019-02, which required all state agencies, such as the Illinois Capital Development Board, to comply with the Project Labor Agreements Act and include PLAs on public works projects ([EO 19-02, 2019](#)). The Executive Order declares that PLAs “provide the State with an assurance that the public works projects will be completed with highly skilled workers” and “provide for peaceful, orderly, and mutually binding procedures for resolving labor issues without labor disruption, which historically has resulted in significant lost time on construction projects” ([EO 19-02, 2019](#)). As a result, Governor Pritzker reportedly executed more than 800 PLAs during his first term in office between 2019 and 2022, including hundreds of Illinois Department of Transportation (IDOT) horizontal highway and bridge projects and hundreds of Capital Development Board (CDB) vertical building projects ([Donald, 2022](#)).

This report, conducted by researchers at the Illinois Economic Policy Institute and the Project for Middle Class Renewal at University of Illinois at Urbana-Champaign, evaluates the impact of project labor agreements, specifically on Illinois Capital Development Board projects and primarily following the Executive Order. The report first provides background information before discussing the existing research on PLAs. Then, the CDB project data is detailed. Effects of PLAs on the number of bidders, total construction costs, the share of projects awarded below their engineer’s estimates, and the market share of projects awarded to different groups of contractors are subsequently assessed on CDB projects awarded between 2017 and 2023. A discussion section follows before a conclusion recaps key findings.

Background on Projects Labor Agreements

There are common characteristics of all project labor agreements ([USDOL, 2024a](#); [Belman & Bodah, 2010](#); [Mayer, 2010](#)). The essential elements are provisions that ban strikes and lockouts, harmonization of working hours between the different construction trades and coordination of starting times, and collectively bargained wages, fringe benefits, and training contributions for workers on the project. These features provide certainty for project owners, enable access to skilled workers for contractors, and promote job quality for workers.

Project labor agreements can also ensure that taxpayer funding achieves other outcomes ([USDOL, 2024a](#); [Ormiston & Duncan, 2022](#); [Belman & Bodah, 2010](#)). PLAs can bolster pre-apprenticeship programs and contain aspirational hiring goals, including for local workers and military veterans. Similarly, PLAs can

incentivize participation of local firms. Many PLAs contain provisions related to drug and alcohol testing to confirm safe working conditions on jobsites where skilled tradespeople often operate dangerous machinery.

Project labor agreements were initially concentrated around big, long-lasting, and rural construction projects (Belman, Bodah, & Philips, 2007). Many PLAs contained provisions to establish market-competitive wages and safe working conditions that would attract qualified workers and no-strike provisions to insulate owners from conflicts between local trade unions and contractors. However, in the 1990s when the industry experienced a boom with low unemployment rates, construction users were demanding more skilled workers. PLAs emerged as a tool for delivering an uninterrupted supply of qualified craft workers and for expanding registered apprenticeship programs that could meet longer-term industry labor supply needs (Belman, Bodah, & Philips, 2007). Over recent years, PLAs have added supplementary mechanisms to support local economies and promote community redevelopment efforts (Belman & Bodah, 2010; USDOL, 2024a).

Project labor agreements have a long history in the private sector (Hill International, 2011). Corporations like Apple, Intel, Honda, General Motors, British Petroleum, Proctor & Gamble, Wal-Mart, Disney, Ørsted North America, Dominion Energy, and Micron Technology regularly employ PLAs on complex construction projects—from warehouses to data centers to offshore wind developments (McFarland, 2022; Moran, 2011; Mayer, 2010). Power plants and pipelines often utilize PLAs (BLE, 2005). Gaming companies like Bally’s and Hard Rock Casino have signed PLAs to build casinos in Illinois (Briggs, 2022; Clark & Carpello, 2021). In the National Football League (NFL), 12 of out 18 stadiums built or renovated between 1998 and 2016 were constructed with PLAs (67 percent) (BCTD, 2012).

Project labor agreements have been applied to public projects since at least the 1930s (Mayer, 2010). The Tennessee Valley Authority, the nation’s largest public power company, has used a master PLA since 1991 and entered into a 10-year extension through 2031 (Hill International, 2011; TVA, 2020). PLAs have been used on school construction projects, road construction projects, affordable housing projects, and large building projects (Ormiston & Duncan, 2022; Belman et al., 2010; Philips & Waitzman, 2021; Belman, Bodah, & Philips, 2007; Philips & Littlehale, 2015; Manzo & Bruno, 2015). In 2022, President Joe Biden issued an Executive Order requiring that PLAs be used on federal construction projects worth \$35 million or more. This followed a prior Executive Order encouraging PLAs on federal projects worth \$25 million or more under President Barack Obama (Biden White House, 2022; Obama White House, 2009).

Project labor agreements are widely used across the United States. Between January 2022 and June 2023, there were PLAs on at least 428 public and private projects valued at \$184 billion across the country (NABTU, 2023). Given their widespread usage, it is worth noting that all public PLAs and most private PLAs allow both union and nonunion contractors and subcontractors to bid on projects (Belman & Bodah, 2010; BLE, 2005). For example, President the 2022 Executive Order requiring PLAs on federal construction projects worth \$35 million or more specifically “allow[s] all contractors and subcontractors on the construction project to compete for contracts and subcontracts without regard to whether they are otherwise parties to collective bargaining agreements” (Biden White House, 2022). The U.S. Department of Labor also explicitly noted that “nonunion contractors can choose to bid on projects where PLAs are required or incentivized,” ensuring open competition on taxpayer-funded projects (USDOL, 2024b).

Research on the Effects of PLAs on Construction Costs, Bid Competition, and Cost Savings

There are four peer-reviewed studies that have assessed the impact of project labor agreements on the cost of school construction projects. Three (75 percent) conclude that PLAs do not affect overall costs (Ormiston & Duncan, 2022). Peer review is the process of establishing credibility by submitting research to a group of

anonymous, independent experts who critically evaluate methodologies and conclusions before being accepted for publication.¹

One peer-reviewed study focused on 99 construction projects built at community colleges in California between 2007 and 2016 (Philips & Waitzman, 2021). After accounting for the size and complexity of the project through the engineer's estimate, the location of the project, the business cycle, and the season when the project was awarded, the authors found that the presence of a PLA had no effect on construction costs (Philips & Waitzman, 2021). Another study compared 70 elementary through secondary school construction projects built in Massachusetts from 1996 through 2002. After collecting dozens of characteristics on each project and accounting for project size and complexity, project location, and other important factors, researchers found no evidence that PLAs affected total costs (Belman et al., 2010). A third explored school construction projects in Ohio, many of which included PLAs and others which incorporated construction market standards such as prevailing wages and participation in apprenticeship training programs. The researchers evaluated 63 schools built with responsible contractor policies against 256 schools without such policies between 1997 and 2008 and found that they had “no discernible statistical impact on construction bid costs” after controlling for geographic location and other factors (Waddoups & May, 2014).

The only peer-reviewed study which suggested that PLAs increased costs was an earlier 2007 study that looked at 126 kindergarten through high school construction projects in Massachusetts between 1995 and 2003 (Bachman & Haughton, 2007). The authors estimated that PLAs increased total construction costs by between 9 percent and 15 percent, and produced five non-peer-reviewed articles on the impact of PLAs on school construction costs in Connecticut, New York, Ohio, New Jersey, and Connecticut again—all of which found similar cost effects (Bachman, Haughton, & Tuerck, 2004; Bachman & Tuerck, 2006; Bachman & Tuerck, 2017; Burke & Tuerck, 2019; Burke & Tuerck, 2020). However, the results of the original study and its offshoots have been called into question by numerous academic researchers (Ormiston & Duncan, 2022; Kotler, 2011; Belman, Bodah, & Philips, 2007). The primary critiques are that the authors used “lean statistical models” that failed to account for project size and complexity and that they do not account for the location of construction, such as whether the project was completed in an urban area where costs are generally higher (Ormiston & Duncan, 2022). These methodological shortcomings likely biased and inflated their results.

In fact, a study modeled closely after these articles assessed 108 New England school projects (Belman, Bodah, & Philips, 2007). The difference was that the authors gathered more detailed information on each school project, *including* whether the project was completed in an urban area as well as measures of project size and facility type being constructed—such as an auditorium, cafeteria, or kitchen. After accounting for 30 factors, PLAs had no statistically significant effect on school construction costs. The authors concluded that any cost effects “likely have little to do with the PLA itself, but result from the additional amenities or requirements that are inherent in large, complex jobs, which are more likely to be covered by PLAs” (Belman, Bodah, & Philips, 2007).

The analysis of community college construction projects in California between 2007 and 2016 is the only peer-reviewed study to investigate bid competition (Philips & Waitzman, 2021). Over a 10-year period, there were 263 bids on these 99 projects, including 88 bids on projects covered by PLAs and 175 bids on non-PLA projects.

¹ In peer-reviewed studies and other rigorous analytics, researchers seek to account for all important factors that could statistically influence an outcome to parse out the independent effects of the variable of interest. For example, in construction, building a new maximum-security prison in a major city in 2025 would cost significantly more than renovating a small restroom in a rural public park did in 2015. In this case, researchers would seek to control for the project size and complexity, the project type, whether it is new construction or a renovation, the location of the project, and either the year or a construction price index to account for inflation over time. More bid competition also tends to lower the final contract price, which is a factor that many researchers account for in estimating the impact of a policy, such as a PLA, on construction costs.

After accounting for project size, project location, the business cycle, and the season when the project was awarded, PLAs had no effect on the number of bidders. In fact, the projects with PLAs had slightly more bidders than those without ([Philips & Waitzman, 2021](#)).

A non-peer-reviewed study in 2024 evaluated 366 bids submitted on 95 aviation and seaport construction projects by the Port of Seattle between 2016 and 2023 found an average of 4.3 bids on the 23 PLA-covered projects and 3.7 bids on the 72 non-PLA projects ([Manzo & Bruno, 2024](#)). After controlling for project size and complexity as well as other factors, the number of bids was not statistically different on PLA projects relative to non-PLA projects. PLAs also had no effect on total construction costs after accounting for project size and complexity, bid competition, and other factors ([Manzo & Bruno, 2024](#)).

There are three other studies that have looked at bid competition. One compared two school districts in San Jose, California, where one district chose to build with PLAs while the other did not ([Belman, Bodah, & Philips, 2007](#)). The researchers accessed 164 total projects, including 108 built prior to the PLA going into effect and 56 while it was in place, with 21 specifically covered by the PLA. After accounting for other important factors, the PLA had “no statistically significant effect on the number of bidders” ([Belman, Bodah, & Philips, 2007](#)). Another study explored 125 construction projects built in Washington State, including 62 with PLAs and 63 without ([Bachman, Burke, & Tuerck, 2019](#)). The report claimed that PLAs reduced bid competition by 0.8 bidders per project, but the authors did not account for the location of the project—specifically whether construction took place in Seattle, which could have accounted for differences on PLA and non-PLA projects ([Ward, 2021](#)). A third report looked within Seattle between 2015 and 2021 and found that the average number of prime contractors bidding on projects covered by PLAs was the same (3.6 bids) as comparable projects conducted without PLAs (3.6 bids) ([Seattle FAS, 2022](#)).²

Finally, studies have found that PLAs keep projects within budget. A cost effectiveness study by Hill International analyzed a PLA used by the New York City School Construction Authority from 2005 to 2009. The report found that the “total of major quantifiable cost savings resulting from utilization of a PLA in construction amount[ed] to \$221 million” over five years ([Hill International, 2011](#)). Notably, the collective bargaining agreements of all unions involved were renegotiated and, while two unions went on strike during the time of the PLA, construction continued uninterrupted.³ Another case study of seven buildings constructed between 2008 and 2015 at the College of Marin in California compared three projects completed with PLAs to four projects that were not. The PLA-covered projects were awarded for 25 percent less than their engineer’s estimates and the non-PLA projects were awarded for 21 percent less ([Waitzman & Philips, 2017](#)).

Most academic studies find that project labor agreements do not affect total construction costs. PLAs stabilize project costs because they do not reduce the level of bid competition, promote stability in the labor supply, produce better safety outcomes, and can lead to more efficient usage of fuels and materials due to project coordination. By utilizing skilled workers, prohibiting strikes and lockouts, and ensuring competitive bidding from contractors, PLAs help control infrastructure costs and can deliver taxpayer savings on public projects.

² Another example of competitive bidding is the New York State Energy Research and Development Authority, which required prospective lessees for its first wind farm to enter into good faith negotiations for a PLA, garnering 18 proposals from four developers, which was “the most competitive market response to date among all U.S. state offshore wind solicitations” ([NYSERDA, 2019](#)).

³ These two unions went on strike at all their other worksites—from apartment buildings to large developments to road construction projects in New York City—but, because the PLA was in place, they were prevented from doing so on school construction projects.

Research on the Effects of PLAs on Completion Times and Hiring Local

PLAs have been associated with other outcomes, including a timelier completion of projects and improved workforce recruitment to combat labor shortages in the industry. Qualitative interviews of industry representatives who have experience with PLAs reveal that they believe “the greatest benefit of PLAs [i]s in assuring timely completion of a project” (Belman, Bodah, & Philips, 2007). Many PLAs specifically include language to hire apprentices and local workers (Ormiston & Duncan, 2022). In fact, from 1995 to 2010, an estimated 75 percent of PLAs promoted the hiring of veterans, 54 percent included apprenticeship utilization goals, and 38 percent set local hiring goals (Figueroa, Grabelsky, & Lamare, 2011).

Public projects built with PLAs are completed faster than those built without PLAs. An analysis of 292 infrastructure projects—including 59 covered by PLAs—constructed in Sacramento County, California between 2018 and 2023 used publicly available certified payroll records to evaluate the number of calendar days each project took to finish (Petrucci, Dunn, & Hinkel, 2023). Researchers found that, after accounting for project size, whether it occurred in an urban area, the awarding body, and other important factors, PLA-covered projects come in between 15 percent and 19 percent faster than non-PLA projects at statistically significant levels (Petrucci, Dunn, & Hinkel, 2023).

In the private sector, three recently built NFL stadiums also provide examples of project labor agreements providing on-time project delivery and expanding the construction workforce supply pool. MetLife Stadium in New Jersey was built with a PLA and opened four months ahead of schedule (BCTD, 2012). US Bank Stadium in Minnesota was constructed with a PLA and was completed six weeks ahead of schedule, with 45 percent of the 7,500 jobs created by the project held by women and people of color—two groups that have historically been underrepresented in the industry (BCTD, 2012; MMPS, 2013; US Bank Stadium, 2023; Glass & Walter, 2023). Allegiant Stadium in Las Vegas was built with a PLA and finished on time and on budget while meeting local hire goals (Slowey & Tyler March, 2018). Nevada residents accounted for 80 percent of the workforce, and Nevada-based contractors performed 70 percent of the work (Akers, 2020).

With the nation facing historic demand for construction services and many contractors reporting labor shortages, the impact of PLAs on domestic labor supply pools has become a key focus of research. An evaluation of 55 Port of Seattle projects that had apprenticeship and aspirational hiring goals from 2020 through 2022, including 20 PLA projects and 35 non-PLA projects, found that PLA projects boost apprenticeship training and expand construction career opportunities to more workers (Manzo & Bruno, 2024). PLA projects statistically had 5 percentage points more labor hours worked by apprentices and were 23 percentage points more likely to achieve apprenticeship utilization goals. Furthermore, women and people of color accounted for larger shares of apprentice hours on PLA projects than non-PLA projects (Manzo & Bruno, 2024).

Lastly, a previous case study conducted by researchers at the Illinois Economic Policy Institute and the University of Illinois at Urbana-Champaign investigated 317 Illinois Capital Development Board building projects construction with PLAs from 2011 through 2013 (Manzo & Bruno, 2015). The data showed that the average winning low bid was 5 percent below the engineer’s estimate, indicating that PLA projects came in on or under budget for taxpayers. In addition, minority and women business enterprise (MWBE) firms accounted for 12 percent of pre-qualified firms eligible to bid on these PLA-covered projects and were awarded 13 percent of their total construction value, a proportionate share (Manzo & Bruno, 2015).

Illinois Capital Development Board Projects, Data, and Methodology

On his first day as Governor of Illinois on January 15, 2019, JB Pritzker signed an Executive Order requiring all state agencies to “immediately take action to comply with the Project Labor Agreements Act” ([EO 19-02, 2019](#)). Initially passed in 2011 and amended three times since its enactment, the Project Labor Agreements Act states that Illinois “has a compelling interest in awarding public works contracts so as to ensure the highest standards of quality and efficiency at the lowest responsible cost” and that State departments, agencies, authorities, boards, and related organizations shall include a PLA on a project-by-project basis when it “advances the State’s interests of cost, efficiency, quality, safety, timeliness, skilled labor force, labor stability, or the State’s policy to advance minority-owned and women-owned businesses and minority and female employment” ([ILGA, 2025a](#)).⁴ The Act states that each PLA shall contain guarantees against strikes and lockouts, ensure a reliable source of skilled and experienced labor, and select the lowest qualified responsible bidder “without regard to union or nonunion status” ([ILGA, 2025a](#)).

The Illinois Capital Development Board (CDB) immediately complied with the Executive Order. The Capital Development Board is the state’s vertical construction management agency. The CDB oversees the construction, renovation, and rehabilitation of state facilities, such as state-owned buildings, college and university buildings, state parks, prisons and Department of Corrections facilities, and mental health institutions ([CDB, 2025](#)). In Fiscal Year 2024, the CDB had \$8.8 billion in direct capital appropriations and was managing the design and construction of 487 active projects at state facilities valued at \$3.7 billion and 181 active projects at colleges and universities valued at \$2.5 billion ([Illinois OMB, 2024](#)).

Following Pritzker’s Executive Order on PLAs, Illinois lawmakers passed the multi-year Rebuild Illinois capital program ([ILEPI, 2025](#)). Signed by Governor Pritzker in June 2019, this \$45 billion improvement program addressed years of neglect of state infrastructure. It provided funding to revitalize and repair Illinois’ transportation system, state facilities, university buildings, water systems, and broadband internet connectivity. Supplementing this work, the federal Infrastructure Investment and Jobs Act (IIJA)—also referred to as the Bipartisan Infrastructure Law—passed in November 2021 and granted billions of additional dollars to Illinois to modernize and rebuild its infrastructure systems ([Biden White House, 2021](#)). Through January 2024, the Bipartisan Infrastructure Law had delivered nearly \$15 billion in federal funding on more than 380 specific infrastructure projects in Illinois ([Illinois OMB, 2024](#)). These public investments have increased the demand for construction contractors, skilled tradespeople, and registered apprentices. The number of registered apprentices in Illinois’ construction and utilities industries increased from about 13,700 apprentices in fiscal year 2018 to more than 17,500 apprentices in fiscal year 2024, a 28 percent growth over six years ([DOLETA, 2025](#)).

In early 2024, two Illinois Freedom of Information Act (FOIA) requests were submitted to the Capital Development Board. Data on contract awards for all projects categorized under new construction and remodel and rehabilitation for “General Trades” were requested for the eight-year period from 2016 through 2023. General trades were selected because it is the most common work type given for CDB projects.⁵ These projects were selected to ensure an apples-to-apples comparison of public building projects with and without

⁴ In Illinois, the term “minority-owned business” refers to a business or corporation which is at least 51 percent owned by one or more persons who are Black, Hispanic, Asian American, or Native American or Alaskan Native ([ILSOS, 2023](#)).

⁵ See the “Solicitations” and “Unofficial Solicitation Results” webpages for example data available to construction contractors pre-bid and to the taxpaying public post-award ([CDB, 2024a](#); [CDB, 2024b](#)). Under Trade, “General- Remod & Rehab” and “General - Construction (New)” are the most common listed. Others include, but are not limited to: “Asbestos Work- Remod & Rehab,” “Ventilation- Remod & Rehab,” “Electrical- Remod & Rehab,” “Plumbing- Remod & Rehab,” “Plumbing- Remod & Rehab,” “Sprinklers Remod & Rehab,” “Heating & Air Conditioning- Remod & Rehab,” and “Temperature Controls Remod & Rehab” ([CDB, 2024b](#)).

project labor agreements. The project location, county, city, engineer’s estimate, award date, award amount, winning contractor, number of bids submitted, name of and amounts submitted by all firms bidding on each project, and minority business enterprise (MBE), female business enterprise (FBE), and veteran business enterprise (VBE) status of firms bidding on each project were requested. The Capital Development Board fulfilled the first FOIA request within one week and a second FOIA request containing information on whether each project included a PLA within one week in March 2024.⁶

The full dataset of comparable public building projects has 773 Illinois Capital Development Board projects awarded between January 2017 and December 2023.⁷ For each project, the complete information includes an identifying project number and description, whether the project included a PLA, whether it was a new construction project or a remodel or rehabilitation project, the engineer’s estimate of the project cost, any MBE, FBE, and VBE goals, the month and year of the bid letting, the number of bids submitted, the award amount to the winning low bidder, the difference between the award amount (low bid) and the engineer’s estimate, and the proposed amounts for MBE, FBE, and VBE firms.⁸ Because Pritzker’s Executive Order on PLAs ensured agencies had discretion in utilizing PLAs on a case-by-case basis, it allowed for them to be utilized on complex projects that most needed construction management tools while enabling other, mostly smaller projects to proceed without them. As a result, project costs averaged \$2,176,085 for PLA projects and \$572,746 for non-PLA projects, with the largest project in the dataset being the new construction of the Performing Arts Center at Western Illinois University, a \$103,603,000 PLA project. The largest project that was not covered by a PLA cost \$9,530,000 for various improvements at the Illinois Department of Transportation (IDOT) District 6 Hanley Building in Springfield. Comparisons of projects across all sizes are made to determine the effect of PLAs.

To parse out the independent effects of project labor agreements on the number of bids and total construction costs, advanced but common statistical techniques called “regressions” are utilized. Regressions describe how much a variable is responsible for a particular outcome after accounting for other important factors. For example, a robust ordinary least squares (OLS) regression can evaluate how much a PLA increases or decreases the average cost of a Capital Development Board building project after accounting for project size and complexity, the number of bidders, the type of project, whether the project has any Disadvantaged Business Enterprise goals attached, the location of the project, the award month, and a time trend to account for both price inflation and business cycle dynamics. Similarly, a robust probit regression, with average marginal effects, can be used to understand how much a PLA increases or decreases the probability of a project coming in under the engineer’s estimate. The size and complexity of the project are controlled for through the engineer’s estimate, consistent with accepted practice in academic research ([Philips & Waitzman, 2021](#); [Belman et al., 2010](#); [Waddoups & May, 2014](#); [Duncan, 2015](#)).

The Impacts of Project Labor Agreements on Capital Development Board Projects

Summary statistics for the 773 general trades building projects awarded by the Illinois Capital Development Board from January 2017 through December 2023 are reported in Figure 1. The total value of all public construction work in the sample is \$1.24 billion. The data indicate that projects with PLAs differ from those

⁶ The authors wish to thank Chris Miles, Executive II, at the Illinois Capital Development Board for timely and complete responses to the FOIA requests.

⁷ Although the authors requested and received data from 2016, those projects were omitted because all 44 projects were awarded without a PLA (0 projects included a PLA). Consequently, no “apples-to-apples” comparisons could be made using data from 2016.

⁸ For state projects, there is a uniform project labor agreement that is often referred to as the “statewide standard PLA.”

without in a few significant ways. There were 499 projects with PLAs, representing 65 percent of all projects in the sample. These projects had an average engineer’s estimate of \$1.97 million compared to an average engineer’s estimate of \$576,000 on the 274 projects without PLAs, a 243 percent difference. The projects with PLAs had an average cost of \$2.18 million, resulting in a cumulative investment of \$1.09 billion and accounting for 87 percent of the total project value (or total spending on general trades projects) by the Capital Development Board since 2017. At first glance, the total award amount relative to the total engineer’s estimates shows that projects with PLAs came in about 10 percent above budget compared to those without PLAs, but this difference could be due to several factors. For example, although there were about two times as many PLA projects (499) as non-PLA projects (274), there were three times as many PLA projects in the Chicago metro area (100 vs. 35) and in Sangamon County, which contains the state’s capital (84 vs. 35). If projects located in urban areas tend to cost more, then that could influence this finding. By the engineer’s estimate, the most notable difference was among projects valued above \$1 million, with 178 projects covered by PLAs falling in this group compared to just 46 non-PLA projects (Figure 1).

FIGURE 1: STATS ON ILLINOIS CAPITAL DEVELOPMENT BOARD PROJECTS, WITH AND WITHOUT PLAs, 2017-2023

Public Construction Metric, 2017-2023	Projects without PLAs	Projects with PLAs	PLA Difference
Number of Projects Awarded	274	499	+82.1%
Average Engineer’s Estimate	\$575,519	\$1,972,550	+242.7%
Average Project Value (Award Amount)	\$572,746	\$2,176,085	+279.9%
Total Value of Projects (Award Amount)	\$156,932,267	\$1,085,866,415	+591.9%
Award Amount vs. Engineer’s Estimate	-0.5%	10.3%	+10.8%
Average Number of Bids	3.3	3.4	+3.5%
Total Number of Bids	892	1,682	+88.6%
Number of Rehab and Remodel Projects	231	432	+87.0%
Number of New Construction Projects	87	67	-23.0%
Number of Chicago Metro Area Projects	35	100	+187.2%
Number of Sangamon County Projects	24	83	+240.6%
Number of Statewide Projects	97	59	-39.5%
Engineer’s Estimate: Projects Valued \$0-\$99,999	102	128	+25.3%
Engineer’s Estimate: Projects Valued \$100,000-\$999,999	169	193	+13.9%
Engineer’s Estimate: Projects Valued \$1,000,000+	46	178	+283.4%
Projects with Any DBE Goals	54.4%	62.7%	+8.3%

Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b).

Figure 2 presents the breakdown of projects with and without PLAs before-and-after Governor Pritzker’s Executive Order. There are a comparable number of projects without PLAs prior to the Executive Order (151) and after (123), and their average cost is generally consistent over time—\$576,000 per project before and \$569,000 per project after. Additionally, bid competition on projects without PLAs averaged 3.2 bids per project pre-Executive Order and 3.3 bids per project post-Executive Order (Figure 2).

For projects with PLAs, on the other hand, there was a considerable shift following the Executive Order (Figure 2). There were a handful of PLA projects (8) before the Executive Order, but the vast majority (491) were awarded after. Their bid competition increased from 3.1 bids per project to 3.4 bids per project. However, while their average value stayed around \$2 million per project, it did increase from \$1.97 million per project to \$2.18 million per project. It is important to consider that the rise in PLA projects occurred during a period of high inflation as well as on the heels of an influx of funding from the Rebuild Illinois and Infrastructure Investment and Jobs Act that further intensified demand for contractors and skilled tradespeople.

FIGURE 2: STATS ON ILLINOIS CAPITAL DEVELOPMENT BOARD PROJECTS, PRE- AND POST-PLA EXECUTIVE ORDER, 2017-2023

Public Construction Metric, 2017-2023	Before Executive Order on PLAs, 2017-2018	After Executive Order on PLAs, 2019-2023
<i>Projects with PLAs</i>		
Number of Projects Awarded	8	491
Average Engineer’s Estimate	\$2,035,827	\$1,971,519
Average Project Value (Award Amount)	\$1,972,189	\$2,179,407
Total Value of Projects (Award Amount)	\$15,777,512	\$1,070,088,837
Average Number of Bids	3.1	3.4
Total Bids	25	1,657
<i>Projects without PLAs</i>		
Number of Projects Awarded	151	123
Average Engineer’s Estimate	\$564,384	\$589,188
Average Project Value (Award Amount)	\$575,764	\$569,040
Total Value of Projects (Award Amount)	\$86,940,349	\$69,991,932
Average Number of Bids	3.2	3.3
Total Number of Bids	485	407

Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b).

Bid Competition

Overall bid competition has averaged around 3 bids on Illinois Capital Development Board projects since 2017 (Figure 3). The number of bids was 3.3 per project in 2017 and fell to 3.1 bids per project in 2018. However, there was a noticeable uptick in bid competition following the Executive Order on project labor agreements. In the year the Executive Order was issued, bids per project increased to 3.8, a gain of 0.7 bids (23 percent). The rise in bid competition persisted for two years, with bids averaging 3.9 per project in 2020 and 3.6 per project in 2021, before falling below 3.0 per project in both 2022 and 2023 (Figure 3).

FIGURE 3: STATS ON BID COMPETITION, NUMBER OF GENERAL TRADES CDB PROJECTS, AND TOTAL BIDS BY YEAR, 2017-2023

Illinois Capital Development Board General Trades Project Lettings, 2017-2023			
Year	Bids Per Project	Number of Projects	Total Bids
2017	3.3	68	223
2018	3.1	96	299
2019	3.8	109	417
2020	3.9	120	462
2021	3.6	149	536
2022	2.6	127	336
2023	2.9	104	299
Total (Full Sample)	3.3	773	2,572

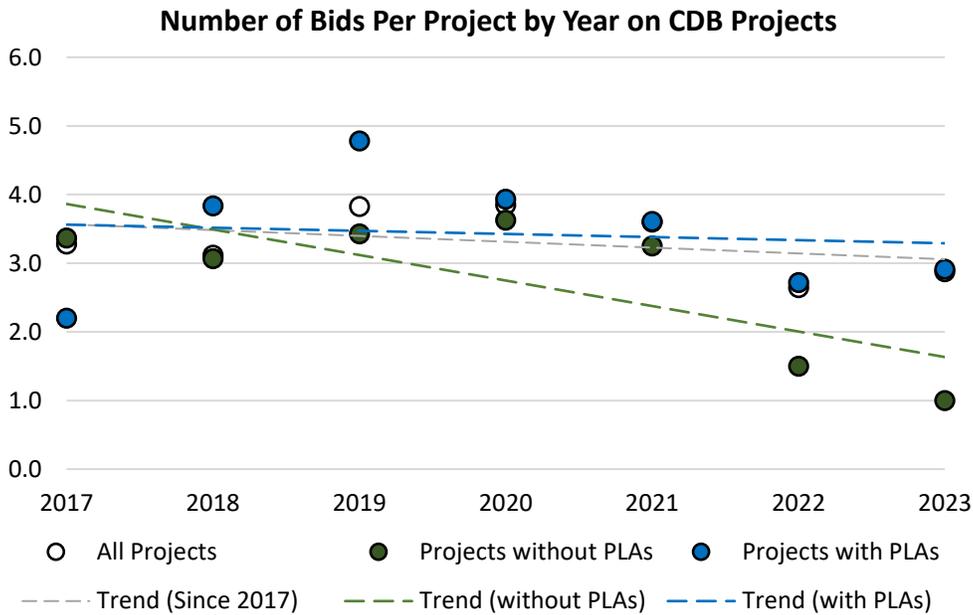
Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b).

This decrease in competition for each individual project in 2022 and 2023 was likely driven by a tightening labor market and greater demand for construction services (AGC, 2023; AGC, 2022; Manzo, Petrucci, & Bruno, 2022). Notably, even though the number of *bids per project* ended the seven-year period of analysis below where it began, the *total number of bids* submitted by construction contractors increased significantly starting in 2019 following the Executive Order on PLAs and passage of the Rebuild Illinois infrastructure program. For example, although the Capital Development Board received fewer bids per project in 2022 than in 2017 (2.6

versus 3.3), there were 336 total bids submitted by construction contractors on public building projects involving general trades, a 50 percent increase over 2017 levels (223 total bids submitted) (Figure 3).

Figure 4 graphically depicts the average number of bids for Capital Development Board projects with and without PLAs over time. In six of the seven years, projects with PLAs averaged more bids than those without PLAs. The non-PLA projects ranged from 3.1 bids per project to 3.6 bids per project from 2017 through 2021 before falling below 2.0 bids per project after 2022. Conversely, PLA projects had a low of 2.2 bids per project in 2017, then averaged between 3.6 and 4.8 bids per project each year thereafter until 2022 and 2023, when the average fell to 2.7 bids and 2.9 bids, respectively (Figure 4).

FIGURE 4: BID COMPETITION ON CDB PROJECTS, PROJECTS WITH AND WITHOUT PLAs, LEVELS AND TRENDS, 2017-2023



Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b).

Statistical analysis of all 2,574 bids submitted on 773 Capital Development Board projects awarded from 2017 through 2023 provides an opportunity to examine the effects of the project labor agreements on bid competition. The models account for project size and complexity through the engineer’s estimate. They also account for type of construction, whether the project has any Disadvantaged Business Enterprise (DBE) goals attached, the location of the project, the month of the bid letting, and an annual time trend to account for the business cycle and increasing demand for construction services during this period. Findings are presented in Figures 5 and 6.

The data reveal that project labor agreements increase bid competition (Figure 5). After accounting for project size and complexity, project type, and other important factors, the number of bids submitted by contractors was 14 percent higher on projects covered by PLAs. This effect is statistically significant at the 95-percent level of statistical confidence. The positive impact of PLAs is relative to an overall downward trend in the level of bid competition that materialized in the year variable, which showed a 7 percent annual decrease in bids per project that is independent and would have occurred regardless of whether the agency complied with the Project Labor Agreements Act (Figure 5).

FIGURE 5: ROBUST REGRESSION OF PLAs ON BID COMPETITION, ILLINOIS CDB PROJECTS, 2017-2023

Variables for Robust OLS Regression: All Projects	Bid Competition Ln(Number of Bids)	Ln(Number of Bids) In Plain English
Project Labor Agreements	+0.135** (0.068)	+14.5%
Ln(Engineer’s Estimate)	+0.018* (0.010)	<i>No effect</i>
Project Type: Remodel or Rehab	-0.184*** (0.055)	-16.8%
Project Location: Chicago Area	+0.280*** (0.063)	+32.2%
Project Location: Sangamon County	+0.055 (0.060)	<i>No effect</i>
Project Location: Statewide	-0.008 (0.051)	<i>No effect</i>
Project Has a DBE Goal	+0.098** (0.047)	+10.3%
Bid Month: January	-0.009 (0.119)	<i>No effect</i>
Bid Month: February	-0.292** (0.129)	-25.2%
Bid Month: March	-0.203 (0.111)	<i>No effect</i>
Bid Month: April	-0.275** (0.109)	-24.1%
Bid Month: May	-0.343*** (0.100)	-29.0%
Bid Month: June	-0.253** (0.109)	-21.4%
Bid Month: August	-0.174 (0.107)	<i>No effect</i>
Bid Month: September	-0.153 (0.102)	<i>No effect</i>
Bid Month: October	-0.002 (0.118)	<i>No effect</i>
Bid Month: November	-0.044 (0.123)	<i>No effect</i>
Bid Month: December	-0.369*** (0.116)	-30.8%
Time Trend: Year Ordinal	-0.074*** (0.017)	-7.1%
Constant	+1.282*** (0.168)	3.6 bids
Sample Size (N=)	773	773
R ²	0.148	0.148

Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b). *p<|0.01|; **p<|0.05|; *p<|0.10| (two-tailed tests). Standard errors are in parentheses. “Ln” refers to the natural logarithm, which is used to “normalize” the award amounts and engineer’s estimates and effectively analyze the results in percentage terms. Regression outputs are converted to percent changes using correct adjustments to interpret natural logarithms (Kennedy, 1981; IDRE, 2025). For example, the coefficient for Project Labor Agreements is 0.135. The correct interpretation of this result is $e^{(coefficient)}-1$ or $e^{0.135}-1 = +14.5\%$.

Other factors that statistically influenced the number of bids were remodel and rehabilitation projects having 17 percent fewer bids than new construction projects, projects located in the Chicago metropolitan area having 32 percent more bids than those located across the rest of Illinois, projects having Disadvantaged Business Enterprise goals experiencing 10 percent more bids than those without, and specific months seeing significantly fewer bids per project. Projects awarded in December had 31 percent fewer bids on average relative to those awarded in July (Figure 5).

To better understand how project labor agreements may affect the number of bids per project, Figure 6 evaluates bid competition based on three intervals of project size and complexity. Of the 773 Capital Development Board projects awarded from 2017 through 2023, there were 216 with engineer’s estimates less than \$100,000 (28 percent), 339 with engineer’s estimates between \$100,000 and \$999,999 (44 percent), and 218 with engineer’s estimates that were \$1 million or more (28 percent). After accounting for other important factors, the presence of a PLA did not have a statistically significant impact on the number of bids submitted by contractors for any class of project valuation. This suggests that the average effect on all projects was stronger than any concentrated effect by project size and complexity (Figure 6).

FIGURE 6: ROBUST REGRESSIONS ON BID COMPETITION, BY ILLINOIS CDB PROJECT SIZE AND COMPLEXITY, 2017-2023

Variables for Robust OLS Regression: Ln(Number of Bids)	Projects by Engineer’s Estimate		
	Less than \$100,000	\$100,000-\$999,999	\$1 Million or More
Project Labor Agreements	+0.012 (0.122)	+0.094 (0.097)	+0.191 (0.130)
Project Type: Remodel or Rehab	+0.012 (0.103)	-0.440*** (0.076)	-0.009 (0.102)
Project Location: Chicago Area	+0.251** (0.126)	+0.314*** (0.094)	+0.301*** (0.109)
Project Location: Sangamon County	+0.137 (0.096)	+0.074 (0.099)	-0.030 (0.100)
Project Location: Statewide	+0.068 (0.088)	-0.097 (0.078)	+0.074 (0.097)
Project Has a DBE Goal	+0.243*** (0.082)	+0.011 (0.069)	-0.011 (0.099)
Bid Month Variables	<i>Included</i> <i>(Incl.)</i>	<i>Included</i> <i>(Incl.)</i>	<i>Included</i> <i>(Incl.)</i>
Time Trend: Year Ordinal	-0.051* (0.030)	-0.070*** (0.024)	-0.107*** (0.031)
Constant	+1.154*** (0.184)	+1.808*** (0.173)	+1.614*** (0.235)
Sample Size (N=)	216	339	218
R ²	0.284	0.209	0.200
Impact of PLAs in Plain English	No effect	No effect	No effect

Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b). *p<|0.01|; **p<|0.05|; *p<|0.10| (two-tailed tests). Standard errors are in parentheses. “Ln” refers to the natural logarithm, which is used to “normalize” the award amounts and engineer’s estimates and effectively analyze the results in percentage terms. Regression outputs should be converted to percent changes using correct adjustments to interpret natural logarithms (Kennedy, 1981; IDRE, 2025). For example, the coefficient for Project Location: Chicago Area on projects valued at \$1 million or more is 0.301. The correct interpretation of this result is $e^{(coefficient)-1}$ or $e^{0.301-1} = +35.1\%$.

FIGURE 7: ROBUST REGRESSION OF PLAs ON CONSTRUCTION COSTS, ILLINOIS CDB PROJECTS, 2017-2023

Variables for Robust OLS Regression: All Projects	Construction Costs Award Amount	Construction Costs Ln(Award Amount)	Ln(Award Amount) In Plain English
Project Labor Agreements	-\$77,313 (\$101,715)	+0.056 (0.053)	No effect
Engineer’s Estimate or Ln(Estimate)	+\$1.138*** (\$0.096)	+0.955*** (0.014)	+95.5%
Number of Bids	-\$122,646*** (\$33,977)	-0.037*** (0.010)	-3.7%
Project Type: Remodel or Rehab	-\$239,090* (\$134,489)	+0.040 (0.052)	No effect
Project Location: Chicago Area	-\$316,104 (\$306,323)	-0.005 (0.054)	No effect
Project Location: Sangamon County	+\$25,155 (\$127,154)	+0.026 (0.058)	No effect
Project Location: Statewide	+66,330 (\$187,367)	-0.023 (0.054)	No effect
Project Has a DBE Goal	-\$44,649 (\$105,753)	+0.083* (0.046)	No effect
Bid Month: January	-\$325,637 (\$201,665)	+0.022 (0.108)	No effect
Bid Month: February	-\$322,804* (\$178,463)	-0.092 (0.093)	No effect
Bid Month: March	-\$45,639 (\$132,654)	+0.071 (0.093)	No effect
Bid Month: April	-\$330,830 (\$211,407)	-0.054 (0.086)	No effect
Bid Month: May	+\$21,936 (\$204,490)	+0.026 (0.075)	No effect
Bid Month: June	-\$247,259* (\$134,386)	-0.096 (0.083)	No effect
Bid Month: August	+\$10,543 (\$153,931)	+0.022 (0.074)	No effect
Bid Month: September	-\$205,061 (\$169,881)	-0.057 (0.082)	No effect
Bid Month: October	+\$230,851 (\$327,085)	-0.110 (0.090)	No effect
Bid Month: November	-\$49,387 (\$116,403)	-0.074 (0.085)	No effect
Bid Month: December	-\$22,665 (\$167,754)	+0.019 (0.077)	No effect
Time Trend: Year Ordinal	+\$62,230* (\$37,423)	+0.017 (0.015)	No effect
Constant	+\$451,299* (\$259,473)	+0.565*** (0.182)	--
Sample Size (N=)	773	773	773
R ²	0.947	0.929	0.929

Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b). *p<|0.01|; **p<|0.05|; *p<|0.10| (two-tailed tests). Standard errors are in parentheses. “Ln” refers to the natural logarithm, which is used to “normalize” the award amounts and engineer’s estimates and effectively analyze the results in percentage terms. Regression outputs are converted to percent changes using correct adjustments to interpret natural logarithms (Kennedy, 1981; IDRE, 2025). For example, the coefficient for the number of bidders is -0.037. The correct interpretation of this result is $e^{(coefficient)}-1$ or $e^{-0.037}-1 = +3.7\%$.

FIGURE 8: ROBUST REGRESSIONS ON CONSTRUCTION COSTS, BY ILLINOIS CDB PROJECT SIZE AND COMPLEXITY, 2017-2023

Variables for Robust OLS Regression: Ln(Award Amount)	Projects by Engineer's Estimate		
	Less than \$100,000	\$100,000-\$999,999	\$1 Million or More
Project Labor Agreements	+0.102 (0.143)	+0.072 (0.073)	+0.020 (0.070)
Ln(Engineer's Estimate)	+0.711*** (0.050)	+1.104*** (0.042)	+0.994*** (0.025)
Number of Bids	-0.065** (0.033)	-0.044*** (0.012)	-0.048*** (0.012)
Project Type: Remodel or Rehab	+0.175 (0.134)	+0.035 (0.076)	-0.109** (0.052)
Project Location: Chicago Area	-0.261 (0.183)	+0.412*** (0.101)	-0.008 (0.081)
Project Location: Sangamon County	-0.167 (0.160)	+0.148* (0.089)	+0.034 (0.061)
Project Location: Statewide	-0.233* (0.134)	+0.011 (0.068)	+0.086 (0.059)
Project Has a DBE Goal	+0.327** (0.142)	-0.023 (0.049)	-0.034 (0.059)
Bid Month Variables	<i>Included (Incl.)</i>	<i>Included (Incl.)</i>	<i>Included (Incl.)</i>
Time Trend: Year Ordinal	+0.042 (0.040)	-0.016 (0.020)	+0.034* (0.018)
Constant	+2.994*** (0.581)	-1.179** (0.529)	+0.127 (0.368)
Sample Size (N=)	216	339	218
R ²	0.587	0.757	0.902
Impact of PLAs in Plain English	No effect	No effect	No effect

Source(s): Authors' analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the "General – Construction (New)" and "General – Remod & Rehab" trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b). *p<|0.01|; **p<|0.05|; *p<|0.10| (two-tailed tests). Standard errors are in parentheses. "Ln" refers to the natural logarithm, which is used to "normalize" the award amounts and engineer's estimates and effectively analyze the results in percentage terms. Regression outputs are converted to percent changes using correct adjustments to interpret natural logarithms (Kennedy, 1981; IDRE, 2025).

Construction Costs

There is no evidence that public construction costs are higher due to project labor agreements (Figure 7). After accounting for project size and complexity, the number of bids submitted, the project type, the presence of DBE goals, the location of the project, the month of the letting, and the time trend to account for the business cycle and price inflation, project labor agreements had no statistical effect on the award amount to the winning low bidder on Illinois Capital Development Board projects.

In Figure 7, one model evaluates the data in dollar values and the other converts the data to natural logarithms to "normalize" both the award amounts and the engineer's estimates to effectively analyze results in percentage terms. Both models show that, in a near one-for-one ratio, the award amount—or winning bid price—is highly associated with the engineer's estimate. They also reveal that greater levels of competition are linked with lower bid prices, saving money for taxpayers. For example, each additional bid is statistically associated with a 4 percent decrease in the average winning bid price. The relationships of the engineer's estimate with the award amount and the number of bids with the award amount are significant at the 99-percent level of statistical confidence. PLAs, on the other hand, have no impact on the cost of public building projects (Figure 7).

Figure 8 assesses the impact of PLAs on construction costs based on the \$0-to-\$99,999, \$100,000-to-\$999,999, and \$1-million-and-above intervals of valuation. After accounting for project size and complexity, number of bids, and other important factors, the winning low bid price was not affected by PLAs for all three groups of projects. Once again, the two factors that mattered most were project size and complexity and level of bid competition, with each extra bid reducing the cost to taxpayers by an average of between 4 percent and 6 percent. Except in unique instances, all other factors had no measurable effect on total construction costs (Figure 8).

Projects Awarded Below Engineer’s Estimates

The share of projects that are awarded below their engineer’s estimates can be a gauge of efficiency in the construction industry. While the top priority is always to deliver safe, high-quality infrastructure, project costs may come in above an engineer’s estimate due to lack of bid competition, high project complexity, or higher-than-expected prices for materials, as well as other factors. Risk of projects costing more than their engineer’s estimates may be minimized by using professional contractors who employ highly skilled workers.

After accounting for project size and complexity, the number of bids, the project type, and other important factors, Illinois Capital Development Board projects were no more likely to come in below—or above—their engineer’s estimates if they included project labor agreements (Figure 9). Similar conclusions are reached for projects valued at less than \$100,000, medium-sized projects valued between \$100,000 and \$999,999, and the largest and most complex projects valued at \$1 million and above. PLAs are not associated with higher-than-expected costs from contractors during the public bidding process.

The data do convincingly show that increased bid competition is statistically associated with a higher likelihood that public projects will be awarded below their engineer’s estimates (Figure 9). Each additional bid improves the chances of a public project coming in below its engineer’s estimate by 6 percent overall, and between 5 percent and 8 percent depending on project size and complexity. To the extent that PLAs encourage bid competition, PLAs may be a valuable policy intervention for aligning contractor bids with engineer’s estimates and controlling taxpayer costs.

Business Opportunities for Construction Owners

A higher share of construction work awarded by the Illinois Capital Development Board is performed by businesses owned by women, people of color, and military veterans when it is covered by project labor agreements (Figure 10). From 2017 through 2023, an average of about \$363,000 on projects with PLAs was performed by minority-owned contractors, while \$194,000 was performed by women-owned businesses and \$54,000 was completed by veteran-owned firms.⁹ In comparison, the value of the contract awarded on non-PLA projects averaged \$87,000 for minority-owned businesses, \$41,000 for women-owned businesses, and \$9,000 for veteran-owned businesses. Accordingly, although the average project value of general trades construction work contracted out by the Capital Development Board was 280 percent larger on projects with PLAs than those without PLAs, PLA projects awarded 316 percent more construction value to minority-owned businesses, 374 percent more to women-owned businesses, and 483 percent more to veteran-owned businesses (Figure 10).

⁹ In Illinois, the term “minority-owned business” refers to a business or corporation which is at least 51 percent owned by one or more persons who are Black, Hispanic, Asian American, or Native American or Alaskan Native (ILSOS, 2023).

FIGURE 9: ROBUST PROBITS ON LOW BID COMING IN BELOW ENGINEER’S ESTIMATE, ILLINOIS CDB PROJECTS, 2017-2023

Variables for Robust Probit Regression: Probability Below Engineer’s Estimate	Projects by Size and Complexity			
	All Projects	Less than \$100,000	\$100,000-\$999,999	\$1 Million or More
Project Labor Agreements	-0.041 (0.058)	-0.071 (0.108)	-0.052 (0.087)	-0.070 (0.116)
Ln(Engineer’s Estimate)	+0.017* (0.009)	+0.104*** (0.031)	-0.084** (0.041)	+0.014 (0.038)
Number of Bids	+0.060*** (0.010)	+0.052** (0.022)	+0.059*** (0.017)	+0.077*** (0.017)
Project Type: Remodel or Rehab	+0.075 (0.047)	-0.017 (0.078)	+0.070 (0.081)	+0.198** (0.080)
Project Location: Chicago Area	-0.025 (0.054)	+0.151 (0.108)	-0.103 (0.085)	-0.029 (0.089)
Project Location: Sangamon County	-0.043 (0.056)	-0.013 (0.097)	-0.086 (0.095)	-0.006 (0.092)
Project Location: Statewide	-0.046 (0.052)	+0.043 (0.087)	-0.063 (0.079)	-0.063 (0.094)
Project Has a DBE Goal	-0.012 (0.042)	-0.055 (0.077)	+0.007 (0.063)	+0.047 (0.086)
Bid Month Variables	<i>Included</i> <i>(Incl.)</i>	<i>Included</i> <i>(Incl.)</i>	<i>Included</i> <i>(Incl.)</i>	<i>Included</i> <i>(Incl.)</i>
Time Trend: Year Ordinal	-0.012 (0.015)	-0.007 (0.027)	+0.007 (0.022)	-0.047* (0.028)
Constant	+0.449*** (0.017)	+0.397*** (0.030)	+0.468*** (0.026)	+0.468*** (0.030)
Sample Size (N=)	773	216	339	218
R ²	0.063	0.148	0.078	0.162
Impact of PLAs in Plain English	No effect	No effect	No effect	No effect

Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b). *p<|0.01|; **p<|0.05|; *p<|0.10| (two-tailed tests). Standard errors are in parentheses. All coefficients are average marginal effects (*margins, dydx* in STATA).

Projects with PLAs increased the market shares of minority-owned, women-owned, and veteran-owned enterprises on Illinois Capital Development Board projects (Figure 10). Construction companies owned by people of color experienced a 1 percentage-point increase in their share of the total construction market value, from just over 15 percent on non-PLA projects to over 16 percent on non-PLA projects. Women-owned contractors experienced a 2 percentage-point increase in their market share, from 7 percent on non-PLA projects to 9 percent on PLA projects. Veteran-owned contractors had a market share of about 2 percent on non-PLA projects and approached 3 percent on PLA projects, a difference of 1 percentage point. Expanding opportunities for more construction businesses regardless of background helps to build more small businesses owned by Illinois-based residents and boosts the number of construction firms bidding on public projects, thereby controlling costs for taxpayers.

Greater levels of prosperity for construction businesses owned by people of color, women, and military veterans on projects with PLAs could be due to many factors other than the presence of PLAs. For example, more PLA projects were located in the Chicago area and in the Springfield area. If there are more Black-owned, Hispanic-owned, women-owned, or veteran-owned contractors in these regions, then they may be more likely to win bids regardless of PLA status. Additionally, Rebuild Illinois allowed the state to tackle pressing infrastructure needs and take on larger, more complex projects. If larger projects are better able to hire more local subcontractors, then these firms may have experienced an increase in market share even without the Executive Order expanding the utilization of PLAs. Finally, there are ongoing efforts to expand contractor

access to new domestic labor supply pools. These range from community-based organizations like HIRE360, which includes a business development program and a pre-apprenticeship program in the Chicago area, all the way to state-run initiatives like the Illinois Works Pre-apprenticeship Program—which has enrolled nearly 1,300 pre-apprentices, of whom 60 percent are Black, 19 percent are Hispanic, and 25 percent are women—and the Clean Energy Contractor Incubator Program which provides eligible contractors with access to low-cost capital, assistance for becoming vendors for state incentive programs, mentoring services, and other support services (HIRE360, 2024; DCEO, 2024; DCEO, 2025). These efforts may increase the market shares of minority-owned, women-owned, and veteran-owned businesses on all public works projects regardless of PLA status.

FIGURE 10: DISADVANTAGED BUSINESS ENTERPRISE OUTCOMES ON CAPITAL DEVELOPMENT BOARD PROJECTS, 2017-2023

Disadvantaged Business Enterprise Metrics on Illinois Capital Development Board General Trades Projects, 2017-2023	Projects Without PLAs	Projects With PLAs	PLA Difference
Number of Projects Awarded	274	499	+82.1%
Average Project Value (Award Amount)	\$572,746	\$2,176,085	+279.9%
Average Value to Minority Business Enterprises	\$87,225	\$362,915	+316.1%
Average Value to Women Business Enterprises	\$40,890	\$193,635	+373.6%
Average Value to Veteran Business Enterprises	\$9,222	\$53,778	+483.2%
Minority Business Enterprise Market Share	15.2%	16.7%	+1.4%
Women Business Enterprise Market Share	7.1%	8.9%	+1.8%
Veteran Business Enterprise Market Share	1.6%	2.5%	+0.9%

Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b).

FIGURE 11: ROBUST PROBITS ON MEETING DISADVANTAGED BUSINESS ENTERPRISE GOALS, CDB PROJECTS, 2017-2023

Variables for Robust Probit Regression: Probability Meeting DBE Goals	Probability of Meeting or Exceeding Goal For:		
	Minority Businesses	Women Businesses	Veteran Businesses
Project Labor Agreements	+0.090** (0.042)	-0.004 (0.042)	-0.076* (0.040)
Ln(Engineer’s Estimate)	+0.079*** (0.009)	+0.079*** (0.009)	+0.052*** (0.009)
Number of Bids	-0.002 (0.010)	-0.011 (0.009)	+0.015* (0.009)
Project Type: Remodel or Rehab	+0.092** (0.043)	-0.014 (0.043)	+0.152*** (0.039)
Project Location: Chicago Area	+0.031 (0.053)	+0.008 (0.050)	-0.032 (0.045)
Project Location: Sangamon County	-0.117* (0.061)	-0.021 (0.059)	+0.097* (0.057)
Project Location: Statewide	-0.002 (0.052)	+0.047 (0.049)	+0.054 (0.049)
Constant	+0.700*** (0.020)	+0.770*** (0.018)	+0.803*** (0.018)
Sample Size (N=)	434	430	430
R ²	0.178	0.157	0.116
Impact of PLAs in Plain English	+9.0%	No effect	No effect

Source(s): Authors’ analysis of bid tabulations from 2017 through 2023 for Illinois Capital Development Board projects under the “General – Construction (New)” and “General – Remod & Rehab” trades from January 2024 and March 2024 Freedom of Information Act requests (CDB, 2025; CDB, 2024a; CDB, 2024b). *p<|0.01|; **p<|0.05|; *p<|0.10| (two-tailed tests). Standard errors are in parentheses. All coefficients are average marginal effects (*margins, dydx* in STATA).

Figure 11 takes these and other factors into consideration. After accounting for project size and complexity, the number of bids submitted, the project type, and the location of the project, project labor agreements statistically increased the chances that an Illinois Capital Development Board project met or exceeded minority business enterprise goals by 9 percentage points on average. PLAs did not have a positive or negative effect on the probability of a public project meeting women business enterprise or veteran business enterprise goals. However, across the board, a higher engineer's estimate was associated with an increased likelihood that a minority, women, or veteran business enterprise goal would be met. Larger and more complex projects—which are more likely to be covered by PLAs and which increased following the passage of Rebuild Illinois in 2019 and the Infrastructure Investment and Jobs Act in 2021—are more likely to deliver business opportunities to minority-owned, women-owned, and veteran-owned businesses.

Summary of Key Findings

Results from 2,574 bids submitted on 773 public construction projects built by the Capital Development Board from 2017 through 2023 find that project labor agreements encouraged more bid competition and had no effect on overall construction costs. In six of the seven years, projects with PLAs averaged more bids than those without PLAs. Additionally, projects awarded immediately following Governor Pritzker's PLA Executive Order had more bids (3.8 per project) than those just before (3.1 per project). After accounting for other important factors, the PLAs increased average bid competition by 14 percent. Greater bid competition is an important determinant in reducing overall project costs for taxpayers. As a result, PLAs had no impact on the award amount to the winning low bidder and no impact on the likelihood of a project coming in above the engineer's estimate. However, the data does reveal that the market shares of minority-owned, women-owned, and veteran-owned construction businesses were all between 1 percentage point and 2 percentage points higher on PLA projects. Ultimately, the results are consistent in concluding that project labor agreements stabilize the costs of public construction projects and deliver enhanced economic opportunities for more construction contractors on state-funded projects.

Discussion: Prevailing Wages, Unions, and Apprenticeship Training in Construction

There are three labor market factors that must be considered in the context of the Illinois Capital Development Board data. The first is that all projects in the sample were covered by the Illinois Prevailing Wage Act (IDOL, 2025). State prevailing wage laws establish minimum wages for different types of skilled construction workers on taxpayer-funded, taxpayer-subsidized, and ratepayer-funded projects that are based on the wages, benefits, and workforce training investments paid for similar work in the local area where the projects are to be completed. By preventing public bodies, utilities, and organizations receiving government funds and incentives from awarding bids to contractors that pay less than the privately negotiated local market rate, prevailing wage laws promote a level playing field for local businesses and ensure that more workers can afford to live in the communities where they are building public projects. The Davis-Bacon Act of 1931 establishes prevailing wages on federally funded and assisted construction projects. Additionally, 29 states plus the District of Columbia have prevailing wage laws (WHD, 2024; Fox 2 Detroit, 2023). Illinois has a strong prevailing wage law, with rates determined by wages and benefits that have been privately negotiated between unions and employers in collective bargaining agreements (ILGA, 2025b).

Economic research has found that prevailing wage laws bolster registered apprenticeships and have no impact on total construction costs (Duncan & Ormiston, 2018). Construction apprenticeship enrollments are 8 percent higher in states with prevailing wage laws (Bilginsoy, 2005). Construction worker productivity is also higher and on-the-job injuries are lower in states with prevailing wage laws (Philips, 2014; Li et al., 2019;

[Manzo, Bruno, & Petrucci, 2023](#)). Additionally, all six peer-reviewed studies conducted since 2000 that examine the effect of prevailing wage laws on the number of bids per project have concluded that they do not reduce bid competition ([Kim, Kuo-Liang, & Philips, 2012](#); [Duncan, 2015](#); [Onsarigo, Duncan & Atalah, 2020](#); [Duncan & Waddoups, 2020](#); [Duncan, Gigstad, & Manzo, 2022](#); [Duncan, Case, & Manzo, 2024](#)). Because prevailing wage laws are associated with stronger workforce supply pools and competitive bidding, the economic consensus is that prevailing wage laws have no effect on public works construction costs. Of the 21 peer-reviewed studies focused on schools, highways, and municipal building projects published since 2000, 18 find that the prevailing wage laws have no effect on total construction costs (86 percent) ([Manzo, Bruno, & Petrucci, 2023](#); [Duncan, Case, & Manzo, 2024](#)).

Construction trade unions are the second institution that should be considered. Unions have long been associated with higher levels of job quality, including better wages and family-supporting benefits ([U.S. Treasury, 2023](#); [BLS, 2023](#); [Parolin & VanHeuvelen, 2023](#); [Farber et al., 2021](#)). Across the United States in 2023, median weekly wages were \$1,424 for union construction workers and \$1,007 for nonunion construction workers, a 41 percent difference ([BLS, 2024](#)). Because they earn higher incomes, union construction workers contribute more in taxes and are 6 percentage points less likely to rely on government assistance programs, both of which improve public budgets for taxpayers ([Manzo & Thorson, 2021](#); [Sojourner & Pacas, 2018](#)).

The economic and fiscal impacts of construction unions are particularly strong in the Chicago area ([Manzo, Gigstad, & Bruno, 2021](#)). A case study of collective bargaining agreements between union contractors and eight construction trades in the Chicago metro area revealed that the unionized segment of the industry offered journeyworkers annual earnings that were on par with full-time workers with bachelor's degrees in the region. Union construction workers were 28 percentage points more likely to have private health insurance coverage and 3 percentage points more likely to own their homes, while also being one-fourth as likely to rely on government assistance programs, when compared to nonunion construction workers ([Manzo, Gigstad, & Bruno, 2021](#)).

Peer-reviewed studies find that union contractors are cost-competitive on public construction projects. Union construction workers have been found to be between 17 percent and 30 percent more productive than the nonunion alternative ([Allen, 1984](#); [Allen, 1986](#)). Due to this higher workforce productivity, five studies conducted between 2012 and 2024 have found no cost difference between union contractors and nonunion contractors on public projects ([Duncan, Case, & Manzo, 2024](#); [Duncan & Waddoups, 2020](#); [Atalah, 2013a](#); [Atalah, 2013b](#); [Kim, Kuo-Liang, & Philips, 2012](#)). In fact, a recent analysis of 1,550 large industrial and commercial building projects built in the United States between 2000 and 2022 found that union construction labor is 4 percent more cost-effective ([McFadden, Santosh, & Shetty, 2022](#)). The projects ranged in size from \$200,000 to more than \$6 billion, with 51 percent built nonunion, 25 percent built union, and 24 percent employing a mix of union and nonunion labor. The researchers found that union workers were 14 percent more productive, worker turnover was 33 percent less likely to occur when union labor was employed, and projects were 40 percent less likely to experience a shortage of skilled workers when union labor was sourced. The authors conclude that “union labor creates significant value for owners through lower costs and more predictable schedules,” reducing overall project costs by 4 percent ([McFadden, Santosh, & Shetty, 2022](#)).

Finally, registered apprenticeship training in the construction industry should be examined since training contributions are included in Illinois' prevailing wage rates. Construction apprenticeship programs that are sponsored jointly by unions and employers are cooperatively administered and have standards, apprentice-to-worker ratios, and institutionalized “cents per hour” contributions negotiated with signatory contractors. By contrast, employer-only programs are sponsored by an employer or a trade association that unilaterally determines program content and tracks progress. These programs rely on voluntary contributions from contractors, who may have incentives to forgo long-term workforce development investments in order to win

project bids in the short-term. Because of these different funding models, nearly all the investment in registered apprenticeship training comes from the joint labor-management programs. Joint programs account for 75 percent of all construction apprentices across the United States (Bilginsoy et al., 2022). Joint programs train 97 percent of all construction apprentices in Illinois, compared to 81 percent in Wisconsin, 77 percent in Indiana, and 55 percent in Iowa (Manzo & Bruno, 2020; Manzo, Goodell, & Bruno, 2021a; Manzo, Wilson, & Bruno, 2023; Manzo & Gigstad, 2021).

Registered apprenticeship programs improve safety outcomes. In a first-of-its-kind study, researchers from the Washington State Department of Labor & Industries linked apprenticeship data with plumber certification information and compared workers' compensation claims between 2000 and 2018. The researchers found that journey-level plumbers who graduated from apprenticeship programs had 31 percent lower workers' compensation claim rates than those with no apprenticeship training (Wuellner & Bonauto, 2022). Furthermore, because their workers are better trained, union worksites are safer. An analysis of more than 37,000 Occupational Safety and Health Administration (OSHA) inspections in the construction industry in 2019 found that union worksites had 34 percent fewer violations per inspection than nonunion worksites (Manzo, Goodell, & Bruno, 2021b).

Union contractors invest in job quality and worker training, and these investments pay dividends in the labor market. An analysis of Associated General Contractors of America (AGC) surveys, including responses from 1,768 union contractors and 3,893 nonunion contractors, revealed that skilled labor shortages were much less severe in the union segment of the industry (Manzo, Petrucci, & Bruno, 2022). Union contractors were 21 percentage points less likely to experience delays in project completion times due to shortages of workers and 13 percentage points less likely to be losing their workers to other industries (Manzo, Petrucci, & Bruno, 2022). Similarly, a survey of more than 34,000 energy sector employers by the U.S. Department of Energy found that union employers had less trouble filling open positions. The union difference "was especially pronounced in the construction industry," where union contractors were 28 percentage points less likely to report that it was "very difficult" to find workers (USEER, 2023).

The cumulative body of research on prevailing wage laws, construction unions, and registered apprenticeship training has implications for project labor agreements in Illinois. Studies on prevailing wage laws and construction unions conclude that they both have no net effect on public construction costs. PLAs also had no additional impact on Capital Development Board building costs. On the other hand, both prevailing wage laws and construction unions are linked with increased investments in registered apprenticeship training. Apprenticeship training programs boost worker productivity, improve worksite safety, and address labor shortages for contractors. If PLA projects encourage greater usage of apprentices, then PLAs can have meaningful impacts on workforce quality above-and-beyond the impacts of prevailing wage laws and unions.

Conclusion

Project labor agreements are pre-hire agreements that establish terms and conditions of employment for all crafts and are intended to promote predictability, coordination, and efficiency on large infrastructure projects. Project labor agreements can also expand opportunities to more business owners on taxpayer-funded construction projects. This analysis of Illinois Capital Development Board projects finds that project labor agreements are effective policy options for achieving these goals.

Prior academic studies on the cost impact of PLAs have explored between 70 public projects and 319 public projects (Figure 12). This present analysis adds to the public dialogue because it evaluates the effect of PLAs on costs and bid competition for all state building projects, ranging from those at colleges and universities to

those at prisons and public parks. With 2,574 total bids on 773 public projects, the sample size is also much larger than any previous PLA study.

FIGURE 12: COMPARISON OF ACADEMIC STUDIES ON THE PLA COST IMPACT ON PUBLIC WORKS PROJECTS, 2007-2025

Authors	Year	Sample Size	Type of Projects	Geography	Peer-Reviewed	Cost Impact
Manzo & Bruno (this study)	2025	773 projects 2,574 bids	Public buildings	Illinois	No	No effect
Manzo & Bruno	2024	95 projects 366 bids	Airport and seaport	Seattle, WA	No	No effect
Philips & Waizman	2021	99 projects 263 bids	Community college	California	Yes	No effect
Waddoups & May	2014	319 projects	Public schools	Ohio	Yes	No effect
Belman, Ormiston, Kelso, Schriver, & Frank	2010	70 projects	Public schools	Massachusetts	Yes	No effect
Bachman & Haughton	2007	126 projects	Public schools	Massachusetts	Yes	9%-15%
Belman, Bodah, & Philips	2007	108 projects	Public schools	New England	No	No effect

Source(s): Individual studies listed in the table ([Manzo & Bruno, 2024](#); [Philips & Waitzman, 2021](#); [Belman et al., 2010](#); [Waddoups & May, 2014](#); [Bachman & Haughton, 2007](#); [Belman, Bodah, & Philips, 2007](#)).

The data reveal that project labor agreements encourage greater bid competition, stabilize public construction costs, and boost the success of minority-owned, women-owned, and veteran-owned businesses. PLAs increased bid competition by 14 percent, had no impact on overall construction costs, and increased the market shares of Black-owned, Hispanic-owned, women-owned, and veteran-owned construction businesses. These gains have also been partially attributable to the increase in large, complex construction projects built since 2019 following passage of the historic \$45 billion Rebuild Illinois infrastructure program, with sustaining support from the bipartisan federal Infrastructure Investment and Jobs Act (IIJA) that was passed in November 2021.

This analysis of real-world project data from the Illinois Capital Development Board has broader policy implications. The data reveal that project labor agreements have no net effect on costs above-and-beyond the impacts of prevailing wage laws and construction trade unions—which also do not affect public works construction costs but do boost apprenticeship training, ensure job quality for skilled tradespeople, and reduce worker reliance on government assistance programs. Expanding project labor agreements locally, at the state-level, or at the federal-level would thus have negligible impacts on taxpayers. However, the expansion of project labor agreements would likely increase bid competition on covered projects and could encourage more Black residents, Hispanic residents, and women to become small business owners in the construction industry.

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