Testimony of

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"Compulsory Unionization through Grievance Fees: The NLRB's Assault on Right-to-Work"

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Chairman Kline, Ranking Member Scott, and Members of the Committee, thank you for the invitation to speak here today on the important issue of the economics of unionization. My name is Elise Gould, and I am a senior economist at the Economic Policy Institute. I have three important points to share with you today.

First, wage growth for typical workers has been sluggish for a generation despite sizable increases in overall productivity, incomes, and wealth. Second, a key factor in the divergence between pay and productivity is the widespread erosion of collective bargaining that has diminished the wages of both union and nonunion workers. Third, because right-to-work laws weaken unions, it is no surprise that wages are lower and benefits are less common in right-to-work states compared to states without such laws.

Productivity is our nation's output of goods and services per hour worked. In the three decades following World War II, the hourly compensation of a typical worker grew in tandem with productivity. Since the 1970s, however, pay and productivity were driven apart. Between 1979 and 2013, productivity grew 64 percent, while hourly compensation only grew 8 percent. One key factor in the divergence between pay and productivity is the widespread erosion of collective bargaining that has diminished the wages of both union and nonunion workers. In fact, the erosion of collective bargaining has been a key factor undermining pay growth for middle-wage workers over the last few decades.

When unions are able to set strong pay standards in particular occupations or industries through collective bargaining, the employers in those settings also raise the wages and benefits of nonunion workers toward the standards set through collective bargaining. Thus, the weakening of the collective bargaining system has had an adverse impact on the compensation of both union and nonunion workers. The decline of collective bargaining through its impact on union and nonunion workers can explain one-third of the rise of wage inequality among men since 1979, and one-fifth among women.[1]

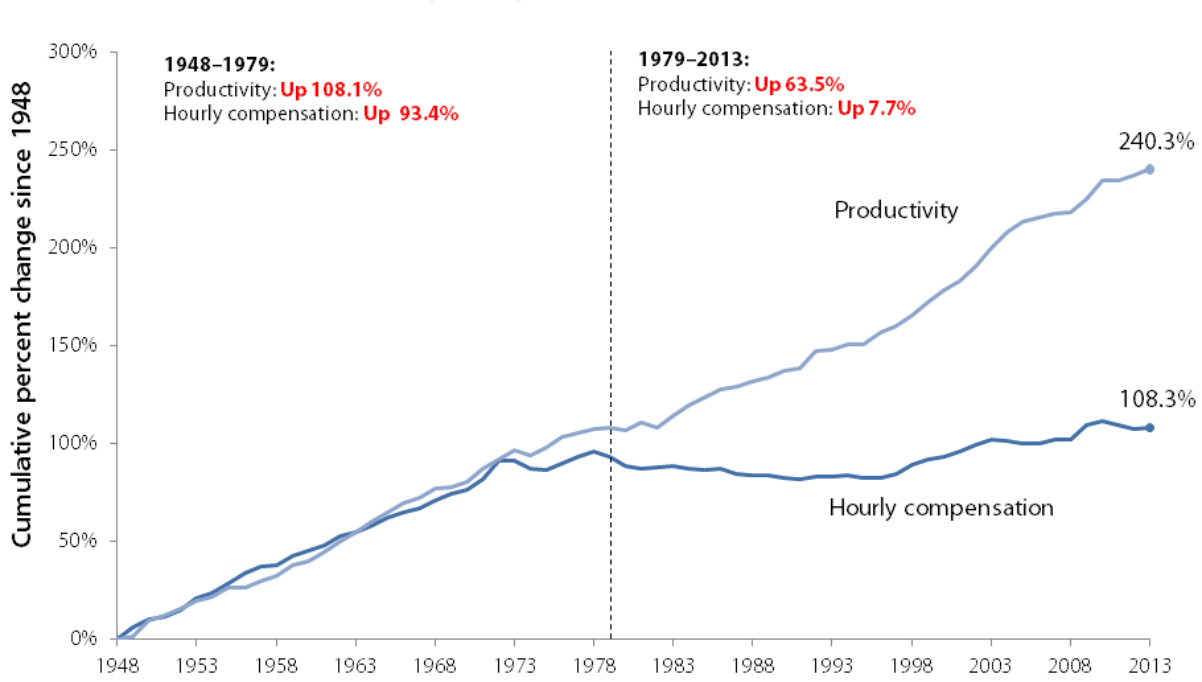
Furthermore, the states where collective bargaining eroded the most since 1979 had the lowest growth in middle-class wages.[2] Specifically, the 10 states that had the least erosion of collective bargaining saw their inflation-adjusted median hourly compensation grow by 23.1 percent from 1979 to 2012, far faster than the 5.2 percent growth of the 10 states suffering the largest erosion of collective bargaining—a gap in compensation growth of 17.9 percentage points. This same dynamic played out in the ability of the typical worker to share in productivity growth; the divergence between the growth of median hourly compensation and productivity was greater in the states that suffered the largest erosion of collective bargaining. The greater the decline in collective bargaining coverage, the lower was the return on productivity obtained by the typical worker.

This takes me to my third point and the subject of my most recent research in the area, which is attached to this statement: the relationship between wages and right-to-work status.

At their core, right-to-work laws hamstring unions' ability to help employees bargain with their employers for better wages, benefits, and working conditions. Given that unionization raises wages both for individual union members as well as for nonunion workers in unionized sectors, it is not surprising that research shows that both union and nonunion workers in right-to-work states have lower wages and fewer benefits, on average, than comparable workers in other states.

FIGURE A

Disconnect between productivity and typical worker's compensation, 1948–2013



Note: Data are for compensation of production/nonsupervisory workers in the private sector and net productivity (growth of output of goods and services less depreciation per hour worked) of the total economy.

Source: EPI analysis of data from BLS Labor Productivity and Costs program, Bureau of Labor Statistics Current Employment Statistics public data series, and Bureau of Economic Analysis National Income and Product Accounts (Tables 2.3.4, 6.2, 6.3, 6.9, 6.10, and 6.11)

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Wages in right-to-work states are 3.1 percent lower than those in non-right-to-work states, after controlling for a full complement of individual demographic and socioeconomic factors as well as state macroeconomic indicators.[3] This translates into right-to-work status being associated with $1,558 lower annual wages for a typical full-time, full-year worker.

Related research also finds that workers in right-to-work states are less likely to have employer-sponsored health insurance and pension coverage.[4] And, these results do not just apply to union members, but to all employees in a state. Where unions are strong, compensation increases even for workers not covered by any union contract, as nonunion employers face competitive pressure to match union standards. Likewise, when unions are weakened by right-to-work laws, all of a state's workers feel the impact.

As unions are weakened, workers' diminished bargaining power means lower compensation and the continued divergence between pay and productivity.

Thank you for the opportunity to speak with you about this important issue.

Resources

1. *Unions, Norms, and the Rise in American Wage Inequality,* by Bruce Western and Jake Rosenfeld, Harvard University Department of Sociology, 2011

2. *The Erosion of Collective Bargaining Has Widened the Gap Between Productivity and Pay*, by David Cooper and Lawrence Mishel, Economic Policy Institute, 2015

3. *"Right-to-Work" States Still Have Lower Wages*, by Elise Gould and Will Kimball, Economic Policy Institute, 2015

4. *The Compensation Penalty of "Right-to-Work" Laws,* by *Elise* Gould and Heidi Shierholz, Economic Policy Institute, 2011

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"RIGHT-TO-WORK" STATES STILL HAVE LOWER WAGES

BY ELISE GOULD AND WILL KIMBALL

This report is part of **Raising America's Pay,** a multiyear research and public education initiative of the Economic Policy Institute to make wage growth an urgent national policy priority. Raising America's Pay identifies broad-based wage growth as the central economic challenge of our time—essential to alleviating inequality, expanding the middle class, reducing poverty, generating shared prosperity, and sustaining economic growth. *epi.org/pay*

Introduction and executive summary

Under federal law, no one can be forced to join a union as a condition of employment, and the Supreme Court has made clear that workers cannot be forced to pay dues used for political purposes. So-called right-to-work (RTW) legislation goes one step further and entitles employees to the benefits of a union contract—including the right to have the union take up their grievance if their employer abuses them—without paying any of the cost.

This means that if an employer mistreats a worker who does not pay a union representation fee, the union must prosecute that worker's grievance just as it would a dues-paying member's, even if it costs tens of thousands of dollars. Non-dues-paying workers would also receive the higher wages and benefits their dues-paying coworkers enjoy. RTW laws have nothing to do with whether people can be forced to join a union or contribute to a political cause they do not support; that is already illegal. Nor do RTW laws have anything to do with the right to have a job or be provided employment.

At their core, RTW laws seek to hamstring unions' ability to help employees bargain with their employers for better wages, benefits, and working conditions. Given that unionization raises wages both for individual union members as well as for nonunion workers in unionized sectors, it is not surprising that research shows that both union and nonunion workers in RTW states have lower wages and fewer benefits, on average, than comparable workers in other states.

Indeed, in a 2011 EPI paper, Elise Gould and Heidi Shierholz estimate that wages in RTW states are 3.2 percent lower on average than wages in non-RTW states, even after controlling for a full set of worker characteristics and state labor market conditions. Gould and Shierholz (2011) also find that workers in RTW states are less likely to have employer-sponsored health insurance and pension coverage.

In this paper, we update that research and subject the results to a series of robustness tests. We utilize more recent data from the Current Population Survey, and employ a cost-of-living indicator from the Bureau of Economic Analysis that was only made available in the years following the release of Gould and Shierholz (2011). Last, we subject our results to various robustness tests as suggested by Sherk (2015) regarding choice of specific explanatory variables. We find that the main results hold under any reasonable alternative specifications. Only extensive data-mining and non-standard specifications of wage equations can move the estimated RTW penalty to statistical insignificance. Our central findings are:

- Wages in RTW states are 3.1 percent lower than those in non-RTW states, after controlling for a full complement of individual demographic and socioeconomic factors as well as state macroeconomic indicators. This translates into RTW being associated with $1,558 lower annual wages for a typical full-time, full-year worker.
- The relationship between RTW status and wages remains economically and statistically significant under alternative specifications of our econometric model.

Background

The 1947 Taft–Hartley amendments to the National Labor Relations Act (1935) sanctioned a state's right to pass laws that prohibit unions from requiring a worker to pay dues, even when the worker is covered by a union-negotiated col-

lective bargaining agreement. Within a couple of years of the amendment's passage, 12 states had passed RTW laws. Today, RTW laws are in place in 25 states, predominantly in the Midwest, South, and Southwest.[1]

Although there has been an extensive amount of research on the effect of RTW laws on union density, organizing efforts, and industrial development (see Moore 1998 and Moore and Newman 1985 for literature overviews), there has been surprisingly little examination of the perhaps more important issue of RTW laws' effect on wages and employer-sponsored benefits. Part of the reason that there has been little research done on these latter relationships is that it is hard to identify or isolate the RTW effect. For example, there is little variation in the timing of when many states adopted RTW laws—10 states adopted or amended such laws in a two-year window in the late 1940s, right before a recession hit. In addition, it's hard to adequately control for the decision of a state to become RTW or isolate that effect from other legislative changes. Further, there are many factors that influence state labor market conditions over time, making it hard to identify the RTW effect amid other economic, social, or technological phenomena.

These limitations make clear why causal impacts of RTW laws are hard to estimate, but one can legitimately take a cross-sectional approach and look at the correlation of RTW status and wages after controlling for a range of other influences that could impact state-level wages. Gould and Shierholz (2011) use this approach and overcome one obvious shortcoming of previous research by controlling for differences in cost of living throughout the United States, thereby making inflation-adjusted wages in various parts of the country as comparable as possible.

First and foremost, this paper is an update to Gould and Shierholz (2011), using data through 2012. Unfortunately, since three states have passed RTW legislation in the last three years, any analysis must still be restricted to data from 2012 and prior so as not to contaminate (that is, bias) the results with data from states switching their regime during the period of study.[2] Most researchers think that whatever the effect of RTW on states' economies, it takes a relatively long time to manifest. Thus, it is difficult to know how to classify states that have very recently passed RTW laws. Once the full effects of changes in legislation have been felt in these states, which could take several years, these states can be further evaluated. In this paper we also employ a different cost-of-living adjustment based on a new measure from the Bureau of Economic Analysis (BEA).

And, finally, this paper responds to concerns raised about the robustness of the Gould and Shierholz (2011) findings on RTW and wages. Specifically, Sherk (2015) argues that his preferred regression specification yields the result that a wage differential does not exist between RTW and non-RTW states. After extensive investigation, we do not find his conclusion compelling. The previous Gould and Shierholz (2011) finding is robust to reasonable changes in model specification, and the regression specification Sherk (2015) uses that yields no wage differential is idiosyncratic, excluding variables that belong and including variables that do not belong in a wage regression.

An update: Wages are lower in RTW states, 2010–2012

To determine the relationship between RTW laws and wages, we update the findings in Shierholz and Gould (2011) by estimating log wage equations using Bureau of Labor Statistics Current Population Survey Outgoing Rotation Group (CPS-ORG) data for 2010–2012. The results of the three-year pooled data are very consistent with single-year analyses, but we pool three years of data in this paper to minimize any spurious year-specific economic relationships, thereby helping us achieve more precise estimates. The total sample consists of 304,157 workers, age 18–64, who earn wages and salaries.[3] About 38 percent of the sample lives in states with RTW laws.[4]

Table 1 displays the characteristics of workers in both RTW and non-RTW states. On many levels, these two sets of workers are similar. Some demographic characteristics between the two groups are very similar, such as the gender breakdown and the shares of the workforce that are married. Educational attainment is similar, with workers in non-RTW states having slightly higher levels of schooling. The racial/ethnic composition varies, with more white workers in non-RTW states, and more African American and Hispanic workers in RTW states.

The biggest difference between workers in RTW and non-RTW states is the fact that workers in non-RTW states are more than twice as likely (2.4 times) to be in a union or protected by a union contract. Average hourly wages, the primary variable of interest, are 15.8 percent higher in non-RTW states ($23.93 in non-RTW states versus $20.66 in RTW states).[5] Median wages are 16.6 percent higher in non-RTW states ($18.40 vs. $15.79).

These are the unadjusted differences between wages in RTW and non-RTW states. Because there are differences between workers' characteristics in RTW and non-RTW states, and since some of these characteristics will directly impact workers' expected wages, it is important to control for these factors in a multivariate regression model. This helps us factor in these differences, which allows us to come closer to identifying the pure relationship between RTW legislation and wages.

In **Table 2**, we construct a regression model, starting with the most general and building up to a model that controls for the full range of explanatory variables. The dependent variable is always the natural log of hourly wages, and the variable of interest is an indicator variable taking on the value one when the worker lives in a RTW state and zero otherwise. (Full regression results are reported in Appendix Table A1.)

The results of the simple model (which only controls for year fixed-effects) mimic the differences in wages found in the descriptive statistics and are displayed in the first column. The coefficient of -0.136 on the RTW indicator variable means that wages in RTW states are estimated to be 12.7 percent lower than in non-RTW states.[6] This result almost perfectly matches the corresponding results in Gould and Shierholz (2011), which found a coefficient estimate of -0.137, or a 12.8 percent wage differential.

In the second model, we add in a basic set of controls, which include the demographic variables included in Table 1—age, age squared, race/ethnicity, education indicators, sex, marital status, urbanicity, an indicator for being an hourly worker, and an indicator for being a full-time worker—in addition to a worker's major industry and occupation. As with worker characteristics, the industry and occupation mix in the state could affect the average wage. Again, controlling for these differences allows us to better isolate the relationship between RTW status and wages. As expected, the coefficient on the RTW indicator moves closer to zero (as shown in the second column of Table 2), and wages in RTW states are found to be 8.9 percent lower, on average, after controlling for these worker differences. Again, these results are in line with previous research.

Following Gould and Shierholz (2011), the third column of Table 2 includes additional state-level variables pertaining to the economic conditions—measured by the state unemployment rate—and differences in the cost of living across states. Averages for these continuous variables are found at the bottom of Table 1. State unemployment rate data come from the Bureau of Labor Statistics Local Area Unemployment Statistics (BLS LAUS). In this third regression, cost-of-living differences are measured by two separate research entities and methodologies: the Political Economy Research Institute (PERI) and the Missouri Economic Research and Information Center (MERIC).[7] Controlling for these price

TABLE 1

Characteristics of workers, RTW states versus non-RTW states (2010–2012)

	Non-right-to-work state	Right-to-work state
Demographics		
Age	39.9	39.5
Sex (male)	51.0%	51.8%
Race/ethnicity		
White	70.3%	62.6%
Black	7.1%	14.0%
Hispanic	14.8%	18.2%
Asian	6.1%	3.3%
Other	1.7%	2.0%
Education		
Less than high school	7.9%	9.8%
High school	26.0%	27.7%
Some college	19.4%	20.4%
Associate degree	10.6%	10.7%
College degree	23.2%	21.1%
Advanced	12.9%	10.3%
Marital status		
Never married	31.1%	28.2%
Married	55.5%	56.1%
Divorced/widowed	11.1%	12.9%
Separated	2.3%	2.7%
Metropolitan area	86.7%	82.3%
Worker characteristics		
Hourly worker	57.7%	55.9%
Full-time	79.4%	83.0%
Union/union contract	17.5%	7.3%
Average hourly wage (2014 dollars)	$23.93	$20.66
Median hourly wage (2014 dollars)	$18.40	$15.79
State characteristics		
Unemployment rate	9.1%	8.4%
Cost of living (PERI)	1.03	0.95
Cost of living (MERIC)	112.09	94.74
Cost of living (BEA RPP)	103.09	94.64
Number of observations	189,412	114,745

Source: EPI analysis of Current Population Survey Outoing Rotation Group microdata (various years)

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differences captures the extent to which higher costs and therefore higher wages may be found in non-RTW states for reasons other than their lack of RTW legislation, letting us better isolate the relationship between wages and RTW status. In addition to the cost-of-living variables, the wage regressions reported are quite standard, using controls (race, gender, five education categories, industry, occupation, experience, union status, hourly status, part-time status, mar-

TABLE 2

Log wage regression results (2010–2012)

	(I)	(II)	(III)	(IV)
Variable	Model with no controls	Model adds demographic and individual-level labor market controls	Model adds state-level labor market controls and cost-of-living measures	Final model, updates cost-of-living indicator
RTW indicator	-0.136***	-0.0936***	-0.0329***	**-0.0318*** **
	(0.00271)	(0.00194)	(0.00223)	**(0.00216)**

Note: Robust standard errors in parentheses. Three asterisks (***) indicate significance at the 1 percent level, two indicate significance at the 5 percent level, and one indicates significance at the 10 percent level.

All models include year indicators. Demographic controls include variables for gender, experience (age and age squared), marital status (four category), race/ethnicity, and education, which are specified as dummy variables for less than high school, some college, associate degree, college, and advanced degree. Log of hourly wage is the dependent variable. Allocated wages are excluded. Individual-level labor market controls include variables for full-time status, hourly status, union status, occupations, and industries. State-level labor market controls include the unemployment rate. For cost-of-living controls, model 3 includes the PERI and MERIC measures (as used by Gould and Shierholz 2011) while model 4 utilizes the log of BEA\'s RPP-all items measure.

Source: EPI analysis of Current Population Survey Outgoing Rotation Group microdata, Political Economy Research Institute (PERI) data, Missouri Economic Research and Information Center (MERIC) data, and Bureau of Economic Analysis Regional Price Parities

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riage status, and unemployment rate) that are very common in labor economic research examining the determinants of wages (Blanchflower and Oswald 1996).

Using the same full set of controls used in Gould and Shierholz (2011), we find a similar result where wages in RTW states are significantly lower, in both statistical and economic terms, than in non-RTW states. On average, RTW laws are associated with wages that are 3.2 percent lower than in states without such laws. As with the earlier regressions, this result is consistent with the findings of Gould and Shierholz (2011), which, using 2009 data, also found a wage differential of 3.2 percent.

Since the Gould and Shierholz (2011) paper was released, the Bureau of Economic Analysis has released measures of Regional Price Parities (BEA RPP), which offer an alternative method of capturing inter-area differences in prices. The fourth model in Table 2 replaces the previously discussed cost-of-living measures with the BEA's logged RPP-all items index. As compared with model three, this change leaves the RTW penalty essentially unchanged (it falls from 3.2 percent to 3.1 percent).

Using this final model, we can estimate how much less, on average, workers earn in RTW states versus non-RTW states. Taking the average wage in non-RTW states and inferring a full-time, full-year salary, we find that workers in RTW states earn $1,558 less a year than similar workers in non-RTW states.

Wage differences remain after a series of robustness tests

In his recent paper, Sherk (2015) critiques the Gould and Shierholz (2011) methods. Since this paper serves as an update to their methods, we use the most recent data presented here to test some of his criticisms. Primarily, we defend our methods against the idiosyncratic empirical model choices Sherk (2015) uses. Secondarily, we explore some suggestions Sherk (2015) makes regarding the cost-of-living methodology to control for possible measurement error. As

TABLE 3

Results of robustness tests

Variable	(I) Two-stage least squares (second-stage results)	(II) Less occupations	(III) Less industries	(IV) Less unemployment rate	(V) Less full-time status	(VI) Less union
RTW indicator	-0.0315***	-0.0308***	-0.0322***	-0.0319***	-0.0271***	-0.0407***
	(0.00216)	(0.00222)	(0.00222)	(0.00215)	(0.00217)	(0.00215)

Note: Robust standard errors in parentheses. Three asterisks (***) indicate significance at the 1 percent level, two indicate significance at the 5 percent level, and one indicates significance at the 10 percent level.

Demographic controls include variables for gender, experience (age and age squared), marital status (four category), race/ethnicity, and education, which are specified as dummy variables for less than high school, some college, associate degree, college, and advanced degree. Log of hourly wage is the dependent variable. Allocated wages are excluded. Labor market controls include variables for full-time status, hourly status, union status, state unemployment rate, occupations, and industries. In model 1, BEA's RPP-rents (1 and 2 years lagged) are included in the first-stage regression to predict log RPP-all items, but excluded from the log wage regression. Second-stage results are displayed; first-stage results are available upon request. All other models in the table use BEA\'s RPP-all items index as the cost-of-living control.

Source: EPI analysis of Current Population Survey Outgoing Rotation Group microdata, Bureau of Labor Statistics Local Area Unemployment Statistics, and Bureau of Economic Analysis Regional Price Parities

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shown in **Table 3**, and as will be discussed in detail below, in all cases we find that his suggestions do not change, in a statistically or economically significant way, the estimated RTW wage differential. (All of the models in Table 3 should be compared against the final model in Table 2. Full regression results are reported in Appendix Table A2.)

Here, we address the question of possible measurement error first before moving on to concerns over our model specification. Sherk (2015) suggests that simply putting cost-of-living variables on the right-hand side of a regression may produce inaccurate estimates. Following Winters (2009), he uses an instrumental variable two-stage least squares model to instrument the primary cost-of-living indicator (log RPP-all items) on the two previous years' worth of the instrumental variable (log RPP-rents).[8] We use a very similar method on the fourth model from Table 2, and the results of the second-stage least squares can be seen in the first model of Table 3. It is clear that our earlier findings are robust to using the instrumental variable regression, and we therefore find that extra step unnecessary.

More broadly, Sherk (2015) makes several claims in justifying his idiosyncratic regression specification that finds no RTW wage penalty. We find most of these claims unconvincing. In the remainder of this section, we address these model specification issues. Sherk (2015) suggests that Gould and Shierholz (2011) over-control for labor market features that could have been impacted over time by states being either a RTW state or not. Specifically, he asserts that labor market controls used in Gould and Shierholz (2011)—occupations, industry, unemployment, full-time status—bias results downward for RTW states because when controlling for these variables, Gould and Shierholz eliminate some of the positive effects of RTW laws on wages through indirect economic benefits. Among these, only the exclusion of occupations has any reasonable rationale in standard wage equations, though even that is questionable in this context.

Some labor economists have argued that occupations do not belong in wage equations because they are too co-determined (and statistically collinear) with educational attainment to provide useful information (i.e., one's education is

what qualifies one to enter a particular occupation). But others have noted that including them in wage equations "works" (i.e., they return economically and statistically significant coefficients) and therefore they should be included (see Lemieux 2011 for a review of the literature). Furthermore, the objective here is to compare similar workers, not examine the returns to education, a common use of a log wage model. We exclude occupation from our regression as a reasonable robustness test. The exclusion very slightly reduces the estimated RTW wage differential, as shown in the second column of Table 3.

While we maintain that occupation should be included, it is also important and relevant to include control variables such as industry, unionization, and full-time status in our regressions because we are trying to compare wages between RTW and non-RTW states for *similar workers with similar types of jobs*. Ideally, we would have two workers with exactly the same set of characteristics, except for one—the fact that one lives in a RTW state and the other does not. Then, when we compare their wages, we are isolating the RTW effect. Controlling for job and economic conditions is the best way we can estimate the relationship between wages and RTW status. It is also standard practice in the analysis of wages using individual workers as observations (Blanchflower and Oswald 1996). While we think it is important to include these labor market controls, we explore whether or not removing any one of these variables dramatically reduces the RTW coefficient, which could indicate that our results are not robust.

Sherk (2015) relies on a theory that RTW laws affect the industry *composition* of states. He claims, for example, that RTW laws may have attracted manufacturing jobs that pay higher wages, but that this wage-boosting impact of RTW would not show up in a regression model that controls for the state's industry composition among its other labor market variables. Empirically, these are mostly moot arguments. There has been no research showing a clear causal relationship between RTW status and attracting manufacturing jobs, and when we examined the relationship between the manufacturing share of employment in a state and RTW status we found no evidence to support his claim.[9] Furthermore, recent statistical studies show no basis for assuming that RTW affects manufacturing share of employment. The annual *Area Development Magazine* (2014) survey, a survey of manufacturers, has never reported RTW ranking anywhere in the top 10 factors shaping manufacturers' location decisions. Additionally, the annual State New Economy Index, which ranks states according to their favorability for higher-wage, higher-tech manufacturers, shows that these firms are drawn to states with strong education systems, strong research universities, good digital infrastructure, and other features that are predominantly found in fair-share, not RTW, states (Atkinson and Nager 2014). Sherk (2015) relies on anecdotal evidence, but even in his examples, it's not clear that RTW status has led to company location decisions.[10] In contrast, there are plenty of statistically rigorous studies that find little effect of RTW on manufacturing or overall employment growth (Stevans 2009;[11] Eren and Ozbeklik 2015;[12] Lafer and Allegretto 2011;[13] Belman, Block, and Roberts 2009;[14] Hicks 2012[15]).

The policy question at hand concerns precisely what RTW status does to similar workers. For example, do autoworkers in, say, Alabama earn lower wages than autoworkers in, say, Ohio in part because of RTW status? Still, we explore what happens to our wage equation when we remove industry controls, and we actually see the wage differential increase, albeit slightly (see the third model in Table 3).

Beyond industries, Sherk (2015) also suggests that unemployment rates and full-time status are two channels through which RTW can boost wages. But again, the empirical evidence finds that neither one changes our results. The removal of the unemployment rate control variable (the fourth model in Table 3) leaves the wage differential unchanged. When

we remove full-time status, we do find that the wage differential moves closer to zero but remains statistically significant at -2.7 percent. Of the three mediums through which Sherk claims RTW can boost wages, we found that only one of them (full-time status) moved the wage differential closer to zero, but even this reduction was minimal, with the differential remaining economically and statistically significant.

Sherk also removes union status in his preferred model because it eliminates a likely channel through which RTW laws reduce wages. This would actually suggest that by including the union status variable, our regression results understate any wage penalty associated with RTW laws.[16] But again, the policy question is the effect of RTW status on similar workers. A key question is precisely whether working in a RTW state lowers the wages of even similar nonunion workers when compared with other states. We do in fact see that when we remove union status controls, the wage differential increases to 4.0 percent.

Standard practice in empirical labor economics when modeling the determinants of wages is to account for a full complement of factors that affect wages outside of the policy measure of interest (RTW status). Sherk's (2015) arguments for the removal of several labor market control variables because those variables either directly or indirectly affect wages miss the point of this type of wage regression model: to control for things that affect wages. Clearly the unemployment rate where one lives, the industry one works in, whether one is full-time or part-time, and union status may all affect one's wages and therefore should be included in the model. The goal of the analysis is to isolate the effect of RTW legislation, and removing labor market controls confounds these effects.

In his full model, Sherk (2015) also *adds in* several other variables without much justification. And these additions are quite idiosyncratic. For instance, he adds in *15* variables for educational attainment, including *seven* different ones for workers without a high school degree or GED (a group that is less than 10 percent of the workforce). He also employs specific variables such as "married man," "parent with a child at home," and "single parent," after already controlling for sex and marital status. His justification for the addition—or, alternatively, removal—of variables appears weak, at best.

Sherk also adds his own set of controls for state-level amenities. In theory, workers would be willing to accept a lower wage if they are able to enjoy more amenities (e.g., preferential weather, proximity to schools and shops, etc.). Winters (2009) worked with city-level data and was therefore able to use measures of amenities that were specific to the local level and could plausibly affect the value of one wage versus another between cities. It is difficult to conceive of appropriate measures for amenities that are uniform at the state level while not also oversimplifying preferences of workers and their families. Sherk's choices of amenity control variables—whether or not a state borders an ocean (Los Angeles, California, does, for example, but Bakersfield, California, does not) and the average temperatures and precipitation by season—are fraught with those problems.

Since our results are very robust to model specification, only the accumulated weight of nonstandard model specification by Sherk resulted in an insignificant relationship between RTW status and workers' wages. In the end, between the removal of relevant and standard labor market controls and the inclusion of nonstandard and irrelevant worker characteristics and state-level amenities, the regression specification that Sherk (2015) constructs to find no RTW wage differential looks deeply data-mined. In other words, his idiosyncratic choices may simply be the result of extensive searching for the model that produces the result he wants. On the other hand, our specification adheres to the industry

standard for empirical labor economics and should clearly be preferred over his. And our results hold after reasonable robustness tests.

Conclusion

This paper updates and confirms the findings of Gould and Shierholz (2011). No matter how you slice the data, wages in RTW states are lower, on average, than wages in non-RTW states.

As shown in great detail in Gould and Shierholz (2011), these results do not just apply to union members, but to all employees in a state. Where unions are strong, compensation increases even for workers not covered by any union contract, as nonunion employers face competitive pressure to match union standards. Likewise, when unions are weakened by RTW laws, all of a state's workers feel the impact.

About the authors

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APPENDIX TABLE A1

Full log wage regression results from Table 2 regressions

	(I)	(II)	(III)	(IV)
Variables	**Model with no controls**	**Model adds demographic and individual-level labor market controls**	**Model adds state-level labor market controls and cost-of-living measures**	**Final model, updates cost-of-living indicator**
RTW indicator	-0.136***	-0.0936***	-0.0329***	-0.0318***
	(0.00271)	(0.00194)	(0.00223)	(0.00216)
Union indicator		0.129***	0.118***	0.117***
		(0.00273)	(0.00271)	(0.00271)
White		0.0849***	0.0932***	0.0931***
		(0.00315)	(0.00314)	(0.00314)
Hispanic		-0.0194***	-0.0514***	-0.0504***
		(0.00375)	(0.00377)	(0.00377)
Asian		0.0584***	0.0222***	0.0261***
		(0.00550)	(0.00551)	(0.00550)
Other race/ ethnicity		0.0496***	0.0463***	0.0480***
		(0.00696)	(0.00693)	(0.00692)
Male		0.141***	0.140***	0.140***
		(0.00215)	(0.00213)	(0.00213)
Some high school		-0.119***	-0.120***	-0.119***
		(0.00336)	(0.00335)	(0.00336)
Some college		0.0692***	0.0668***	0.0678***
		(0.00251)	(0.00249)	(0.00249)
Associate degree		0.151***	0.149***	0.150***
		(0.00321)	(0.00320)	(0.00320)
College degree		0.264***	0.259***	0.261***
		(0.00316)	(0.00313)	(0.00314)
Advanced degree		0.461***	0.455***	0.457***
		(0.00442)	(0.00438)	(0.00438)
Age		0.0344***	0.0342***	0.0343***
		(0.000563)	(0.000560)	(0.000560)
Age squared		-0.000332***	-0.000333***	-0.000334***
		(6.77e-06)	(6.72e-06)	(6.73e-06)
Married		0.0900***	0.0971***	0.0970***
		(0.00253)	(0.00251)	(0.00251)
Divorced or widowed		0.0366***	0.0456***	0.0453***
		(0.00352)	(0.00349)	(0.00349)
Separated		0.00750	0.00865	0.00747
		(0.00582)	(0.00577)	(0.00578)
Hourly worker		-0.178***	-0.171***	-0.170***

APPENDIX TABLE A1 (CONTINUED)

	(I)	(II)	(III)	(IV)
Variables	**Model with no controls**	**Model adds demographic and individual-level labor market controls**	**Model adds state-level labor market controls and cost-of-living measures**	**Final model, updates cost-of-living indicator**
		(0.00247)	(0.00246)	(0.00246)
Full-time worker		0.148***	0.151***	0.150***
		(0.00270)	(0.00269)	(0.00269)
Metro area		0.124***	0.0944***	0.0957***
		(0.00230)	(0.00236)	(0.00234)
State unemployment rate			-0.00325***	0.000247
			(0.000536)	(0.000536)
Cost-of-living (PERI)			0.606***	
			(0.0177)	
Cost-of-living (MERIC)			0.000772***	
			(0.000115)	
Cost-of-living (BEA RPPI)				0.771***
				(0.0132)
Industry and occupation indicators	No	Yes	Yes	Yes
Constant	2.964***	1.559***	0.906***	-1.990***
	(0.00249)	(0.0118)	(0.0163)	(0.0614)
Observations	304,157	304,157	304,157	304,157
R-squared	0.011	0.527	0.535	0.534

Note: Robust standard errors in parentheses. Three asterisks (***) indicate significance at the 1 percent level, two indicate significance at the 5 percent level, one indicates significance at the 10 percent level.

All models include year indicators.

Source: EPI analysis of Current Population Survey Outgoing Rotation Group microdata, Political Economy Research Institute (PERI) data, Missouri Economic Research and Information Center (MERIC) data, and Bureau of Economic Analysis Regional Price Parities

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APPENDIX TABLE A2

Full log wage regression results from Table 3 regressions

	(I)	(II)	(III)	(IV)	(V)	(VI)
Variables	**Two-stage least squares (second-stage results)**	**Less occupations**	**Less industries**	**Less unemployment rate**	**Less full-time status**	**Less union**
RTW indicator	-0.0315***	-0.0308***	-0.0322***	-0.0319***	-0.0271***	-0.0407***
	(0.00216)	(0.00222)	(0.00222)	(0.00215)	(0.00217)	(0.00215)
Union indicator	0.117***	0.101***	0.133***	0.117***	0.127***	
	(0.00271)	(0.00275)	(0.00273)	(0.00271)	(0.00272)	
White	0.0931***	0.115***	0.0882***	0.0930***	0.0884***	0.0907***
	(0.00314)	(0.00322)	(0.00321)	(0.00313)	(0.00318)	(0.00316)
Hispanic	-0.0506***	-0.0489***	-0.0580***	-0.0504***	-0.0489***	-0.0549***
	(0.00377)	(0.00388)	(0.00384)	(0.00377)	(0.00381)	(0.00380)
Asian	0.0259***	0.0339***	0.0191***	0.0261***	0.0252***	0.0184***
	(0.00550)	(0.00571)	(0.00564)	(0.00550)	(0.00553)	(0.00552)
Other race/ ethnicity	0.0480***	0.0647***	0.0420***	0.0479***	0.0445***	0.0449***
	(0.00692)	(0.00712)	(0.00714)	(0.00691)	(0.00700)	(0.00694)
Male	0.140***	0.133***	0.166***	0.141***	0.155***	0.141***
	(0.00213)	(0.00207)	(0.00210)	(0.00213)	(0.00214)	(0.00214)
Some high school	-0.119***	-0.143***	-0.130***	-0.119***	-0.125***	-0.123***
	(0.00336)	(0.00343)	(0.00338)	(0.00336)	(0.00338)	(0.00340)
Some college	0.0678***	0.0961***	0.0752***	0.0678***	0.0596***	0.0688***
	(0.00249)	(0.00254)	(0.00256)	(0.00249)	(0.00252)	(0.00252)
Associate degree	0.150***	0.202***	0.158***	0.150***	0.148***	0.150***
	(0.00320)	(0.00329)	(0.00327)	(0.00320)	(0.00323)	(0.00322)
College degree	0.261***	0.364***	0.277***	0.261***	0.259***	0.262***
	(0.00314)	(0.00307)	(0.00321)	(0.00314)	(0.00317)	(0.00315)
Advanced degree	0.457***	0.595***	0.457***	0.457***	0.453***	0.463***
	(0.00438)	(0.00423)	(0.00446)	(0.00438)	(0.00441)	(0.00437)
Age	0.0343***	0.0352***	0.0382***	0.0343***	0.0396***	0.0349***
	(0.000560)	(0.000577)	(0.000572)	(0.000560)	(0.000555)	(0.000562)
Age squared	-0.000334***	-0.000344***	-0.000375***	-0.000334***	-0.000395***	-0.000339***
	(6.73e-06)	(6.94e-06)	(6.87e-06)	(6.73e-06)	(6.69e-06)	(6.76e-06)
Married	0.0971***	0.107***	0.107***	0.0970***	0.0974***	0.0982***
	(0.00251)	(0.00259)	(0.00258)	(0.00251)	(0.00254)	(0.00252)
Divorced or widowed	0.0453***	0.0494***	0.0546***	0.0453***	0.0503***	0.0461***
	(0.00349)	(0.00361)	(0.00358)	(0.00349)	(0.00353)	(0.00351)
Separated	0.00747	0.00465	0.0121**	0.00747	0.0103*	0.00737
	(0.00578)	(0.00600)	(0.00592)	(0.00578)	(0.00585)	(0.00584)
Hourly worker	-0.170***	-0.220***	-0.180***	-0.170***	-0.191***	-0.167***

APPENDIX TABLE A2 (CONTINUED)

	(I)	(II)	(III)	(IV)	(V)	(VI)
Variables	**Two-stage least squares (second-stage results)**	**Less occupations**	**Less industries**	**Less unemployment rate**	**Less full-time status**	**Less union**
	(0.00246)	(0.00246)	(0.00250)	(0.00246)	(0.00243)	(0.00248)
Full-time worker	0.150***	0.171***	0.185***	0.150***		0.157***
	(0.00269)	(0.00275)	(0.00271)	(0.00269)		(0.00270)
Metro area	0.0955***	0.103***	0.0932***	0.0958***	0.0950***	0.0965***
	(0.00235)	(0.00240)	(0.00240)	(0.00233)	(0.00236)	(0.00236)
State unemployment rate	0.000213	0.000508	-0.00125**		0.00001	0.000429
	(0.000536)	(0.000552)	(0.000548)		(0.000540)	(0.000538)
Cost-of-living (BEA RPP)	0.775***	0.796***	0.779***	0.772***	0.763***	0.808***
	(0.0132)	(0.0136)	(0.0135)	(0.0130)	(0.0133)	(0.0132)
Constant	-2.011***	-2.131***	-2.036***	-1.991***	-1.932***	-2.173***
	(0.0616)	(0.0630)	(0.0628)	(0.0612)	(0.0619)	(0.0615)
Observations	304157	304157	304157	304157	304157	304157
R-squared	0.534	0.507	0.510	0.534	0.527	0.531

Note: Robust standard errors in parentheses. Three asterisks (***) indicate significance at the 1 percent level, two indicate significance at the 5 percent level, one indicates significance at the 10 percent level.

Unless otherwise indicated, the regression models include variables in Model IV from Appendix Table A1.

Source: EPI analysis of Current Population Survey Outgoing Rotation Group microdata, Political Economy Research Institute (PERI) data, Missouri Economic Research and Information Center (MERIC) data, and Bureau of Economic Analysis Regional Price Parities

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Endnotes

1. RTW states include Alabama, Arizona, Arkansas, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Louisiana, Michigan, Mississippi, Nebraska, Nevada, North Carolina, North Dakota, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Wisconsin, and Wyoming.

2. Although Indiana's RTW legislation took effect in March 2012, we include Indiana as a non-RTW state in our analysis. Any economic changes due to RTW status would likely operate with a lag. We did run sensitivity analysis on this decision by re-running our regressions without Indiana, and found that the wage differential was essentially unchanged.

3. We exclude all observations for which earnings are allocated. Information is "allocated," or "imputed," to a respondent in the CPS when they either refuse to report their earnings or a proxy respondent is unable to report earnings. The method of imputing earnings to workers for whom earnings are not reported does not take account of their union status, thus reducing the estimates of the union wage premium and potentially biasing the relationship between RTW and wages.

4. For the purpose of this analysis, which contains pooled data from 2010 to 2012, three states (Indiana, Michigan, and Wisconsin) that have recently enacted RTW legislation are considered non-RTW.

5. All wages are adjusted to 2014 dollars using the CPI-U-RS.

6. Interpreting the results from these semilogarithmic functions requires utilizing the exponential function on the coefficient. Specific to the binary variable coefficient (β_1) for RTW, the percent change in workers' wages resulting from a state being RTW can be calculated by the formula: $100*[\exp(\beta_1)-1]$. Typically, the result of this equation will be very close to the coefficient itself, but will differ more as the coefficient becomes larger.

7. See Gould and Shierholz (2011) for a more extensive discussion of these cost-of-living measures.

8. Sherk (2015) also includes an indicator for whether a state borders the ocean, but since there is little justification for its inclusion, we do not include it. Additional discussion of state-level amenities follows.

9. We examined the relationship between the share of manufacturing jobs and RTW status in a simplified regression model with only demographic controls. The result was not consistent with Sherk's (2015) proposition. Results are available upon request.

10. In the very industry that Sherk raises as his hypothetical—the auto industry—the effect of RTW status on site location decisions is ambiguous at best. In fact, the North American vice president for site location for Toyota reported that RTW had no effect one way or the other on Toyota's choice to build a plant in Mississippi and another in Texas (Sloan 2011). Furthermore, in the first year after adopting RTW, the state of Indiana was not able to identify a single company that stated it had moved to Indiana because of RTW and would not have done so without the law (Lafer, Wolfson, and Guyott 2012).

11. A 2009 study conducted by Hofstra University economics professor Lonnie Stevans controlled for a broad array of economic and business climate variables, and concluded that RTW is associated with lower wages and higher proprietors' income but has "no influence on employment" and "no effect on economic growth."

12. An econometric study conducted by a pair of economics faculty at Louisiana State University and the Claremont McKenna Colleges and slated for publication in 2015 examined the impact of Oklahoma's adoption of RTW, concluding that the law resulted in a decrease in unionization but no significant impact on employment either overall or specifically in the manufacturing sector.

13. In 2011, an economist at the University of California at Berkeley, together with a political scientist at the University of Oregon, examined Oklahoma's experience after adopting RTW in 2001. Conducting multiple forms of regression analysis, the authors found that RTW had no impact whatsoever on overall job growth, manufacturing job growth, or the state's unemployment rate.

14. A 2009 analysis by a team of faculty at Michigan State University's School of Labor and Industrial Relations likewise found that after controlling for the impact of other state economic policies and industrial dynamics, "right to work laws … seem to have no effect on economic activity."

15. A 2012 study by the director of the Center for Business and Economic Research at Ball State University in Indiana concluded that RTW had no discernible effect on manufacturing employment.

16. Sherk (2015) is correct here that excluding the union indicator would increase the wage differential between RTW and non-RTW states, but we argue that it should still be included for all the reasons already mentioned.

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