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The Impact of Responsible Bidder Ordinances on Bid Competition and Public Construction Costs

Evidence from Illinois and Indiana, 2018-2019

ILEPI
ILLINOIS ECONOMIC POLICY INSTITUTE

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Executive Summary

Responsible bidder ordinances (RBOs) are spreading across the United States, particularly in communities and local contracting bodies where state prevailing wage laws do not exist or do not apply. A responsible bidder ordinance is a local construction market policy that ensures public expenditures reflect local standards of quality and craftmanship. By establishing minimum requirements for contractors based on objective criteria and verifiable standards, an RBO acts as a protection plan for taxpayers– guaranteeing that public construction projects will be built using professional, competent contractors.

Responsible bidder ordinances are becoming increasingly common in Illinois and Indiana:

- Indiana repealed its prevailing wage law in 2015 and, while the Illinois Procurement Code applies responsible bidder standards to state agencies, it does not extend them to local governments.
- The number of RBOs in Illinois and Indiana was 130 in 2019, a 76 percent increase since 2010.
- Of the 130 local RBOs in Illinois and Indiana, three-fifths (58 percent) have been passed by cities, towns, and villages.
- The majority of RBOs require contractors to provide proof of participation in apprenticeship training programs, provide proof of insurance, and comply with all local, state, and federal laws.

Despite the growth of responsible bidder ordinances, economic research is limited on their impacts. This report uses data on public projects awarded in 2018 and 2019 in 16 northern Illinois counties and 14 northern Indiana counties to evaluate the effects of local RBOs on construction market outcomes.

An analysis of 1,237 public projects finds that responsible bidder ordinances:

- Encourage more bid competition on taxpayer-funded projects, increasing the number of bids per project by 8 percent.
- Increase the market share of union contractors by as much as 12 percentage points– suggesting that nonunion contractors are less likely to contribute to apprenticeship training programs and less likely to comply with state, local, and federal laws.
- Have no statistical impact on total construction costs because they boost the share of construction performed by highly trained and skilled construction workers.

Responsible bidder ordinances provide great value on taxpayer-funded projects. RBOs may be especially effective in states that have repealed or weakened prevailing wage laws by minimizing the negative economic, safety, and workforce development consequences that have been associated with a lack of standards on taxpayer-funded construction projects. In fact, RBOs drive down costs by encouraging more competition while improving quality by promoting registered apprenticeship programs. Consequently, RBOs may become particularly important as states and local government invest in infrastructure to rebuild economies in a post-COVID-19 world. Ultimately, responsible bidder ordinances are an effective policy tool that can be used to uphold local construction standards without raising costs for taxpayers.

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About the Author

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Introduction

Public construction bidding is not like contract bidding in the private sector. Governments are usually required to select the lowest bidder, which puts added pressure on contractors to engage in cutthroat bidding and to jettison critical long-term investments, such as workforce development programs, to win short-term work. Reputation, past performance, and workforce quality are not emphasized in the low-bid model.

Responsible bidder ordinances (RBOs) are policy tools that establish objective criteria and verifiable standards for contractors bidding on public construction projects. They are designed to promote local standards of quality and craftsmanship. For example, RBOs typically require proof of participation in apprenticeship training programs, proof of certificates of insurance, prequalification surveys, and compliance with all local, state, and federal laws.

A responsible bidder ordinance is an acknowledgement that governments should consider *value* in addition to costs. An RBO protects taxpayers by setting minimum standards, guaranteeing that public projects are not awarded to contractors who cut corners or have poor track records. The policy is a qualifications-based approach that works within the low-bid system to provide quality by using professional, competent contractors who complete projects safely, on time, and on budget. RBOs may become particularly important as states and local government invest in public infrastructure to rebuild economies in a post-COVID-19 world.

Responsible bidder ordinances, sometimes referred to as responsible contractor policies or responsible employer ordinances, have become more common across the United States since 2010. In particular, many communities in state that have voted to repeal prevailing wage laws have adopted RBOs to maintain local construction standards and minimize the negative consequences associated with a lack of standards on taxpayer-funded construction projects. Counties, townships, cities, towns, and special districts such as school districts and hospital districts have all passed RBOs.

This Illinois Economic Policy Institute (ILEPI) report evaluates the effect of local responsible bidder ordinances on bid outcomes in 16 counties in northern Illinois and 14 counties in northern Indiana over 17 months from January 2018 through May 2019. Impacts are assessed on competitive bidding, the share of projects awarded to contractors who are signatories to collective bargaining agreements, and the potential cost effect on public construction projects. The report concludes by recapping key findings.

The Economic Research on Responsible Bidder Ordinances and Similar Policies

The most authoritative research on RBOs comes from school districts in Ohio. A peer-reviewed, academic study investigated the bid costs of over 300 elementary schools from 1997 to 2008 and found that responsible contracting policies have “no discernible statistical impact on construction bid costs” after controlling for geographic location. There was no evidence that RBO provisions raise construction costs. The study provided evidence that adopting RBOs “may be an effective way to improve employment conditions and living standards of construction workers without significantly raising costs for taxpayers” (Waddoups & May, 2014).

Similarly, in April 2013, Kansas Governor Sam Brownback signed a bill into law that prohibited cities and counties from requiring contractors to pay locally prevailing wages "or offer an employee benefit other than those required by state or federal law," which included apprenticeship training contributions (HB 2069, 2013). This state pre-emption law invalidated local construction policies in Sedgwick County and Wyandotte County. A 2016 report investigated 1,325 bids on school construction and non-residential projects in those counties between 2005 and 2016. While the author concluded that there was no statistical difference in the total cost of non-residential construction projects as a result of the repeal of the local construction policies, the data did reveal that school construction costs were $67 cheaper per square foot during the years when the policies were in place (Kelsay, 2016).

Responsible bidder ordinances have no discernible impact on costs because labor costs are a low and historically declining percentage of total expenditures in the construction industry. Data from the U.S. Census Bureau's *Economic Census of Construction* indicates that labor costs account for 23 percent of total construction costs across the United States (Census, 2015). Since labor costs are a small share of total costs, relatively minor changes in worker productivity are needed to offset any effect from RBOs.

In addition to keeping construction costs stable, responsible bidder ordinances promote better labor market outcomes. A 2018 case study of county-level RBOs in Indiana found that all of the countywide policies in Indiana required both contractors and subcontractors bidding on public projects to participate in USDOL-approved apprenticeship training programs. As a result, worker turnover in the heavy and civil engineering construction sector– which includes the construction of roads, bridges, bike lanes, utility lines, and public parks– was 2 percent lower in the counties with RBOs. Construction workers also earned 8 percent more in the counties with RBOs. Because they incentivize apprenticeship training, RBOs are associated with stable employment and middle-class careers for skilled construction workers (Manzo & Manzo, 2018).

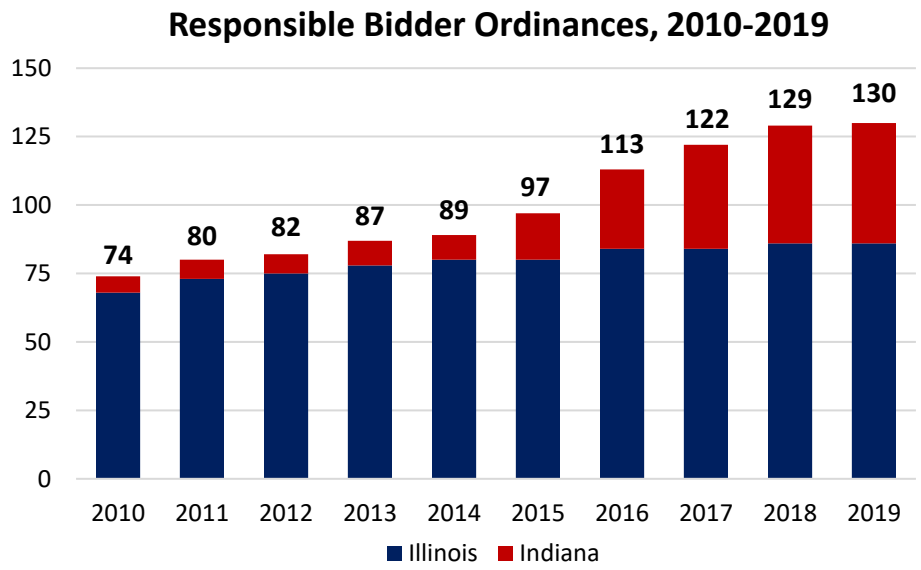
Furthermore, RBOs ensure that reputable contractors with proven track records complete jobs efficiently and within budget, without the need for additional re-construction later on. Contractors with workplace law violations are more than five times as likely to have a low performance rating as contractors with a clean record of workplace law compliance (Adler, 2003). By weeding out cut-rate contractors, RBOs encourage successful project delivery and ensure that public bodies get the quality they pay for. In fact, case studies from across the country have found that RBOs promote higher quality and more reliable services, increased competition among responsible contractors, and reduced back-end reconstruction and litigation costs (Sonn & Gebreselassie, 2010). Additionally, evidence suggests that 98 percent of construction owners using qualifications-based procurement models– like those in RBOs– report being satisfied with project quality (Kashiwagi et al., 2005).

Characteristics of Responsible Bidder Ordinances in Illinois and Indiana

Figure 1 presents data on the total number of RBOs enacted in Illinois and Indiana by year. As of 2019, there were 130 responsible bidder ordinances in the two states. This is a significant growth (76 percent) since 2010, when only 74 RBOs were in effect. In particular, Indiana has recently been at the forefront of the effort to enact RBOs. In 2010, Indiana had 6 local RBOs. By 2014, that number had increased slightly to 9 RBOs. However, following the 2015 repeal of Indiana's prevailing wage law– called common construction wage– RBOs have expanded considerably. By 2019, Indiana had 44 local RBOs (Figure 1).

Over 80 local units of government in Illinois have enacted RBOs, primarily because responsible bidding is not well defined in *local government* contracts (Weger, 2017). To be considered a "responsible bidder," the Illinois Procurement Code requires bidders to submit satisfactory evidence of: compliance with all applicable laws, the Illinois Prevailing Wage Act, and equal opportunity employment; valid business registration information and certificates of insurance; and participation in an apprenticeship training program approved by and registered with the U.S. Department of Labor. However, the Illinois Procurement Code only applies to contracts with *state government* agencies. The Illinois Municipal Code and the Illinois Counties Code, which apply to local government contracts, do not have these provisions. RBOs have thus become a way to address this lack of standards and include additional metrics of responsibility on public projects funded by local units of government.

FIGURE 1: NUMBER OF LOCAL RBOS IN EFFECT IN ILLINOIS AND INDIANA BY YEAR, 2010-2019



Source(s): Indiana, Illinois, Iowa Foundation for Fair Contracting (IIIFFC, 2019a; IIIFFC, 2019b).
*Note: The total number of RBOs shown is based on the year in which RBOs are passed, not implemented. RBOs often become effective immediately or within the first 12 months of passage.

The most common unit of government to enact an RBO is a city, town, or village (Figure 2). These localities have passed nearly three-fifths (58 percent) of all RBOs. Counties and townships have passed slightly more than one-fifth of RBOs (22 percent). Special districts such as school, hospital, park, or sanitation districts account for the remaining one-fifth of RBOs (19 percent).

FIGURE 2: NUMBER OF LOCAL RBOS IN EFFECT IN ILLINOIS AND INDIANA BY UNIT OF GOVERNMENT, AS OF MAY 2019

Unit of Government with an RBO	Number	Percent
City, Town, or Village	76	58.5%
County or Township	29	22.3%
Special District	25	19.2%
Total Local RBOs	**130**	**100.0%**

Source(s): Indiana, Illinois, Iowa Foundation for Fair Contracting (IIIFFC, 2019a; IIIFFC, 2019b).

There are many common characteristics of the responsible bidder ordinances that have been passed in Illinois and Indiana (IIIFFC, 2019a; IIIFFC, 2019b). Nearly all RBOs in Illinois and Indiana include an

apprenticeship requirement. In general, the ordinances require "evidence of participation in apprenticeship and training programs, applicable to the work to be performed on the project, which are approved by and registered with the United States Department of Labor's Office of Apprenticeship." Additionally, most RBOs require that contractors provide proof of certificates of insurance through a "company which is on the United States Department of Treasury's Listing of Approved Sureties;" a written statement of any federal, state, or local tax delinquencies in the last five years; and a copy of a written plan for employee drug testing. These common provisions ensure that the contractors and workers who build taxpayer-funded infrastructure projects are both safe and reliable.

The main difference between responsible bidder ordinances in Indiana and Illinois is the typical contract threshold level. A contract threshold is the minimum cost of a public project at which point it is covered under the ordinance. A lower contract threshold indicates that more public projects are covered by the RBO standards. While many RBOs in Illinois do not have thresholds, meaning that all taxpayer-funded projects are covered, the majority of Indiana's RBOs do have thresholds. Overall, the median contract threshold in Illinois is a project cost of $10,000 while the median contract threshold in Indiana is $150,000 (IIIFFC, 2019a; IIIFFC, 2019b).

Data and Methodology

The data utilized in this research was collected by the Indiana, Illinois, Iowa Foundation for Fair Contracting (IIIFFC)– a nonprofit labor-management organization. The IIIFFC collects project data for 14 northern Indiana counties and 25 northern Illinois counties using bid software programs called iSqFt, CDCNews, and Dodge Data & Analytics as well as through public bid lettings and public documents. All projects in their proprietary reports include the date of the bid letting, the county of the project, the awarding agency, bid information, the signatory status of each bidder, and whether the project was covered by a local responsible bidder ordinance.

FIGURE 3: MAP OF 16 NORTHERN ILLINOIS AND 14 NORTHERN INDIANA COUNTIES WITH PROJECTS IN THE DATASET

The IIIFFC provided data on 1,237 public projects awarded over 17 months from January 2018 through May 2019 in 16 northern Illinois counties and 14 northern Indiana counties (Figure 3). Although the economic influence of the City of Chicago and its collar suburbs extends into the Illinois and Indiana counties analyzed, this report largely excludes the Chicago metropolitan area due to incomplete data that had not yet been reported at the time. The counties with the highest number of projects awarded during this time period were Lake County, Indiana (138 projects), which contains the City of Gary, and Winnebago County, Illinois (136 projects), which contains the City of Rockford. The dataset includes 173 building projects such as school construction projects, 821 heavy and highway projects such as the reconstruction of local roads and bridges, and 243 projects affiliated with the Indiana Department of Transportation (INDOT), Illinois Department of Transportation (IDOT), or Illinois State Toll Highway Authority (Tollway).

There is one key distinction between public construction projects built in Illinois and those built in Indiana. Illinois has a state prevailing wage law while Indiana repealed its policy, called the common construction wage, in May 2015. Prevailing wage standards– which are minimum wages for different types of skilled construction work on taxpayer-funded projects that reflect local market conditions– are associated with a 10 percent greater likelihood of hiring local contractors and local workers, an 8 percent increase in apprenticeship training, at least a 14 percent increase in construction worker productivity, increased worksite safety, and stable construction costs (Manzo & Duncan, 2018; Duncan & Ormiston, 2017; Philips, 2015; Bilginsoy, 2005). Accordingly, the Illinois Prevailing Wage Act could affect construction bid outcomes in the dataset because contractors are already competing on a level playing field, relative to the lack of prevailing wage standards in Indiana.

To parse out the independent effect that responsible bidder ordinances have on construction bidding, this analysis uses a common but advanced statistical technique called “regressions.” By adopting an intuitive technique utilized in both the social sciences and the medical field, the regressions isolate the impact of a change in one group (the “treatment group”) from a similar group (the “control group”). In a scientific experiment, projects with RBOs would be considered the treatment group and projects without RBOs would be considered the control group. Regressions also describe “how much” a variable is responsible for a particular outcome. For example, a probabilistic probit regression, with average marginal effects, can evaluate how much RBOs increase or decrease the likelihood of a union contractor winning a bid on a public project. The regressions control for the location of the project, the type of work performed (heavy and highway or building), whether the project was funded by a Department of Transportation or Tollway, the year of the bid letting, the month of the bid letting, and the size of the project.

Statistical Analysis of the Impacts of Responsible Bidder Ordinances

Between January 2018 and May 2019, there were 1,237 highway, road, bridge, sidewalk, bike path, canal, park, fire station, public school, college and university, and similar public projects awarded in the 30 counties in northern Illinois and northern Indiana (Figure 4). Public bodies in Illinois awarded 675 of these projects (55 percent) while 562 were located on the Indiana side of the border (45 percent). The total number of bidders on these projects was 1,846. This amounts to approximately 1.5 bidders per project.[1] About one-in-five projects were funded by INDOT, IDOT, or the Illinois Tollway (20 percent), two-thirds

[1] This is a relatively low number of bidders per public project, but is likely due to the strong economy. In downturns of the business cycle, public bodies, private businesses, and households have less money to spend on construction projects– reducing work for contractors and tradespeople. With more out-of-work contractors in need of jobs to maintain operations in weak economies, the number of bidders per project is likely to be higher and competition is likely to be more aggressive. Conversely, in strong economies where contractors are busy and have many options for work, the number of bidders per project is likely to be lower.

were other heavy and highway projects (66 percent), and one-in-seven were public school and other building projects (14 percent). Public bodies in the Illinois counties awarded more heavy and highway projects while the Indiana counties awarded more vertical building construction projects (Figure 4).

Fully 21 percent of all public projects in these 30 counties were covered by a local responsible bidder ordinance and the average project was awarded for $1.31 million (Figure 4). The 14 northern Indiana counties had a noticeably higher share of RBO-covered projects (24 percent) than the 16 northern Illinois counties (19 percent). At an average cost of $1.58 million, the Indiana projects were also statistically larger and more complex than the (non-Chicago area) Illinois projects, which had a mean value of $1.09 million. Additionally, contractors who are signatories to collective bargaining agreements win the vast majority of public projects in this region of the United States (86 percent). These signatory contractors won more than nine-in-ten of the projects let for bid in Illinois (92 percent) and slightly less than eight-in-ten in Indiana (78 percent), a statistically significant difference.[2]

FIGURE 4: CONSTRUCTION MARKET SUMMARY STATISTICS FOR ILLINOIS AND INDIANA COUNTIES, JAN. 2018 – MAY 2019

Construction Market Variables	Total	Northern Illinois	Northern Indiana
Number: Counties	30	16	14
Sample: Awarded Bids on Public Projects	1,237	675	562
Competition: Number of Bidders	1,846	996	850
Type: DOT/Tollway Project	19.6%	19.0%	20.5%
Type: Heavy and Highway Project	66.1%	70.7%	60.7%
Type: Building Project	13.8%	10.4%	18.0%
Number of Projects Covered by RBOs	**265**	**131**	**134**
Percent of Projects Covered by RBOs	**21.4%**	**19.4%**	**23.9%**
Award Amount (Average Low Bid)	**$1,311,386**	**$1,086,505**	**$1,581,965**
Winner: Union Contractor	**85.8%**	**91.9%**	**78.4%**

Bid Competition

This study takes advantage of the fact that responsible bidder ordinances were included on 265 public projects– including 131 in Illinois and 134 in Indiana– of the sample of 1,237 winning bids on public projects. The remaining 972 projects were not covered by RBOs. Data from this large sample size between January 2018 and May 2019 may shed light on the effect that responsible bidder ordinances have on construction market outcomes.

Figure 5 displays the typical number of bidders on public projects, an important determinant of the overall price of construction (Kim et al., 2010). As the number of contractors competing to win a bid goes up, the average project cost tends to decrease (Duncan, 2018). The data show that the average competition on RBO-covered public projects was 1.6 bidders in the 30 northern Illinois and northern Indiana counties. This was 0.1 more bids on average than those submitted on projects without RBOs (1.5 bidders). The implication is that RBOs encourage 8 percent more competition on taxpayer-funded projects (Figure 5).

Further investigation exposes the nature of the competition on projects that are, and are not, covered by responsible bidder ordinances (Figure 5). The average number of union contractors bidding on RBO-covered projects was 1.4 bidders, about 0.2 more than on projects without RBOs. By contrast, 0.1 fewer nonunion contractors bid on RBO-covered projects (0.2 per project) than on projects without the policy (0.3 per project). This suggests that RBOs may marginally decrease the appeal of public projects to

[2] A statistically significant result implies that any measured cost difference is unlikely to be due to chance.

nonunion contractors but increase their attractiveness to union contractors in a way that drives greater levels of overall competition.

These results hold by state (Figure 5). In Illinois, there were 1.6 bidders per RBO-covered project and 1.4 bidders for each project without RBOs, a difference of 0.2 bidders (14 percent more bid competition). On average, union contractors account for 0.3 more bids on RBO projects while nonunion contractors submit 0.1 fewer bids. Similarly, both RBO-covered projects and those without the policy had about 1.5 contractors submit bids in Indiana (2 percent more bid competition), but nonunion contractors account for a slightly smaller number of bidders on public projects covered by RBOs while union contractors made up the difference.

Responsible bidder ordinances do not limit the number of bidders on taxpayer-funded construction projects. In fact, the evidence reveals that RBOs may increase bid competition by 8 percent, helping to reduce costs for taxpayers. RBOs also tend to modestly alter the nature of bid competition. While the inclusion of responsible bidding is associated with fewer bids by nonunion contractors, this drop is fully offset by an increase in bids by union contractors.

FIGURE 5: AVERAGE NUMBER OF BIDDERS PER PUBLIC PROJECT BY RBO STATUS AND STATE, JAN. 2018 – MAY 2019

State	Bids Per Public Project	Projects Covered by RBOs	Projects without RBOs	Difference
Total	Union Contractors	1.41	1.21	+0.20
	Nonunion Contractors	0.17	0.26	-0.09
	Total Bids Per Project	**1.58**	**1.47**	**+0.12**
Illinois	Union Contractors	1.47	1.22	+0.25
	Nonunion Contractors	0.16	0.22	-0.06
	Total Bids Per Project	**1.63**	**1.44**	**+0.20**
Indiana	Union Contractors	1.35	1.19	+0.16
	Nonunion Contractors	0.19	0.31	-0.13
	Total Bids Per Project	**1.54**	**1.50**	**+0.03**

The Market Share of Union and Nonunion Contractors

Statistical analyses of the winning bid data provide an opportunity to examine the effect of responsible bidder ordinances on the market share of contractors, taking other factors into consideration. The analyses account for the size of the project, the location of the project, the type of project, whether the work was funded by a state DOT or tollway authority, and the month and year of the bid letting. Three different probit regressions are employed. The first assesses the independent effect of local RBOs on the probability that a union contractor wins a bid on a public project. The second focuses specifically on the Indiana counties, which are subject to the state's "right-to-work" law and its repeal of prevailing wage in 2015. Finally, the third and most advanced model helps in determining whether RBOs have a larger impact in one state than the other.

Union contractors are more likely to win bids in Illinois, in Lake County, Indiana, and on larger construction projects (Figure 6). Regardless of whether the project is covered by an RBO, union contractors are about 17 percentage points more likely to win bids in the Illinois counties than they are in the Indiana counties. The presence of a "right-to-work" law, the repeal of its prevailing wage law, and other state-level factors likely explain this drop off in Indiana. However, there are certain areas of Indiana where the local construction market has a higher share of union contractors. Union contractors are between 18 percentage points and 24 percentage points more likely to be awarded public projects in Lake County,

Indiana than they are in the other northern Indiana counties. Finally, one of the most influential factors of whether a union contractor or a nonunion contractor will win a bid is the size of the public project. For every 10 percent increase in project size, a union contractor has a 3 percentage-point higher probability of having the winning bid. That is because union contractors are disproportionately involved in work types that are more expensive and more complex. For example, bridge construction involves more skills, more equipment, more materials, and more risk than hanging drywall in a public housing unit. Contractors with union journeyworkers and apprentices perform the majority of bridge construction work in this region of the country, while building construction is less likely to involve signatory contractors.

Responsible bidder ordinances statistically increase the share of work awarded to union contractors (Figure 6). On average, RBOs are associated with a 9 percentage-point increase in the probability that a union contractor will win a bid on a public project. However, the state-specific analyses suggest that RBOs may be more impactful in Indiana. When looking only at Indiana projects, RBOs are associated with a 17 percentage-point increase in the likelihood of a union contractor winning a bid. Note that union contractors were 17 percentage points more likely to win projects located in Illinois, which has a prevailing wage law and collective bargaining rights for workers– indicating that RBOs may be an effective local response to address the impacts of state action repealing prevailing wage or introducing so-called "right-to-work" regulations. To determine whether RBOs are in fact stronger in Indiana than in Illinois, a technique called an "interaction term" is used, which allows researchers to subtract the effect of local RBOs in the Illinois counties from their broader impact in areas that do not share the same laws and economic characteristics (i.e., the Indiana counties). The results show that RBOs increase the likelihood of a union contractor winning a bid on a public project by 12 percentage points in both Illinois and Indiana. If RBOs were meaningfully weaker in Illinois, the interaction term would produce a negative effect; instead there is no statistically significant effect. This means that, despite the results from the state-specific analysis with a smaller sample size, RBOs generally have similar impacts on both sides of the border.[3]

FIGURE 6: IMPACT OF RBOS ON UNION CONTRACTOR WIN RATES, RELEVANT FACTORS SHOWN, JAN. 2018 – MAY 2019

Probability of Union Contractor Win	Standard Regression	Indiana Only	Both Indiana and Illinois: Interaction
Covered by RBO	**+9.2%**	**+16.9%**	**+11.9%**
Interaction: Smaller Impact in Illinois?			***NO***
State: Illinois	+16.9%		+17.7%
County: Lake County, IN	+18.7%	+23.5%	+18.3%
Project Size: 10% Change in Award	+2.8%	+4.6%	+2.7%
Type: Heavy/Highway	+4.9%	*No effect*	+5.0%
Public Body: DOT/Tollway	+5.3%	+19.0%	+5.5%
Total Projects	1,236	561	1,236

For full regression results and statistical significance (p-values), see the Appendix.

The takeaway is that responsible bidder ordinances increase the market share of union contractors by between 9 percentage points and 12 percentage points on both sides of the border. While RBOs appear to have a larger impact in Indiana, that difference dissipates with more advanced analysis. Nevertheless, RBOs may be an effective solution for local governments looking to counteract the consequences of state legislation repealing a prevailing wage law. The findings also imply that nonunion contractors are less

[3] The lack of a statistically significant effect in the Illinois analysis could be because signatory contractors comprised 90 percent of the public construction market in those counties, making the impact of local RBOs harder to detect.

likely to participate in registered apprenticeship training, less likely to have certificates of insurance, and less likely to comply with all applicable laws, leading to fewer bids from and wins by nonunion contractors.

Since responsible bidder ordinances are associated with an increased chance that union contractors will be awarded bids and union contractors are disproportionately involved in large-scale projects, union contractors have a larger market share on projects covered by the policy. Figure 7 presents the total value of construction work awarded on public projects in the northern Illinois and northern Indiana counties between January 2018 and May 2019. In Illinois, union contractors were awarded 95 percent of the total value of construction work on RBO-covered projects and 94 percent on the projects that were not covered by RBOs. In Indiana, union contractors had 97 percent market share on RBO-covered projects compared with 87 percent market share on the projects without RBOs.

FIGURE 7: MARKET SHARE OF CONTRACTORS BY SIGNATORY STATUS, RBO STATUS, AND STATE, JAN. 2018 – MAY 2019

State	Market Share	Projects Covered by RBOs	Projects without RBOs
Total	Union Contractors	$270,924,178	$1,225,730,831
	Nonunion Contractors	$9,502,058	$115,245,577
	Total Value of Construction	**$280,426,235**	**$1,340,976,408**
	Union Contractors' Share of Market	***96.6%***	***91.4%***
Illinois	Union Contractors	$61,526,182	$629,855,077
	Nonunion Contractors	$3,013,439	$38,995,840
	Total Value of Construction	**$64,539,620**	**$668,850,917**
	Union Contractors' Share of Market	***95.3%***	***94.2%***
Indiana	Union Contractors	$209,397,996	$595,875,754
	Nonunion Contractors	$6,488,619	$76,249,737
	Total Value of Construction	**$215,886,615**	**$672,125,491**
	Union Contractors' Share of Market	***97.0%***	***88.7%***

The Cost of Public Construction Projects

Union contractors are more likely to qualify as responsible bidders, more likely to bid on projects covered by responsible bidder ordinances, and more likely to be awarded the projects. These contractors also tend to pay family-supporting wages and benefits to their workers (Bivens et al., 2017; Manzo & Bruno, 2014). If RBOs increase the market share of union contractors who pay workers more than their nonunion counterparts, does that mean that RBOs have an impact on total construction costs?

Previous research from nearby Ohio may provide clues. In two studies conducted in 2013, Professor Alan Atalah examined 8,093 bids on 1,496 school projects and found no statistically significant difference between the bid costs per square foot for union contractors and the bid costs per square foot for nonunion contractors– with the exception of the southern region of the state, where bids from union contractors were significantly cheaper than those from nonunion contractors (Atalah, 2013a). When analyzing bids submitted by different trades on these school construction projects, the average bid cost per square foot for union contractors was not higher than for nonunion contractors in 13 of the 18 trades (72 percent), was lower in two trades (11 percent), and was higher in three cases (17 percent) (Atalah, 2013b). These results align with the 2014 study on responsible contracting policies which found no evidence that RBOs raise total construction costs on elementary school projects in Ohio (Waddoups & May, 2014).

The likely reason why signatory contactors do not cost more is that they invest in developing and retaining a skilled workforce through joint labor-management programs. These programs are cooperatively

determined and managed by signatory contractors and labor organizations. Training in joint labor-management programs is funded by "cents-per-hour" contributions that are negotiated privately between workers and employers. In the Midwest, joint labor-management programs have a significant role in training construction workers. The shares of active construction apprentices in joint labor-management programs are 98 percent in Illinois, 94 percent in Indiana, 93 percent in Minnesota, 82 percent in Ohio, 81 percent in Wisconsin, and 78 percent in Michigan (Manzo & Bruno, 2016; Philips, 2015a; Philips 2015b; Manzo & Duncan, 2018; Onsarigo et al., 2017; Bilginsoy, 2017). Because they are more likely to have completed years of standardized training, unionized construction workers tend to be more productive in terms of value added per construction worker. Research has found that union productivity is between 17 percent and 22 percent higher than nonunion productivity, including 30 percent higher for office building construction and up to 20 percent higher in school projects (Allen, 1984; Allen, 1986). These increases in productivity make union contractors, who rely more on workers who have completed years of apprenticeship training, particularly competitive.

Projects that are covered by responsible bidder ordinances are no more costly than projects that are not covered. Figure 8 uses a statistical technique called a "t-test" to assess whether responsible bidder ordinances have an impact on total construction costs by project type. Among the 175 vertical building projects, the average cost per project built without an RBO was just over $2.0 million and the average cost per project covered by an RBO was just under $2.0 million, 1 percent cheaper but not statistically significant. While the 613 local heavy and highway projects in areas without RBOs cost about $703,000 compared to an average of $737,000 for the 208 projects covered by RBOs, the 5 percent difference is not statistically significant. Similarly, among the 243 larger Department of Transportation and Tollway projects, those without RBOs cost $2.9 million per project while RBO-covered projects came in under $2.8 million on average. This 3 percent difference once again is not statistically significant. Across the board, responsible bidder ordinances have no impact on total project costs (Figure 8).

FIGURE 8: T-TESTS ON THE COST OF PUBLIC PROJECTS BY PROJECT TYPE AND RBO STATUS, JAN. 2018 – MAY 2019

1,236 Public Projects in Northern Indiana and Northern Illinois	Building Projects		Local Heavy and Highway Projects		State DOT and Tollway Projects	
	Total Projects	Average Cost	Total Projects	Average Cost	Total Projects	Average Cost
Projects without RBOs	133	$2,006,536	613	$702,523	225	$2,857,469
Projects Covered by RBOs	39	$1,983,486	208	$737,100	18	$2,764,081
Statistically Significant?	No		No		No	

A "t-statistic" determines whether the difference is statistically significant or whether it occurred by chance. For statistical significance, the t-statistic must be ±1.96 or greater. However, it was just 0.03 for the building projects, -0.23 for the local heavy and highway projects, and 0.05 for the state DOT and Tollway projects.[4]

A more advanced analysis controls for project location, project type, project owner, and the month and year when the project was awarded.[5] After accounting for these factors, RBO-covered projects awarded to union contractors are no more costly than union projects that are not covered by RBOs. Similarly, if RBOs did raise costs, one might expect to see an impact within the nonunion segment of the construction market. However, the analysis fails to detect any cost effect of RBOs on nonunion contractors specifically.

[4] First by projects without RBOs and then by projects covered by RBOs, the standard errors, respectively, were $385,162 and $655,161 on building projects, $76,288 and $129,013 on local heavy and highway projects, and $496,687 and $1,063,805 on the state DOT and Tollway projects.

[5] For full regression results and statistical significance, see Appendix Table B. RBOs have no statistical impact on the winning bid price on average.

RBO-covered projects awarded to nonunion contractors are no more costly than nonunion projects that are not covered by RBOs. Local responsible bidder ordinances do not have a statistically significant impact on winning low bid prices.

Conclusion and Further Research

Responsible bidder ordinances are becoming more common across the United States. However, the economic research on RBOs and similar policies has been very limited to date. This report provides new evidence on the effects of RBOs on construction outcomes by analyzing bids for more than 1,200 projects in two states with divergent public policies: Illinois has prevailing wage standards and collective bargaining rights for workers while Indiana repealed its state prevailing wage law in July 2015 and enacted "right-to-work" conditions in February 2012. The results indicate that RBOs have similar effects on construction outcomes regardless of state-level policy differences. However, the projects analyzed in this report were all let for bid in the Midwest during a boom period of sustained economic expansion. Further research will be needed to assess whether these findings hold during downturns of the business cycle– such as the economic recession caused by the novel coronavirus disease (COVID-19) pandemic– and in other states or urban areas.

This report finds that responsible bidder ordinances deliver value on taxpayer-funded projects. By ensuring that local governments hire only professional, competent contractors who produce the highest-quality work, RBOs serve as protection plans for taxpayers. RBOs slightly increase bid competition on public projects, driving down construction costs. RBOs are also associated with more work for contractors who pay family-supporting wages, which helps attract and retain qualified workers. Because RBOs promote apprenticeship programs and produce skilled tradespeople, they have no impact on public construction costs. As a result, responsible bidder ordinances are effective policies that uphold local construction standards without raising costs for taxpayers.

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Appendix

TABLE A: PROBIT REGRESSION RESULTS FOR PUBLIC PROJECTS IN 16 NORTHERN ILLINOIS COUNTIES AND 14 NORTHERN INDIANA COUNTIES ON THE PROBABILITY OF A UNION CONTRACTOR WINNING BID, JAN. 2018 – MAY 2019

P(UnionContractor_Win): Average Marginal Effects	Probit Regression	Probit: Indiana Only	Interaction Model
RBO	**0.0921*** (0.027)**	**0.1687*** (0.043)**	**0.1192*** (0.034)**
RBO*Illinois			**-0.0749 (0.055)**
Illinois	0.1691*** (0.021)		0.1769*** (0.022)
Lake_IN	0.1865*** (0.039)	0.2353*** (0.048)	0.1828*** (0.039)
Winnebago_IL	0.0608 (0.045)		0.0754* (0.045)
ln(Award)	0.0275*** (0.007)	0.0461*** (0.012)	0.0270*** (0.007)
Heavy_Highway	0.0489* (0.026)	0.0623 (0.042)	0.0500* (0.026)
DOT_Tollway	0.0532* (0.028)	0.1897*** (0.051)	0.0550* (0.028)
Year_2019	0.0205 (0.024)	-0.0032 (0.041)	0.0202 (0.024)
Month_2	-0.0099 (0.043)	0.0058 (0.070)	-0.0070 (0.043)
Month_3	0.0238 (0.040)	0.0539 (0.065)	0.0257 (0.040)
Month_4	-0.0149 (0.040)	0.0787 (0.064)	-0.0160 (0.040)
Month_5	0.0219 (0.042)	0.0380 (0.072)	0.0212 (0.042)
Month_6	-0.0315 (0.050)	-0.0169 (0.093)	-0.0347 (0.050)
Month_7	0.0073 (0.050)	0.0122 (0.090)	0.0043 (0.050)
Month_8	-0.0116 (0.051)	0.0156 (0.087)	-0.0134 (0.0512)
Month_9	0.0470 (0.050)	0.1307* (0.079)	0.0499 (0.049)
Month_10	-0.0167 (0.063)	0.0717 (0.102)	-0.0179 (0.063)
Month_11	-0.1305* (0.078)	-0.1180* (0.108)	-0.1392* (0.080)
Month_12	-0.0212 (0.066)	-0.0378 (0.101)	-0.0251 (0.067)
Constant	0.8573*** (0.009)	0.7847*** (0.016)	0.8574*** (0.009)
N =	1,236	561	1,236
Pseudo R^2 =	0.132	0.169	0.134

Source(s): Authors' analysis of public bid information (IIIFFC, 2019a; IIIFFC, 2019b). Standard deviations in parentheses. ***p<|0.01|; **p<|0.05|; *p<|0.10| (two-tailed tests).

TABLE B: ROBUST OLS REGRESSION RESULTS FOR PUBLIC PROJECTS IN 16 NORTHERN ILLINOIS COUNTIES AND 14 NORTHERN INDIANA COUNTIES ON THE NATURAL LOG OF THE WINNING BID AWARD AMOUNT, JAN. 2018 – MAY 2019

ln(Award): Where the Price of the Winning Bid Equals Taxpayer Cost	Union Contractors	Nonunion Contractors	Interaction Model
RBO	**-0.1250**	**0.3107**	**-0.1009**
	(0.102)	**(0.281)**	**(0.102)**
RBO*Nonunion			**0.0990**
			(0.324)
Nonunion			-0.4767***
			(0.134)
Indiana	0.9397***	0.6818***	0.9292***
	(0.097)	(0.243)	(0.091)
Lake_IN	0.2093	-0.7558	0.1432
	(0.145)	(0.522)	(0.141)
Winnebago_IL	0.2522*	-0.4820	0.1882
	(0.136)	(0.330)	(0.131)
Heavy_Highway	-0.7823***	0.2433	-0.5873***
	(0.141)	(0.355)	(0.131)
DOT_Tollway	1.3926***	1.157***	1.3512***
	(0.103)	(0.300)	(0.131)
Year_2019	-0.1760*	0.1732	-0.1383
	(0.096)	(0.331)	(0.092)
Month_2	-0.0092	-0.2760	-0.0160
	(0.195)	(0.337)	(0.174)
Month_3	-0.1258	-0.7486*	-0.1919
	(0.183)	(0.449)	(0.169)
Month_4	0.1630	-0.2809	0.1274
	(0.179)	(0.324)	(0.162)
Month_5	0.1901	-0.4909	0.1056
	(0.191)	(0.529)	(0.177)
Month_6	0.2235	-0.9698**	0.0814
	(0.219)	(0.463)	(0.200)
Month_7	-0.2041	-0.8993**	-0.2882
	(0.237)	(0.452)	(0.215)
Month_8	0.0210	0.6066	0.1246
	(0.242)	(0.536)	(0.226)
Month_9	-0.2363	0.7184	-0.1367
	(0.242)	(0.726)	(0.231)
Month_10	0.1173	-1.1589**	-0.0128
	(0.295)	(0.489)	(0.261)
Month_11	0.2634	-0.8207	0.0361
	(0.387)	(0.560)	(0.328)
Month_12	-0.2654	-1.8863**	-0.5352*
	(0.339)	(0.734)	(0.315)
Constant	13.8250***	12.9107***	13.7085***
	(0.206)	(0.373)	(0.187)
N =	1,060	176	1,235
R^2 =	0.276	0.224	0.241

Source(s): Authors' analysis of public bid information (IIIFFC, 2019a; IIIFFC, 2019b). Standard deviations in parentheses. ***p<|0.01|; **p<|0.05|; *p<|0.10| (two-tailed tests).