RESEARCH NOTE

RIGHT-TO-WORK LAWS AND FATALITIES IN CONSTRUCTION

Roland Zullo

Using state-level data, 2001 through 2009, I test whether union density and right-to-work (RTW) laws predict worker fatalities in either the construction industry or in construction occupations. For both indices, higher levels of unionization equate with lower fatality rates. Right-to-work laws show no direct association with fatality rates. However, the interaction between RTW laws and unionization suggests that unions are less effective at protecting member safety in right-to-work states. Overall the findings support the hypothesis that RTW laws result in the underfunding of union safety training or accident prevention programs.

One objective of organized labor is to protect worker safety and health. Evidence can be found in the joint labor–management safety committees commonly established in unionized industrial sites, as well as in advocacy for effective Occupational Safety and Health Administration (OSHA) standards and enforcement.

In terms of work fatalities, the construction industry is among the most hazardous. A 1990 report by OSHA tallied anywhere from 800 to 1,200 construction fatalities per year during the 1985–1989 period. The greatest number of fatalities were due to a fall from an elevation (e.g., roof or scaffold), followed by being struck by an object (e.g., heavy equipment), caught in or between objects or material (e.g., trench cave-ins), and electrical shock. Together these categories accounted for 90 percent of fatalities in the construction industry (OSHA 1990). Labor unions in construction are sensitive to these risks, and spend millions annually on safety training and accident prevention. Health and safety agendas are encouraged at the national level, but programs are predominately funded and provided for at the state and local level.

In this research, I explore whether right-to-work (RTW) laws are related to fatality rates in construction. Our hypothesis, which is based on collective action theory, is that unions located in RTW states have fewer resources to devote to safety training and accident prevention programs. I test that hypothesis by assessing first if unionization or RTW laws are related to construction fatalities,

and second, by estimating the interaction effect of these two factors. Three specific questions are addressed:

1. In construction, is state-level unionization related to industry or occupational fatality rates?

2. In construction, are state RTW laws related to industry or occupational fatality rates?

3. Is the estimated effect of unionization on fatalities conditional on RTW law?

The Right-to-Work Debate

Collective endeavors require resources. It matters little whether we are discussing the functions of a municipal government, a church, a labor union, or a bowling league; resources, both volunteer and asset, are the lifeblood of any organization. Virtually all collective endeavors are kept aloft in part through the efforts of volunteers, but it is generally true that as organizations grow, so does the need for assets. Financial assets become particularly necessary when the organization expands to a point where equipment must be purchased, facilities rented, and staff hired. As such, collective endeavors of reasonable size develop mechanisms for marshalling financial assets. Governmental services rely on taxation and user fees, places of worship pass the collection basket, labor unions collect dues, clubs require membership fees, and so forth. An efficient method for acquiring financial resources enables an organization to direct energy and effort toward its core mission.

Nearly all of a labor union's financial resources are provided by dues collected from the workers they represent. In the field of labor–management relations, provisions called "union security clauses" were invented to provide labor unions with an efficient method of receiving union dues. Union security clauses are contractual arrangements whereby management deducts union dues from the paychecks of persons represented by the union and then remits the monies to the union organization. Efficiencies arise in part from the automation of this task through the management payroll system, making it possible for a union to avoid the time-consuming job of routinely requesting dues from each person it represents. Efficiencies also arise from the ability of the parties to negotiate terms that require all persons represented by the union to pay dues.

It is the latter feature of union security that is the most controversial and stands at the center of the RTW debate. In nearly every unionized workplace, a number of represented persons will object to paying union dues. The rationale varies, but a common objection is the use of dues for political purposes.[1] In non-RTW states, labor and management are allowed to negotiate a union security clause that requires objectors to pay dues as a condition for keeping a union job. In RTW states, union security clauses are prohibited, allowing dues objectors to receive union representation without cost.

The National Right to Work Foundation, which advocates for the passage of RTW law, proclaims that it is "[d]efending America's workers from the abuses of compulsory unionism," asserting that mandatory union dues violate workers' human or civil rights.[2] While it is true that requiring dues from objectors is coercive, one can readily dismiss such rhetoric as false moralism.[3] The agenda of the National Right to Work Foundation is to constrict the resources of labor unions by eliminating union security clauses. Under RTW, objectors pay nothing, which results in a direct reduction in dues revenue. Further, unions in RTW states must expend resources to continually organize represented persons in order to sustain an active membership. By making the task of collecting dues less effective and efficient, advocates for RTW understand that organized labor has fewer resources for activities, such as political advocacy and new member organizing. The intent of most RTW advocates, in short, is not to defend the civil rights of individual workers, but to weaken the labor movement.

Virtually all unions want the right to negotiate union security clauses because it represents an effective and efficient method for collecting the finances necessary to run their organizations. Unions rarely offer this explanation when they publicly oppose RTW, but instead frame their argument as an affront to shared sacrifice: with RTW, dues objectors enjoy the benefit of unionization without paying anything toward the cost of negotiating and administering the labor management contract.

At play is Mancur Olson's (1965) economic-based theory on collective action. Any organization producing a nonexcludable good[4] must contend with the classic collective action problem: how to finance organizational activities when persons with access to the good have an incentive to refrain from contributing, thereby shifting a disproportionate burden of resourcing the organization onto others. The existence of "freeriders"—persons that enjoy the good without contributing—reduces resources, causing the organization to underperform in its objectives. And by increasing the cost burden for persons that do contribute, freeriders decrease the likelihood of organizational formation and hasten organizational extinction.

Union representation in the workplace is a nonexcludable good, since by law all persons in a bargaining unit, both members and objectors, are entitled to the rights and benefits of a labor agreement.[5] For organized labor, RTW laws exacerbate the collective action problem by allowing persons benefitting from union representation to refrain from paying toward its cost. Consistent with Olson's theory, unions are generally weaker in states with RTW laws.

Published reviews of RTW research have focused on how RTW laws affect union member growth, worker compensation, union–nonunion wage differentials, and industry location (Moore 1998; Moore and Newman 1985). All of these issues are important to labor unions, employers, and policymakers. In this research, we broaden the discussion by examining the effects of RTW on workplace safety. Using publically available data, we explore the possibility that RTW laws affect worker safety in the construction industry.

Data and Analysis

Data for this analysis were obtained from several sources. Construction fatality data are from the U.S. Department of Labor (DOL), Bureau of Labor Statistics (BLS), and Census of Fatal Occupational Injuries (CFOI). Construction employment data are from the DOL, BLS, Quarterly Census of Employment and Wages (QCEW). Union member figures were compiled from the labor management reports archived by the DOL, Office of Labor Management Standards (OLMS).[6] Construction gross domestic product (GDP) is from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). All data are annual, state-level figures. From these data, two ratios were produced as dependent measures:

1. construction industry fatalities per thousand construction employees; and

2. construction occupation fatalities per thousand construction employees.

The difference between the two ratios is in the numerator. The former counts fatalities in the construction industry, which can include persons who are not usually members of the building trades (e.g., drivers); the latter counts fatalities in construction occupations, which includes persons in the building trades that are not employed in the construction industry (e.g., local government). The industry fatality data was available for years 2001–2009. The occupation fatality data includes years 2003–2009. Table 1 gives the averages on these measures for RTW and non-RTW states.

For both measures, the fatality rate is higher in RTW states: 40 percent higher for industry fatalities and 34 percent higher for occupational fatalities. These statistics alone, however, fall short of testing whether RTW law is responsible for elevated fatality rates, because RTW laws are found predominately in the southern and western U.S., and it might be that other factors, such as geographic terrain, weather, and so forth, affect worker safety. Moreover, unions have a stronger presence in non-RTW states, and these summary statistics do not adjust for differences in collective representation across the states.

Critical for our study, these aggregate statistics do not test our hypothesis that RTW laws limit the ability for unions in the construction industry to fund effective safety training and accident prevention programs. To bring evidence to bear on this question, a multivariate analysis is needed that includes union density and other state controls. The following measures are used:

Table 1. Mean Fatality Statistics, RTW, and Non-RTW States

	RTW	Non-RTW
Industry fatalities per thousand employees	0.196	0.140
Occupation fatalities per thousand employees	0.126	0.094

RTW, right to work.

Union Density = Trades union members/employees in construction
RTW = Indicator for whether the state has a right to work law
GDP per Employee = Construction GDP/employees in construction
Building Construction = Building construction employees/employees in construction
Heavy/Civil Engineering = Heavy/civil engineering employees/employees in construction
State Plan = Indicator for states with an OSHA—approved health and safety program

Union Density and RTW are the major independent variables that will be used to predict fatalities, while the other variables are controls. GDP per Employee controls for industry productivity. Building Construction (NAICS 236) and Heavy/Civil Engineering (NAICS 237) are ratios that control for the type of construction activity. It is expected that these ratios will be positively associated with fatalities, because the omitted group, Specialty Trade Contractors (NAICS 238), are less likely to use heavy equipment or involve working on tall, open structures. Finally, year variables are included to factor out time trends.

Industry and occupation fatality rates are modeled as a function of union density, RTW, and controls. I include these variables in a multivariate regression with a random effects estimator that adjusts for correlated error within each state.

Multivariate Results

Table 2 presents the multivariate results for industry fatalities.

In Model 1, the regression coefficient for union density ($\beta = -0.121$) is statistically significant and negatively associated with fatalities. This finding is consistent with the view that unions act to protect member safety (i.e., higher

Table 2. Predictors of Fatalities in the Construction Industry, 2001–2009

	Model 1	Model 2	Model 3
Union Density	−0.121** (0.066)		−0.351*** (0.118)
RTW		−0.050 (0.125)	0.122 (0.255)
RTW × Union Density			0.270* (0.158)
GDP per Employee	0.033 (0.226)	−0.158 (0.225)	0.144 (0.228)
Building Construction	3.642** (1.433)	2.852 (1.519)	3.481** (1.445)
Heavy/Civil Engineering	1.054 (0.973)	1.028 (1.017)	1.460 (0.963)
State Plan	−0.269** (0.114)	−0.279** (0.119)	−0.254** (0.110)
Year	−0.006 (0.010)	−0.001 (0.010)	−0.010 (0.010)
Constant	3.488 (20.987)	−7.241 (20.802)	10.304 (21.021)
R^2	0.168	0.135	0.201
N observations	459	459	459

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.
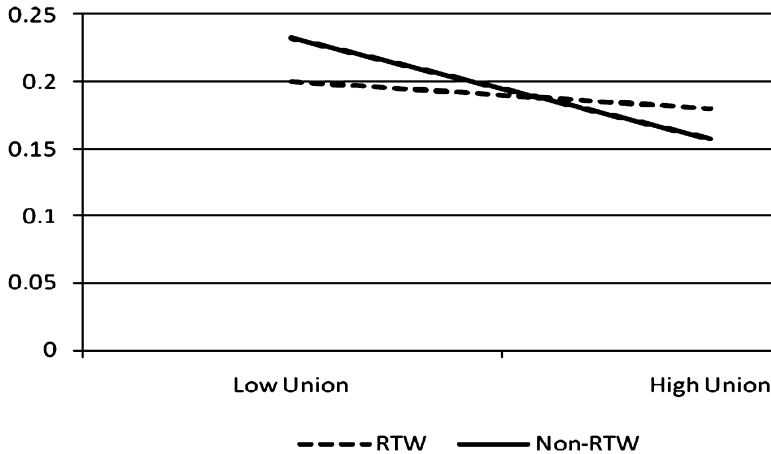Robust standard errors are in parentheses.
RTW, right to work.

Figure 1. Construction Industry Fatality Rates per Thousand Employees.

union density equals higher safety). Because both the union density variable and the fatality ratio are in logarithmic form, the coefficient is easy to interpret. A 1 percent increase in union density equates with a 0.12 percent decline in the industry fatality ratio.

Model 2 looks at RTW, controlling for other factors. The RTW coefficient is negative, but fails to reach conventional levels of statistical significance. The conclusion therefore is no association between RTW and industry fatalities.

Model 3 includes union density, RTW, and an interaction term for these measures. This technique allows for a test of whether the union density effect observed in Model 1 is conditional on RTW. And indeed, results suggest that the estimated effect union density has on reducing fatalities does depend on state RTW laws. The regression coefficient for union density ($\beta = -0.351$) indicates that a 1 percent increase in union density in non-RTW states equates with a 0.35 percent decline in the industry fatality ratio. Meanwhile, the regression coefficients for RTW ($\beta = 0.122$) and the interaction term ($\beta = 0.270$) are both positive, which essentially nullifies the union density effect. Thus, unions appear to have a positive role in reducing construction industry fatalities, but only in states without RTW laws. This interaction is illustrated in Figure 1.

On the Y-axis are the estimated construction industry fatality rates (per thousand employees). On the X-axis are low and high union density levels, defined as 1 standard deviation below and above the mean, respectively, for RTW and non-RTW states. The solid line represents the difference in construction industry fatality rates in non-RTW states under conditions of low and high levels of building trade union density. Similarly, the dashed line represents fatality rates for low and high levels of building trades unions, but in RTW states.

Figure 1 illustrates the relative effectiveness of unions in non-RTW states. In non-RTW states, industry fatalities are 0.23 per thousand, with low levels of

Table 3. Predictors of Fatalities in Construction Occupations, 2003–2009

	Model 1	Model 2	Model 3
Union Density	−0.223* (0.093)		−0.597*** (0.162)
RTW		−0.082 (0.174)	0.168 (0.359)
RTW × Union Density			0.430* (0.218)
GDP per Employee	0.171 (0.320)	−0.149 (0.316)	0.362 (0.318)
Building Construction	7.428** (2.075)	5.957** (2.233)	7.123** (2.069)
Heavy/Civil Engineering	1.990 (1.405)	2.177 (1.478)	2.648 (1.355)
State Plan	−0.318* (0.157)	−0.331* (0.164)	−0.298* (0.147)
Year	0.009 (0.018)	0.013 (0.018)	0.005 (0.018)
Constant	−29.263 (37.003)	−37.378 (37.164)	−19.350 (36.830)
R^2	0.233	0.198	0.280
N observations	357	357	357

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.
Robust standard errors are in parentheses.
RTW, right to work.

union density, but this estimate drops to 0.16 with high union density. By comparison, the industry fatality rates in RTW states are relatively flat regardless of the level of industry unionization: with low levels of unions, the fatality rate is 0.20; with high levels, the rate is 0.18. Labor unions, according to these results, are less effective at reducing fatalities in RTW states.

To cross-validate the construction industry results, fatality rates for persons in construction occupations were analyzed. Table 3 presents the results, with models arranged in the same order as the industry fatality analysis.

Overall, the occupation fatality results corroborate the industry results. Model 1 indicates that a 1 percent increase in union density is associated with a 0.22 percent decline in the ratio of occupation fatalities. This estimated effect applies across all states and the District of Columbia.

Model 2 provides no evidence of an association between RTW and occupation fatalities. Model 3, however, again suggests an interaction between union density and RTW. In states without RTW laws, a 1 percent increase in union density equates with a 0.58 percent decline in the occupation fatality ratio. This positive effect on worker safety is greatly reduced in states with RTW laws. Figure 2 plots the relationships.

Figure 2 depicts a noticeable difference in fatality rates between low- and high-union density conditions in non-RTW states, but for RTW states, the difference is less significant. In non-RTW states, the construction occupation fatality rates with low union density are about double the fatality rate with high union density: estimated at 0.22 per thousand compared with 0.11 per thousand. In RTW states, the range is between 0.18 and 0.14 per thousand for low and high unionization densities, respectively.

Another notable finding in this analysis was the reduction in fatalities attributed to states having their own department for regulating health and safety. The industry fatality rate was about 25 percent lower for states with such a plan, and the occupational fatality rate was 30 percent lower. We speculate that this
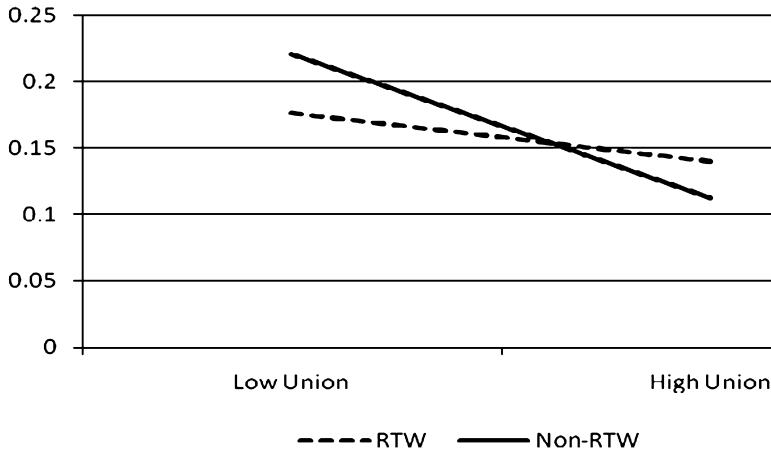
Figure 2. Construction Occupation Fatalities per Thousand Employees.

reflects the relative advantage for state officials in collaborating with industry and union leaders to prevent accidents.

Policy Implications and Future Research

This research set out to explore whether RTW laws interfere with the ability of unions in the building trades to protect member safety. Using collective action theory, I hypothesized that RTW laws result in the underfunding of safety training or accident prevention programs, and that this effect manifests as higher fatality rates. We explored this hypothesis by examining industry and occupation fatality rates in the fifty states and the District of Columbia over the 2001–2009 period. Our empirical test attempted to determine, first, whether unionism was associated with lower fatality rates, and, second, whether the association between unionism and fatality rates was conditional on the presence of RTW laws.

The results support the hypothesis. Construction unionization is associated with lower industry and occupation fatality rates. Moreover, the positive effect that unions have on reducing fatalities appears to be stronger in states without RTW laws.

Several states are currently considering adopting RTW laws. These results call for policymakers to include in their deliberations the potential negative effect of RTW law on worker health and safety. Passing RTW laws may have the unintended consequence of elevating workplace fatalities. States attempting to reduce construction-related fatalities might instead consider encouraging trade union growth and repealing RTW laws.

These results are preliminary, and further analysis is recommended. A more refined study would be to test for effects at the individual or incident level. An

alternative approach might involve the collection of data on union safety train-ing or accident prevention activities to assess whether there are differences across RTW and non-RTW regions.

Roland Zullo is Research Scientist at the Institute of Labor and Industrial Relations, University of Michigan. He has written numerous articles on labor relations, focusing on the auto industry, privatization, and politics and unions. Address correspondence to Roland Zullo, Research Scientist, Institute for Research on Labor, Employment, and the Economy, University of Michigan, Ann Arbor.

Notes

1. Current law allows political objectors in all fifty states to receive a rebate on their dues payment commen-surate with the amount of dues money spent by the union in politics.

2. See: National Right to Work Foundation at http://www.nrtw.org/.

3. If free association for workers were indeed the charter of the National Right to Work Foundation, then they would expend equal fervor toward changing labor law to punish employers that obstruct the free association (i.e., unionization) of employees. Or even more genuine would be an endorsement of the idea of minority unions (bargaining rights for groups of workers with less than 50 percent membership at a worksite), which eminent labor law scholar Charles Morris (2005) shows was the original intent and practice of U.S. labor law.

4. "Nonexcludable good" refers to products or services that, once developed, can be broadly accessed or enjoyed by persons who had no role in creating or financing the good.

5. One could carry this argument further by asserting that union advocacy in the political arena, on issues such as minimum wages or workplace safety, produces a nonexcludable good for a large segment of society.

6. The numbers of union members were derived by summing the local membership figures in each state for the following building trades: Bricklayers (BAC), Boilermakers (BBF), Carpenters (CJA), Electrical Workers (IBEW), Elevator Constructors (IUEC), Operating Engineers (IUOE), Heat and Frost Insulators (HFIA), Laborers (LIUNA), Painters (PAT), Plasterers and Cement Masons (OPCM), Plumbers (PPF), Roofers (RWAW), Sheet Metal Workers (SMW).

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Appendix

Table A1. Data Measures, Source, and Statistics

Measure	Source	Mean (SD)		
		All states	RTW states	Non-RTW states
Construction industry fatalities per construction employee	CFOI[1]	−8.562 (0.635)	−8.571 (0.493)	−8.555 (0.726)
Construction occupation fatalities per construction employee	CFOI[1]	−8.757(0.866)	−8.803(0.713)	−8.723(0.967)
Building trades union members per construction employee	OLMS[1]	−1.262(0.806)	−1.874(0.664)	−0.799(0.557)
Construction GDP per construction employee	BEA[1]	−2.604(0.228)	−2.680(0.152)	−2.546(0.258)
Building construction employees per total construction employees	QCEW	0.236(0.033)	0.224(0.027)	0.245(0.035)
Heavy/civic engineering employees per total construction employees	QCEW	0.173(0.054)	0.192(0.061)	0.158(0.043)
States with approved occupational health and safety plans	DOL	0.490(0.500)	0.409(0.493)	0.552(0.498)

Note: [1]Measure in logarithmic form.
CFOI, Census of Fatal Occupational Injuries; OLMS; Office of Labor-Management Standards; BEA, Bureau of Economic Analysis; QCEW, Quarterly Census of Employment and Wages; DOL, Department of Labor