Respondent Statement to DOD, GSA, and NASA Notice of Proposed Rulemaking on Federal Acquisition Regulation: Use of Project Labor Agreements for Federal Construction Projects (RIN 9000-AO40) [1]

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Summary:

Responding to the requests for comments regarding the Federal Acquisition Regulation: Use of Project Labor Agreements for Federal Construction Projects RIN 9000-AO40, we analyze peer-reviewed and nonpeer-reviewed studies related to the economic effects of Project Labor Agreements (PLAs). We show how some studies find misleading and biased results due to not including relevant variables such as project location and size. We also present studies that incorporate these variables and do not find a statistically positive association between the presence of PLAs and construction costs or reduced bidding.

Introduction:

On August 19, 2022, the Department of Defense (DoD), the General Services Administration (GSA), and the National Aeronautics and Space Administration (NASA) asked for public comments on their proposal to amend the Federal Acquisition Regulation (FAR) and implement an Executive Order on PLAs in Federal construction projects. Their proposal mandates using PLAs for large-scale projects, where the total estimated cost to the Government is $35 million or more unless an exception applies. The proposal also

[1] This study was conducted with support from the Mechanical Contractors Association of America (MCAA), the National Electrical Contractors Association (NECA), the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA), the Signatory Wall and Ceiling Contractors Alliance (SWACCA), and The Association of Union Constructors (TAUC) through the Institute for Construction Economic Research, an independent, non-profit network of academic scholars. The study that follows is the independent work of the authors.

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permits government agencies to require PLAs for projects that do not meet the $35 million threshold.

A PLA is a contract often used in the construction industry, allowed under Section 8(f) of the National Labor Relations Act, and typically negotiated between a building and trade council and a construction management firm. These contracts attempt to ensure meeting project deadlines and quality standards, improve efficiency, safety, worker's health, the supply of highly skilled labor, and a quick resolution of disputes that may arise once work begins (Belman and Bodah, 2010). To do so, PLAs set terms and conditions of employment on long-duration construction projects.

Since a PLA negotiation occurs before bidding, the bids are tailored and unique to each construction project. Still, Kotler (2009) summarizes the following components of a typical PLA:

- Collectively bargained wage rates and fringe benefit payments.
- All negotiated changes in the journey level require a waiver.
- There is no further negotiation on wages or benefits during the lifetime of the PLA.
- Various crafts are structured to have consistent work schedules.
- Referred procedures conduct hiring.
- Contractual clauses forbidding strikes, lockouts, shutdowns, or disruptions accomplish uninterrupted production.
- Establishment of dispute resolution procedures.
- Joint-trustee pension, health insurance, apprenticeship training trust funds, etc., establish fringe benefit payments

Private firms such as Disney, Toyota, General Motors, and significant oil companies noticed some or all of the benefits of PLAs and chose to use them. Public works also used these contracts since the 1930s for the Grand Coulee Dam, Shasta Dam, Kennedy Space Center, nuclear missile sites, and the nuclear research facility at Oak Ridge, Tennessee.

Although using PLAs in the private sector is unchallenged, the same is not valid for the public sector, whose usage of the contracts has faced relatively recent opposition (Belman and Bodah, 2010). Opponents argue that PLAs affect nonunion contractors, requiring them and their workers to adhere to collectively bargained terms and conditions of employment, resulting in a contribution to union dues, health care, and pension funds that nonunion contractors or their employees are unlikely to use (ABC, 2005; Belman and Bodah, 2010). Because of this (according to the detractors), nonunion contractors choose not to submit bids, leading to a reduced supply that generates higher costs to the detriment of taxpayers (ABC, 2005). However, the Supreme Court (Communication Workers of American v. Beck, 487 US 735, 1988) stated in their ruling that "Congress understood § 8(a)(3) to afford nonmembers adequate protection by authorizing the collection of only those fees necessary to finance collective bargaining activities." This means that even on PLA projects, nonunion contractors can choose to only pay the union's dues for representing them.

Still, nonunion contractors may prefer not to participate in PLA projects, but they do so out of their own will and not because they legally or contractually cannot do so. PLAs cannot discriminate between the union and nonunion workers since, under state competitive business laws, all bidding must be open and non-discriminatory. Although the private sector permits union-only agreements, bid awards in the public sector cannot be made based on union status. In 1993, the US Supreme Court ruled that PLAs were permitted and utilized for state-funded projects in the Boston Harbor decision (Building & Construction Trades Council v. Associated Builders & Contractors of Massachusetts/Rhode Island, Inc. 507 US 218, 1993). This decision broadened the use of PLAs and was a strong statement supporting collective bargaining in the construction industry. The Supreme Court's ruling considered Congress's intent in amending the National Labor Relations Act to allow the construction industry pre-hire and restrictive agreements. It declared that the utilization of such contracts in the private sector justified their use in the public sector when the public entities acted as property owners (Kotler, 2009):

> "It is evident from the face of this statute [National Labor Relations Act, as amended] that in enacting exemptions authorizing certain kinds of project labor agreements in the construction industry, Congress intended to accommodate conditions specific to that industry. Such conditions include, among others, the short-term nature of employment which makes post-hire collective bargaining difficult, the contractor's need for predictable costs and a steady supply of skilled labor, and a long standing custom of pre-hire bargaining in the industry.
>
> There is no reason to expect these defining features of the construction industry to depend upon the public or private nature of the entity purchasing contracting services. To the extent that the private purchaser may choose a contractor based upon that contractor's willingness to enter into a pre-hire agreement, a public entity as purchaser should be permitted to do the same... In the absence of any expressed or implied indication by Congress that a state may not manage its own property when its pursues its purely proprietary interest, and where analogous private conduct would be permitted, this Court will not infer such a restriction.[4]"

Essentially, the US Supreme Court stated that nonunion contractors were free to participate – or not – in the PLA bidding process, and the nature of construction work made contracts preventing interruptions and delays (like PLAs) reasonable. Moving past the question of legality, we examined several studies regarding the economic effects of PLAs on public projects, finding conflicting results between the peer-reviewed and non-peer-reviewed literature.

Literature Review:

A 1998 report by the US Government Accountability Office (GAO) examined three studies on the impact of PLAs on construction costs (United States General Accounting Office, 1998). The authors of the first study were a local chapter of the Associated Builders

[4] Building & Construction Trades Council v. Associated Builders & Contractors of Massachusetts/Rhode Island, Inc. 507 U.S. 218, (1993).

and Contractors (ABC) in 1995.[5] Their report compared initial estimates and actual bids with and without a required PLA on the construction project for the New York State Dormitory Authority at the Rosewell Park Cancer Center.[6] They concluded that the offers were 26% higher after the PLA requirement was effective than before the requirements came into force (Associated Builders and Contractors Empire State Chapter, 1995). However, this study could not analyze final costs and did not examine why the New York State Dormitory Authority required PLAs in the first place. In the second study, the New York Thruway Authority hired a consultant to negotiate a PLA for refurbishing the Tappan Zee Bridge. They concluded that the PLA decreased project costs by $6 million, or 4.6%. The third study consisted of the expert knowledge of the project contractor for the National Ignition Facility at DOE's Lawrence Livermore National Laboratory. The project contractor concluded that the PLA saved between $2.6 to $4.4 million on the $1.2 billion project and stated that "these savings alone justify the PLA."

The studies from the GAO relied on expert opinion to gauge the cost effects of PLAs. The downside of this method is that the expert's conclusion could be wrong. Furthermore, the data from F.W. Dodge Construction Reports is inadequate for construction research since it does not include the *final project costs*.

Attempting to correct this, the Beacon Hill Institute published a series of reports on the economic impact of PLAs using a sample of projects. In September 2003, they examined Massachusetts PLAs and school construction costs (Bachman et al. 2003). They obtained bid costs from F.W. Dodge on 126 school construction projects in the greater Boston-MA area from 1995 through 2003. Of these 126 projects, 21 had PLA, and 105 did not. With this sample, they found that PLAs raised construction costs by $18.83 per square foot (in constant 2001 dollars), or 14%. Reducing their selection to the 62 projects where they had actual construction costs (14 under PLAs and 48 without), they found that PLAs

[5] The Associated Builders and Contractors (ABC) represents open shop construction and construction related contractors, as well as union and open-shop construction firms across the United States. They have opposed PLAs on public-sector projects.

[6] This unique comparison was achieved due the fact that several contracts had already been awarded before the PLA became effective.

increased construction costs by $16.51 per square foot (in constant 2001 dollars), or 12%. According to their models, the results of both samples were statistically significant at the 99% confidence level. To control for differences between projects, they considered whether the project involved new construction or a renovation and the area of the project.

In a subsequent study on school construction costs in Connecticut, the Beacon Hill Institute (Bachman, Haughton and Tuerck, 2004) utilized a similar model specification with additional controls related to the stories required by the project and whether it was an elementary school. This time, they found that PLAs increase construction costs by $30 per square foot (in 2002 prices) and a 99% significance level. Subsequent reports of Beacon Hill have comparable results. Unfortunately, these studies are flawed since their models suffer from an econometric problem known as omitted variable bias.

Omitted variable bias occurs when a statistical model leaves out one or more relevant variables, and their effect gets "absorbed" by other variables included in the model, either overestimating or underestimating their impact. Subsequent rigorous empirical research has shown this to be the case[7].

Belman, Ormiston, Shriver, and Kelso (2005, 2010) investigated the impact of PLAs on school construction in New England. The authors enlarged the study area to include the whole State of Massachusetts, limited the sample to new construction, used final costs rather than the bid price, and examined the relationship between project complexities. The authors began their analysis following the Beacon Hill specification: area per square foot, area squared, and the presence of PLAs determined costs per square foot. This first model showed that PLAs increased school construction costs by $28.57 per square foot, and the results are statistically significant at the 95% level.

For their second model, Belman et al. added two additional variables accounting for whether the school was elementary (or not) and whether it was private (or public). This specification showed that PLAs increased school construction costs by $32.31 per square

[7] See Belman, Ormiston, Shriver, and Kelso (2005, 2010).

foot and a significance level of 95%. A third model included an additional control for the number of stories of the projects, whether it had a basement, and whether it required demolition. The third model estimated that PLAs increased school construction costs by $24.10 per square foot, and the results were statistically significant.

These three simple models show a large positive PLA cost effect, but this is not the case after incorporating complexity and urban location. A fourth model added a coefficient for whether the project was built in Boston or not and showed that PLAs increased costs by $13.80 per square foot, but this result was statistically insignificant at the 90% level. Their fifth and sixth models included many more variables relevant to the school construction projects and yielded statistically insignificant coefficients for the presence of PLAs. Thus, Belman et al. concluded that PLAs do not significantly increase school construction costs and showed that PLA cost estimates from Beacon Hill's excessively simple statistical models are a textbook example of omitted variable bias.

Peter Philips and Scott Littlehale (2015) examined the cost of building nine affordable housing projects in Los Angeles under the terms of a project labor agreement between the years 2008-2012 and compared their results to 121 affordable housing projects developed and built over the same period and area without a project labor agreement. As the authors state, affordable housing projects can be subject to prevailing wage regulations that mandate the payment of specific wages and benefits to construction workers on projects funded by federal or state tax dollars.[8]

Using three different statistical approaches to analyze all three samples, they failed to find any statistically significant cost differences between PLA and non-PLA projects. First, they used a statistical test to compare construction costs per square foot and price per unit for PLA projects versus non-PLA projects. Based upon a confidence interval approach,

[8] In addition to their overall sample, they divided the overall sample into two subsamples. The first sub sample included only prevailing wage projects and a second sub sample consisted of those projects only withing the City of Los Angeles. There were 101 prevailing wage projects including 34 outside the City of Los Angeles while the Los Angeles subsample consisted of 74 projects including four non-prevailing wage projects.

they found that the PLA and non-PLA confidence intervals overlap and that the average cost per square foot for PLA projects is always within the confidence intervals for the non-PLA projects. Thus, they concluded there is no statistically significant difference in the square foot cost of PLA affordable housing projects compared to non-PLA affordable housing projects.

Second, Philips and Littlehale examined PLA and non-PLA costs with a scatter graph showing costs by total structure size and costs by the number of project units. They used a simple statistical technique called ordinary least squares regression to draw lines representing the relationship between increased project size and construction costs. They found that PLA projects fall on either side of the regression line in both panels. Once again, these results led them to conclude that there were no statistically significant cost differences between PLA projects and non-PLA projects.[9] Third, Philips and Littlehale utilized nearest-neighbor analysis to examine sample differences,[10] finding that PLAs did not affect project costs in a statistically significant manner.

Philips and Waitzman (2018) analyzed 263 bid openings for community college construction in California, finding that the number of bidders was statistically the same after accounting for project size, location, business cycle, and the season when the project bidding began. Furthermore, they discovered that PLAs do not increase construction costs after considering the project's engineer's estimate. Using 105 projects with engineer's costs estimates, the lowest bids received for projects with PLA were, in relative terms, similar to those of non-PLA projects after controlling for the engineer's cost estimate, community college district, and the year and month when project bidding began.

Opponents of PLAs contend that due to union bargaining, PLAs increase construction wages above the market level. Like PLAs, responsible contractor policies

[9] Ordinary Least Squares regression (OLS) is a common technique for estimating coefficients of linear regression equations which describe the relationship between one or more independent regressors and a dependent variable).

[10] Nearest Neighbor Analysis measures the spread or distribution of something over a geographical space. It provides a numerical value that describes the extent to which a set of points are clustered or uniformly spaced.

(RCP) obligate contractors to incorporate some combination of employment-based health insurance, contributions to employee retirement accounts, workforce training requirements for skills and safety, opportunities for minority workers, and community workforce agreements. Waddoups and May (2014) examined the impact of RCPs on construction costs by estimating two models. The first model did not contain location controls and showed a significantly higher (11.3%) average cost of RCP schools relative to non-RCP schools. However, the authors point out that the simplified specification suffered from omitted variable bias since unobserved factors correlated with an RCP entailed higher bid costs, mainly because their sample concentrated RCPs in four locations: Cleveland, Columbus, Toledo, and Cincinnati. If those areas in Ohio are also locations with high construction costs independent of whether projects were bid and built under RCPs, then not controlling for location fixed effects would inevitably increase the magnitude of the RCP coefficient. Because of this, the authors estimated an expanded model that controlled for location-fixed effects. After doing so, the estimate for the RCP coefficient became virtually zero and statistically insignificant. Again, these results highlight that considering where projects take place is vital to measure the cost effects of PLAs and other policies (such as RCPs). Not doing so results in models providing biased estimates.

Conclusion:

The extant peer-reviewed literature unequivocally shows that PLAs do not lead to higher construction costs or reduced bidding after including proper control variables in the models. As stated by Philips and Waitzman (2021), "projects that might induce the use of PLAs need to be large in order to incentivize local craft unions to bargain as a group and be willing to provide owners with concessions or sweeteners relative to local collectively bargained contracts. But it turns out that projects do not have to be large and often are not." Thus, comparing construction cost averages between PLA projects and nonplan projects without considering project size will naturally present an association between PLAs and higher construction costs. Furthermore, not including where a project takes place ignores aspects essential to the construction economic activity, such as time to commute to work or the existing supply of local workers that bias policy effect estimates.

In truth, PLAs are simply a tool for guaranteeing project deadlines and quality standards. The discussion should move from studying their cost effects to a debate on how to best take advantage of the PLAs relationship with productivity and training, innovation, improved efficiency, safety and health, quick resolution of disputes, and the inclusion of minorities in construction.

Assuming that the employment of union workers will lead to higher construction costs is wrong since union workers are typically more productive[11]. Additionally, higher wage rates may induce contractors to substitute capital and other inputs for labor, which would further mitigate the effect of higher labor costs on total construction costs.

We support the proposed rulemaking regarding the amendment of the Federal Acquisition Regulation mandating the presence of PLAs for large-scale projects with total estimated costs to the Government of $35 million and maintaining discretionary power for federal agencies to request PLAs for lower budget projects.

We also understand why some nonunion contractors may not enjoy entering a collectively bargained agreement under a PLA. However, the public benefit created by these agreements is greater. Undoubtedly, the extant scientific, peer-reviewed evidence finds that PLAs do not entail higher construction costs. Furthermore, PLAs do not significantly decrease project bidding since, after passing a certain threshold, most contractors would naturally not be able to bid on massive projects that tend to require PLAs. As Belman and Bodah (2010) state, PLAs are a value-providing tool on construction projects, and public policy around PLAs should move towards discussing how to take advantage of their potential better.

[11] Authors such as Allen (1984), Allen (1986), Belman (1992), and Doucouliagos and Laroche (2003) found that union workers are generally more productive than their nonunion peers.

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