The Beacon Hill Institute

The Effects of Project Labor Agreements on Public School Construction in New Jersey

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THE BEACON HILL INSTITUTE FOR PUBLIC POLICY RESEARCH

AUGUST 2019

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EXECUTIVE SUMMARY

A project labor agreement (PLA) is an agreement between construction unions and contractors employed on a building project under which the contractors adhere to specified work rules and hiring procedures. Typically, PLAs require that all workers be hired through union halls, that non-union workers join a union and/or pay dues for the length of the project, and that union rules apply to work conditions and dispute resolution. Construction unions actively lobby governments to require PLAs to the end of securing work for their members and union-signatory contractors on projects funded by taxpayers.

The Beacon Hill Institute has completed an extensive statistical analysis of the effects on school construction bids and on construction costs of PLAs in Ohio, Massachusetts, Connecticut and the state of New York. In the Ohio, Massachusetts and Connecticut studies, our analysis found final construction costs to be significantly higher when a school construction project was executed under a PLA. In the New York study, we found that final bids for construction projects were higher under a PLA.[1]

New Jersey enacted the Project Labor Agreement Act (P.L. 2002, Chapter 44) on July 25, 2002. The Act authorized the use of PLAs on public building projects in New Jersey with total costs of $5 million or more. The Act also required that the Commissioner of Labor and Workforce Development provide an annual report evaluating the effectiveness of projects utilizing PLAs to the governor and legislature beginning in 2003.

The Department of Labor and Workforce Development (LWD) released its last report in 2008. The report found that school construction projects built under a PLA cost 30.5% more than non-PLA projects for the period of 2002 to 2008. (LWD, 2008)

[1] See http://beaconhill.org/labor-economics/ for links to our prior work on PLAs. A bid cost is a project's winning construction bid that includes site work and, for many projects, both Project Labor Agreements and non-Project Labor Agreements.

The report that follows below provides our own estimates of the impact PLAs have on the contract awards and final construction costs for new public schools in New Jersey. The report builds off the LWD report and database to update and expand the work to include more recent school construction projects and final construction costs.

Non-union contractors contend that their competitive advantages are nullified by a PLA even as they comply with other mandates, including prevailing wage laws. They contend that they are unable to bid competitively on jobs that have a PLA requirement. In turn, the absence of non-union bidders for PLA projects results in fewer bidders for projects, and with fewer bidders, the lowest bids come in higher than if non-union contractors had participated.

We gathered data on construction awards and final construction costs for public school construction projects that used a government-mandated PLA and others that did not use a PLA in New Jersey. We found that the presence of a PLA increases the final construction costs of a school in our sample by $57.84 per square foot (in 2018 prices) relative to non-PLA projects. Because the average cost per square foot of construction is $356.05, PLAs raise the final construction cost of building schools by 16.25 percent.

To separate the effects of PLAs on construction costs from other factors affecting construction costs, we use control variables to obtain our results. In this study, we control for the number of stories above grade, the square-footage of the new structure, whether the school is an elementary school or not, and other features that might make a school more expensive to build, such as the presence of an auditorium.

We utilize the findings to estimate the potential savings from not using a PLA on a construction project. We estimate that if the $3.522 billion of construction projects in our sample that were built with a PLA had been built without a PLA, taxpayers would have saved between $5.78 million for 100,000-square-foot structure and $17.35 million for a 300,000-square-foot structure.

INTRODUCTION

PLAs are a form of a "pre-hire" collective bargaining agreement between contractors and labor unions pertaining to a specific project, contract or work location. They are unique to the construction industry. The terms of a PLA generally recognize the participating unions as the sole bargaining representatives for the workers covered by the agreements, regardless of their current union membership status. They require most or all workers to be hired by general contractors and subcontractors through the union hall referral system. Non-union workers must join the signatory union of their respective craft and/or pay dues for the length of the project. The workers' wages, working hours, dispute resolution process and other work rules are also prescribed in the agreement. PLAs supersede all other collective bargaining agreements and prohibit strikes, slowdowns and lockouts for the duration of the project.[2]

PLAs can be mandatory, that is, required by a government entity such as a school board, as a condition of bidding and winning a contract to perform construction services on a project. Alternatively, they can be agreed to voluntarily by contractors participating in an open and competitive bidding process. Mandatory PLAs are anti-competitive insofar as they discourage open shop contractors from bidding on projects to which the PLAs are attached. Voluntary PLAs are less likely to raise costs insofar as winning bidders would not agree to follow union rules and hiring procedures unless it was cost effective to do so and unless it, therefore, made bidders more efficient by allowing them to negotiate the terms and conditions of the PLA directly with unions.

The Beacon Hill Institute found that the presence of PLAs increased construction bid costs over non-PLA school projects in Ohio, Massachusetts, Connecticut, and New York.[3] Of the four, the

[2]U.S. General Accounting Office, *Project Labor Agreements: The Extent of Their Use and Related Information*, Publication No. GAO/GGD-98-82, (Washington D.C.: 1998), http://www.gao.gov/achives/1998/gg98082.pdf.

[3] Paul Bachman, Darlene C. Chisholm, Jonathan Haughton, and David G. Tuerck, *Project Labor Agreements and the Cost of School Construction in Massachusetts*, The Beacon Hill Institute at Suffolk University, (September 2003). http://www.beaconhill.org/BHIStudies/PLAPolicyStudy12903.pdf. See also Paul Bachman, Jonathan Haughton, and David G. Tuerck, *Project Labor Agreements and the Cost of School*

studies of Ohio, Massachusetts, and Connecticut showed that PLAs increased final construction costs as well.

Other researchers have found similar results. For example, a study conducted by the New Jersey Department of Labor and Workforce Development found that the "cost per square foot for PLA projects was $260.00, or 30.5 percent higher than for non-PLA projects, which averaged $199.19 per square foot" on school construction projects in New Jersey.[4] A study by National University on school construction projects in California found that costs were "13 to 15 percent higher when school districts construct a school under a PLA."[5]

The current study extends our research of PLAs to public school construction projects that took place in New Jersey since 2003.

Historical Background on PLAs

PLAs in the United States originated in the public works projects of the Great Depression, which included the Grand Coulee Dam in Washington State in 1938 and the Shasta Dam in California in 1940. Since World War II, PLAs have continued to be used on a limited basis for some large construction projects procured by government entities, from the construction of the Cape Canaveral Space Center in Florida to the Central Artery project (the "Big Dig") in Boston. PLAs used on prominent private sector projects include the Alaskan Pipeline and Disney World in Florida.

Construction in Connecticut, The Beacon Hill Institute at Suffolk University, September 2004. http://www.beaconhill.org/BHIStudies/PLA2004/PLAinCT23Nov2004.pdf.

[4] "Annual Report to the Governor and Legislature: Use of Project Labor Agreements in Public Works Building Projects in Fiscal Year 2008", New Jersey Department of Labor and Workforce Development, October 2010, http://lwd.dol.state.nj.us/labor/forms_pdfs/legal/2010/PLAReportOct2010.pdf, 3.

[5] Vince Vasquez, Dr. Dale Glaser, and W. Erik Bruvold, "Measuring the Cost of Project Labor Agreements on School Construction in California, " National University System Institute for Policy Research, 2010, http://www.nusinstitute.org/assets/resources/pageResources/Measuring-the-Cost-of-Project-Labor-Agreements-on-School-Construction-in-California.pdf, 1.

The Arguments Against and For PLAs

Government-mandated PLAs on publicly-financed construction projects are typically issued after lobbying campaigns from labor unions to help them regain lost market share and win work for union-signatory contractors. The logic of mandating PLAs is, however, increasingly dubious given the decline of union membership across the workforce and particularly in the construction sector. Only 12.8 percent of the U.S. private construction workforce currently belongs to unions.[6]

PLAs typically require that general contractors and subcontractors to hire most or all construction labor through union halls and union apprenticeship programs, contribute to union-sponsored multiemployer pension plans and follow union work rules. PLAs force contractors to hire union workers in place of most or all of their own workforce. The contractors and any existing employees are required to contribute to union benefits plans even if they cover their own workers under their own policies. All workers are forced to pay union dues or fees and/or join a union in order to work on a PLA project. The PLA restricts contractors from using their own, often more flexible, operating rules and multiskilling procedures across multiple trades with their own non-union employees. These restrictive conditions cause costs to rise for a project subject to a government-mandated PLA.

Merit shop (non-union or open shop) contractors contend that their competitive advantages are nullified by a PLA even as they comply with other mandates such as prevailing wage laws. The result is that in practice, if not in principle, they are unable to bid competitively on jobs that have a PLA requirement. In turn, the absence of open shop bidders for PLA projects results in fewer bidders for the project, and with fewer bidders, the lowest bids come in higher than if open shop contractors had participated. Therefore, the project cost will be higher, with fewer bidders attempting to under-bid each other for the contract. Some opponents also argue that requiring a PLA violates state competitive bidding laws that require a free and open bidding process.

[6] U.S. Bureau of Labor Statistics, "Economic News Release," January 18, 2019, https://www.bls.gov/news.release/union2.nr0.htm.

Proponents of PLAs counter that PLAs keep projects on time and on budget and that they help to assure the use of qualified, skilled workers on a project. They argue that the agreements provide for harmonious work conditions by eliminating inefficiencies in existing union collective bargaining agreements and that they guarantee predictable wage costs for the life of the contract. They contend that the combination of work rules and provisions that prohibit strikes, slowdowns and lockouts keep the project on time while preventing cost overruns due to delays. They argue, furthermore, that the wage stipulations allow firms to estimate more accurately the labor costs for the life of the project and thus keep the project on budget.[7]

Proponents also argue that the work rules, such as overtime and vacation pay under PLAs are often less generous than the collective bargaining agreements for some trades. Thus, if a PLA stipulates that overtime pay begins only after 40 hours per week, and not after eight hours per day, as in some collective bargaining agreements, then the PLA will produce savings on overtime costs.

Advocates insist that the union training creates for a safer work environment, thereby reducing accidents and thus lowering the number of workers' compensation claims. Besides, they claim workers' union certifications and apprenticeship training programs ensure the quality of the work. These features, they argue, save money by reducing cost overruns. Also, proponents assert that through union apprenticeship programs, PLAs help to ensure local workers are hired and trained.

Such claims, against and for PLAs, are merely anecdotal. It is the owner's responsibility, in soliciting bids for a project, to specify the terms of the contract, including completion time and the expected quality of the work to be performed. When the owner is a public entity that is responsible for several or many construction projects over a long-time horizon, that entity should

[7] Gerald Mayer, "Project Labor Agreements." Congressional Research Service, R41310, July 1, 2010, https://www.cga.ct.gov/2011/rpt/2011-R-0360.htm.

turn to the data to determine whether the practice of mandating a PLA does reduce costs as proponents claim. As in past studies, we use data to determine if the pro-PLA claims are valid.

LEGAL BACKGROUND

The controversy over PLAs on public construction projects has intensified, with a myriad of court challenges from both sides of the argument.

In 1993, the United States Supreme Court's *Boston Harbor* decision raised the stakes over the use of government-mandated PLAs on public projects. In 1988, a federal court ordered the Massachusetts Water Resources Authority to fund the cleanup of Boston Harbor. The Authority's project management firm, IFC Kaiser, negotiated a PLA with the local construction unions for the multibillion-dollar cleanup effort funded by taxpayer dollars. In a move that set a precedent, IFC Kaiser mandated a PLA as part of the project's bid specifications.[8] As a result, a non-union trade group filed a lawsuit contending that the PLA requirement violated the National Labor Relations Act (NLRA). However, the United States Supreme Court held that a state authority, acting as the owner of a construction project and as a market participant purchasing construction services, was legally permitted to enforce a pre-hire collective bargaining agreement negotiated by private parties.[9] Since the *Boston Harbor* decision, most PLA litigation has centered on the competitive bidding requirements of state and local law.

New York State Chapter ABC, Inc. v. *New York State Thruway Authority* provided a significant ruling that affected the use of PLAs. The court ruled that PLAs are "neither absolutely prohibited nor absolutely permitted" on public construction projects in New York and that they should be considered on a case-by-case basis. The court ruled that the public owners of construction projects in New York must demonstrate that a PLA upholds the principles of the state's

[8] Herbert R. Northrup and Linda E. Alario, "Government-Mandated Project Labor Agreements in Construction, The Institutional Facts and Issues and Key Litigation: Moving Toward Union Monopoly on Federal and State Financed Projects," *Government Union Review* 19, no. 3, (2000): 60.

[9] Ibid.

competitive bidding statutes and protects the public's interest by obtaining the lowest price for the highest quality work, and prevents "favoritism, improvidence, fraud and corruption in the awarding of public contracts."[10]

PLAs at the Federal Level

President George H.W. Bush's October 23, 1992, Executive Order 12818, "Open Bidding on Federally Funded Construction Projects," was the first serve in a PLA policy ping pong match between Republican and Democratic administrations that ensued after the *Boston Harbor* court case. The executive order prohibited federal agencies from requiring PLAs on federal construction projects.[11]

On February 1, 1993, President Clinton issued Executive Order 12836, "Revocation of Certain Executive Orders Concerning Federal Contracting," rescinding President Bush's Executive Order 12818.[12]

After his reelection, President Clinton attempted to implement a pro-PLA executive order that instructed federal agencies to determine if a PLA would "advance the government's procurement interest[s]" on federal construction projects and then to implement them on a project-by-project basis. However, that executive order was never signed.[13] After extensive political pressure from the Republican-controlled U.S. Senate, President Clinton instead issued a June 5, 1997, memorandum that merely encouraged the use of PLAs on contracts over $5 million for construction projects, including renovation and repair work, for federally owned facilities.[14]

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[10] New York State Chapter ABC, Inc. v. New York State Thruway Auth., 88 N.Y. 2d 56,643 NYS 2d 480,666 NE 2d 185 (1996).
[11] Northrup, 3.
[12] Executive Order No. 12836, 3 C.F.R. (1993)
[13] Draft Executive Order on the Use of Project Labor Agreements, April 1997, http://thetruthaboutplas.com/wp-content/uploads/2009/06/draft-of-pro-pla-clinton-executive-order-never-happened-040197.pdf.
[14] Ibid.,3.

Subsequently, few projects were conducted under government-mandated PLAs because the regulatory process that established the rules in which the federal government could require and use PLAs delayed implementation of the Clinton memo. Also, few federal agencies opted to mandate PLAs on federal construction projects, as documented in a May 5, 1998, *U.S.* Government Accountability Office (GAO) report: *Project Labor Agreements: The Extent of Their Use and Related Information*. The GAO report found that it is nearly impossible to show any savings or increased quality derived from the use of government-mandated PLAs.[15]

On February 17, 2001, under Executive Order 13202, President George W. Bush canceled the Clinton order by effectively prohibiting government-mandated PLAs on federal and federally assisted construction projects. The executive order declared that neither the federal government nor any agency acting with federal assistance should require or prohibit construction contractors to sign union agreements as a condition of performing work on a government construction project.[16] On April 6, 2001, the Bush Administration amended Executive Order No. 13202 with Executive Order No. 13208, which exempted any project that already had at least one contract awarded with a PLA from Executive Order 13202.[17]

Some of the largest unions in the country, including the AFL-CIO, insisted that the order illegally interfered with their collective bargaining rights under the NLRA. They filed suit in federal court (*Building & Construction Trades* v. *Allbaugh*), and on November 7, 2001, a United States District Court Judge issued an injunction blocking the President's order. The Justice Department appealed and, the U. S. Court of Appeals for the District of Columbia overturned the lower court decision and ordered the judge to lift the injunction on July 12, 2002. In handing down its decision, the appeals court found that the NLRA did not preempt the executive order as the AFL-

[15]U.S. Government Accountability Office, Project Labor Agreements: The Extent of Their Use and Related Information, GGD-98-82, (May 29, 1998), http://www.gao.gov/products/GGD-98-82.
[16] Worcester Municipal Research Bureau, "Project Labor Agreements on Public Construction Projects: The Case for and Against," Report No. 01-4 (May 21, 2001): 7, http://www.wrrb.org/reports/public-administration/2001/05/the-use-of-project-labor-agreements-on-public-construction-projects/.
[17] Exec. Order No. 13208, 3 C.F.R. 187 (2001)

CIO argued.[18] The unions disagreed and filed to have the case reviewed by the United States Supreme Court. In April 2003, the Supreme Court declined to review the case, and the President's 2001 executive order remained in place.[19]

On February 6, 2009, shortly after entering office, President Obama issued Executive Order 13502, which changed the federal government's policy to one that encouraged executive agencies to consider requiring, on a case-by-case basis, the use of PLAs related to large-scale construction projects (projects where the federal cost exceeded $25 million).[20] It also permitted state and local lawmakers to mandate PLAs on federally assisted projects procured by state and local authorities, a practice that had been prohibited under the George W. Bush orders. The Obama executive order claimed that, without a PLA, large-scale construction projects are likely to experience (1) labor "disputes," (2) difficulties in predicting labor costs and in avoiding interruptions in labor supply, (3) a lack of coordination on construction projects and (4) uncertainty about the terms and conditions of employment of workers – all of which ostensibly lead to delays and cost overruns.[21]

If the claims made in Executive Order 13502 were true, then federal construction projects initiated during the George W. Bush administration's ban on government-mandated PLAs should have been rife with labor disputes leading to cost overruns and delays. That was not the case, however. A 2009 study by the Beacon Hill Institute found no evidence of any labor disputes or delays on the $57 billion of federal construction projects with a price over $25 million that were performed during George W. Bush's presidency.[22]

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[18] "Bush Administration, Construction Unions in Fight Over Project Labor Agreements," *Bulletin Broadfaxing Network*, December 5, 2002.
[19] Halloran & Sage LLP, "Union Activity Across the Country," *Connecticut Employment Law Letter* 11, M. Lee Smith Publishers & Printers, (April 2003).
[20]U.S. Department of Labor, "Implementation of Project Labor Agreements in Federal Construction Projects: An Evaluation, Interactive Elements Corporation & Hill International," (February 25, 2011) https://www.dol.gov/asp/evaluation/reports/20110225.pdf.
[21] David G. Tuerck, Paul Bachman and Sarah Glassman, Project Labor Agreements: A Costly Solution in Search of a Problem, The Beacon Hill Institute, (August, 2009), http://www.beaconhill.org/BHIStudies/PLA2009/PLAFinal090923.pdf, 4.
[22] Ibid, 6.

In 2009, the U.S. Department of Labor (DOL) selected Manchester, New Hampshire to build a new Jobs Corps Center with a PLA mandate. However, non-union contractors complained that many New Hampshire construction contractors and workers were non-union, and that the PLA would favor contractors from out of state. Nonetheless, the DOL solicited bids for the project under the PLA. A non-union contractor filed a bid protest with the GAO against the PLA mandate, and in the face of political pressure and an unfavorable ruling against the Labor Department, the PLA was eventually dropped, and the project rebid without a PLA. The second round of bidding produced three times as many bidders and bid prices that were 16 percent lower, ultimately saving taxpayers $6.2 million and allowing a local company to deliver the award-winning project on-time and on budget. [23]

The Trump administration has not issued an executive order similar to the Bush orders restricting government-mandated PLAs on federal and federally assisted projects. To date, the Trump administration has not mandated any PLAs on any construction projects procured directly by a federal agency.

However, an unknown number of PLA mandates have proliferated on federally assisted projects procured by state and local governments since the Obama administration's pro-PLA policy was enacted. For example, according to a February 2019 report by the U.S. Department of Transportation's Federal Highway Administration (FHWA), from May 2010 to February 2019, state and local government authorities mandated PLAs on 418 state and local contracts (totaling $10.12 billion) receiving federal assistance from the FHWA.[24] Other federal agencies, such as the Department of Housing and Urban Development and the Department of Energy, providing federal financial assistance to state and local government entities for construction services do not

[23]Ted Siefer, "NH firm wins contract to build $35M job center in Manchester after years-long fight," *The New Hampshire Union Leader*,(April 21, 2013), http://www.unionleader.com/apps/pbcs.dll/article?AID=2013130429519&NL=1&template=printart#sthash.Ewo1ItG4.dpuf.

[24] U.S. Department of Transportation, Federal Highway Administration, Interim Guidance on the use of Project Labor Agreements, (May 7, 2010), https://www.fhwa.dot.gov/construction/contracts/100507.cfm.

track the use of PLA mandates in the same way as the FHWA, so it is not possible to estimate how many projects with federal assistance have required PLAs.

State governments also have enacted legislation on the use of PLAs. A total of 25 states have adopted measures restricting the use of government-mandated PLAs on state, state-assisted and local construction projects to some degree. Since 2011, 26 states enacted measures following the Obama administration's pro-PLA policy.[25] Roughly eight states have enacted measures encouraging the use of PLAs on a case-by-case basis.

PLAs in New Jersey

The *Boston Harbor* decision opened the door for PLAs on public construction projects throughout the country, including New Jersey.

In New Jersey, the debate over PLAs has raged on for decades. The percentage of New Jersey construction force union members to total employed workers is 22.1 percent, down from 29.8 percent in 2017.[26]

In 2002, the State of New Jersey signed into effect the Project Labor Agreement Act (P.L. 2002, Chapter 44), enabling the use of PLAs on all public work contracts that exceed the cost of $5 million.[27] The PLA Act requires the Commissioner of Labor and Workforce Development to prepare an annual report detailing the effectiveness of PLAs on construction projects.[28] The PLA Act mandates that contractors must comply by providing employment and apprenticeship

[25] State and Local Mandated Project Labor Agreement Laws (May 1, 2019) Retrieved from https://thetruthaboutplas.com/wp-content/uploads/2019/08/State-and-Local-Government-Mandated-Project-Labor-Agreement-Laws-as-of-053019.xlsx
[26] Table II, Union Membership, Coverage, Density and Employment by State Current Population Survey, Union Members in New York and New Jersey (April 1, 2019) Retrieved from http://unionstats.com/
[27] New Jersey Legislature, C. 44 (April 22, 2019) Retrieved from https://www.njleg.state.nj.us/2002/Bills/PL02/44_.PDF
[28] Ibid, 27.

opportunities for minorities and women, and that a "contracting agency or another State agency" must oversee the work performed by these groups.[29]

The New Jersey School Construction Program was created on July 18, 2000, pursuant to the enactment of the Education Facilities Construction and Financing Act, P.L.2000, c.72 ("EFCFA"); starting the New Jersey Schools Construction Corporation (SCC), one of the largest school construction programs in the nation.[30] Governor Jon Corzine ratified (P.L.2007, c.137), transferring the SCC's assets and powers to the School Development Authority (SDA). On February 23, 2008, the SDA agreed with the New Jersey Building and Construction Trades Council and several New Jersey construction unions to create a "model public works PLA".[31] In accordance with amendment P.L.2008, c.39, the EFCFA provides the SDA with $12.5 billion of bond proceeds, transferred by the New Jersey Economic Development Authority (EDA).[32] The vast majority of the $12.5 billion ($8.9 billion) is dispensed to "poor, urban" school districts, also known as "SDA Districts", and the remaining amount is distributed to non-SDA districts and vocational schools.[33]

The last dated annual New Jersey Department of Labor and Workforce Development report was published in 2010, using data on public construction projects from July 2007 through June 2008.[34] The data utilized in the study derives from the SDA, since most PLA projects reviewed during the study's time period are school construction projects. According to the report, "School projects that used a PLA tended to have higher building costs, as measured on a per square footage and per student basis, than those that do not use a PLA." The indexed cost per square foot for all PLA

[29] Ibid, 27.
[30] New Jersey School Development Authority, Financial Statements and Required Supplementary Information (March 18, 2019) Retrieved from https://www.njsda.gov/NJSDA/Content/public/reports/SDA_Financial_Statement_09.pdf

[31] Ibid, 30.
[32] New Jersey School Development Authority, Annual Report 2010 (January 12, 2019) Retrieved from https://dspace.njstatelib.org/xmlui/bitstream/handle/10929/18844/schools_development_authority_EO37_report_2010.pdf?sequence=1&isAllowed=y
[33] Ibid, 32.
[34] Ibid, 4.

projects was found to be 30.5 percent higher relative to non-PLA projects.[35] The authors concluded, also, that projects conducted under a PLA have a longer average duration when compared with non-PLA projects. Furthermore, PLAs tend to have marginally higher rates of minority and apprenticeship employment participation, yet, are substantially below the goals outlined in the PLA Act, as stated in the report.

In 2012, New Jersey Senate President Stephen Sweeney, the Vice-President of the International Ironworkers Union, introduced Senate Bill No. 2425; a proposal to amend the PLA Act.[36] The bill would revise the definition of "public works projects," further permitting the use of PLAs on projects excluded under original PLA Act.[37] "This bill removes from the definition of 'public works project' all references to the kind of structure or improvement, instead identifying a project only as 'construction, reconstruction, demolition or renovation.'" Governor Chris Christie, on April 15, 2013, vetoed S-2425 to prevent any issues in the recovery from Hurricane Sandy.[38]

In February, the city council of Bayonne passed an ordinance requiring developers of projects surpassing $15 million to employ local labor unions.[39] According to the law, developers receiving tax abatements for residential and commercial projects are required the use of a PLA using local labor unions. The ordinance mandates that 20 percent of hired employees must come from Bayonne or Hudson labor unions.[40]

The Jersey City PLA Ordinance of 2007, pursuant to Section 304 of Jersey City's Municipal Code, initiated regulations requiring the use of a PLA on Jersey City projects exceeding $25 million for developers receiving tax abatements (known as PILOTs).[41] Under the ordinance, 20 percent of

[35] Ibid, 4.
[36] New Jersey Legislature, Bill S-2425 (January 12, 2019) Retrieved from https://www.njleg.state.nj.us/bills/BillView.asp?BillNumber=S2425
[37] Ibid, 36.
[38] The Truth About PLAs (April 21, 2019) Retrieved from https://thetruthaboutplas.com/2013/04/15/gov-christie-vetoes-bill-expanding-project-labor-agreements-in-new-jersey/
[39] The Jersey Journal, "Bayonne to introduce ordinance attaching project labor agreements to private developments" (April 21, 2019) Retrieved from https://www.nj.com/hudson/2018/01/bayonne_will_vote_on_project_labor_agreement_at_co.html
[40] Ibid, 39.
[41] The Truth About PLAs "U.S. District Court Knocks Down Jersey City Project Labor Agreement Ordinance"

working hours must derive from local workers of the Jersey City apprenticeship program.[42] In 2017, District Court Judge Susan Wigenton pronounced the PLA Ordinance "directly intrudes on § 7 and § 8 of the NLRA" and the Court deemed the law's apprenticeship program regulations to be preempted by the Employee Retirement Income Security Act (ERISA).[43]

EVIDENCE ON PLAS

The evidence on whether PLAs drive up construction costs has been mostly anecdotal. The claims outlined above, fall into two categories: (1) those that depend on the estimates by consultants that were made in the pre-bid stage of a project, with no attempt made to verify their cost-saving claims after the fact, or (2), those for which the cost analysis was restricted to only a few projects. No "analysis" of that kind provides any quantitative evidence that PLAs increase or reduce construction costs.

It is statistically possible to test whether PLAs raise construction costs by using the approach taken in our previous studies. In this study, we present data that relates to New Jersey public school building projects. In the next section, we review our variables, data sources and the methodology. We then report the results of our regression analysis and the cumulative effect of these results on the construction costs.

DATA SOURCES

We started with the data from the 2008 LWD report on PLAs. The report contains data for 75 new school construction projects completed between 2002 and 2008. The LWD database contains the most important data points needed for our analysis, namely the project completion date, the square footage of the school, and the construction contract award amount. However, the report does not include other information that could affect the costs of individual school construction

(April 21, 2019) Retrieved from https://thetruthaboutplas.com/2017/08/15/new-jersey-district-court-rules-jersey-city-pla-ordinance-violates-nlra/

[42] Ibid, 41.

[43] Ibid, 41.

projects, including the number of stories the building stands above grade and other enhancements, such as the presences of an auditorium, a theatre, a swimming pool, a television or radio studio, and multiple cafeteria.[44]

The New Jersey School Development Authority (SDA) provided data for the LWD reports and we used recent data from the SDA "Completed Projects" list as an initial source of new data. The list contains the name of the school district, the name of the school and the project type: new school, capital improvement project (major renovation projects) or a rehabilitation of the existing structure due to health and safety concerns/violations. From this list, we were able to identify 43 new school construction projects that were completed between 2009 and 2018.[45]

The SDA website also provides a list of the school construction projects in the 31 Abbott schools districts, or low-income school districts for which the SDA manages and funds all school construction projects within the districts. The SDA website also lists projects that the school district has designated the SDA to manage the project or districts that receive 55% of their budgets from state aid. The SDA website lists data for each project that includes all or partial data for (1) the contract award amount (2) the square footage of the school (3) the height of the school in stories, and (4) other characteristics of the schools, such as the number of classrooms, the presence of a media room, gymnasium, auditorium, science labs and other features.[46] We supplemented any missing data points by contacting local school districts or referencing the SDA contract database.

The SDA apparently does not track final construction costs for the school construction projects that it manages. The LWD report states this fact:

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[44] Development, N. J. D. o. L. A. W *Use of Project Labor Agreements in Public Works Building Projects in Fiscal Year 2008, (October 2010)* Retrieved from http://thetruthaboutplas.com/wp-content/uploads/2012/07/New-Jersey-2008-PLA-School-Report-Released-October-2010.pdf.

[45] New Jersey School Development Authority, School List, Completed Projects (January 1, 2019), https://www.njsda.gov/NJSDA/Content/Schools/SchoolsList/PDF/CompletedProjects.pdf.

[46] New Jersey School Development Authority, Projects, Visit Your Project, School Project Information Throughout the State, (accessed September 2018), https://njsda.gov/NJSDA/Projects/VisitYourProject

> The SDA tracking system mainly serves as a school construction planning and management tool. Therefore, project-specific information is not available on safety; strikes, lockouts or other similar actions…and other project performance indicators, such as ***final construction costs*** [our emphasis], efficiency, quality and, in some instances, timeliness.[47]

Nevertheless, we contacted the SDA to obtain data for final construction costs in the hope that the SDA had begun tracking construction costs since the last LWD report in 2010. The SDA was able to provide the final construction costs and confirm the PLA status for their projects. It is important to note that final construction costs provided by the SDA exclude the following: early site packages, demolition, design, CM/PMF fees, in-house design, land acquisition, environmental, FF&E-technology, temporary space, legal fees and permit fees.

We also contacted local school districts and the contractors that built the schools to obtain the final construction costs and PLA confirmation for the projects not managed by the SDA.

ADJUSTING FOR INFLATION

Our sample covers the period 2002 to the present. In total, we were able to obtain final construction costs for 107 school construction projects. To compare the final construction costs of PLA with non-PLA schools, it was necessary to correct for the fact that construction costs rose during this period. We used the U.S. Department of Labor's Bureau of Labor Statistics index for "New School Building Construction" to make the needed correction. Because the index begins in 2005, we used the compound annual growth rate (CAGR) of 3.7 percent for all years from 2005 to 2018 as the growth rate to estimate the index for the years 2000-2004.[48]

[47] Development, 6.
[48] U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index, PPI industry data for new school building construction, Series ID: PCU236222236222 (accessed April, 2 2019), https://www.bls.gov/data/.

COMPARING PLA TO NON-PLA PROJECTS

Table 1 compares the characteristics of the school construction projects with a PLA ("PLA projects") with those where there was no such agreement ("non-PLA projects").

Table 1: Summary Statistics for Construction Projects by PLA Status

Variable	Final Construction Costs (2018 $ millions)	Size of project (square feet)	Final Construction cost/square foot (2018 $) *	Number of stories
Mean				
PLA	44,600,000	118,357	373.34	2.21
Non-PLA	41,400,000	130,447	296.28	2.31
Standard Deviation				
PLA	26,400,000	64,020	74.35	0.85
Non-PLA	23,300,000	87,965	100.39	1.01
Minimum				
PLA	12,500,000	26,666	197.59	1
Non-PLA	10,400,000	39,500	168.63	1
Maximum				
PLA	138,000,000	400,000	550.53	4
Non-PLA	114,000,000	400,000	544.31	5

A notable pattern in the data is that PLA projects, on average, cost $77 ($373 minus $296) more per square foot (in 2018 prices) than non-PLA projects. However, this is not conclusive, because it is possible that PLA projects are systematically different – for instance more complex.

A regression analysis allows us to determine whether the difference in PLA versus non-PLA projects is robust to differences in project size and other variables. To capture the effect of economies of scale, we include a variable consisting of the logarithm of square footage of construction, which ensures that the effect of additional size diminishes as the project becomes bigger. In addition, we include a measure of the number of stories, the presence of a gym, theater, auditorium, and multiple cafeterias. We include a variable, we call North, to account for projects built in northern New Jersey, where costs more closely resemble higher New York City prices than the rest of New Jersey. We also accounted for other features such as whether the project is an elementary school. In our regressions, the dependent variable is the final construction costs

per square foot (in 2018 prices). The most critical independent variable is a dummy variable that is set equal to 1 for PLA projects and to 0 for non-PLA projects. The ordinary least squares regression results are presented in Table 2.

Our results show that the PLA projects added $57.84 per square foot (in 2018 prices) to the final costs. The important point here is that this amount represents the effect of PLA projects after controlling for other measurable influences on costs; these other influences are important for explaining why construction costs differ from project to project. The estimates in Table 2 show that it matters whether the project is built under PLA arrangements.

Table 2: Ordinary Least Squares Estimation of Final Construction Costs Per Square Foot

Variable	Coefficient	Standard error	p-value (one-tailed test)
Constant	894.65	221.51	.000
PLA	57.84	20.20	.001
North	37.68	16.74	.014
Gym	10.45	21.68	.319
Theatre	-12.37	28.82	.336
Multiple cafeterias	-78.57	81.48	.169
Log Square-feet	-53.71	18.35	.002
Elementary	-33.57	19.28	.043
Stories	10.18	9.03	.131
Auditorium	5.57	16.35	.367
Pool	44.78	36.56	.112

Adjusted R^2 is .18. Sample size is 107.

A one-tailed test of the statistical significance of the PLA coefficient gives a p-value of .001, which means that there is less than a .1 percent chance that we have accidentally found that PLA projects are more expensive than non-PLA projects. Put another way, there is at least a 99.9 percent probability that PLA projects are more expensive than non-PLA projects, holding other measurable aspects of a project constant.

The equation also shows that projects with a gym are more expensive, as are schools with a theater. The negative coefficient for square feet squared captures the effect of economies of scale on cost. The one surprising result is that the inclusion of more than one cafeteria reduces cost per square foot. One explanation is that schools large enough to have more than one cafeteria are exhibiting the same economies-of-scale effect that is shown by the square-feet-squared variable.

With an adjusted $R^2 = 0.207$, the equation "explains" 20.7 percent of the variation in construction bid costs across projects. Clearly, other factors also influence the cost of construction – the exact nature of the site, the materials used for flooring and roofing, the outside finish and the like. But as a practical matter, it is impossible to collect data on every factor that increases or decreases cost. Our specification is no different from any other specification in recognizing this fact.

For the PLA effect shown here to be overstated, it would have to be the case that PLA projects systematically use more expensive materials, or add more enhancements and "bells and whistles," than non-PLA projects. Our conversations with builders, town officials and architects suggest that PLA projects are not systematically more upscale. This gives us confidence that the PLA effect shown here is real. Furthermore, we attempted to ascertain the prevalence of elements that might make a project more expensive in our data collection process.

ROBUSTNESS

It is helpful to explore the robustness of our results. In other words, is there still a PLA effect if we look only at elementary school construction projects or at small, medium or large projects? The results of this exercise are summarized in Table 3.

Table 3: Regression Estimates of the "PLA Effect" For Different Sub-Samples and Model Specifications

Sub-sample	PLA effect ($/sq. ft)	p-value (one-tailed test)	Other variables included	Sample size (# of PLA projects)	Adjusted R^2	Mean cost/sq. ft	
						Non-PLA projects	PLA projects
Final costs (baseline)	57.84	.001	Gym, theater, stories, elementary*, auditorium, multiple cafes, log sqrft*, north*, pool	107 (79)	.18	303.17	374.79
Project bid costs	78.31	.050	Gym, theater, stories, elementary, auditorium, multiple cafes, log sqrft, north, pool	118 (82)	.02	281.34	352.17
Small projects only	36.35	.172	Gym, theater, stories, elementary, auditorium, multiple cafes, log sqrft*, north, pool	43 (33)	-.04	342.84	373.07
Medium projects only	41.80	.048	Gym, theater, stories*, elementary, auditorium, multiple cafes*, log sqrft, north, pool	57 (46)	.11	316.21	350.16
Large projects only	86.48	.000	Gym*, theater, stories, sqrft, elementary*, auditorium, multiple cafes**, log sqrft*, north, pool*	63 (46)	.37	333.44	376.06
Elementary schools only	3.17	.456	Gym, theater, stories, log sqrft*, elementary**, auditorium, multiple cafes*, north*, pool	62 (51)	.06	347.94	363.35
Middle & HS only	98.21	.000	Gym, theater, stories*, auditorium, multiple cafes**, log sqrft*, north*, pool	45 (28)	.39	274.20	395.65
Weighted by Sqrft	79.12	.000	Gym, theater, stories*, elementary*, auditorium, multiple cafes, log sqrft*, north*, pool	107 (79)	.36	286.17	377.02

Notes: log sqrft = logarithm of square footage for each project; stories is the number of stories above ground; elementary = 1 if elementary school or primary school, 0 if junior high or high school; gym =1 if school has a gym, 0 if not; theatre =1 if school has a theatre, 0 if not; auditorium = 1 if the school has an auditorium, 0 if not; multiple cafes = 1 if school has multiple cafeterias, 0 if not; pool = 1 if school has pool, 0 if not; North=1 if the school was built in Bergen, Essex, Hudson, Hunterdon, Mercer, Monmouth, Morris, Passaic, Somerset, Sussex, Union and Warren. * denotes statistical significance at the 95 percent confidence interval. **denotes omitted variables.

The first column indicates the sample, or sub-sample, used in estimating the regression equation. We performed this analysis by running separate regressions for the following samples:

1. the "baseline" sample, which consists of all the cases for which information was available on final construction costs; this was also used to give results weighted by project size ("weighted by sqrft");
2. small projects, medium size projects and large projects;
3. elementary and non-elementary schools and;
4. a sample consisting of the cases for which information was available on bid costs. [2549]

The "PLA effect" column shows the estimate of the effect of having a PLA on the cost of construction (in dollars per square foot, in 2018 prices), and the corresponding "p-value" column measures the statistical significance of these coefficients. The PLA effect is statistically significant at the 5 percent level or better, except for small schools and elementary schools. The size of the PLA effect differs, depending on the sample examined. The results of the "baseline" regression analysis presented in Table 2 are reproduced in the first row of Table 3.

Following standard practice, our regressions use ordinary least squares (OLS), which means that each observation (here, a school building project) carries equal weight in the regression. However, we also estimated our preferred equation using weights, where each project is given a weight that is in proportion to the square footage that it represents. This means that a project of 150,000 square feet, for instance, would have twice as much weight in the equation as a project of 75,000 square feet. The weighted regression shows a PLA effect of $79.12 sqrft, again statistically significant.

[49] Small projects are defined as those below 100,000 square feet, while large projects are those above 100,000 square feet. Medium size projects are those falling between 75,000 and 150,000 square feet.

CONCLUSION

Based on data on construction costs and related variables for school projects in New Jersey since 2002, we find the following:

(i) PLA projects added $57.84 per square foot (in 2018 prices) relative to non-PLA projects. Because the average cost per square foot of construction is $356.05, PLAs raised the final construction costs of building schools by 16.25 percent.

(ii) PLA projects have higher final construction costs; again, we are more than 99.1percent confident of this finding, based on the available data.

(iii) The finding that PLA projects have higher construction costs is robust, in that:
   a. The effect persists even when the data are subdivided, so that the effect is evident separately for mid-size projects, large projects, middle schools and high schools.
   b. A regression that weights observations by project size also shows the effect.

In sum, the evidence that PLAs have increased the cost of school construction in New Jersey since 2002 is strong. Out of the 107 total school construction projects, the 79 PLA projects in our sample accounted for 9.77 million square feet of construction with a combined cost of $3.522 billion, based on the projects that we were able to include in our study. Our estimates show that taxpayers would have saved $565.1 million, or over $7.1 million per project, if PLAs had not been used. [50]

[50] $565.1 million = 9.77 million square ft. multiplied by $57.84 per square ft.

APPENDIX

BHI utilized a multi-step data collection process. In the first step, we contacted the New Jersey School Development Authority (NJSDA) to obtain the most recent list all projects for public schools in New Jersey since the year 2002. Specifically, we requested:

- Winning construction bid (excluding insurance, bonds and other soft costs);
- Type of school, (elementary, middle or high school);
- Number of stories above grade;
- Final construction cost;
- Whether the successful construction bid included demolition/site work costs;
- Whether there was a PLA (Project Labor Agreement) requirement on the project;
- Whether the project was a new school or an addition/renovation;
- Number of square feet of new and/or renovated building space;
- Whether the project includes any of the following: auditorium, swimming pool, multiple cafeterias, gymnasium, studio and other features that would add to the project cost.

The SDA returned information on school projects, such as the name of the school district or municipality, the contact information, and estimated total project cost and square footage for all projects in the district. However, the data did not include the final school construction cost data. So BHI gathered contact information for all the districts in New Jersey. The SDA eventually provided us the final construction costs for school construction projects that they managed.

From October 2018 through April 2019, BHI contacted each district by email explaining the type of information we were requesting. BHI followed up by mailing Freedom of Information Acts (FOIA) letters to the superintendents of each public-school district in New Jersey (see example letter below). We made follow-up phone calls to every school district that failed to respond, starting one week after the letters were mailed. We made subsequent follow-up attempts with each district using telephone calls and emails multiple times.

We augmented the data collection process by conducting internet searches that included websites of the school districts, construction firms, construction management firms, architectural firms and other construction related websites. We obtained some information from these searches on the number of square feet, stories above grade and features, such as gymnasium and other features. Independent internet searches also provided information as to the PLA status of some projects, but these projects were only added to the data base if the information was confirmed by the school district or other local officials. We also asked whether the PLA was mandated by the government agency or not. We confirmed that SDA managed projects mandated PLAs on projects with a total cost of $5 million or more.

Sample FOIA Letter

Dear **[Superintendent]**:

Under the **New Jersey Open Public Records Act, N.J.S.A. 47:1A-1 et seq.** we are requesting an opportunity to obtain data that pertain to the school construction project in your local school district. We need the following data for the school construction projects **[New Jersey Municipality]**. More specifically, we need the following data for the following school projects:

- Winning construction bid;
- Number of stories above grade;
- Final construction cost;
- Whether the winning construction bid included demolition/site-work costs;
- Whether there was a PLA (Project Labor Agreement) requirement on the project;
- Number of square feet of the new building.
- Whether the projects include any of the following: auditorium, swimming pool, multiple cafeterias, gymnasium, studio and other features that would add to the project cost.

If there are any fees for searching or copying these records, please inform us if the cost will exceed $10. We request a waiver of all fees, in that the disclosure of the requested information is in the public interest. This information is not being sought for commercial purposes.

Sincerely,

Beacon Hill Institute

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