# The Economic Costs and Benefits of Project Labour Agreements in Ontario


Russell Ormiston, Ph.D.

Visiting Professor of Economics, Hiram College



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# Executive Summary

The construction of any large infrastructure project is typically a multi-faceted and complex endeavor with many complicated logistical challenges. From manufacturing plants to new highways and school buildings, the ability to complete a construction project "on time and on budget" is a continual challenge. Bad weather happens. Material shortages happen. And over the past few years in Ontario, skilled labour shortages happen. All of these—and many other factors—can delay construction, leading to millions of dollars in lost revenue on private-sector projects and to delays in hospital and school openings when government construction projects fall behind.

To minimize disruptions on large industrial and infrastructure projects, many construction owners and developers have a tool at their disposal: a project labour agreement (PLA). This is a pre-hire contract with labour organizations that coordinates building activities across disparate trades and establishes the terms and conditions of employment on a specific construction project. The particulars of each PLA vary, but these agreements typically require that most (if not all) workers on a project are hired through the labour union hiring hall; in return, labour unions provide contractual guarantees about timely access to a sufficient number of skilled tradespeople. While this may not resolve all potential disruptions—such as the weather or supply chain shortages —PLAs are designed to offer stability and certainty in a critical part of the construction process: labour.

Project labour agreements have been a mainstay in the management of large construction projects in the province's industrial sector since PLAs were codified in the Ontario Labour Relations Act in 1998. Many of Ontario's largest manufacturers—NOVA Chemicals, ArcelorMittal Dofasco, General Motors Canada, and Toyota Canada to name a few—have regularly and repeatedly used PLAs to guide the construction of billions of dollars in new manufacturing plants. Public discourse surrounding PLAs, however, is complicated by how little is known about the economic costs and benefits of PLAs in the province. Data on construction outcomes associated with these agreements are largely restricted to private-sector entities and are thus proprietary, representing a substantial barrier to high-quality economic research.

Researchers in the United States operate in a far different environment. PLAs are ubiquitous in public-sector construction in the U.S. and information disclosure regulations allow economists sufficient access to data to develop high-quality, academic-caliber research on the outcomes associated with PLAs. While this report is sensitive about making cross-country comparisons, the primary goal of this study is to summarize the current state of economic research on project labour agreements in the United States with emphasis on studies published in academic, peer-reviewed journals. The main findings of academic studies are as follows:

- **Construction Costs:** In research on PLAs in the United States, the primary area of interest has been their effect on construction costs. It is thus informative that the three most recent and sophisticated studies on the subject in the peer-reviewed literature offer the same conclusion: PLAs do not have a statistically significant effect on construction costs after sufficiently accounting for differences in project size, complexity, and location. These findings contradict the conclusions offered by an older study and publications advanced by an American think tank, but these less developed studies suffer from a methodological defect—a failure to adequately control for differences in project complexity and location—that result in inflated cost estimates of PLAs.

- **Bid Competition:** There has only been one peer-reviewed paper on the relationship between PLAs and bid competition. In a study of construction projects in California's community college system, the authors concluded that PLAs did not have a statistically significant effect on the number of bidders on each project. This conclusion mirrors the consensus in the far more robust research literature on the effect of state prevailing laws in the U.S., which reflects that requiring high wages—often union wages—on public construction projects does not necessarily affect bid competition.

- **Timely Completion:** A recent presentation at a research conference—often a precursor for a publication to be submitted to an academic journal—revealed that PLAs were associated with more timely completion of public works projects in Sacramento, California. While one must be wary of putting too much weight on a pre-print presentation, the findings suggest that PLAs reduced time-to-completion by 16% to 19%, outcomes that were statistically significant across a variety of statistical models.

The analysis of the peer-reviewed literature on PLAs in the United States comes with caveats, namely that the research is limited to only a few studies and is largely focused on public school and college construction projects. Further, in the current context, one cannot guarantee that the American experience with PLAs will mirror the experience of construction stakeholders in Ontario or in Canada given differences in construction markets and provisions included in PLAs across national boundaries. But these findings offer perspective that calls into question public presumptions offered by some in Ontario that PLAs *must* reduce bid competition and increase taxpayer costs on public construction projects. The academic, peer-reviewed research on these agreements in the United States demonstrates that neither point is necessarily true.

Applying the lessons of the peer-reviewed research to Ontario, the conclusion that PLAs do not have a statistically significant effect on construction costs may be especially eye-opening considering a recent suggestion by a Canadian think tank—the Montreal Economic Institute—that a PLA on the ongoing Ottawa Hospital project would cost taxpayers $168 million to $525 million (or 8% to 25% of costs). But the current study reveals that MEI's cost estimates are based entirely on the arbitrary endpoints of an incidental and vague simulation of some unknown construction market that had nothing to do with PLAs, may or may not have used real-world data, and was buried deep in a 2009 report on highway construction in Texas. This renders MEI's cost estimates to be, at best, unreliable and are highly likely to be misinforming public policy discussions about the Ottawa Hospital project and, more broadly, project labour agreements in Ontario.

Given the lack of quantitative data on PLAs in Ontario—and in Canada more broadly—perhaps the most enlightened research position is to admit the obvious: the economic effects of project labour agreements in the province are unclear at this time. But even in the absence of economic data, the study keeps returning to one indisputable fact about PLAs: many of Ontario's largest and most successful manufacturers—with decades of experience building large infrastructure projects in the province and around the world—have regularly and repeatedly used these agreements to manage their most important construction investments. These companies' executives and board of directors have a legal obligation to act in the best interest of the corporation and its shareholders. They are professional and experienced individuals, so it is logical to deduce that private-sector PLAs in Ontario are either, at worst, cost neutral or provide companies with benefits—such as timely completion—that makes such agreements worth any additional cost. This is not to say that public-sector PLAs would necessarily have the same impact—it would depend on the stipulations written into each agreement—but their repeated use in Ontario's private-sector is indicative that such agreements may provide the value originally prescribed to them when codified into provincial law in 1998.

*"Many of Ontario's largest and most successful manufacturers have regularly used [PLAs] to manage their most important construction investments"*


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# Introduction

Project labour agreements (PLAs) are pre-hire labour contracts between a construction owner and labour organizations that coordinate the building activities across disparate trades and establish the terms and conditions of employment on a specific construction project. The particulars of each PLA vary, but these agreements typically require that most (if not all) workers on a project are hired through the labour union hiring hall; in return, labour unions provide contractual guarantees about timely access to a sufficient number of skilled tradespeople regardless of outside influences.

Codified in Section 163.1 of the Ontario Labour Relations Act in 1998, the provincial government's original motivation for promoting PLAs was to "help businesses compete for economically significant projects" in multi-billion dollar and innovative, high-tech industries.[1] The Ontario Labour Relations Board highlighted the value of PLAs in a 2000 decision, writing that these agreements "provide stability and certainty to the participants, that is, the owners, contractors, subcontractors, trade unions, and employees engaged in a massive construction project that may take several years to complete. A project agreement ensures work will continue without disruption…"[2]

Since their codification in the OLRA, project labour agreements have become a mainstay in the management of large construction projects in Ontario's industrial sector. As highlighted by Bilodeau et al. (2024), many of the province's largest manufacturers—NOVA Chemicals, ArcelorMittal Dofasco, General Motors Canada and Toyota Canada—have regularly relied on these agreements to oversee billions of dollars in new construction. The guaranteed access to skilled labour provided by these agreements is only projected to become more valuable over time in light of the persistent—and growing—shortage of construction tradespeople in the province and across the country.[3]

Despite their use by some of Ontario's largest and most-respected companies, PLAs have been largely isolated to the province's industrial sector. Inferences about their potential expansion to other sectors has sparked a torrent of opposition from non-union and alternate-union contractors and aligned think tanks. As research on the economic impact of PLAs in Canada is largely nonexistent, there is an information vacuum about this topic that some have attempted to fill by offering alarmist perspectives on how these agreements will harm taxpayer interests. Most glaringly, an article by the Montreal Economic Institute (MEI) suggests that PLAs could increase the cost of public construction by up to 25% (Ouellette and Shaw, 2022).

The foreboding warnings of think tanks in Canada in response to the information vacuum on the economic costs of PLAs offer nearly a perfect echo of the same alarms offered by an American think tank on this topic 20 years ago in a similar political environment in the United States. This group, aligned with the largest organization of non-union contractors in the country, published reports in the mid-2000s claiming that public-sector PLAs increased construction costs in the U.S. by 15% to 20%.[4] These were the first known studies on the economic impact of PLAs and, given the problem of information vacuums, the absence of any peer-reviewed research serving as a counterbalance allowed these studies to influence the public narrative on these agreements. This, even though PLAs had been a regular part of private-sector and public-sector construction in the U.S. for nearly a century. Since that time, PLAs have become somewhat of a political football at the state and federal level.

[1] Legislative Assembly of Ontario. (1998). "June 4, 1998: 36th Parliament, 2nd Session (Hansard Transcripts)." Accessed on January 5, 2024 at: https://www.ola.org/en/legislative-business/house-documents/parliament-36/session-2/1998-06-04/hansard.

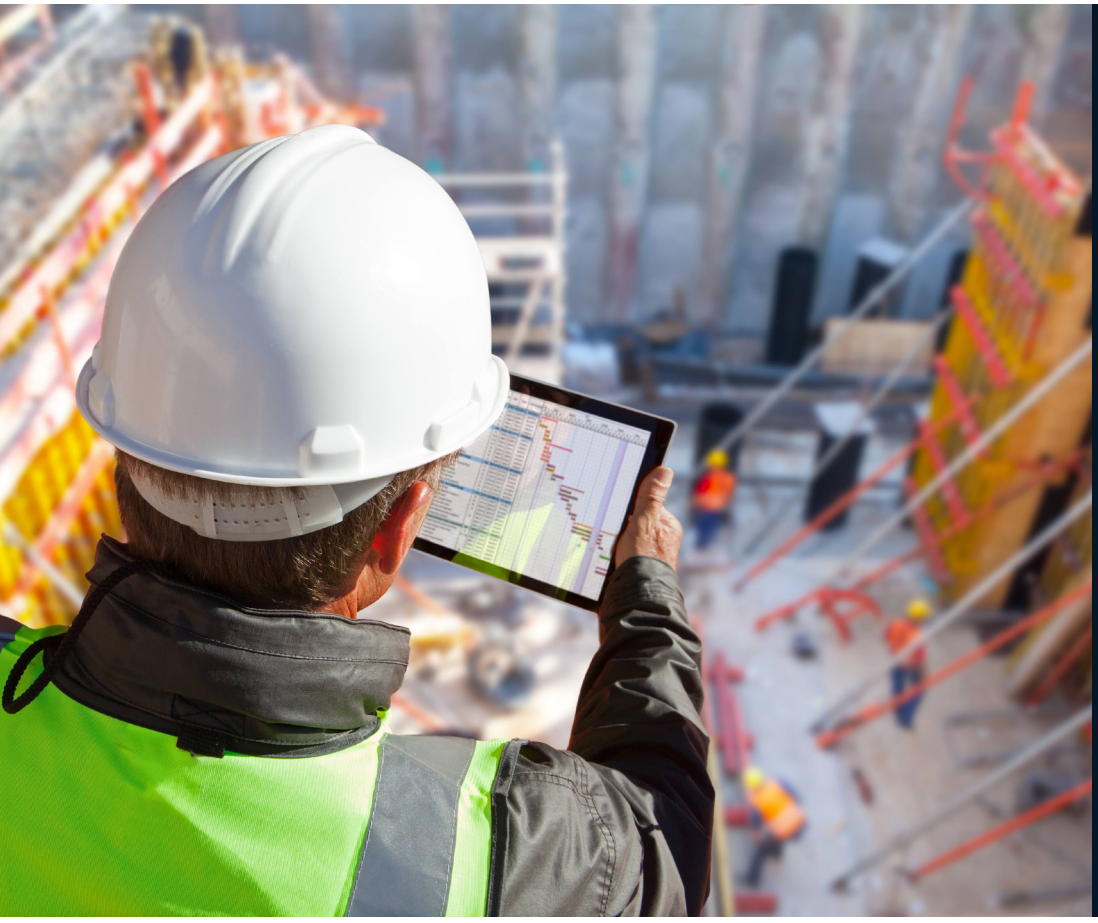
[2] L.I.U.N.A. v. Cope Construction & Contracting Inc., [2009] O.L.R.D. No. 2545, 169 C.L.R.B.R. (2d) 51 at para 15. Quoted from Bilodeau, Pier-Luc; Slinn, Sara; Belman, Dale; and Ormiston, Russell. (2024). "Project Labour Agreements in Ontario: An Assessment of 25 Years of Negotiating Under the OLRA," Institute for Construction Employment Research.

[3] Butler, Colin. (2023). "Ontario's Construction Industry Faces a Severe Labour Crunch and it Seems it's About to Get Worse," CBC.ca, published July 5, 2023 and accessed on January 5, 2024 at: https://www.cbc.ca/news/canada/london/construction-labour-shortage-housing-affordability-ontario-1.6891288; Nixon, Geoff. (2023). "Construction Labour Crunch Leaves Canada in Need of Boosting Ranks of Home Builders," CBC.ca, published July 16, 2023 and accessed on January 5, 2024 at: https://www.cbc.ca/news/canada/canada-construction-labour-challenges-housing-1.6906587; Feinstein, Clarrie. (2023). "More Newcomers Needed to Stem Construction Labour Shortage and Build More Housing, RBC says," Toronto Star, published on August 2, 2023, and accessed on January 5, 2024 at: https://www.thestar.com/business/more-newcomers-needed-to-stem-construction-labour-shortage-and-build-more-housing-rbc-says/article_bf05a24c-0431-57c1-ab0b-2b8a6632ad1c.html.

[4] https://beaconhill.org/policy-studies/

In the subsequent two decades, however, academic scholars have undertaken deeper and more careful analyses of the economic costs of public-sector PLAs in the United States. While the number of research papers is limited, the growing consensus from the most recent and most statistically advanced peer-reviewed studies reflects that PLAs do not have a statistically significant effect on construction costs on most government projects in the U.S. In layman's terms, this means that the statistical difference between the costs of PLA projects and non-PLA projects was small enough that researchers could not dismiss that any difference was simply the result of random chance. These peer-reviewed papers also exposed methodological holes in the studies advanced by American think tanks, rendering their conclusions to be, at best, misguided.

Given the parallels between the information vacuums in the United States and Canada, the primary goal of this study is to summarize the current state of economic research on project labour agreements, with emphasis on studies published in academic, peer-reviewed journals. Due to the lack of quantitative data on PLAs in Ontario, all of these studies come from the analysis of public works in the United States where PLAs are ubiquitous and information disclosure regulations allow researchers access to sufficient data on project characteristics and costs.[5] There is sensitivity about making inferences about Canada based on the American experience, and it is acknowledged that differences in PLAs and construction markets across the two countries do cloud cross-country comparisons. But Bilodeau et al. (2024) highlight that there are enough similarities between the two countries' construction markets and agreements such that an economic analysis of PLAs in the United States should nevertheless be instructive in framing public policy conversations in Canada given the absence of data on these agreements north of the border.



*"The statistical difference between the costs of PLA projects and non-PLA projects was small enough that researchers could not dismiss that any difference was simply the result of random chance"*

[5] The primary currency in the study of the economic costs of project labour agreements is data. On public-sector projects in the United States, project costs and characteristics are often publicly available or relatively easy to acquire through formal information requests of government bodies. In contrast, similar data on private-sector projects is either proprietary or otherwise unavailable. At present, this represents the biggest barrier to the quantitative study of the economic costs of private-sector PLAs in Ontario despite their history in the province. To advance research on PLAs in the province, government agencies are encouraged to maintain records and data on public-sector projects that would allow careful research to be conducted on the economic costs of PLAs.

# Research Review

## *Introduction*

Before addressing individual studies on PLAs, a brief primer on economic research is required. To start, economists aren't engineers; few (if any) can read architectural plans and develop reasonable estimates of how a PLA affected construction outcomes on an *individual* project. Instead, economists interested in this subject must rely on their own tools of the trade, namely the use of statistical techniques to estimate how a PLA affected outcomes across a large sample of similar construction projects after controlling for potentially conflating factors such as project size, complexity and location.

The primary obstacle for economists in studying PLAs, therefore, is identifying situations where there are detailed and publicly accessible data on large numbers of similar projects. In Ontario, it does not appear such a situation exists at present; given that PLAs have been largely constrained to private-sector manufacturing firms, data on project characteristics and construction outcomes are proprietary. But in the United States—where PLAs are used extensively by government agencies that are obligated to follow public data disclosure regulations—researchers have exclusively focused on outcomes associated with PLAs in public-sector construction. This includes an extensive reliance on data on public school construction, where researchers are advantaged by the fact that there are large numbers of similar projects in every part of the country.

Even though PLAs in the United States date back to wartime production efforts in World War I, the economic research on these agreements is still in its relative infancy. But there is published—and emerging—research on three areas of PLAs, namely (a) construction costs, (b) bid competition, and (c) timely completion of projects. The sections below summarize the research in these three areas, emphasizing papers that have been published in academic, peer-reviewed journals and complementing the analysis with perspective on oft-cited studies published outside of the academic press.

## *Construction Costs*

***Individual Studies.*** The central public policy concern about project labour agreements—in both the United States and Canada—is its potential effect on construction costs on government projects. While academic, peer-reviewed research on PLAs is limited, most relevant studies have explicitly focused on these potential cost effects. It is therefore revealing that the most recent and advanced studies public in academic journals do not find evidence that PLAs are associated with a statistically significant effect on construction costs.

Belman et al. (2010) represents the most comprehensive academic study of the potential cost impact of project labour agreements on public construction projects. For this study, the authors collected extensive data on 70 K-12 school construction projects built in Massachusetts between 1996 and 2002; of those, nine were built under a PLA while 61 were not. While the sample size is small, Belman et al. (2010) is unique in the literature for collecting information on dozens of characteristics on each school construction project, far more than any other similar study published to date either within or outside academic press. This allowed the authors to more carefully account for differences between school construction projects, such as the installation of a swimming pool, the construction of a chiller, and the building of an auditorium.

The primary conclusion offered by Belman et al. (2010) was that there was no statistically significant relationship between project labour agreements and construction costs after controlling for differences in project size, complexity, and location.

The study also identified that PLA projects were larger, more complex, and featured more urban construction than non-PLA projects, a logical conclusion supporting the proposition that PLAs are more likely to be used on more difficult construction projects.

Belman et al. (2010) is also important in the study of PLAs as it demonstrated that overly simple statistical models that failed to adequately control for project differences—which had been the initial approach utilized by American think tanks—produced inflated cost estimates of PLAs. In effect, the early cost estimates offered by think tanks that these agreements raised costs by 15% to 20% had overlooked that most, if not all, of the cost difference on PLA projects was attributable to these projects featuring more complex and more urban construction and not to the agreements themselves.

The conclusion that PLAs do not have a statistically significant effect on construction costs has been confirmed in the two most recent peer-reviewed economic studies on the topic. Philips and Waitzman (2021) assessed the potential cost effects of PLAs in an examination of community college construction projects in California between 2007 and 2016. While their primary focus was on bid competition—an outcome explored in a later section—the authors also had access to the project engineer's estimated cost for 99 of their 263 construction projects, some of which were built using a PLA while others were not. Using this measure to control for project size and complexity—since both would be expressly incorporated in an engineer's cost estimate—as well as project location and year of construction, the authors' statistical analysis revealed that a PLA had no effect on construction costs as measured by the lowest bid received on the project.[6]

Waddoups and May (2014) also confirmed that PLAs were not associated with increased construction costs by examining the potential cost impact of responsible contracting policies (RCPs) on school construction costs in Ohio. Starting in 2000, some school districts in the state required contractors adhere to "high-road" employment practices—by providing workers with prevailing wages and benefits (health insurance and retirement), participation in apprenticeship training, and the development of safety programs—in their bids. Many of these provisions resemble those found in project labour agreements in the United States and the authors noted that a limited number of jurisdictions in the sample explicitly used PLAs to organize these responsible contractor requirements. To examine the effect of these policies on bid costs, Waddoups and May (2014) analyzed 319 schools built in Ohio between 1997 and 2008; of those, 63 were covered by responsible contractor policies. After controlling for basic elements of school construction projects, geographic location, and year of construction into account, the author's most advanced models indicated that responsible contractor requirements—which both resembled and included PLAs—had effectively zero influence on school construction costs.[7]

*"Statistical analysis revealed that a PLA had no effect on construction costs"*

[6] One potential limitation in analyzing Philips and Waitzman (2021) is that all projects would have presumably been covered by California's prevailing wage law. However, unlike research on PLAs, the academic peer-reviewed research on the effect of prevailing wage laws on construction costs is robust. Within the literature, there is a clear consensus of studies reflecting that prevailing wage laws do not have a statistically significant effect on school construction costs; in sum, this highlights that government regulations mandating high (union) wages on a construction project do not necessarily result in higher construction costs (likely due to productivity differentials associated with higher-wage workers). Putting these two results together, one can infer—but not prove—that the lack of any PLA cost impact in Philips and Waitzman (2021) was not due to any conflating effect of California's prevailing wage law.

[7] Nearly all projects featured in Waddoups and May (2014) started after Ohio exempted school construction from the state's prevailing wage law. As a result, their findings hold that responsible contractor policies—which resemble PLAs and, in some cases, include them—do not have a statistically significant effect on construction costs in a jurisdiction, and this conclusion is not potentially conflated with the influence of other "high-road" labour regulations.

These three academic studies reach the same conclusion: project labour agreements do not have a statistically significant effect on construction costs. But these studies share another commonality: any positive cost effect of PLAs in overly simple statistical models effectively disappeared when the authors sufficiently controlled for differences in project size, complexity, and location. This is unsurprising considering that construction owners are more likely to use a PLA for projects that are larger, more complicated, and/or located in higher-cost urban areas (Belman et al., 2010); in effect, this is why PLAs are more common for the construction of a new manufacturing plant than they are in the building of a new McDonald's.

This point proves critical in understanding the divergent conclusions offered in older and less developed papers that PLAs are associated with substantial increases in school construction costs. Most typically advanced by authors affiliated with a Massachusetts think tank (among others, see Bachman et al., 2004; Bachman and Haughton, 2007; Bachman and Tuerck, 2006; Burke and Tuerck, 2019; Burke and Tuerck, 2020), these studies rely on variants of the overly simple statistical models rejected in the more recent academic literature. As argued by Ormiston and Duncan (2022), there are reasons to believe that proclamations of large PLA cost effects are statistical misattributions and the result of flawed statistical models that ignore differences in project size, complexity, and/or location.

As an example of how the problem of overly simplistic statistical modeling permeates non-academic research on PLAs, consider that Vasquez et al. (2011) is headlined by their finding that PLAs increased school construction costs in California by 13% to 15%. But these were the results of their most simple statistical model. When the authors added a variable for the location of projects—specifically controlling for cost differentials for schools built within Los Angeles—the estimated cost effect of a PLA declined sharply and was no longer statistically significant.[8] This result, however, was curiously overlooked in the presentation of the study's main findings.

***Discussion.*** Despite PLAs being a staple of American construction management for nearly a century, this review highlights that academic, peer-reviewed research on the cost effects of these agreements has been limited.[9] However, it is compelling that the three most recent and most statistically advanced studies indicate that PLAs do not have a statistically significant impact on construction costs on institutional buildings—namely schools and colleges—in the United States. This conclusion comes with the usual disclaimers that future research could offer contradictory findings and that one cannot guarantee that there would be similar outcomes in Ontario; this may depend on whether PLAs have different effects on bid competition in the two countries (see section below). But the current state of the peer-reviewed research undermines any presupposition that PLAs must increase construction costs as some seem to publicly claim in Ontario.

If it seems counterintuitive that project labour agreements would not raise construction costs given that most require the employ of higher-wage union workers, consider the economic arguments at play. First, union workers are typically better trained, more skilled, and longer tenured than their non-union counterparts. Often combined with union contractors' increased use of labour-saving technology, this can lead to substantial productivity differentials that can offset differences in hourly wages and result in competitive overall labour costs between union and non-union contractors on certain projects.[10]

[8] Vasquez et al. (2011) offers a detailed accounting of issues surrounding collinearity between the PLA variable and that of the LAUSD in the more complete model. For the direct comparison highlighted in this study, see Charts 6 and 7 of that report.

[9] Outside of the academic press, there are two credible papers published on the potential cost effects of PLAs on the construction of affordable housing projects in Los Angeles, but they reach divergent conclusions. In a study published by the RAND Corporation—a well-regarded think tank in the United States—Ward (2021) featured a relatively robust regression model and advanced regression technique to estimate that PLAs increased costs by 14.5% in a sample of 97 projects between 2017 and 2020, holding other factors constant. These results contrast those offered in a working paper published by the University of Utah, as Philips and Littlehale (2015) failed to find a statistically significant cost effect of PLAs on 130 affordable housing projects constructed between 2008 and 2012. While Ormiston and Duncan (2022) highlight that there may be reasons for PLAs to have different cost effects on affordable housing projects compared to heavy and industrial construction projects (or school construction), the contradictory conclusions of two non-academic studies suggest that researchers do not have a consensus on whether this cost effect exists.

[10] A 2022 study published by Independent Project Analysis (IPA) in the United States suggests that union construction workers in the United States were 14% more productivity than their non-union counterparts. This study can be accessed at: https://www.ipaglobal.com/wp-content/uploads/2023/02/Value-Union-Labor-Construction-Projects-IPA-Study.pdf. estimate that PLAs increased costs by 14.5% in a sample of 97 projects between 2017 and 2020, holding other factors constant. These results contrast those offered in a working paper published by the University of Utah, as Philips and Littlehale (2015) failed to find a statistically significant cost effect of PLAs on 130 affordable housing projects constructed between 2008 and 2012. While Ormiston and Duncan (2022) highlight that there may be reasons for PLAs to have different cost effects on affordable housing projects compared to heavy and industrial construction projects (or school construction), the contradictory conclusions of two non-academic studies suggest that researchers do not have a consensus on whether this cost effect exists.

Between the immediate access to skilled labour and better coordination of disparate trades, some labour organizations in the United States claim that PLAs could *reduce* construction costs.[11] This was a position offered in a 2009 working paper out of Cornell University, explicitly citing consultants' reports on the projected cost savings of PLAs on large public-sector construction projects in New York State (Kotler, 2009). Bilodeau et al. (2024) does provide some support for this position in Ontario, highlighting that many PLAs in the province's private sector explicitly feature cost controls on things such as worker wages, overtime pay, and apprenticeship ratios. However, claims that PLAs reduce costs have yet to be confirmed in the peer-reviewed economics research on either side of the border.

That said, the idea that PLAs may be, at worst, cost neutral is consistent with other peer-reviewed research on construction bids on public projects in the United States. From schools to municipal projects, scholars have consistently discovered there to be no statistical difference between the bids of union and non-union contractors on public construction projects (Atalah, 2013a, 2013b; Duncan and Waddoups, 2020; Kim et al., 2012). The idea that high-wage contractors can successfully compete with low-wage contractors due to differences in worker productivity is consistent with the concept of "efficiency wages," a fundamental principle taught in any introductory labour economics class. In effect, this is what allows any high-wage company (e.g., Costco) to compete in an industry otherwise characterized by low-wage competitors (e.g., Wal-Mart).

The influence of efficiency wage theory means that labour regulations that mandate higher wages on construction projects—such as project labour agreements—do not necessarily increase overall costs. This is confirmed in research on state prevailing wage laws in the United States; these regulations require contractors to pay their workers no less than the "prevailing" wage in the local area, which is often the union wage. Unlike research on PLAs, peer-reviewed research on state prevailing wage laws in the United States is robust and, in study after study, the results indicate that these laws do not have a statistically significant effect on public construction costs on most projects (Kim et al., 2012; Duncan, 2015; Duncan and Waddoups, 2020; Onsarigo et al., 2020; Duncan et al., 2022). This is not to say that some exceptions may occur; for instance, the research consensus suggests that prevailing wage laws may increase costs on affordable housing projects, where productivity differentials between workers is less important given the lower skill requirements needed for residential construction (Hinkel and Belman, 2022).[12] But on the biggest drivers of public construction spending—institutional buildings (e.g., schools) and roads—the research is consistent that higher mandated wages are not associated with statistically significant increases in construction costs in the United States.

Obviously, one substantial shortcoming in this discussion is this research is entirely based on outcomes in the United States, and one cannot guarantee that these results would necessarily translate to Ontario. But there are compelling reasons to believe they might. As outlined in Bilodeau et al. (2024), project labour agreements have become a mainstay in the oversight of billion-dollar industrial construction projects in Ontario's private sector since they were codified in the OLRA in 1998. Companies such as NOVA Chemicals, ArcelorMittal Dofasco, General Motors Canada, and Toyota Canada—all sophisticated large, multi-national corporations with decades of experience in the industrial construction space—have used PLAs multiple times to manage their largest capital investments. These companies are not in the business of wasting resources.

[11] ACT Ohio. (2021). "Project Labor Agreements in Ohio: A Survey of the Data and Cost-Benefit Outcomes," ACT Ohio and the Ohio State Building and Construction Trades Council, accessed at: https://www.actohio.org/wp-content/uploads/2021/09/PROJECT-LABOR-AGREEMENTS-IN-OHIO.pdf.

[12] Hinkel and Belman (2022) represents the most recent and statistically advanced study of the effect of state prevailing wage laws on construction costs. They contend that these laws increase costs by up to 3.3%, but they caution that this may be because such laws come with stringent government oversight and thus dissuade bids from construction contractors who reduce their costs by engaging in worker misclassification and other violations of labour and employment law.

[10] A 2022 study published by Independent Project Analysis (IPA) in the United States suggests that union construction workers in the United States were 14% more productivity than their non-union counterparts. This study can be accessed at: https://www.ipaglobal.com/wp-content/uploads/2023/02/Value-Union-Labor-Construction-Projects-IPA-Study.pdf. estimate that PLAs increased costs by 14.5% in a sample of 97 projects between 2017 and 2020, holding other factors constant. These results contrast those offered in a working paper published by the University of Utah, as Philips and Littlehale (2015) failed to find a statistically significant cost effect of PLAs on 130 affordable housing projects constructed between 2008 and 2012. While Ormiston and Duncan (2022) highlight that there may be reasons for PLAs to have different cost effects on affordable housing projects compared to heavy and industrial construction projects (or school construction), the contradictory conclusions of two non-academic studies suggest that researchers do not have a consensus on whether this cost effect exists.

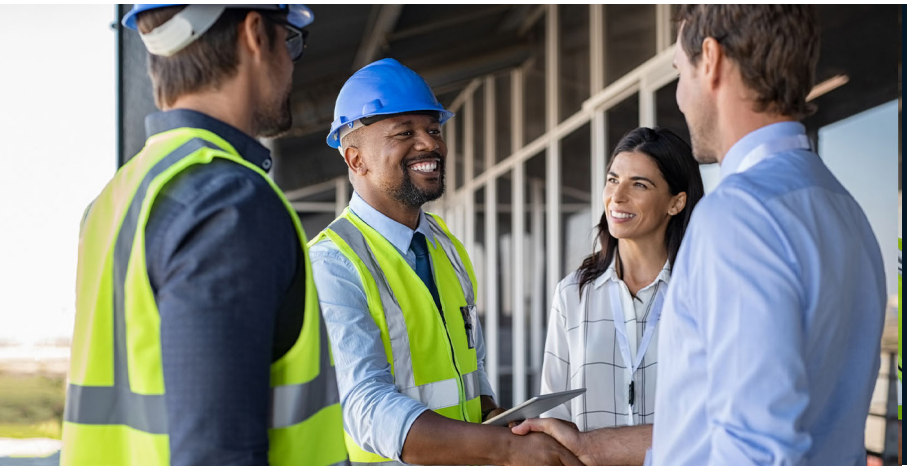
The regular use of PLAs by Ontario's largest and most experienced manufacturers means that one of two things is most likely true. First, it could be that project labour agreements do not increase construction costs in the industrial sector in Ontario, thereby echoing the research on the cost effects of PLAs in the public-sector in the United States. Second, it could be that PLAs do increase construction costs but that these experienced, profit-seeking manufacturers nevertheless find it in their best interests to incur extra costs to secure the *benefits* of a project labour agreement, namely certainty, stability, and as will be discussed later in this paper, more timely completion. Regardless, there would be considerable illogic to claim that PLAs are a detriment to construction in the province if the largest, most successful, and most experienced private-sector businesses keep choosing to use them to guide their most important construction projects.

## *Bid Competition*

***Individual Studies***. Philips and Waitzman (2021) represent the first—and to this point, only—peer-reviewed research study examining whether a PLA affects the number of bidders on a public construction project. To assess this question, the authors examined bid openings for 263 construction projects among California community colleges between 2007 and 2016; within this sample, 88 featured a PLA while 175 did not. After accounting for a multitude of factors that may affect the number of bids on a project—including the fact that PLA projects were larger than non-PLA projects—the analysis revealed that a PLA did not have a statistically significant effect on the number of bidders on a project.

One limitation of Philips and Waitzman (2021) was that the authors could not distinguish between union and non-union bidders in their dataset. However, the findings offer two potential inferences about the effect of project labour agreements. First, it could be that PLAs do not significantly deter non-union contractors from bidding. Conversely, it could be that any decline in bids from one subset of non-union contractors—such as those reliant on "low-road" employment practices—is offset by increased competition from union and other non-union contractors.

A second limitation is that the projects identified by Philips and Waitzman (2021) were all covered by California's state prevailing wage law. At first glance, this would seem to undermine the applicability of the study given that all contractors bidding on the project would already have been required to adhere to "high road" employment practices. However, the broader academic literature on the influence of prevailing wage laws on bid competition is both robust and informative. In study after study—highlighting different types of projects in different parts of the country—academic researchers have discovered that prevailing wage laws do not affect the number of bidders on a project (Duncan, 2015; Duncan and Waddoups, 2020; Duncan et al., 2022; Kim et al., 2012; Onsarigo et al., 2020). Importantly, the research specifically demonstrates that the effect of prevailing wage laws did not differ when union rates prevailed (Duncan and Waddoups, 2020; Kim et al., 2012; Onsarigo et al., 2020).



*"Analysis revealed that a PLA did not have a statistically significant effect on the number of bidders on a project"*

The robust consensus on prevailing wage laws is important to understanding the potential influence of PLAs on bid competition. First, it highlights that labour regulations—even those that require workers to be paid union wages—do not necessarily reduce bid competition. This is likely because any potential deterrence in competition from one segment of the market in response to a PLA may be offset by greater interest by contractors in other segments. Second, this research assuages concerns about California's prevailing wage being a confounding factor in Philips and Waitzman (2021), thereby strengthening the likelihood that their results are generalizable across jurisdictions.

Outside of the academic press, there are only two known studies that have statistically analyzed the effect of project labour agreements on bid competition. Belman et al. (2007) examined 164 school construction projects in San Jose, California, and suggested that PLAs had no effect on the number of bidders per bid opening; the only predictive influence on bid competition was the business cycle (i.e., periods of greater construction activity were linked with fewer bidders per project).[13] Conversely, the Washington Policy Center published a 2019 report to suggest that PLAs decreased the number of bidders on public infrastructure projects in Western Washington State (Bachman, Burke, and Tuerck, 2019). However, Ward (2021) criticized the overly simplistic approach used in this more recent study, specifically its failure to include basic controls for the type of work involved and location of the project, whether construction took place in higher-cost Seattle; this means that it cannot be ruled out that any presumed PLA-driven effect is instead the result of underlying differences between PLA projects and non-PLA projects.

***Discussion.*** Assurances from research on prevailing wage laws aside, it is acknowledged that the academic, peer-reviewed research on the relationship between project labour agreements and bid competition is limited to a single paper and that future research may yield contradictory conclusions. Further, it may be that results from the United States do not hold for outcomes in Ontario given differences in PLAs and construction environments. But at minimum, the findings of Philips and Waitzman (2021) should offer pause to any stakeholder who believes it is *fait accompli* that project labour agreements must necessarily decrease the number of bidders on construction projects in Ontario.

When it comes to discussing the effect of PLAs on the bidding process, lawmakers and industry stakeholders are cautioned against overly simplistic positions that may falsely paint all PLAs as exclusive to "signatory" (union) contractors. In the United States, government agencies generally have the legal right to use PLAs to advance their interests as long as bidding is open to all qualified bidders, regardless of their union status. In a 2000 decision, the Ontario Labour Relations Board also highlighted that contractors need not be signatory to bid on a project as long as they agreed to adhere to the terms of the PLA. Specifically, the OLRB highlighted that "trade unions will have access to contractors for which they may not have bargaining rights and their members will have work opportunities available with employers that would otherwise have no obligation to employ them for the duration of the project." [14]

It is also reminded that a foundational element of project labour agreements is their flexibility; they can be written, tailored, and negotiated to fit the needs and demands of the contracted parties. For example, Bilodeau et al. (2024) highlighted that PLAs in Ontario's industrial sector had varied language regarding the exclusivity of the bidding process. While some PLAs did limit bidding to signatory contractors, others were either silent on the signatory status of bidding contractors or even openly advocated the right of the construction owner to select whatever contractor it wanted. For instance, in a 2009 PLA used by General Motors Canada highlighted that "(t)he owner has the absolute right to select any qualified bidder for the award of contracts on their project" (Bilodeau, et al., 2024; p. 43).

The flexibility of project labour agreements in Ontario's private sector also highlights that their very language can offset concerns about generating ample bid competition on a project. For instance, PLAs used by ArcelorMittal Dofasco require

[13] Specific results from their statistical analyses were not provided in the study, but their text makes this trend clear.

[14] L.I.U.N.A. v. Cope Construction & Contracting Inc., [2009].

a minimum of three bidders (Bilodeau, et al., 2024). Agreements used by General Motors Canada mandate a "sufficient number of qualified contractors available to bid work in accordance with Proponent's current purchasing practices for selection of Contractors" (Bilodeau et al., 2024; p. 48). In other words, concerns about bid competition in projects featuring PLAs can be assuaged through the very language of the agreements themselves.

Finally, lawmakers are cautioned against shaping public policy—on PLAs and otherwise—that assumes there to be a limitless number of qualified contractors available to bid on a project. Just as the province is dealing with well-documented shortages of skilled tradespeople, there are similarly a finite number of contractors—both general and specialty trade contractors—capable to bid on projects at any one time. This is especially true for large, complex, or especially demanding projects, as well as during periods of high construction demand.

## *Timely Completion*

***Individual Studies.*** A presumed benefit of PLAs is that, by coordinating work across trades and ensuring access to skilled labour, these agreements increase the probability that a large construction project will be completed on time. To date, however, there are no academic, peer-reviewed studies on the relationship between PLAs and the timely completion of projects. But a paper presented at a recent research conference—often a precursor to publication in a peer-reviewed journal—offered an important first assessment of this relationship in the study of school and public works construction projects in Sacramento County, California. With data on 292 projects—including 59 covered by PLAs—Petrucci et al. (2023) discovered that after controlling for project cost, type, location, and other variables, construction projects featuring a project labour agreement were completed 16% to 19% faster than projects that did not use a PLA, results that were deemed statistically significant across a variety of models.

***Discussion.*** There are reasons to be cautious about putting too much weight on a conference presentation, as these are often done near the completion of a research study to gather feedback from fellow researchers before a paper is submitted for publication in an academic journal. But conversations with the authors suggest that these results are durable across varying statistical models. Further, the *direction* of the results meets expectations; after all, the primary reasons a construction user would enter into a project labour agreement are to ensure timely access to skilled labour and coordinate work across trades, both of which should facilitate faster completion of construction projects. While this may be well understood by industry stakeholders, it has not been previously addressed by researchers and, perhaps as a result, is underemphasized in public policy discussions of PLAs.

*"Construction projects featuring a project labour agreement were completed 16% to 19% faster than projects that did not use a PLA"*

The potential importance of this study—and this issue more broadly—should not be understated. Large construction projects are incredibly complicated, and delayed completion of projects is common for myriad reasons. This can cost a business millions of dollars in lost revenue generation while delays in the construction of government buildings—from schools to hospitals—can have significant consequences for local communities. Project labour agreements may not be able to address all causes of construction delays—such as bad weather or material shortages—but it can improve the odds that a construction project will not be affected by a substantial and growing problem in the province: a shortage of skilled construction tradespeople that is routinely cited as an important reason for delays in all types of construction projects in the United States and Canada.[15] As noted by Bilodeau et al. (2024), PLAs also encourage more timely project completion by harmonizing work schedules across trades, prohibiting strikes and lockouts, and establishing procedures to quickly dispel jurisdictional disputes.

## *Other Considerations*

This report has exhausted the economic research on PLAs published in peer-reviewed journals. But some additional issues from the academic literature deserve mention. First, research on Ontario's construction industry reflects that union tradespeople in the province have a significantly better safety record than their non-union counterparts as reflected in fewer lost-time injuries on the jobsite (Amick III et al., 2015; Robson et al., 2022). As PLAs require the employment of union tradespeople for most, if not all, jobs on a worksite, it would be reasonable to conclude that these agreements would likely be associated with better health and safety outcomes. This point is furthered by Bilodeau et al. (2024) who highlighted that some PLAs in Ontario's private sector include stipulations establishing health and safety committees or other arrangements to best protect workers on the job site.

Government agencies in the United States and Canada have also found success using project labour agreements and other formal contracts to advance public policy objectives—such as the hire of, and required training investments in, local workers or those from disadvantaged backgrounds—through the construction of large public works projects. While a full review of this literature rests beyond the scope of this study, there are two academic papers to highlight. First, Calvert and Redlin (2003) provide a case study of a successful "Project Agreement" on the $1.2 billion Vancouver Island Highway Project in the 1990s that advanced government objectives in terms of employment equity, training, local hire, and support for local contractors in British Columbia. Second, Nugent (2017) offers an extensive literature review on community benefits agreements—formal contracts between developers or public agencies and community groups working on residents' behalf—while discussing the Toronto Community Benefits Network's efforts to develop such an agreement with Metrolinx.

[15] Pawson, Chad. (2023). "Opening Date for New Hospital in Surrey Pushed Back 3 Years to 2030," CBC.ca, published on September 12, 2023, and accessed on January 13, 2024, at: https://www.cbc.ca/news/canada/british-columbia/new-hospital-surrey-b-c-to-open-in-2030-1.6964293; Moore, Kyle. (2023). "Glace Bay Hospital Expansion Work Still Months Away from Getting Started," CTVNews.ca, published on August 22, 2023, and accessed on January 13, 2024, at: https://atlantic.ctvnews.ca/glace-bay-hospital-expansion-work-still-months-away-from-getting-started-1.6530069; Burmahl, Beth. (2022). "Hospitals Contend with Construction Challenges," Health Facilities Management, published on September 30, 2022, and accessed on January 13, 2024, at: https://www.hfmmagazine.com/articles/4579-hospitals-contend-with-construction-challenges.

# PLA Cost Estimates in Ontario

Setting aside the potential benefits of PLAs—such as timely completion, ensuring local hiring, and workplace safety—the most persistent public policy debate surrounding these agreements on both sides of the border is whether they increase taxpayer costs on government-funded construction projects. This paper highlights that, in the United States, the most advanced peer-reviewed research on project labour agreements offer a consistent story: they do not have a statistically significant effect on construction costs on public institutional buildings such as schools. Replicating these research efforts in Ontario, however, is practically impossible given that the data needed for such a study are proprietary and inaccessible to researchers given that PLAs have been largely constrained to the province's private industrial sector since they were codified in the OLRA over 25 years ago.

This lack of data, however, did not stop authors at the Montreal Economic Institute from inflaming debate in the province by issuing a report where they claimed that a PLA used on the Ottawa Hospital cost taxpayers between $168 million and $525 million (Oullette and Shaw, 2022). Given the information vacuum surrounding PLAs in Ontario, these estimates have drawn considerable attention in the media and have been consistently leveraged by PLA opponents in public commentary.[16] As noted previously, the American experience highlights that initial estimates offered by think tanks about the cost impacts of PLAs can be inflated. Especially given the lack of data on PLAs *in Ontario*, it is therefore important to take a critical look at how MEI developed its cost estimate of these agreements for the Ottawa Hospital project.

MEI's approach to estimating the cost effect of the Ottawa Hospital can be described, at best, as simplistic. To reach these estimates, the authors cite a study by another Canadian think tank—Cardus—that claims that restrictive bidding policies increase construction costs by 8% to 25%.[17] Multiplying these two figures by $2.1 billion—the amount of funding provided by the Ontario government on the Ottawa Hospital project—yields MEI's estimates of $168 million and $525 million.

The credibility of MEI's estimates, therefore, rely entirely on the presumption that a PLA increases construction costs by 8% to 25%. While these estimates are repeated often by Cardus in studies on restrictive bidding policies, an assessment of *the source* of these estimates calls into question their viability in accurately informing public policy discussions—on any topic—in Ontario.[18]

The numbers advanced by Cardus appear to come from a *simulation* buried deep in a 2009 report commissioned by the Texas Department of Transportation (Damnjanovic et al., 2009).[19] This simulation explored the theoretical relationship between the number of bidders on a project and construction cost. The authors of the Texas report provide zero context for the simulation; there is no description of whether this was a Texas simulation, a Canadian simulation, or a simulation in some far-off country. It did not say whether real-world data was even used at all. While most of the report was on highway construction, there was no discussion of whether the simulation was for residential, industrial, or public construction. In fact, the entire text associated with the simulation was one sentence that identified that it was a "calibrated" simulation featuring a "particular set of parameters" (Damnjanovic et al., 2009; pg. 20). But how things were calibrated and what

[16] De Jong, Paul. (2023). "Too Often, Public Construction Project are Open Only to Select Unions—This is Wrong," The Globe and Mail, published April 14, 2023, and accessed January 20, 2024, at: https://www.theglobeandmail.com/business/commentary/article-public-construction-projects-restrict-bidding/; Renkema, Karen. (2022). "Industry Perspectives Op-Ed: 'Sweetheart Deal' on Ottawa Hospital Expansion Hits Taxpayers Hard," Daily Commercial News, published October 17, 2022, and accessed on January 20, 2024, at: https://canada.constructconnect.com/dcn/news/associations/2022/10/industry-perspectives-op-ed-sweetheart-deal-on-ottawa-hospital-expansion-hits-taxpayers-hard.

[17] Dijkema, Brian. (2018). "Shortchanging Ontario's Cities," Cardus, published September 25, 2018, and accessed on January 20, 2024, at: https://www.cardus.ca/research/work-economics/reports/shortchanging-ontarios-cities/.

[17] Dijkema, Brian. (2018). "Shortchanging Ontario's Cities," Cardus, published in September 2018, and accessed on January 20, 2024, at: https://cardus.ca/research/work-economics/reports/shortchanging-ontarios-cities/; Bauld, Stephen W., and Brian Dijkema. (2014). "Hiding in Plain Sight: Evaluating Closed Tendering in Construction Markets," Cardus, published on September 9, 2014, and accessed on January 20, 2024, at: https://www.cardus.ca/research/work-economics/research-report/hiding-in-plain-sight-evaluating-closed-tendering-in-construction-markets/.

[18] On page 23 of a 2017 report, Cardus authors are clearly describing Figure 6 of Damnjanovic et al. (2009). For more, see Dijkema, Brian, and Morley Gunderson. (2017). "Restrictive Tendering: Protection for Whom?" Cardus, published in January 2017, and accessed on January 20, 2024, at: https://www.cardus.ca/research/work-economics/research-report/restrictive-tendering-protection-for-whom/.

parameters were included was entirely ignored. This is not to fault the authors of the Texas report; this was an incidental simulation buried deep in an otherwise expansive report on Texas highway construction. Most importantly, it had nothing to do with a project labour agreement on a hospital project in Ontario.

To make matters worse, the endpoints of the simulation—which produce the cost estimates advanced by Cardus and MEI—are entirely arbitrary. The Texas authors started their simulation by assuming a project featured only two bidders. The presumed 8% cost reduction comes from the estimated cost savings in moving from two to three bidders; meanwhile, the projected 25% cost savings is derived from a theoretical move from two to eight bidders. There was no rhyme or reason offered why the Texas authors started with two bidders and ended with eight bidders, and that's likely because it was unimportant to the larger point the authors were trying to make in their report.

Tying things together, this means that the Montreal Economic Institute's proposed cost estimates of a project labour agreement on the Ottawa Hospital project are based entirely on the arbitrary endpoints of an incidental and vague simulation of some unknown construction market that had nothing to do with PLAs, may or may not have used real-world data, and was buried deep in a 2009 report on highway construction in Texas. Needless to say, this renders MEI's cost estimates to be, at best, unreliable and are highly likely to be misinforming any discussions and debates about project labour agreements in the province.

Beyond the obvious absurdity, this report is compelled to also highlight the fundamental inapplicability of the arbitrary endpoints used by MEI and Cardus—the 8% to 25%—to estimate cost increases associated with project procurement in Ontario. First, any cost projections using these numbers *necessarily* assume that any affected project has two—and only two—bids when a policy is in force. This seems highly unlikely and, when discussing PLAs in Ontario, Bilodeau et al. (2024) highlight that some agreements in the province *mandate* more than two bidders for the contract to take effect.

Second, the high-end cost estimate offered by MEI and Cardus is based on the assumption that the removal of a PLA will result in a four-fold increase in the number of bidders on a project (i.e., from two to eight). Even dismissing the findings of peer-reviewed research from the United States, there are reasons to be highly skeptical of that presumption in Ontario. The number of qualified contractors in Ontario is finite, especially among those capable of managing and working on the province's largest and most complicated construction projects. In some subsectors of the construction industry, most contractors are either unionized or have experience working with union labour; as such, it would be implausible to suggest that there are three qualified and capable contractors on the sidelines due to a procurement policy (e.g., a PLA) for every one contractor that bids on a large and complex government construction project.

# Conclusion

Project labour agreements were codified into the OLRA in 1998 and have become a mainstay in guiding large industrial construction projects in Ontario's private sector. The potential use of PLAs in other sectors—specifically to government-funded projects—has led to increased attention on their effects on construction markets. Unfortunately, the lack of accessible data on PLAs in Ontario has led to an information vacuum that has clouded discussions and debates in the province. This study attempts to offer perspective by summarizing the academic, peer-reviewed research on the economic effects of project labour agreements in the United States, where PLAs are ubiquitous in the public sector (and now required on large federal construction projects).

The peer-reviewed research on PLAs is notably limited, but it is revealing that the most recent and most statistically advanced academic papers reflect that these agreements do not have a statistically significant effect on school construction costs. While restricted to a single peer-reviewed study, the academic research also reflected that PLAs did not significantly reduce bid competition. Finally, a recent research presentation at an academic conference—often a precursor to a study's submission for publication in an academic journal—found that PLAs had a statistically significant effect in reducing the completion time of public works projects in California.

The conclusions offered in the peer-reviewed research come with two substantial caveats. First, the research on PLAs in the United States is still in its relative infancy and it cannot be ruled out that future studies reach contradictory conclusions. Second, while there is some comparability between American and Canadian construction markets, there are some cross-country differences in the structure of PLAs and their respective markets such that there is no guarantee that these agreements will have the same effects in both countries. But caveats aside, the academic research on PLAs in the United States represents the most advanced analyses of these agreements and offer some perspective about their potential impact (or lack thereof) on construction markets.

This study also hopes to bring clarity to procurement debates in Ontario by taking a critical lens to estimates of the Montreal Economic Institute that suggest that a PLA on the Ottawa Civic Hospital project will cost taxpayers additional hundreds of millions of dollars. Digging through layers of think tank reports to identify the source used for these projections—a vague and incidental simulation that had nothing to do with PLAs buried deep in a non-academic 2009 report on Texas highway construction—it becomes obvious that MEI's estimates are, at best, unreliable and, as such, are likely misinforming the public policy debate over PLAs in the province.

*"Multinational companies with decades of experience [are] utilizing PLAs, and they are not in the business of wasting resources "*

The criticism lobbied at the Montreal Economic Institute is tempered with the recognition that, as economists, it is difficult to be asked to put a number on something—such as the cost effect of project labour agreements—for which there is little, if any, data to rely on. This is the situation in Ontario; while PLAs have been a mainstay in the private sector for 25 years, data on their effects are proprietary and scattered across participating construction owners and contractors. This obstacle has made it nearly impossible for researchers to conduct a serious quantitative study on the economic effects of PLAs in the province.

But the lack of data on PLAs in Ontario does not mean that any substitute method of estimating the cost effects of these agreements is appropriate, an outcome highlighted by this study's critique of the approach used by the Montreal Economic Institute. To those ends, it is disappointing that the scholars from MEI failed to acknowledge the presence of academic, peer-reviewed research on PLAs in offering their alarmist perspectives on the cost effects of these agreements. Any objection that their failure to do so was because such research was from the United States falls flat considering that the entire basis for MEI's cost estimates comes from a report on highway construction *in Texas*.

Given the lack of data on the economic effects of PLAs in Ontario—and in Canada more broadly—perhaps the most enlightened research response is to just admit the obvious: the economic effects of project labour agreements in the province are unclear at this time. As the issue of PLAs becomes increasingly partisan and conflictual in public policy discussions, government officials and other industry stakeholders are therefore encouraged to systematically collect sufficient data on construction projects—such as costs, the number of bidders, time to completion, and project characteristics—that would facilitate serious economic analyses of these agreements. Without such data, the information vacuum on this subject can—and likely will—be filled by half-baked claims and projections that may misinform public discourse.

To conclude, even in the absence of economic data, the author struggled to shake one fact about the use of project labour agreements in Ontario while writing this report. As highlighted in Bilodeau et al. (2024), some of the province's largest and most successful manufacturers—NOVA Chemicals, ArcelorMittal Dofasco, General Motors Canada, and Toyota Canada—have regularly and repeatedly relied on PLAs to oversee billions of dollars in new construction over the past 25 years. These are large, sophisticated multinational companies with decades of experience building large industrial projects in Ontario and around the world utilizing PLAs, and they are not in the business of wasting resources. It is logical to deduce that private-sector PLAs in Ontario are either, at worst, cost neutral or provide the companies with benefits—such as timely completion—that makes such agreements worth any additional cost. This is not to say that public-sector PLAs would necessarily have the same impact—it would depend on the stipulations written into each agreement—but their repeated use in Ontario's private-sector is indicative that such agreements may provide the value originally prescribed to them when codified into the Ontario Labour Relations Act in 1998.

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# The Economic Costs and Benefits of Project Labour Agreements in Ontario


Russell Ormiston, Ph.D.

Visiting Professor of Economics, Hiram College


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