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Kimberly Varadi April 13, 2015

Does Right-To-Work Work?

by

Kimberly Varadi

Dr. Leonard Carlson
Adviser

Department of Economics

Dr. Leonard Carlson

Adviser

Dr. Andrew Francis-Tan

Committee Member

Dr. Andra Gillespie

Committee Member

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Kimberly Varadi

Leonard Carlson

Adviser

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Abstract

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Using data from the 2013 American Community Survey, this paper examines the impact of right-to-work (RTW) constitutional amendments and statutes on the wages and employment of 1) those most susceptible to poverty: African Americans, Hispanics, and single mothers and 2) the two most unionized private sector industries: the utilities industry and transportation and warehousing industry. It also considers the policy's effect on state unemployment levels. For all demographic groups and industries considered, there is a statistically significant lower wage for employees in RTW states than in non-RTW states and statistically significant lower odds of employment for Hispanic and utilities workers. These findings hold true regardless of an individual's education level, work experience, hours worked per year, regional location, state unemployment rate, and state poverty rate. At the state level, right-to-work legislation had a statistically significant impact on reducing state unemployment rates in 2013, with the most decrease in unemployment in states with a RTW constitutional amendment.

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Table of Contents

List of Figures

List of Tables

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Using data from the 2013 American Community Survey, this paper examines the impact of right-to-work (RTW) constitutional amendments and statutes on the wages and employment of 1) those most susceptible to poverty: African Americans, Hispanics, and single mothers and 2) the two most unionized private sector industries: the utilities industry and transportation and warehousing industry. It also considers the policy's effect on state unemployment levels. For all demographic groups and industries considered, there is a statistically significant lower wage for employees in RTW states than in non-RTW states and statistically significant lower odds of employment for Hispanic and utilities workers. These findings hold true regardless of an individual's education level, work experience, hours worked per year, regional location, state unemployment rate, and state poverty rate. At the state level, right-to-work legislation had a statistically significant impact on reducing state unemployment rates in 2013, with the most decrease in unemployment in states with a RTW constitutional amendment.

I. INTRODUCTION

Perhaps no issue in American labor relations has sparked such controversy as the debate over "right-to-work" (RTW) laws. Under these policies, states have the authority to determine whether or not workers can be required to join a labor union to gain employment or to remain hired (NCSL 2015). On March 9, 2015, Wisconsin became the twenty-fifth state to grant workers the so-called "right-to-work" when it comes to union membership (see Figure 1; Davey 2015). Other states, including Kentucky and Illinois, have engaged in lively debates about the

[1] Department of Economics, Emory University. I thank my adviser, Dr. Leonard Carlson, and committee members, Dr. Andrew Francis-Tan and Dr. Andra Gillespie.

possibility of adopting this policy (Erickson 2015). In fact, Kentucky has been deemed "a new frontier" for right-to-work laws, as it has become the forerunner in a national effort to get county governments to pass RTW legislation (Pryzblyski 2015). Thus, the debate over this policy is as relevant in the 21st century as it was over 60 years ago when states began implementing the laws.

The policy issue is rooted in a history of Congressional legislation passed by elected officials who were motivated to use political power to advance a popular agenda. After the stock market crash in 1929 and the stagnation in investment thereafter, the high unemployment of the Great Depression challenged workers' ability to support labor unions. However, by the third year of the Depression, labor solidarity prevailed. Public opinion shifted against employers who tried to prevent workers from joining labor unions and against judges who limited union activities through court rulings. The public's stance, coupled with the pro-union view of the Roosevelt administration, influenced Senator George William Norris from Nebraska and Congressman Fiorello H. La Guardia from New York who sought to change labor relations (Library of Congress 2015). Their ensuing legislation, the Norris-LaGuardia Act of 1932, prohibited federal courts from issuing injunctions to stop collective bargaining practices like strikes and boycotts (Olson 2001, 205). The law declared that union members should have "full freedom of association" with no disturbance by employers (Encyclopedia Britannica 2015). The Norris-LaGuardia Act marked a change in U.S. labor policy, paving the way for the more sweeping Wagner Act of 1935.

The 1935 National Labor Relations Act, popularly called the Wagner Act, is often cited as the most important piece of labor legislation passed in the 20th century (Wagner 2002). This first major, modern U.S. labor law was the result of work by U.S. Senator Robert F. Wagner, a German immigrant who quickly rose in the Democratic Party. A believer in the New Deal's goal

to provide economic security for low-income individuals, Wagner sought to improve the 1933 National Industry Recovery Act (NIRA), a component of President Franklin D. Roosevelt's New Deal legislative program that oversaw fair trade codes and guaranteed workers a right to collective bargaining (Alexander 1994). The National Labor Relations Act passed two years later restated the right of employees to engage in collective bargaining. In addition, by establishing a new independent National Labor Relations Board (NLRB) with enforcement power to protect this guarantee, the Wagner Act strengthened the federal government's role in labor relations and made it the main regulator and arbiter in such affairs. Furthermore, the legislation outlawed previously used "company unions" that challenged collective bargaining rights and prohibited such unfair labor practices as strikebreaking. The Wagner Act also did not allow for the use of yellow dog contracts that forced employees to either agree to not join a union or lose their job. The NLRB was permitted to hold hearings and compel companies to comply with these changes (FDR Presidential Library 2015). Although Wagner's motivation for devising the National Labor Relations Act is debated,[2] the law sought, as Wagner himself stated, "...to make the worker a free man in the economic as well as political field" (Wagner 1935). Its immediate success was measured in the dramatic growth in union membership in the 1930s that included nearly 9 million union members in the United States by 1940. The country entered an era of increased productivity, wages, benefits, and improved working conditions.

Opponents of the Wagner Act tried for a decade to appeal or amend it with no success, arguing that it gave too much power to labor unions. It was not until 1947, when the Republican Party won control of both houses of Congress for the first time since 1931, that changes were made. The "Class of 1946," as the first-year Republicans were called, entered Capitol Hill with

[2] Richard Posner (1982) wrote that the Wagner Act "was procured...by the labor movement" that acted as an "interest group." Mark Barenberg (1993) challenges the origins of the Act, finding that it was "...profoundly cooperationist, not adversarial as is conventionally assumed" (Barenbarg 1993).

an eagerness to overturn New Deal legislation. They had an incentive to reverse the pro-labor policies from the 1930s due to increased proportion of private sector workers in unions, more price and wage controls, and the large number of strikes after World War II that reduced productivity and efficiency. In fact, the year 1945 had about 38 million days of labor lost due to strikes, and this number almost tripled to 116 million days (Hartley 1946). Furthermore, the estimated working time lost to strikes reached an all time high as a percentage of total work in 1946 (see Table 1).

Senator Robert Taft of Ohio, the chair of the Senate Labor and Public Welfare Committee, mobilized conservatives to push new legislation that would restrict the power of unions. As an opponent of any measure that was "big government," or anti-business, Taft wanted to curtail the Wagner Act. He and his co-sponsor Fred Hartley of New Jersey, the chair of the House Committee on Education and Labor, were successful after months of committee hearings, deliberation by both houses, and opposition by union officers, getting 331 congressmen and 68 senators to pass the Taft-Hartley Act on June 23, 1947 over President Harry Truman's veto (Groves and Auger 1951). This Act required the notification of the intent to strike and allowed for an 80-day cooling off period in which the President could order strikes back to work.[3] In addition, section 14(b) of the Taft-Hartley Act allowed states to pass right-to-work laws that prohibit mandatory unionism. The laws prevent the creation of union security provisions in collective bargaining agreements. The agency shop, where workers do not have to join a union but are required to pay member dues, and the union shop, where potential employees are required to join a union in order to gain employment, were prohibited.[4]

[3] Ironically, although President Truman vetoed the Taft-Hartley Act, he did invoke the 80-day cooling off period during his administration (Wagner 2002).
[4] See Table 2 for a summary of the differences between RTW and non-RTW states.

Presently, there are twenty-five mostly southern and plains states with RTW legislation. The majority of these states passed the policy during the 1940s and 1950s, with Indiana and Michigan enacting right-to-work statutes in 2012, and Wisconsin's Governor Scott Walker signing a right-to-work policy into law in 2015. As Holmes (1998) notes, all southern states that were members of the Confederacy have a right-to-work law, which creates a distinct North-South division in the United States. As Table 3 reveals, of the twenty-five states, there are twelve found in the southeastern region of the country, and there are no RTW states in the northeast. Furthermore, there are ten states that have gone so far as to amend their constitutions to include the RTW policy. These states are found in the Southeast and Midwest of the United States, with most adopting the constitutional amendment in the 1940s, although Oklahoma approved an amendment in 2001.

To what extent does a constitutional amendment strengthen the RTW policy? In this paper, I analyze the impact of right-to-work statutes and constitutional amendments on wages and employment, two areas of critical importance to workers. Employing a microeconomic approach, I assess the impact of RTW policies on the wages of those most susceptible to poverty: African Americans, Hispanics, and single mothers. I also consider industry-specific effects by focusing on the impact of RTW legislation on the private sector industries that were most unionized in 2013: the utilities industry and the transportation and warehousing industry. Furthermore, with a more macroeconomic approach, I consider the effect of this labor policy on state unemployment rates. As explained below, my research follows from the theoretical monopoly-union model labeled by Oswald (1985) and the spillover effects of unions pioneered by Lewis (1963).

Some argue that unions, as an organization of workers, can increase social welfare through their collective voice and can have a substantial impact on the compensation and working conditions for unionized and nonunionized employees (Mishel and Walters 2003). Scholars have found that, although increases in unionization in an occupation have little or no effect on nonunion wages, an industry's increase in the extent of unionization has substantial positive impact on the wages of nonunion as well as union workers (Moore, Newman and Cunningham 1985).

However, this paper will use the standard model of a union as raising wages for union members above competitive levels through its restriction of entry into an occupation (Ehrenberg and Smith 2015, 491). As such, unions create wage differentials among equivalent workers that then reduce the number of jobs available in unionized companies. The lower number of jobs follows from the law of demand, a fundamental economic principle that states that, all else being equal, if the price of a product rises, then the quantity demanded falls (Posner 2014, 5). If unions are able to increase the price of labor, employers will purchase less of it, reducing employment in the high-paid sector and preventing nonunion workers in low-paying jobs from moving into the unionized industry.

Unions' power to increase the price of labor rests on their ability to receive privileges and protection from the government through statutes and non-enforcement of other laws (Ehrenberg and Smith 2015, 453). As explained above, federal laws, including the Norris-LaGuardia Act of 1932 and the National Labor Relations Act of 1935, increased the ability of unions to organize. Right-to-work legislation, on the other hand, has been criticized as a policy that serves to reduce the bargaining power of unions. Since the National Labor Relations Act requires unions to provide negotiated benefits to all employees whether or not they are union members, union

services are a public good. RTW laws can encourage employees to "free ride," or obtain union services without financially supporting the organization (Devinatz 2011). In fact, researchers have identified RTW laws as one factor that has contributed to the overall decline in private sector unions since the 1950s (Moore 1998). In particular, the legislation has reduced the level of unionization in RTW states.

Furthermore, the policy has been found to reduce unionization in non-RTW states through the relocation of companies from unionized states to nonunionized areas. Farber (1985) discovered that the movement of jobs from the unionized North Central and Northeast United States to the South accounts for 13% of the decline in union membership from 1953 to 1978. In addition to U.S. companies moving to the South, foreign investment has also increased in RTW states. Eren and Ozbeklik (2011) employed an econometric synthetic control technique to examine the effectiveness of RTW laws on state-level outcomes in Idaho and Oklahoma, finding that the legislation has, to some extent, influenced the latter's level of foreign direct investment (FDI). Considering the fact that Rolls-Royce, a global company, started building an advanced manufacturing facility in Prince George County, Virginia in 2012 and Airbus, an aircraft manufacturing company based in France, began constructing its first U.S. assembly plant in Mobile, Alabama in 2013, both of which are RTW states, there appears to be at least a correlation between the presence of RTW laws and FDI (Davidson 2013).

In this research project, I collect and analyze the most recent U.S. census data from 2013 collected through the American Community Survey to determine if RTW laws have any statistically significant impact on wages and employment.[5] This paper's purpose is 1) to provide

[5] My regression results below in Tables 6 – 11 do not include Wisconsin as a right-to-work state because this project focuses on states with right-to-work policies in 2013 and Wisconsin passed its legislation in March 2015. I ran additional regressions with Wisconsin coded as a right-to-work state and found a small absolute difference in coefficient estimates. These new regressions are included in Tables 12 – 17 below.

evidence to inform the debate regarding the impact of RTW legislation; and 2) to help policymakers in determining whether to implement a RTW constitutional amendment or statute at the state level.

I find that there is a statistically significant difference in the effect of RTW constitutional amendments and statutes on wages and employment, even when controlling for demographic and state characteristics. In addition, the presence of a constitutional amendment causes state unemployment rates to decrease more than the existence of a statute, even after controlling for state region and poverty rate.

The paper proceeds as follows. The next section articulates the research project's contributions. Section III describes previous theoretical hypotheses and empirical findings on the effects of RTW laws on unionization, wages, employment, poverty, and migration. Section IV discusses the theoretical model of the impact of this policy issue. Section V then discusses the dataset and empirical strategies. Thereafter, section VI presents the results from ordinary least squares and logit regressions, and section VII discusses these results and explores causal mechanisms that may explain statistical significance. Then, Section VIII recognizes the limitations of the project. Finally, section IX concludes the paper with a discussion on the finding's implications.

II. CONTRIBUTIONS

This study contributes to prior literature in its unique approach. It uses the most recent U.S. census data from 2013 to assess the impact of right-to-work legislation on the wages and employment of specific demographic groups that scholars have not yet considered: African Americans, Hispanics, and single mothers. I focus on these groups that have among the highest unemployment and poverty rates in the United States because they may be potential "outsiders"

of union-firm bargaining, or workers who are either unemployed or working in temporary jobs (BLS 2013; Sanfey 1995). Previous research described below has considered, more broadly, the effect of the labor policy on industries and sectors rather than on these individuals. Furthermore, my study is the first to make a distinction between states with a right-to-work constitutional amendment and those with a right-to-work statute.

This work also presents two major contributions to the debate on RTW legislation through its findings. First, it reveals that African Americans, Hispanics, single mothers, and the most unionized private sector workers face lower wages in RTW states than in non-RTW states and in strong RTW states than in weak states. This provides evidence for the argument that the policy lowers unions' ability to increase wages. Second, it shows that states with right-to-work legislation have a statistically significant lower unemployment rate than those without the policy with strong RTW states experiencing the most drop in unemployment. Although the study faces some limitations that are articulated below, the results have policy implications for current states with the labor legislation and those considering the adoption of a RTW statute or the enactment of a RTW constitutional amendment.

III. LITERATURE REVIEW

This section will summarize the literature from previous scholars who have articulated theoretical hypotheses on the incentive for enacting right-to-work laws and have examined empirical implications of RTW policies.

Theoretical Hypotheses

In an effort to understand the effects of a right-to-work policy, scholars have first explored the reasons why states adopt such laws. There are two general explanations for the enactment of right-to-work legislation. Neil and Catherine Palomba (1971) hypothesize that the

legislation is passed to promote faster economic growth by enhancing the attractiveness of a state's labor force. They find that states low in economic development are more likely to adopt RTW laws because of their greater need for industrialization.[6] Another argument is that existing employers support RTW laws to slow the growth rate of unions (Moore 1998). Both views suggest that employers tend to support and unions tend to oppose the passage of RTW legislation.

Furthermore, three hypotheses have emerged regarding the impact of right-to-work policies on unionization in the private and public sectors (Moore 1998). The "Taste Hypothesis" argues that RTW laws are only in states where there is a strong anti-union sentiment. Therefore, they do not have an independent effect on union membership but simply reveal hostile attitudes toward unions. The "Free Rider Hypothesis" explains that RTW laws increase union organizing costs because members must pay higher dues to cover the costs of providing union services to free riders. The hypothesis is rooted in the idea that, since union services are a public good that must be provided equally to all employees whether or not they are members of the organization, nonunion members have an incentive to free ride. Lastly, the "Bargaining Power Hypothesis" argues that RTW legislation weakens the bargaining power of unions by decreasing their membership and their ability to strike. The hypothesis posits that there is a lower marginal benefit of organization and thus a decline in demand for union services as a result of reduced union benefits. The three theoretical explanations are not mutually exclusive and can operate concurrently. Therefore, to identify the impacts of right-to-work legislation, I turn next to empirical studies that quantify the effects.

Empirical Findings

[6] Palomba (1971) define economic development as "the movement by states from debtor to creditor," or from a state running a net import surplus which is greater than its payments for previous borrowings to a state running an export surplus that is smaller than its income from foreign investments.

With these hypotheses as the foundation for empirical studies, scholars have considered the implications of right-to-work policies on unionization. In 1975, Lumsden and Peterson found that states with RTW legislation have a significantly lower percentage of their work force in unions but that the difference reflects tastes and preferences of the population rather than a substantive effect of the laws themselves. A decade later, Farber (1985) concluded that the transfer of jobs from 1953 to 1978 from the heavily unionized North Central and North East to the South accounted for 13% of the decrease in union membership over this time period. More recently, Hogler, Shulman, and Weiler's study in 2004 analyzed the variation in union membership among RTW states and non-RTW states, controlling for employer opposition to unions, workers' willingness to abide by norms within one's community, and political ideology. Using regression analysis, they concluded that RTW legislation has a strong, negative effect on union density. Therefore, evidence suggests that RTW laws have been found to play some part in the decline in union membership (Moore 1998).

In addition to causing decreased union membership, right-to-work laws have been found to increase freeriding. Davis and Huston (1993) conduct multivariate analysis of free riding and find that RTW laws significantly increase the behavior. They estimate that a federal ban on RTW legislation would reduce the percentage of free riding in RTW states by 8.2%. Two years later, Sobel (1995) distinguished between "true free riders," or workers who would join the union if threatened with exclusion from the benefits because they value these benefits over the membership cost, and "induced riders," or those who would find a nonunion job because they value union benefits less than union dues. His study revealed that, if RTW laws were repealed, only the "true free riders" would become union members. Given his estimate that no more than

30% of nonunion members are "true free riders," this elimination of RTW laws would have only a modest impact on unionization.

The policy has furthermore contributed to reducing the ability of unions to organize, as the "Bargaining Hypothesis" explains above. Ellwood and Fine (1987) use stock-adjustment models to measure the impact of RTW laws. They find that, in the five years following the passage of a right-to-work law, organizing success declines by 46% and then declines by another 30% in the next five years. After ten years, however, RTW laws have no influence on union organizing success, as well as no influence on union organizing activities. They provide a possible explanation for the change over time in that right-to-work laws may initially cause national unions to overact; however, unions eventually realize potential targets in RTW states and devote resources to mobilizing them.

Research has also focused on the impact of RTW laws on wages, although economists have not reached consensus on this topic. In 2012, Hicks considered the impact of RTW legislation on U.S. manufacturing income, industrial composition, wages, and employment. He provided estimates of changes to manufacturing wages and industrial composition caused by RTW laws from 1929 to 2005. He found that his estimates were not statistically significant, concluding that RTW legislation does not affect the size of inflation-adjusted wages for manufacturing workers, the share of the manufacturing industry, nor employment in manufacturing. However, about a decade earlier, Mishel (2001) estimated log wage equations using the Bureau of Labor Statistic's current population survey-outgoing rotation group (CPS-ORG) data for 2000 and found that, on average, workers in RTW states earn 6.5% less than similar workers in non-RTW states. An analysis focusing on gender reveals a similar trend whereby, on average, women in right-to-work states earn 6.8% less than women in non-right-to-

work states, and men in RTW states earn 7.8% less than their counterparts. Two years later, Reed (2003) found that, after controlling for the economic conditions prior to a state's adoption of a RTW policy, there is a positive and statistically significant relationship between RTW and wages. Greer (2004) also concluded that employees in RTW states earn higher full-time wages than those in non-RTW states, using wage data from employees in all states and adjusting the wage data for cost of living with the Interstate 2001 Cost-of-Living Index created by one of the American Federation of Teachers' (AFT) researchers, Dr. F. Howard Nelson.

Regarding the legislation's impact on employment, studies reveal that the laws have led to job creation in RTW states, affecting business location decisions. Newman (1983) finds that RTW laws have a significant positive effect on employment growth in eleven of the thirteen industries that he reviewed. Calzonetti and Walker (1991) also find that RTW laws are statistically significant in impacting an industry location decision. Furthermore, Plaut and Pluta (1983) find a statistically significant positive correlation between actual industrial growth rates and an industrial consulting firm's rankings of "business climate," which includes RTW laws as a factor.

Furthermore, research has considered the impact of RTW legislation on poverty, revealing a decrease in poverty in RTW states. The poverty rate consists of the percentage of people living in households with cash incomes below the "poverty line" ("How the Census Bureau Measures Poverty" 2015). Wilson (2002) found that the percentage of families living below this line in RTW states decreased from 18.3% to 11.6% over the years 1969 to 2000. During this time, seven states saw increases in poverty, with each of the states not having a RTW policy. Although this decrease does not imply causation, the poverty rate data shows that RTW states at least appear to fair better than states without such policies.

Scholars have also explored the effect of RTW laws on migration. With the logic that RTW laws allow for greater individual liberty in employment, in 2010, Vedder researched the extent to which such legislation has encouraged migration to right-to-work states. Using a two-stage regression model, he found that right-to-work laws enhance labor force participation and that there is a statistically significant positive relationship between the presence of the laws and net migration. Furthermore, the flexibility for workers and employers offered from RTW laws has contributed to higher economic growth rates in right-to-work states.

IV. THEORETICAL FRAMEWORK

The conceptual framework for this project is based on Oswald's (1985) monopoly-union model that is explained by Ehrenberg and Smith (2015). It asserts the idea that the relationship between a union and an employer is one of monopoly unionism where the union sets the price of labor and the employer responds by choosing the profit maximizing level of employment.

The model is depicted in Figure 2 where the labor demand curve (D) facing workers is a function of the wage rate for union members. The diagram assumes that a union values both the wage and employment levels of its workers and aggregates its members' preferences to form a union utility function. The function consists of a set of indifference curves $U_0,\ U_1, U_2, U_3$ that depends on two variables: wage and employment levels. The curves are negatively sloped, meaning that there must be a decrease in one variable if the other increases, thus exhibiting diminishing marginal rates of substitution. Also, the higher indifference curves signify higher levels of union utility.

Consider the wage and employment levels in the absence of unions. Labor market forces will cause the wage to be W_0 and employment E_0, as identified at point *a* in Figure 2. If a union can engage in collective bargaining, one possible outcome is that the union and employer will

agree on a higher wage rate. With this new wage, the employer will then choose the profit maximizing level of employment given the labor demand curve. Since the union presumably is aware of the employer's incentive to maximize its profit, its goal is to choose the wage that maximizes its utility given the restraint that the wage and employment must lie on the labor demand curve. As a result, the union will bargain for a wage, W_U, where its indifference curve is tangent to the demand curve. The resulting employment level, E_U will be at point *b*, a lower level of employment than at point *a*.

Given the model of unions as monopolies that set the price of labor above the competitive labor market wage, economists have assessed the impact of this wage setting on both union and nonunion members. In this research project, I rely on the spillover effects explanation devised by H.G. Lewis (1985).

Suppose that there is data on the wage rates paid to two groups of workers. The employees are identical in every respect, such as years of education, years of work experience, age, and gender, except that one group is unionized and the other is not. Let W_u be the wage paid to union workers, and W_n denote the wage paid to nonunion employees. If the difference between the two wages could be attributed to the presence of unions and their collective bargaining, the relative wage advantage (R) that unions would have for their members would be given by the following equation, expressed in percentage terms:

$$R = \frac{(W_u - W_n)}{W_n} \qquad (1)$$

However, it is important to note that this is not the absolute amount in percentage terms by which unions have increased their workers' wages because unions can also affect nonunion wage rates.

To illustrate the union-nonunion wage differentials, consider the two-sector model in Figure 3. The first diagram is the union sector and the second represents the nonunion sector. If initially both sectors are nonunion and mobility between them is costless for workers, there will be a movement of employees between the sectors until wages in both are equal. The resulting equilibrium will be a wage of W_0 and employment levels of E_u^0 and E_n^0.

Once there is a unionized sector, the wage for union workers will increase, as explained above by the monopoly-union model. This higher wage rate in the unionized sector causes employment to decrease to E_n^1, resulting in L_u^1 - E_u^1 unemployed workers. If all of the unemployed workers *spill over* or move into the nonunion sector, the change in labor supply will shift curves S_u^0 and S_n^0 to S_u^1 and S_n^1, respectively. As a result, there will be an excess supply of labor at the old equilibrium wage, W_0. The wage will face downward pressure until the labor market in the nonunion sector clears at W_n^1 and E_n^1, a lower wage and higher employment level. The union has thus raised its wage for its members at the expense of lowering the wage in the nonunion sector. The resulting relative wage advantage (R) is calculated as:

$$\mathrm{R} = \frac{(W_u^1 - W_n^1)}{W_n^1} \qquad (2)$$

The true absolute effect of the union (A) is defined as:

$$\mathrm{A} = \frac{(W_u^1 - W_0)}{W_0} \qquad (3)$$

The relative wage advantage (R) will tend to be greater than the true absolute effect of the union (A) on its members' wage rate since the denominator, W_n, in (2) is lower than W_0 in (3). Essentially, as a result of this spill over effect, there are workers in the nonunion sector who are "outsiders," facing lower wage rates than unionized "insiders." However, the model assumes that the labor market will adjust to full employment. There could be friction in the labor market

that shows up in higher unemployment for the excluded groups. This may occur if nonunionized firms match the wages of unionized firms to prevent unions from entering.

Among the demographic groups considered in this project, African Americans, Hispanics, and single mothers may be "outsiders" who are forced to work in lower wage nonunion sectors due to potentially two contributing factors. First, there could be racial discrimination, or "unequal treatment of persons or groups on the basis of their race or ethnicity," in the workplace and thus fewer job opportunities for African Americans and Hispanics (Pager and Shepherd 2008). Also, these workers could have less human capital or skills accumulated through education and work experience, especially since it has been found that single mothers have among the highest high school drop out rates and that the gap in the attainment rate for a bachelor's or higher degree has widened between Whites and African Americans and Whites and Hispanics.[7]

These factors may also explain why the demographic groups are identified as some of the most susceptible to poverty. Five-year estimates by the 2007–2011 American Community Survey revealed African Americans having the second highest poverty rate of 25.8%, and Hispanics facing poverty rates from 16.2% to 26.3%, compared to the national poverty rate for Whites of 11.6% (Macartney, Bishaw, and Fontenot 2013). Poverty is also an issue for female-headed families. In 2012, the number of single mothers living in poverty reached 4.1 million, or 41.5%, with the share of married-couples in poverty at 2.1 million, or 8.7% (Yen 2013).[8]

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[7] As of 2007, half of single mothers receiving Temporary Assistance for Needy Families (TANF) are high school dropouts (Waldfogel, Garfinkel, Kelly 2007).
From 1990 to 2013, the gap in the attainment rate between Whites and African Americans grew from 13 to 20 percentage points, and the gap between Whites and Hispanics increased from 18 to 25 percentage points (U.S. Department of Education 2015).

[8] Poverty status is determined by comparing an individual's annual income to a poverty threshold that varies with such factors as the age of the householder and the number of children in a family (Macartney, Bishaw, and Fontenot 2013).

V. DATA AND EMPIRICAL STRATEGY

Data

The paper uses the most recently released American Community Survey (ACS) from the U.S. Census Bureau that was conducted in 2013. The ACS is a mandatory ongoing statistical survey that is used to provide current information every year for communities, state governments, and federal programs so that they can plan their investments and services. Information gathered plays a role in determining how more than $400 billion of federal and state funds are distributed each year. The ACS is a self-enumeration survey with questions sent to chosen survey households via mail. About 250,000 houses receive a questionnaire each month, resulting in a total of about 3 million each year and a sample size of one in eight households. The ACS asks about the respondent's age, sex, race, family, income, and education, among other topics ("About the American Community Survey" 2015).

The survey is not without its challenges. Since it is conducted on an annual basis, the sample size is smaller than the United States' decennial census form. As a sample survey data, the ACS will have margins of error and confidence intervals, and the Census Bureau states that estimates are within the range of a 90% confidence interval. In addition, the confidence intervals can be large for smaller geographies and smaller groups of people, such as by race or income, despite efforts to over-sample (Hayslett and Kellam 2009).

Despite its weaknesses, the ACS is used annually as a valuable statistical survey. Since it is conducted each year, it provides more timely information than the United States' decennial census. The Census Bureau also maintains that, despite its relatively small sample size, the ACS actually provides more accurate data than the decennial census because it is run constantly by a professional staff hired in local areas rather than a large number of temporary, non-professional

employees. This allows for permanent staff to gain more experience and local knowledge over time that will help improve data collection. For example, it will become easier for permanent staffers to reach non-English speaking groups as they begin to reside in local communities or develop relationships with those communities' leaders. Also, the survey does have a more detailed non-response follow-up process than the decennial form, as enumerators conduct follow-up telephone calls and visits to places that have not returned their questionnaires. Furthermore, unlike the decennial census, the ACS can account for temporary residents regardless of the season of the year. For example, if someone lives in Florida during part of the year and completes the decennial form, the person will be required to fill out the form for their usual address. The ACS, however, counts people at their "current residence" and continues counting year-round to account for seasonal individuals (Hayslett and Kellam 2009).

In this research, I use the recently released 2013 ACS that includes a sample of 3,132,715 respondents. Since the project focuses on wages and employment, I dropped observations that were missing information for household income, those with a negative reported income, and individuals whose age was less than sixteen, since the U.S. Bureau of Labor Statistics defines someone in the workforce if he or she is over the age of sixteen (Berger 2012). After making these changes, there are now 2,395,852 people in the dataset.

Examining the data's summary statistics in Table 4 reveals preliminary information about the sample. About 40% of respondents live in the southern region of the United States, an area consisting of half of the total number of right-to-work states.[9] This is beneficial to my research in that I can use the fairly large number of participants from states with RTW laws to gauge the impact of this policy.

[9] The southern region consists of the following divisions: the South Atlantic division, East South Central division, and West South Central division. The RTW states included in this region are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.

Given my interest in understanding the effect of RTW legislation on certain demographic groups, it is essential to gauge the percentage of respondents that fall within this project's specified categories. About 10% of the sample identifies as African American, closely modeling the U.S. Census Bureau's reported 13.2% of African Americans in the U.S. population in 2013, although the group is still under sampled. Also, about 12% of the sample is Hispanic, meaning that the respondent self-identifies as Mexican, Puerto Rican, Cuban, or "Other" Hispanic origin. This value is smaller than the 17.1% of the U.S. population that identified as Hispanic or Latino in 2013, reflecting a possible underrepresentation of Hispanics in the 2013 American Community Survey sample. [10] Also, there are 154,929 or 6.47% respondents that can be classified as single mothers, meaning that they are females with at least one child and are either separated, divorced, widowed, never married, or single. This value is lower than the percentage of mother-only family groups in the U.S. population in 2012 that was reported at 27%. Like with Hispanics, there may an underrepresentation of single mothers in the 2013 ACS, meaning that the effect described in the following section may have a presumably greater impact on the population of both Hispanics and single mothers. [11]

Regarding the number of workers employed in the most unionized industries, there are 15,669 or 0.65% in the utilities industry and 68,825 or 2.87% workers in the transportation and warehousing industry. [12] Both figures are substantially lower than the unionization rates for the U.S. population participating in these unionized industries in 2013. As reported by the Bureau of

[10] The 2013 reported population percentages come from the U.S. Census Bureau's Quick Facts data ("USA QuickFacts" 2015).
[11] The percentage of mother-only family groups in 2012 was reported in the U.S. Census Bureau (Vespa, Lewis, and Kreider 2013).
[12] As reported by IPUMS (2015), the employees in the utilities industry work in electric power generation, transmission, and distribution, natural gas distribution, electric and gas, water, steam, air-conditioning, and irrigation systems, sewage treatment facilities, or a non-specified utility. The employees in the transportation and warehousing industry work in air, water, truck, bus, pipeline, taxi, scenic and sightseeing transportation, the postal service as couriers and messengers, or are in warehousing and storage.

Labor Statistics, the two most unionized private sector industries were utilities with a rate of 25.6% and transportation and warehousing with a rate of 19.6% (BLS 2014). The small number of survey respondents in these industries may also underestimate the true impact of RTW legislation on these wages.

Empirical Strategy

Using the theoretical framework explained above, I seek to test the following hypotheses.

Hypothesis 1: *An African American in a right-to-work state will be more likely to earn a higher wage and be employed than a similar worker in a non-right-to-work state, with the wage increase and probability of employment higher in states with RTW constitutional amendments than statutes.*

Hypothesis 2: *A Hispanic in a right-to-work state will be more likely to earn a higher wage and be employed than a similar worker in a non-right-to-work state, with the wage increase and probability of employment higher in states with RTW constitutional amendments than statutes.*

Hypothesis 3: *A single mother in a right-to-work state will be more likely to earn a higher wage and be employed than a similar worker in a non-right-to-work state, with the wage increase and probability of employment higher in states with RTW constitutional amendments than statutes.*

Hypothesis 4: *A worker in the utilities industry in a right-to-work state will be more likely to earn a lower wage and be unemployed than a similar worker in a non-right-to-work state, with the wage decrease and probability of unemployment higher in states with RTW constitutional amendments than statutes.*

Hypothesis 5: *A worker in the transportation and warehousing industry in a right-to-work state will be more likely to earn a lower wage and be unemployed than a similar worker in a non-right-to-work state, with the wage decrease and probability of unemployment higher in states with RTW constitutional amendments than statutes.*

Hypothesis 6: *A right-to-work state will be more likely to have a lower unemployment rate than a non-right-work state, with the decrease in unemployment being higher in states with RTW constitutional amendments than statutes.*

The project considers African Americans, Hispanics, and single mothers as "outsiders" who, in the presence of unions and absence of right-to-work legislation, face lower wages as a result of decreased employment opportunities in the unionized sector. Therefore, it hypothesizes wage increases and greater employment for these individuals in states with RTW legislation. The research also identifies workers in the utilities and transportation and warehousing industries, the most unionized private sector industries in 2013, as facing a lower wage and higher probability of unemployment in RTW states. Lastly, the project hypothesizes that right-to-work states will face lower unemployment rates due to the increase number of companies, particularly foreign investors, choosing RTW states over non-RTW states, as mentioned above.

Furthermore, since constitutional amendments are usually subject to a more stringent approval process than statutes, I hypothesize that a RTW constitutional amendment sends a more credible signal to potential investors that a state is committed to the RTW policy ("Amendment" 2013). This signal then attracts more investment to the state and allows for the hypothesized effects of the legislation on wages and employment to be greater in "strong" RTW states with an amendment than in "weak" RTW states with a statute.

I use a reduced form or "quasi-experimental" approach to assess the causal impact of right-to-work legislation on wages and employment. Unlike structural approaches that involve modeling a system of endogenous variables, exogenous variables, and agents maximizing utility and/or profits, reduced form approaches focus on the "reduced form" effects of the variables of interest that are considered exogenous (Funk 2011). My research involves estimating the equilibrium of wages and employment that results from the labor market supply and demand.

I use Ordinary Least Squares (OLS) regression to estimate the following general regression for person *i*.

$$\ln Wage_i = \beta_1 + \beta_2 Strong + \beta_3 Weak + \beta_4 X_i + \varepsilon_i \quad (4)$$

I regress the natural logarithm of the dependent continuous variable, *Wage*, on *Strong*, meaning that a state has a RTW constitutional amendment and *Weak*, meaning that the state has a RTW statute. X_i is a collection of demographic controls, including gender, race, age, education, an estimate of the number of hours worked in 2013, years of labor market experience, a quadratic on experience, and state level controls, including regions of the country, state unemployment rate, and state poverty rate, as well as ε_i, the error term. The control variables are included in Table 5.

I initially also controlled the proportion of Republican representatives and senators in each state legislature in 2013 in an attempt to address a possible endogeneity issue. These values were calculated for each state by dividing the total number of Republican state legislators by the total number of state legislators. This calculation was meant to control for the "Republican Status" of a state that could have affected the dependent variable of interest in each model. Data was used from 2012 state legislative elections except in Alabama, Maryland, and Michigan whose elections were held in 2010 and in Louisiana, Mississippi, and Virginia whose elections

were held in 2011. However, after finding a high correlation of 0.72 between RTW and the "Republican Status" of a state, it was evident that there was a multicollinearity problem, so this variable was not included in the regressions.[13]

As for the form of the regression models, I use Jacob Mincer's human capital earnings function that relates earnings and labor market experience, as distinct from age.[14] As Mincer noted, the log of a worker's wage rate is influenced by his or her years of schooling, the number of years of labor market experience, and a quadratic on experience that captures the upward-sloping nature of the age-earnings profile.[15] This allows for the interpretation of the coefficient on schooling as the rate of return on schooling, or the percentage increase in earnings that results from one additional year of schooling. I also included a variation of Mincer's function by replacing the number of years of schooling with a set of binomial variables that reflect the respondent's highest educational attainment. In these regressions with *Wage* as the dependent variable, I use the hourly wage of the respondents adjusted for the cost of living per state.[16]

In subsequent regressions using the ACS, I stratify the sample into subsets of the population of African Americans, Hispanics, single mothers, employees in the utilities and transportation and warehousing industries.

I also estimate the following general regression for person *i*.

$$Employed_i = \beta_1 + \beta_2 Strong + \beta_3 Weak + \beta_4 X_i + \varepsilon_i \qquad (5)$$

[13] This correlation is interesting to note because it reveals a lack of change in conservative ideology since the mid-20th century. Although most RTW laws were passed by Democratic legislatures in the 1940s and 1950s, Democrats at that time were ideologically similar to today's Republicans. Many of these politicians even identified as Republican when the South became majority Republican after 1965 (Cohen 2014).

[14] Jacob Mincer (1922-2006) is a 1950 graduate of the Emory College of Arts and Sciences, finishing his undergraduate education in two years after earning credits at a Technical University in Brno, Czechoslovakia (Chiswick 2007, 3).

[15] Mincer found that older workers earn more than young workers because they invest less in human capital and can collect returns from earlier investments (Borjas 2013).

[16] For the cost of living adjustments, I used the regional CPI for 2013 released by the Bureau of Labor Statistics ("CPI Detailed Report" 2014). The Northeast was used as the base year, and the hourly wage was multiplied by the following: $\frac{CPI\_region}{CPI\_base}$.

The main variables of interest are still *Strong* and *Weak*, the control variables are still contained in X_i, and the error term remains the same as in the previous model. However, unlike the first model, this regression contains a binary or dichotomous dependent variable, $Employed_i$, which is equal to 1 if a person is employed and 0 if not employed.

With a dummy variable as the dependent variable is equation 5, I use another technique beside OLS to estimate the model. With a dichotomous dependent variable, running OLS for a regression through what is called the "linear probability model" does not give an accurate R^2, or measure of the overall fit of the regression, and predicted values are not necessarily strictly between zero and one, the usual range for probabilities. Therefore, I use a logistic or logit approach to estimate the model. The technique uses the logistic distribution function to predict the probability that the dependent variable is positive (Wooldridge 2013). Like equation 3, I also separate my samples into subsets of African Americans, Hispanics, single mothers, and employees in the utilities and transportation and warehousing industries.

In addition to conducting the above microeconomic regressions, I also take a macroeconomic approach to consider the impact of right-to-work laws on state unemployment rates, estimating the following regression for state *i*.

$$Stateunemp_i = \beta_1 + \beta_2 Strong + \beta_3 Weak + \beta_4 X_i + \varepsilon_i \quad (6)$$

I regress the dependent continuous state unemployment rate variable, *Stateunemp*, on the same independent variables, *Strong* and *Weak*, as in the previous regressions. However, I only control for state characteristics, including the state's region and poverty rate. In addition, for all regressions, I use an F test to find if there is a statistically significant difference in the coefficient estimates for strong and weak RTW states.

VI. RESULTS

Tables 6 – 11 in the Appendix present the coefficient estimates with standard errors clustered by state for the three types of states: *RTW*, *Strong*, and *Weak*. This Results section will report the findings for the impact of RTW legislation on wages for African Americans, Hispanics, single mothers, utilities workers, and transportation and warehousing workers followed by the policy's effect on each group's employment and on state unemployment.

Wages

For all demographic groups and industries considered, there is a statistically significant lower wage for individuals working in a state with a right-to-work policy than those in a state without the policy. The first four OLS regressions in Tables 6 – 10 reflect this significance.

The findings for African Americans show the greatest percentage decrease in wages in RTW states relative to non-RTW states. This decrease is statistically significant at the 1% level and holds even after controlling for demographic and state characteristics. In particular, the finding remains significant when including education level in terms of a continuous variable, *Years of School*, and as a set of dichotomous variables indicating the highest level of educational attainment. African Americans in a state with a RTW policy generally earned about a 10% lower wage than a similar individual in a non-RTW state in 2013. This decrease in hourly wage was about 0.6 percentage points more if the respondent's years of school were included in the regression instead of the level of schooling, as the results from Models 1 – 4 in Table 6 reveal. In addition, an African American worker had the same 9.4% decrease in hourly wages in 2013 whether working in a state with a RTW constitutional amendment or a RTW statute.

Hispanics also had a statistically significant lower hourly wage at the 1% level in RTW states and in strong and weak RTW states, holding other variables constant. However, the

regressions for Hispanics, as shown in Table 7, control for an additional independent variable: whether or not workers can speak English. Since research has shown that the ability to speak English is a crucial skill for getting a job in the United States, the use of this variable in the OLS regressions helps avoid an endogeneity problem where wages are affected by one's language ability (Gorman 2007). Even controlling for this variable, the results in models 1 – 4 in Table 7 exhibit between about a 4 and 6% statistically significant lower wage for Hispanics. The range for the wages arises due to different controls used for the workers' education level. The first two regressions hold constant the worker's years of school and the third and fourth models hold constant the range of educational attainment. Similar to the regression results for African American wages, when controlling for only years of school, there is a statistically significant lower hourly wage for Hispanics than when controlling for the education level. There is an approximate 6% lower wage in RTW, strong, and weak states when holding *Years of School* constant, and an approximate 4% lower wage in those states when including the dummy education variables. However, comparing the percentage decrease in Hispanic wages in states with a constitutional amendment to the decrease in Hispanic wages in states with a statute, it is clear that, while the values are statistically different when controlling for the worker's years of school, they are not numerically far off from each other.

The group that shows the most statistically significant difference in the percentage decrease in hourly wage between states with a RTW constitutional amendment and those with a RTW statute is single mothers. As shown in model 2 in Table 8, a single mother working in a strong RTW state has a 4.6% lower wage than a similar worker in a non-RTW state, controlling for *Years of School* and other demographic and state characteristics. Holding those same variables constant, a single mother in a weak state has a 7.4% lower wage. When controlling

instead for levels of educational attainment, there is a slightly lower percentage decrease in wages, with a single mother in a weak RTW state earning 6.8% less than a similar individual in a non-RTW state. This latter finding is the same as the result by Mishel (2001) discussed above, whereby data from 2000 revealed that women in right-to-work states earn 6.8% less than women in non-right-to-work states.

As for utilities and transportation and warehousing workers, there is no statistically significant lower wage in *Weak* states with a RTW statute. However, there is a statistically significant lower wage in the model where *Strong* is an explanatory variable. As shown in model 2 in Table 9, utilities workers in a RTW state have a 5.4% lower wage than similar employees in a non-RTW state. As shown in model 4 in Table 10, transportation and warehousing employees have about a 3.4% lower wage in RTW states when compared to similar workers in non-RTW states.

Employment

Regarding employment, there are only statistically significant results for Hispanics, utilities workers, and the state level regressions. Models 5, 6, and 8 in Table 7, models 5 – 8 in Table 9, and models 1 – 2 in Table 11 show this significance.

For Hispanics, the coefficient estimates for a strong RTW state are statistically significant at the 10% level in both models 5, 6, and 8 in Table 7. To interpret these logit coefficient estimates, I divided the coefficient estimates by 4.[17] As model 5 shows, if a Hispanic living in a state with a RTW policy, the log odds that the worker is employed decreases by about 0.012, or 0.049 divided by 4, compared to a similar worker in a non-RTW state. When controlling for *Years of School* and other demographic and state characteristics, if a Hispanic lives in a state

[17] The rule of thumb for comparing a logit model to a linear probability model is to divide the logit model coefficient by 4 or multiply by 0.25 (Wooldridge 2013).

with a RTW constitutional amendment, the log odds that the worker is employed in that state relative to a non-RTW state decreases by about 0.013, or 0.052 divided by 4, as shown in model 6 in Table 7. When controlling instead for the level of educational attainment, the log odds that the worker is employed in that state as compared to a non-RTW state decreases by 0.012, or 0.047 divided by 4, as shown in model 8.

Utilities workers have statistically significant lower log odds of employment in strong RTW states like Hispanics, but they also face lower log odds of employment in weak RTW and in the models with no distinction between strong and weak RTW states. Interpreting the coefficient estimates in the same way as for Hispanics above, it is evident that a utilities worker in a RTW state has about a 0.058, or 0.233 divided by 4, lower log odds of employment than a similar worker in a non-RTW state, as depicted in models 5 and 7 in Table 9. This decrease is statistically significant at the 1% level. As shown in models 6 and 8 in Table 9, a utilities employee also faces about a 0.07, or 0.280 divided by 4, lower log odds of employment in a strong RTW state that is statistically significant at the 1% level. The worker also has about a 0.05, or 0.206 divided by 4, lower log odds of employment in a weak RTW state relative to a non-RTW state that is statistically significant at the 5% level when controlling for *Years of School* instead of the set of education dichotomous variables.

At the state level, there is a statistically significant decrease in state unemployment in an OLS model broadly defining right-to-work states as *RTW* and in an OLS model distinguishing between states with a RTW constitutional amendment and statute, although this result appears to contradict the lower log odds of employment for the demographic groups considered above. The coefficient estimates on *RTW* and *Strong* are statistically significant at the 10% level. As model 1 in Table 11 shows, the presence of either a RTW statute or constitutional amendment leads to a

0.862% lower unemployment rate than a non-RTW state, holding state variables constant. Furthermore, the drop in unemployment is larger in states with a RTW constitutional amendment compared to no RTW states, with these *Strong* RTW states having a 0.947% decrease in unemployment, *ceteris paribus*.

VII. DISCUSSION

The Discussion section will analyze the results, exploring possible causal mechanisms for the findings. The results regarding the effect of RTW legislation on wages and employment for the most unionized private sector industry in 2013, utilities, align with previous research: the labor policy weakens unions, a labor cartel. They further highlight that the presence of a RTW constitutional amendment leads to a statistically significant greater decrease in utilities wages and the log odds of utilities employment than a RTW statute, as hypothesis 4 predicted above. However, these same effects are not seen in the employment of transportation and warehousing workers, for these employees have no statistically significant decrease in the log odds of employment in neither strong nor weak RTW states. This may be due to the fact that the transportation and warehousing industry was less unionized than the utilities industry in 2013 and thus experienced less of the RTW policy's effect.

For the demographic groups most susceptible to poverty, the lower hourly wages in RTW compared to non-RTW states do not concur with the monopoly-union model. The theory suggests that these groups could be considered as "outsiders" who face lower wages when unions are able to create wage differentials and that, if unions are weakened, for example by a RTW policy, the groups will be able to earn an increased wage and find more employment opportunities. This project's findings may be because RTW states tend to have lower wages than non-RTW states. As mentioned above, Neil and Catherine Palomba (1971) find that states low

in economic development are more likely to adopt RTW laws as a means to increase their per capita income relative to other states.

Regarding the more macroeconomic results, the finding that state unemployment rates are lower in RTW states than in non-RTW states supports hypothesis 6. This result could be because RTW states tend to attract more foreign investment. Furthermore, the result that states with a RTW constitutional amendment have a lower statistically significant unemployment rate than in states with a RTW statute might be because strong RTW states attract more foreign investment. By adopting a RTW constitutional amendment, a policy that usually cannot be enacted unless it passes a more rigorous adoption process than with ordinary legislation[18], a state can send a more credible signal to potential investors that it is committed to the idea of giving workers a "right to work" and weakening unions. These investors may thus be more interested in conducting business in these "strong" RTW states than in states with simply a RTW statute.

VIII. LIMITATIONS

In this section, I will explain the limitations of this study: 1) a potential endogeneity problem and 2) the lack of panel data. A common problem in empirical research is endogeneity where there is an omitted explanatory variable in a multiple regression model that is correlated with the error term (Woolridge 2013). In this project, other factors not included in the regression models that cause states to adopt RTW policy may also affect wages and employment, leading to results independent of the legislation.

In addition, the models in this research use the 2013 American Community Survey, which, although beneficial in its breadth of coverage of American respondents, only provides

[18] For instance, in South Carolina, the state constitution explains that there may be a convention to amend the document if two-thirds of the Senators and Representatives of the General Assembly think such a convention is necessary and if a majority of all electors voting in the next election for Representatives vote for the convention. This example shows the many steps needed to amend a constitution (South Carolina Constitution, art. XVI, §3).

one year of data. An ideal study on wages and employment would include panel data from before the passing of RTW legislation and after the enactment of the policy. The cross-sectional study in this project is only able to provide a "snapshot" of wages and employment in 2013.

IX. CONCLUSION

In this study, I differentiate between states with a RTW constitutional amendment and those with a RTW statute to compare the impact of these policies on the wages and employment of the Americans most susceptible to poverty and the workers in the most unionized private sector industries, as well as on state unemployment levels. I use individual data from the most recently released American Community Survey collected in 2013 and both OLS and logistic regressions. My results suggest that there is a statistically significant difference between the implementation of a RTW constitutional amendment and the passing of a RTW statute. In particular, a RTW constitutional amendment reduces a state's unemployment rate more than a RTW statute. This finding suggests that states need to weigh the costs and benefits of potentially enacting a RTW statute or adopting a constitutional amendment. Legislators need to determine if they believe that solidifying the "right to work" through a constitutional amendment makes this policy even stronger.

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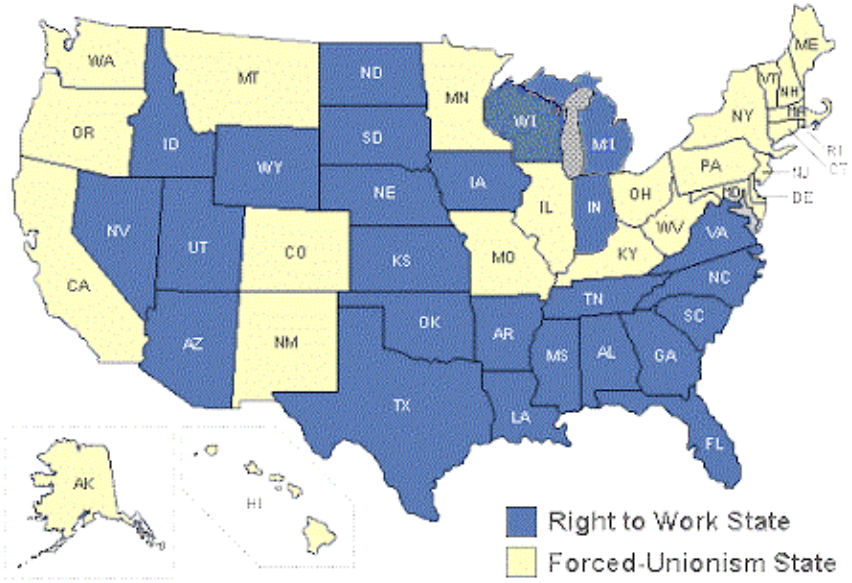
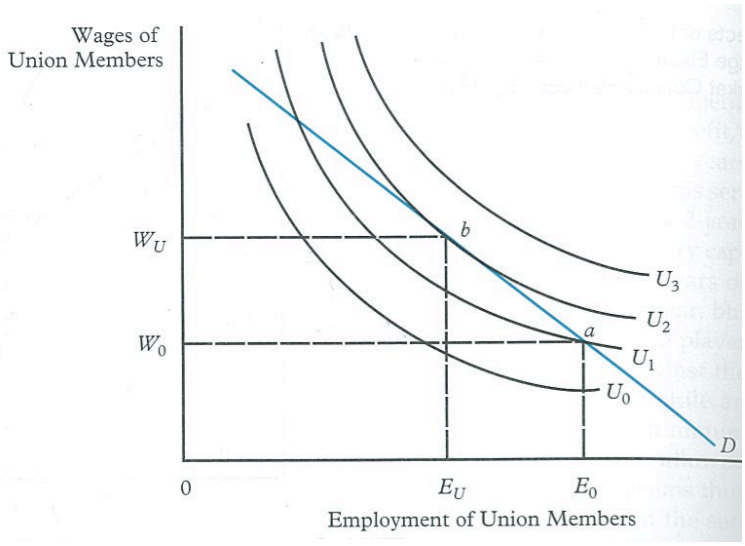
Appendix

Figure 1. Map of RTW and Non-RTW States



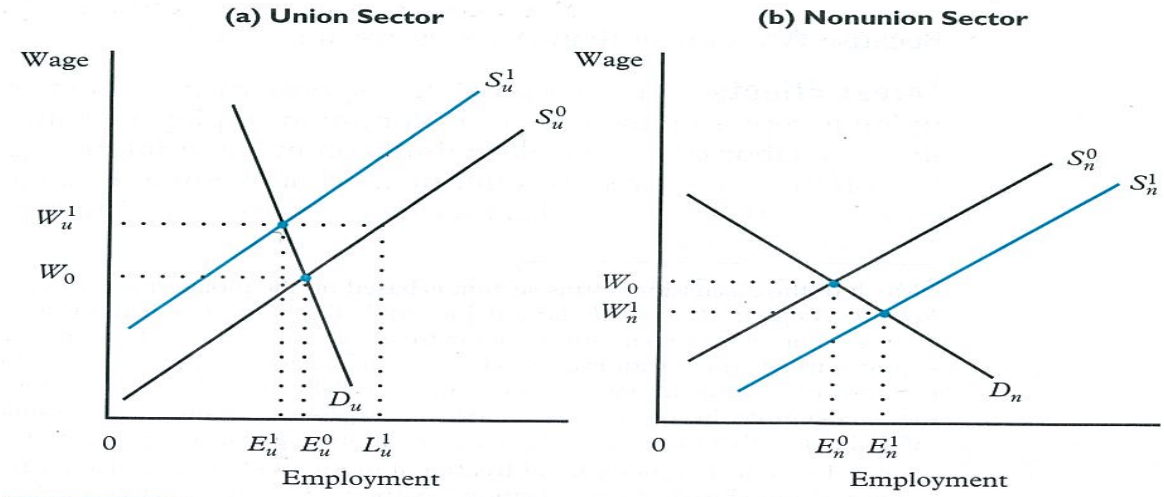
Note: Information identifying RTW states compiled from the National Right to Work Legal Defense Foundation, Inc. (2015).

Figure 2. Union Wages Given Utility and Labor Demand Curves



Note: The graph shows the union wage set at the point where the demand of labor crosses the union's indifference curve. Figure taken from Ehrenberg and Smith (2014, 460).

Figure 3. Spillover Effects of Unions on Wages and Employment



Note: The graphs show that, at full employment, nonunion wages fall and union wages rise. Figure taken from Ehrenberg and Smith (2014, 481).

Table 1. Working Time Lost by Industry: 1937-1970

Year	Manufacturing industries	Nonmanufacturing industries	Mining	Contract construction	Transportation, communications, electric, gas, and sanitary services	Wholesale and retail trade
	Estimated working time lost (%)	Estimated working time lost (%)	Estimated working time lost (%)	Estimated working time lost (%)	Estimated working time lost (%)	Estimated working time lost (%)
1937	0.79	0.2	----	----	----	----
1938	0.27	0.08	----	----	----	----
1939	0.31	0.25	----	----	----	----
1940	0.17	0.05	----	----	----	----
1941	0.49	0.23	----	----	----	----
1942	0.08	0.03	0.31	0.04	----	----
1943	0.07	0.21	4.25	0.04	----	----
1944	0.14	0.05	0.56	0.06	0.03	0.01
1945	0.78	0.21	2.88	0.2	0.15	0.02
1946	2.42	0.72	10.35	0.4	0.94	0.05
1947	0.43	0.39	1.12	0.66	1.19	0.05
1948	0.46	0.31	4.51	0.29	0.34	0.03
1949	0.73	0.39	8.39	0.53	0.25	0.07
1950	0.66	0.3	4.37	0.44	0.25	0.04
1951	0.43	0.11	0.55	0.18	0.17	0.01
1952	1.03	0.27	1.92	1.03	0.39	0.04
1953	0.36	0.19	0.4	1.22	0.22	0.04
1954	0.33	0.14	0.44	0.71	0.14	0.06
1955	0.45	0.14	0.57	0.28	0.47	0.04
1956	0.63	0.09	0.65	0.35	0.11	0.02
1957	0.22	0.1	0.11	0.51	0.19	0.02
1958	0.39	0.12	0.16	0.71	0.23	0.03
1959	1.34	0.19	3.26	0.58	0.19	0.05
1960	0.27	0.11	0.41	0.63	0.18	0.02
1961	0.24	0.08	0.18	0.5	0.17	0.02
1962	0.24	0.11	0.6	0.6	0.25	0.02
1963	0.24	0.07	0.3	0.25	0.25	0.02
1964	0.35	0.09	0.49	0.35	0.19	0.04
1965	0.31	0.11	0.27	0.57	0.29	0.02
1966	0.28	0.14	0.5	0.73	0.32	0.02
1967	0.57	0.15	1.95	0.62	0.32	0.03
1968	0.47	0.2	1.6	1.05	0.84	0.03
1969	0.47	0.14	0.72	1.19	0.36	0.04
1970	0.77	0.21	0.54	1.79	0.63	0.05

Note: The data on working time lost are totals during each year. Information compiled by Rosenbloom (2015).

Table 2. Differences Between RTW States and Non-RTW States

	RTW State	Non-RTW State
The union has "exclusive representation" to codetermine with an employer working conditions for all employees.	Yes	Yes
The employees are bound by the union's contract.	Yes	Yes
The employees are required to join the union or pay union dues.	No	Yes

Note: Information compiled from the National Right to Work Committee (2014).

Table 3. RTW Constitutional Amendments and Statutes

State	Year Constitutional Amendment Adopted	Year Statute Enacted
Alabama		1953
Arizona	1946	1947
Arkansas	1944	1947
Florida	1968	1943
Georgia		1947
Idaho		1985
Indiana		2012
Iowa		1947
Kansas	1958	
Louisiana		1976
Michigan		2012
Mississippi	1960	1954
Nebraska	1946	1947
Nevada	1952	1951
North Carolina		1947
North Dakota	1948	1947
Oklahoma	2001	2001
South Carolina		1954
South Dakota	1946	1947
Tennessee		1947
Texas		1993
Utah		1955
Virginia		1947
Wisconsin		2015
Wyoming		1963

Note: There are twelve states found in the southeastern region of the United States, including Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. Most right-to-work laws were enacted by statute, but 10 states have adopted constitutional amendments. Information taken from the NCSL (2015)

Table 4. 2013 ACS Summary Statistics

State Level

Census Division	Frequency	Percent	Cum.
New England Division	114,168	4.77%	4.77%
Middle Atlantic Division	318,340	13.29%	18.05%
East North Central Division	361,727	15.1%	33.15%
West North Central Division	160,370	6.69%	39.84%
South Atlantic Division	471,639	19.69%	59.53%
East South Central Division	143,811	6.00%	65.53%
West South Central Division	273,016	11.40%	76.93%
Mountain Division	169,926	7.09%	84.02%
Pacific Division	382,855	15.98%	100.00%
Total	2,395,852	100.00%	

Note: The ACS defines each division as being located in the following region with the following states.

1. *Northeast Region*
    a. *New England Division: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont*
    b. *Middle Atlantic Division: New Jersey, New York, Pennsylvania*
2. *Midwest (formerly North Central) Region*
    a. *East North Central Division: Illinois, Indiana, Michigan, Ohio, Wisconsin*
    b. *West North Central Division: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota*
3. *South Region*
    a. *South Atlantic Division: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia*
    b. *East South Central Division: Alabama, Kentucky, Mississippi, Tennessee*
    c. *West South Central Division: Arkansas, Louisiana, Oklahoma/Indian Territory, Texas*
4. *West Region*
    a. *Mountain Division: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming*
    b. *Pacific Division: Alaska, California, Hawaii, Oregon, Washington*

State Poverty Rate	Frequency	Percent
5.00-9.99%	15,284	0.64%
10.00-14.99%	772,589	32.25%
15.00-19.99%	1,571,090	65.58%
20.00-24.99%	36,889	1.54%
Total	2,395,852	100.01%*

*Note: *Rounding error*

State Unemployment Rate	Frequency	Percent
0.00-2.99%	5,606	0.23%
3.00-5.99%	257,246	10.74%
6.00-8.99%	2,133,000	89.03%
Total	2,395,852	100.00%

Republican Status	Frequency	Percent
0.000-0.199	76,463	3.19%
0.200-0.399	649,473	27.11%
0.400-0.599	676,721	28.25%
0.600-0.799	956,838	39.94%
0.800-0.999	36,357	1.52%
1	0	0.00%
Total	2,395,852	100.01%*

*Note: "Republican Status" is calculated as the proportion of state senators and representatives to the total number of state legislators. Information compiled from Ballotpedia (2015). *Rounding error*

Individual Level

Age Group (in Years)	Frequency	Percent
16-24	307,036	12.82%
25-44	709,379	29.61%
45-64	866,608	36.17%
65+	512,829	21.4%
Total	2,395,852	100.00%

Gender	Frequency	Percent
Male	1,140,173	47.59%
Female	1,255,679	52.41%
Total	2,395,852	100.00%

Race	Frequency	Percent
White	1,929,606	80.54%
African American	247,340	10.32%
Hispanic	295,778	12.35%

Mothers	Frequency	Percent
Mothers	478,270	19.96%
Single Mothers*	154,929	6.47%
Total	633,199	26.43%

*Note: *Single Mothers are defined as females with at least one child who are either separated, divorced, widowed, or never married/single.*

Employment Status	Frequency	Percent
Employed	1,385,917	57.85%
Unemployed	115,655	4.83%
Not in Labor Force	894,280	37.33%
Total	2,395,852	100.00%

Education*	Frequency	Percent
N/A or no schooling	32,256	1.35%
Less than high school	284,129	11.86%
High school graduate	866,615	36.17%
College/technical school	539,818	22.53%
College graduate	417,359	17.42%
Postgraduate school	255,675	10.67%
Total	2,395,852	100.00%

*Note: *Less than high school graduate includes those who completed the 11th grade.*
College/technical school includes those who completed no more than 3 years of college.
College graduate includes those who completed four years of college.
Postgraduate school includes those who completed more than at least 5 years of college.

Hours Worked/Week	Frequency	Percent
0 to 19	130,724	5.46%
20 to 39	360,333	15.04%
40 to 59	947,323	39.54%
60 to 89	92,539	3.86%
90+	4,055	0.17%
N/A	860,878	35.93%
Total	2,395,852	100.00%

Hourly Wage	Frequency	Percent
$0 to $19.99	996,806	41.61%
$20 to $39.99	379,493	15.84%
$40 to $59.99	98,658	4.12%
$60 to $79.99	28,290	1.18%
$80 to $99.99	9,374	0.39%
$100 to $499.99	21,997	0.92%
$500 to $999.99	237	0.01%
Above $1000	860,997	35.94%
Total	2,395,852	100.01%*

*Note: The hourly wage is calculated by multiplying the number of hours worked/week by 52 weeks to generate the hours worked/year. The hourly wage is then found by dividing the annual income by the number of hours worked/year. *Rounding error*

Annual Income*	Frequency	Percent
$0 to $8,924	1,188,336	49.60%
$8,925 to $36,249	568,130	23.71%
$36,250 to $87,849	473,263	19.75%
$87,850 to $183,249	135,011	5.64%
$183,250 to $398,349	22,732	0.95%
Over $400,000	8,380	0.35%
Total	2,395,852	100.00%

*Note: *Annual income is reported as each respondent's total pre-tax wage and salary income received as an employee during 2012. The divisions for wage correspond to the 2013 federal tax rates for single filing status as reported at About (2015).*

Table 5. Control Variables

Control Variables	Description
State Characteristics	
South	The census region where respondents live in one of the following states: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, or West Virginia
Midwest	The census region where respondents live in one of the following states: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, or Wisconsin
West	The census region where respondents live in one of the following states: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, or Wyoming
State Unemployment Rate	Annual average unemployment rate for each state as reported by BLS (2015)
State Poverty Rate	Percentage of people below poverty in 2013 as reported by Bishaw and Fontenot (2014)
Individual Characteristics	
Female	1: Female; 0: Male
African American	1: Respondent identifies as being "Black alone or in combination"; 0: otherwise
Hispanic	1: Respondent identifies as being "Not Hispanic," "Mexican," "Puerto Rican," "Cuban," or "Other"; 0: otherwise
Years of School	Years of school attended
High School Graduate	1: High school graduate; 0: Not a high school graduate
One, Two, or Three Years of College	1: Attended college for either 1, 2, or 3 years; 0: Did not attend college for 1, 2, or 3 years
College Graduate	1: Attended college for 4 years; 0: Did not attend college for 4 years
Post Graduate	1: Attended a postgraduate program, such as a masters or other professional degree, after college; 0: Did not attend a postgraduate program
Experience	Work experience as defined by the following: *Age– Years of School* – 5*
Hours Worked/Year	Estimated number of hours worked per year

Note: I subtract 5 in order to account for the first five years of a person's life in which the individual is not in school and not working.

Table 6: Impact of Legislation on Wages and Employment for African Americans

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	**-0.101*** **		**-0.094*** **		0.014		0.020	
	(0.034)		**(0.031)**		(0.032)		(0.032)	
Strong		**-0.100*** **		**-0.094*** **		0.034		0.040
		(0.035)		**(0.031)**		(0.040)		(0.039)
Weak		**-0.101*** **		**-0.094*** **		0.008		0.014
		(0.035)		**(0.032)**		(0.032)		(0.033)
Are strong and weak states statistically different?		**Yes****		**Yes****		**No**		**No**
Demographics								
Female	-0.059***	-0.059***	-0.073***	-0.073***	0.233***	0.233***	0.221***	0.222***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.016)	(0.016)	(0.016)	(0.016)
Years of School	0.117***	0.117***			0.058***	0.058***		
	(0.003)	(0.003)			(0.004)	(0.004)		
High School Graduate			0.342***	0.342***			0.375***	0.376***
			(0.016)	(0.016)			(0.024)	(0.024)
One, Two, or Three Years of College			0.649***	0.649***			0.595***	0.595***
			(0.021)	(0.020)			(0.031)	(0.031)
College Graduate			1.041***	1.041***			0.730***	0.730***
			(0.025)	(0.025)			(0.040)	(0.040)
Postgraduate			1.297***	1.297***			0.781***	0.781***
			(0.023)	(0.023)			(0.045)	(0.045)
Experience	0.047***	0.047***	0.018***	0.018***	0.012***	0.012***	-0.009***	-0.009***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.002)	(0.002)	(0.001)	(0.001)
Experience*Experience	-0.001***	-0.001***			-0.000***	-0.000***		
	(0.000)	(0.000)			(0.000)	(0.000)		
Hours Worked/Year	0.000***	0.000***	0.000***	0.000***	0.003***	0.003***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
State Variables								
South	-0.045	-0.045	-0.033	-0.033	-0.072**	-0.071**	-0.066**	-0.065**
	(0.055)	(0.055)	(0.049)	(0.049)	(0.032)	(0.032)	(0.033)	(0.033)
Midwest	-0.276***	-0.276***	-0.263***	-0.263***	-0.098***	-0.097***	-0.091**	-0.089**
	(0.046)	(0.046)	(0.039)	(0.040)	(0.035)	(0.035)	(0.035)	(0.035)
West	-0.017	-0.017	-0.021	-0.021	-0.039	-0.040	-0.054*	-0.055*
	(0.046)	(0.046)	(0.041)	(0.041)	(0.030)	(0.031)	(0.030)	(0.030)
State Unemployment Rate	0.011	0.011	0.012	0.012	-0.019	-0.019	-0.019	-0.019
	(0.009)	(0.009)	(0.008)	(0.008)	(0.012)	(0.012)	(0.013)	(0.012)
State Poverty Rate	-0.022***	-0.022***	-0.021***	-0.021***	-0.019***	-0.020***	-0.018***	-0.018***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.170*	-0.170*	1.056***	1.056***	-3.029***	-3.024***	-2.533***	-2.527***
	(0.096)	(0.097)	(0.074)	(0.075)	(0.115)	(0.115)	(0.102)	(0.101)
Observations	142,808	142,808	142,808	142,808	247,340	247,340	247,340	247,340
R-squared	0.259	0.259	0.260	0.260				

Robust SE's in ()
SE's Clustered by State
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Impact of Legislation on Wages and Employment for Hispanics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	**-0.063*** **		**-0.044** **		**-0.049***		-0.04	
	(0.020)		**(0.021)**		**(0.027)**		(0.027)	
Strong		**-0.060*** **		**-0.044** **		**-0.052** **		**-0.047***
		(0.018)		**(0.021)**		**(0.025)**		**(0.026)**
Weak		**-0.069*** **		-0.043		-0.042		-0.017
		(0.025)		(0.026)		(0.035)		(0.037)
Are strong and weak states statistically different?		**Yes*** **		**No**		**Yes***		**No**
Demographics								
Female	-0.178*** **	-0.178*** **	-0.197*** **	-0.197*** **	0.060*** **	0.060*** **	0.071*** **	0.071*** **
	(0.013)	(0.013)	(0.011)	(0.011)	(0.016)	(0.016)	(0.013)	(0.013)
Years of School	0.079*** **	0.079*** **			0.036*** **	0.036*** **		
	(0.001)	(0.002)			(0.003)	(0.004)		
High School Graduate			0.286*** **	0.286*** **			0.247*** **	0.248*** **
			(0.018)	(0.018)			(0.037)	(0.037)
One, Two, or Three Years of College			0.583*** **	0.583*** **			0.531*** **	0.533*** **
			(0.025)	(0.025)			(0.046)	(0.047)
College Graduate			0.949*** **	0.949*** **			0.563*** **	0.566*** **
			(0.033)	(0.033)			(0.053)	(0.052)
Postgraduate			1.254*** **	1.254*** **			0.702*** **	0.705*** **
			(0.024)	(0.024)			(0.065)	(0.064)
Experience	0.050*** **	0.050*** **	0.017*** **	0.017*** **	0.022*** **	0.022*** **	-0.009*** **	-0.009*** **
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Experience*Experience	-0.001*** **	-0.001*** **			-0.001*** **	-0.001*** **		
	(0.000)	(0.000)			(0.000)	(0.000)		
Hours Worked/Year	0.000*** **	0.000*** **	0.000*** **	0.000*** **	0.003*** **	0.003*** **	0.003*** **	0.003*** **
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Speaks English	-0.014*** **	-0.014*** **	0.005*	0.005*	0.042*** **	0.042*** **	0.061*** **	0.061*** **
	(0.003)	(0.003)	(0.003)	(0.003)	(0.010)	(0.010)	(0.011)	(0.011)
South	0.006	0.008	-0.007	-0.008	0.075*	0.072	0.069	0.061
	(0.044)	(0.043)	(0.040)	(0.040)	(0.044)	(0.045)	(0.044)	(0.045)
Midwest	-0.168*** **	-0.167*** **	-0.162*** **	-0.162*** **	0.031	0.030	0.037	0.034
	(0.034)	(0.033)	(0.031)	(0.031)	(0.035)	(0.036)	(0.034)	(0.036)
West	-0.026	-0.026	-0.012	-0.012	0.026	0.027	0.033	0.033
	(0.037)	(0.037)	(0.033)	(0.033)	(0.044)	(0.044)	(0.043)	(0.042)
State Unemployment Rate	0.018*** **	0.017*** **	0.019*** **	0.019*** **	0.005	0.006	0.006	0.008
	(0.006)	(0.006)	(0.006)	(0.006)	(0.012)	(0.013)	(0.012)	(0.013)
State Poverty Rate	-0.014**	-0.014**	-0.014**	-0.014**	-0.014**	-0.014**	-0.014**	-0.015**
	(0.006)	(0.006)	(0.005)	(0.005)	(0.007)	(0.007)	(0.007)	(0.007)
High School Graduate			0.286*** **	0.286*** **			0.247*** **	0.248*** **
			(0.018)	(0.018)			(0.037)	(0.037)
One, Two, or Three Years of College			0.583*** **	0.583*** **			0.531*** **	0.533*** **
			(0.025)	(0.025)			(0.046)	(0.047)
College Graduate			0.949*** **	0.949*** **			0.563*** **	0.566*** **
			(0.033)	(0.033)			(0.053)	(0.052)
Postgraduate			1.254*** **	1.254*** **			0.702*** **	0.705*** **
			(0.024)	(0.024)			(0.065)	(0.064)
Constant	0.426*** **	0.430*** **	1.174*** **	1.173*** **	-2.976*** **	-2.981*** **	-2.707*** **	-2.722*** **
	(0.090)	(0.090)	(0.085)	(0.084)	(0.181)	(0.184)	(0.180)	(0.182)
Observations	183,166	183,166	183,166	183,166	295,778	295,778	295,778	295,778
R-squared	0.221	0.221	0.228	0.228				

Robust SE's in ()
SE's Clustered by State
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Impact of Legislation on Wages and Employment for Single Mothers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	**-0.064*** **		**-0.057** **		-0.04		-0.033	
	(0.023)		**(0.022)**		(0.041)		(0.041)	
Strong		**-0.046***		-0.038		-0.056		-0.049
		(0.027)		(0.025)		(0.060)		(0.061)
Weak		**-0.074*** **		**-0.068*** **		-0.032		-0.025
		(0.025)		**(0.024)**		(0.041)		(0.041)
Are strong and weak states statistically different?		**Yes****		**Yes****		**No**		**No**
Demographics								
Years of School	0.109***	0.109***			0.049***	0.049***		
	(0.003)	(0.003)			(0.009)	(0.009)		
High School Graduate			0.290***	0.290***			0.284***	0.285***
			(0.019)	(0.019)			(0.043)	(0.042)
One, Two, or Three Years of College			0.586***	0.586***			0.437***	0.437***
			(0.023)	(0.023)			(0.060)	(0.060)
College Graduate			0.968***	0.967***			0.707***	0.707***
			(0.025)	(0.026)			(0.065)	(0.065)
Postgraduate			1.222***	1.222***			0.821***	0.821***
			(0.032)	(0.033)			(0.080)	(0.080)
Experience	0.038***	0.038***	0.013***	0.013***	0.040***	0.040***	-0.014***	-0.014***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.002)	(0.002)	(0.001)	(0.001)
Experience*Experience	-0.000***	-0.000***			-0.001***	-0.001***		
	(0.000)	(0.000)			(0.000)	(0.000)		
Hours Worked/Year	0.000***	0.000***	0.000***	0.000***	0.003***	0.003***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
State Variables								
South	-0.033	-0.030	-0.041	-0.037	-0.120**	-0.122**	-0.135**	-0.137**
	(0.055)	(0.054)	(0.050)	(0.050)	(0.060)	(0.061)	(0.061)	(0.061)
Midwest	-0.229***	-0.228***	-0.223***	-0.221***	-0.041	-0.043	-0.057	-0.059
	(0.044)	(0.044)	(0.039)	(0.040)	(0.044)	(0.044)	(0.043)	(0.043)
West	0.027	0.026	0.019	0.017	0.011	0.012	0.007	0.009
	(0.053)	(0.054)	(0.047)	(0.048)	(0.054)	(0.054)	(0.053)	(0.053)
State Unemployment Rate	0.027***	0.027***	0.027***	0.027***	-0.005	-0.006	-0.000	-0.000
	(0.007)	(0.007)	(0.007)	(0.007)	(0.015)	(0.015)	(0.015)	(0.015)
State Poverty Rate	-0.025***	-0.026***	-0.025***	-0.025***	-0.026***	-0.025***	-0.025***	-0.025***
	(0.005)	(0.005)	(0.004)	(0.005)	(0.007)	(0.007)	(0.007)	(0.007)
Constant	-0.068	-0.066	1.178***	1.180***	-2.911***	-2.914***	-2.064***	-2.067***
	(0.078)	(0.080)	(0.061)	(0.063)	(0.162)	(0.160)	(0.124)	(0.123)
Observations	91,226	91,226	91,226	91,226	154,929	154,929	154,929	154,929
R-squared	0.214	0.214	0.219	0.219				

Robust SE's in ()

SE's Clustered by State

*** p<0.01, ** p<0.05, * p<0.1

Table 9: Impact of Legislation on Wages and Employment for Utilities Workers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	-0.033		-0.036		**-0.233*** **		**-0.232*** **	
	(0.024)		(0.025)		**(0.083)**		**(0.083)**	
Strong		**-0.054***		-0.056		**-0.280*** **		**-0.286*** **
		(0.032)		(0.036)		**(0.099)**		**(0.099)**
Weak		-0.021		-0.024		**-0.206** **		**-0.200** **
		(0.024)		(0.023)		**(0.097)**		**(0.097)**
Are strong and weak states statistically different?		**No**		**No**		**Yes** **		Yes**
Demographics								
Female	-0.247***	-0.247***	-0.258***	-0.258***	0.212**	0.212**	0.198**	0.198**
	(0.024)	(0.024)	(0.023)	(0.023)	(0.096)	(0.096)	(0.099)	(0.099)
Years of Education	0.112***	0.112***			0.015	0.015		
	(0.005)	(0.005)			(0.014)	(0.014)		
High School Graduate			0.496***	0.497***			0.538***	0.541***
			(0.050)	(0.050)			(0.158)	(0.158)
One, Two, or Three Years of College			0.704***	0.706***			0.556***	0.561***
			(0.050)	(0.049)			(0.169)	(0.170)
College Graduate			1.041***	1.042***			0.669***	0.673***
			(0.046)	(0.046)			(0.175)	(0.177)
Postgraduate			1.275***	1.277***			0.596***	0.600***
			(0.041)	(0.041)			(0.194)	(0.193)
Experience	0.048***	0.048***	0.011***	0.011***	0.017**	0.017**	-0.023***	-0.023***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.007)	(0.007)	(0.004)	(0.004)
Experience*Experience	-0.001***	-0.001***			-0.001***	-0.001***		
	(0.000)	(0.000)			(0.000)	(0.000)		
Hours Worked/Year	0.000***	0.000***	0.000***	0.000***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
State Variables								
South	-0.042	-0.048	-0.045	-0.051	-0.153	-0.165	-0.149	-0.163
	(0.039)	(0.038)	(0.040)	(0.040)	(0.138)	(0.139)	(0.138)	(0.139)
Midwest	-0.143***	-0.145***	-0.146***	-0.147***	-0.057	-0.061	-0.069	-0.073
	(0.028)	(0.029)	(0.033)	(0.033)	(0.128)	(0.130)	(0.127)	(0.128)
West	0.056	0.057	0.048	0.049	-0.020	-0.018	-0.021	-0.018
	(0.047)	(0.046)	(0.046)	(0.046)	(0.130)	(0.130)	(0.127)	(0.127)
State Unemployment Rate	0.030***	0.029***	0.030***	0.029***	-0.138***	-0.140***	-0.135***	-0.137***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.032)	(0.033)	(0.031)	(0.032)
State Poverty Rate	-0.014**	-0.013**	-0.013**	-0.013**	0.047**	0.048**	0.047**	0.049**
	(0.006)	(0.005)	(0.005)	(0.005)	(0.021)	(0.020)	(0.021)	(0.020)
Constant	0.729***	0.728***	1.938***	1.937***	-1.423***	-1.426***	-1.339***	-1.341***
	(0.105)	(0.106)	(0.113)	(0.113)	(0.435)	(0.440)	(0.392)	(0.395)
Observations	13,911	13,911	13,911	13,911	15,669	15,669	15,669	15,669
R-squared	0.207	0.207	0.179	0.180				

Robust SE's in ()

SE's Clustered by State

*** p<0.01, ** p<0.05, * p<0.1

Table 10: Impact of Legislation on Wages and Employment for Transportation and Warehousing Workers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	-0.021		-0.022		-0.038		-0.037	
	(0.015)		(0.015)		(0.059)		(0.058)	
Strong		-0.031		**-0.034***		-0.028		-0.035
		(0.019)		**(0.018)**		(0.060)		(0.059)
Weak		-0.016		-0.016		-0.044		-0.038
		(0.018)		(0.017)		(0.062)		(0.060)
Are strong and weak states statistically different?		**No**		**No**		**No**		**No**
Demographics								
Female	-0.127***	-0.127***	-0.111***	-0.111***	0.266***	0.266***	0.282***	0.282***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.045)	(0.045)	(0.044)	(0.044)
Years of School	0.076***	0.076***			0.021***	0.021***		
	(0.004)	(0.004)			(0.006)	(0.006)		
High School Graduate			0.278***	0.279***			0.352***	0.351***
			(0.017)	(0.017)			(0.052)	(0.052)
One, Two, or Three Years of College			0.487***	0.487***			0.414***	0.414***
			(0.021)	(0.021)			(0.056)	(0.056)
College Graduate			0.772***	0.772***			0.549***	0.549***
			(0.028)	(0.028)			(0.066)	(0.066)
Postgraduate			0.902***	0.903***			0.433***	0.433***
			(0.046)	(0.047)			(0.080)	(0.080)
Experience	0.051***	0.051***	0.011***	0.011***	0.020***	0.020***	-0.012***	-0.012***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.001)	(0.001)
Experience*Experience	-0.001***	-0.001***			-0.001***	-0.001***		
	(0.000)	(0.000)			(0.000)	(0.000)		
Hours Worked/Year	0.000***	0.000***	0.000***	0.000***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
State Variables								
South	0.014	0.012	0.005	0.003	-0.100*	-0.099*	-0.103*	-0.102*
	(0.036)	(0.036)	(0.033)	(0.032)	(0.055)	(0.055)	(0.053)	(0.053)
Midwest	-0.163***	-0.163***	-0.168***	-0.168***	-0.030	-0.029	-0.041	-0.041
	(0.032)	(0.032)	(0.028)	(0.028)	(0.051)	(0.051)	(0.050)	(0.050)
West	0.001	0.002	-0.012	-0.012	-0.101**	-0.102**	-0.104***	-0.104***
	(0.034)	(0.034)	(0.032)	(0.032)	(0.039)	(0.040)	(0.039)	(0.039)
State Unemployment Rate	-0.002	-0.002	-0.001	-0.001	-0.025	-0.025	-0.023	-0.023
	(0.006)	(0.006)	(0.006)	(0.005)	(0.018)	(0.018)	(0.017)	(0.017)
State Poverty Rate	-0.005	-0.005	-0.005	-0.004	-0.006	-0.006	-0.005	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.009)	(0.009)	(0.009)	(0.009)
Constant	0.874***	0.873***	1.844***	1.843***	-1.560***	-1.559***	-1.339***	-1.339***
	(0.062)	(0.062)	(0.057)	(0.056)	(0.182)	(0.181)	(0.162)	(0.162)
Observations	56,407	56,407	56,407	56,407	68,825	68,825	68,825	68,825
R-squared	0.120	0.120	0.094	0.094				

Robust SE's in ()

SE's Clustered by State

*** p<0.01, ** p<0.05, * p<0.1

Table 11: Impact of Legislation on State Unemployment

	(1)	(2)
Regression Type:	OLS	OLS
Dependent Variable:	State Unemployment	State Unemployment
RTW	**-0.862***	
	(0.459)	
Strong		**-0.947***
		(0.499)
Weak		-0.812
		(0.507)
Are strong and weak states statistically different?		**No**
South	-0.781	-0.794
	(0.531)	(0.536)
Midwest	-0.362	-0.370
	(0.579)	(0.580)
West	-0.101	-0.096
	(0.454)	(0.451)
statepov	0.282***	0.283***
	(0.056)	(0.056)
Constant	3.723***	3.712***
	(0.826)	(0.836)
Observations	2,395,852	2,395,852
R-squared	0.371	0.372

Robust SE's in ()

SE's Clustered by State

*** p<0.01, ** p<0.05, * p<0.1

Table 12: Impact of Legislation on Wages and Employment for African Americans with Wisconsin as a Weak RTW State

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	**-0.101*** **		**-0.094*** **		0.014		0.02	
	(0.034)		**(0.031)**		(0.032)		(0.032)	
Strong		**-0.098*** **		**-0.091*** **		0.019		0.026
		(0.034)		**(0.030)**		(0.039)		(0.039)
Weak		**-0.098*** **		**-0.090*** **		-0.010		-0.003
		(0.035)		**(0.032)**		(0.033)		(0.033)
Are strong and weak states statically different?		**Yes****		**Yes****		**No**		No
Constant	-0.170*	-0.163	1.056***	1.062***	-3.029***	-3.028***	-2.533***	-2.531***
	(0.096)	(0.098)	(0.074)	(0.076)	(0.115)	(0.116)	(0.102)	(0.102)
Observations	142,808	142,808	142,808	142,808	247,340	247,340	247,340	247,340
R-squared	0.259	0.259	0.260	0.260				

Robust SE's in ()

SE's Clustered by State

*** p<0.01, ** p<0.05, * p<0.1

These regressions control for the same variables as in Table 6: gender, years of school, level of educational attainment, work experience, hours worked/year, state region, state unemployment rate, and state poverty rate.

Table 13: Impact of Legislation on Wages and Employment for Hispanics with Wisconsin as a Weak RTW State

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	**-0.063*** **		**-0.044** **		**-0.049***		-0.04	
	(0.020)		**(0.021)**		**(0.027)**		(0.027)	
Strong		**-0.064*** **		**-0.048** **		**-0.048***		-0.043
		(0.019)		**(0.021)**		**(0.026)**		(0.026)
Weak		**-0.076*** **		**-0.049***		-0.036		-0.010
		(0.024)		**(0.025)**		(0.036)		(0.037)
Are strong and weak states statistically different?		**Yes*** **		**Yes** **		**No**		**No**
Constant	0.426***	0.437***	1.174***	1.178***	-2.976***	-2.981***	-2.707***	-2.724***
	(0.090)	(0.089)	(0.085)	(0.084)	(0.181)	(0.185)	(0.180)	(0.183)
Observations	183,166	183,166	183,166	183,166	295,778	295,778	295,778	295,778
R-squared	0.221	0.221	0.228	0.228				

Robust SE's in ()

SE's Clustered by State

*** p<0.01, ** p<0.05, * p<0.1

These regressions control for the same variables as in Table 7: gender, speaks English, years of school, level of educational attainment, work experience, hours worked/year, state region, state unemployment rate, and state poverty rate.

Table 14: Impact of Legislation on Wages and Employment for Single Mothers with Wisconsin as a Weak RTW State

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
RTW	**-0.064*** **		**-0.057** **		-0.04		-0.033	
	(0.023)		**(0.022)**		(0.041)		(0.041)	
Strong		-0.042		-0.033		-0.050		-0.043
		(0.027)		(0.025)		(0.061)		(0.062)
Weak		**-0.067*** **		**-0.061** **		-0.022		-0.015
		(0.024)		**(0.023)**		(0.040)		(0.040)
Are strong and weak states statistically different?		**Yes****		**Yes****		**No**		**No**
Constant	-0.068	-0.060	1.178***	1.185***	-2.911***	-2.912***	-2.064***	-2.065***
	(0.078)	(0.079)	(0.061)	(0.063)	(0.162)	(0.160)	(0.124)	(0.123)
Observations	91,226	91,226	91,226	91,226	154,929	154,929	154,929	154,929
R-squared	0.214	0.214	0.219	0.219				

Robust SE's in ()

SE's Clustered by State

*** p<0.01, ** p<0.05, * p<0.1

These regressions control for the same variables as in Table 8: years of school, level of educational attainment, work experience, hours worked/year, state region, state unemployment rate, and state poverty rate.

Table 15: Impact of Legislation on Wages and Employment for Utilities Workers with Wisconsin as a Weak RTW State

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	-0.033		-0.036		**-0.233*** **		**-0.232*** **	
	(0.024)		(0.025)		**(0.083)**		**(0.083)**	
Strong		-0.052		-0.053		**-0.335*** **		**-0.339*** **
		(0.032)		(0.036)		**(0.100)**		**(0.101)**
Weak		-0.017		-0.019		**-0.283*** **		**-0.275*** **
		(0.023)		(0.023)		**(0.092)**		**(0.092)**
Are strong and weak states statistically different?		**No**		**No**		**Yes*** **		**Yes*** **
Constant	0.729***	0.729***	1.938***	1.938***	-1.423***	-1.403***	-1.339***	-1.321***
	(0.105)	(0.106)	(0.113)	(0.113)	(0.435)	(0.435)	(0.392)	(0.392)
Observations	13,911	13,911	13,911	13,911	15,669	15,669	15,669	15,669
R-squared	0.207	0.207	0.179	0.180				

Robust SE's in ()
SE's Clustered by State
*** p<0.01, ** p<0.05, * p<0.1

These regressions control for the same variables as in Table 9: gender, years of school, level of educational attainment, work experience, hours worked/year, state region, state unemployment rate, and state poverty rate.

Table 16: Impact of Legislation on Wages and Employment for Transportation and Warehousing Workers with Wisconsin as a Weak RTW State

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regression Type:	OLS	OLS	OLS	OLS	Logistic	Logistic	Logistic	Logistic
Dependent Variable:	lnWage	lnWage	lnWage	lnWage	Employed	Employed	Employed	Employed
The Policy								
RTW	-0.021		-0.022		-0.038		-0.037	
	(0.015)		(0.015)		(0.059)		(0.058)	
Strong		-0.032		**-0.033***		0.001		-0.004
		(0.019)		**(0.017)**		(0.063)		(0.063)
Weak		-0.016		-0.013		0.002		0.010
		(0.017)		(0.016)		(0.065)		(0.064)
Are strong and weak states statistically different?		**No**		**No**		**No**		**No**
Constant	0.874***	0.874***	1.844***	1.844***	-1.560***	-1.558***	-1.339***	-1.339***
	(0.062)	(0.063)	(0.057)	(0.056)	(0.182)	(0.182)	(0.162)	(0.161)
Observations	56,407	56,407	56,407	56,407	68,825	68,825	68,825	68,825
R-squared	0.120	0.120	0.094	0.094				

Robust SE's in ()

SE's Clustered by State

*** p<0.01, ** p<0.05, * p<0.1

These regressions control for the same variables as in Table 10: gender, years of school, level of educational attainment, work experience, hours worked/year, state region, state unemployment rate, and state poverty rate.

Table 17: Impact of Legislation on State Unemployment with Wisconsin as a Weak RTW State

	(1)	**(2)**
Regression Type:	OLS	OLS
Dependent Variable:	State Unemployment	State Unemployment
The Policy		
RTW	-0.862*	
	(0.459)	
Strong		**-0.954***
		(0.505)
Weak		-0.808
		(0.491)
Are strong and weak states statistically different?		**No**
Constant	3.723***	3.769***
	(0.826)	(0.833)
Observations	2,395,852	2,395,852
R-squared	0.371	0.374

Robust SE's in ()
SE's Clustered by State
*** p<0.01, ** p<0.05, * p<0.1

These regressions control for the same variables as in Table 11: state region and state poverty rate.