Did "Right-to-Work" Work for Idaho?

Emin M. Dinlersoz and Rubén Hernández-Murillo

RIGHT-TO-WORK LAWS AND ECONOMIC ACTIVITY

The right-to-work (RTW) law ensures that workers are not forced to join unions or pay union dues as a condition of employment.[1] Despite many years of research, the impact of these laws on a state's economic performance is still a controversial issue. Using a diverse set of data and methods, a sizeable body of literature has concentrated on understanding whether the passage of RTW laws matters.[2] RTW laws continue to be an important issue on states' agendas and a source of fierce campaigning by pro- and anti-union groups. For instance, in September 2001, Oklahoma adopted the RTW law after a lengthy period of campaigns for and against it.

States with RTW laws usually offer additional policies as part of a pro-business profile designed to attract new firms and boost industrial development. This is the view taken by Holmes (1998), who uses the RTW law as a proxy for the state's business-friendly climate. He studies the effects of pro-business policies on economic activity by examining the performance of manufacturing industries across state borders where one state has a RTW law and the other does not. His analysis identifies a large, positive impact of an overall favorable business climate, but the effects cannot be traced to any particular state legislation, such as a RTW law.

Many states passed RTW laws in the mid-1940s to early 1950s. Since then, except for the 2001 adoption by Oklahoma, only two other states adopted them: Louisiana in 1976 and Idaho in 1986. Indiana adopted the law in 1957, but repealed it in 1965. It is natural to think that economic conditions today are quite different from those that prevailed during the earlier period when many states passed the law en masse. An important question then is whether the late adopters of this law have experienced any real benefits.

Idaho's Case

In this paper, we reassess the economic impact of the RTW law by focusing on Idaho's experience.[3] Idaho adopted their RTW law in 1986, at a time when the decline in unionization in the U.S. had substantially run its course.[4] Was the passage of the law merely a gesture that simply reflected a trend of decline in unionization, or did it have a significant influence in making Idaho a more attractive location for business in the years following the adoption? Our goal is to provide some evidence on how Idaho's unionization rate and industrial performance evolved over time, both before and after the passage of the RTW law, thereby contributing to the literature on the effect of business-friendly policies on states' industrial performance.

One important aspect of Idaho's experience is that the passage of the law itself was a long and controversial process that took nearly two years. The critical events related to the legislation process are summarized in Abraham and Voos (2000). The original bill was introduced to Idaho's House in January 1985, and the law was eventually passed in November 1986, after a lengthy political and bureaucratic process involving several confrontations between pro-law and anti-law groups, as well as a veto and several delays. The law finally took effect in 1987.

A detailed investigation of other business policies adopted in Idaho around 1987 reveals that there were no other major changes in Idaho's business

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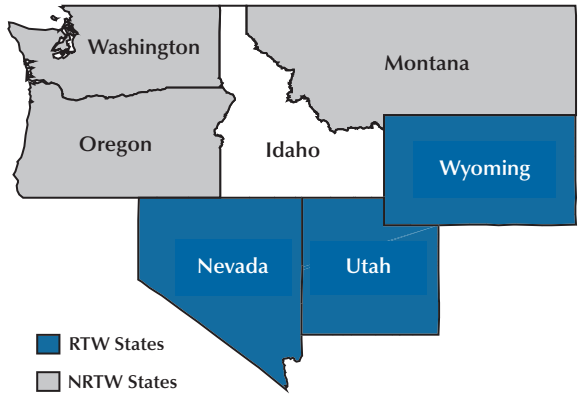
[1] Section 14(b) of the Taft-Hartley Act, passed in 1947 by Congress, reaffirms states' rights to pass RTW laws. These laws may or may not apply to federal workers, depending on the specifics.

[2] See Moore and Newman (1985) and Moore (1998) for a comprehensive review of this literature.

[3] Louisiana is also a candidate for such a study. However, the unavailability of long time series data before Louisiana's adoption year (1976) prevents the investigation of this case in detail.

[4] Goldfield (1987) reports that between 1954 and 1978 the union membership rate in the United States declined from 34.7 percent to 23.6 percent. See Goldfield (1987) for a comprehensive analysis of the declining unionization in the United States. According to Hirsch, Macpherson, and Vroman (2001), the union membership rate declined from 29.3 percent in 1964 to 24.1 percent in 1977, and then to 13.6 percent in 2000.

Figure 1



climate regarding incentives for new investments or firm relocation.[5]

Idaho offers an interesting case study not only because it is a late adopter, but also because three of its six neighboring states have had the RTW law for a long time and three have traditionally been non-right-to-work (NRTW) law states.[6] Figure 1 shows Idaho and its neighbors, which provide potential controls against which to judge Idaho's performance. Clearly, these states are imperfect controls. However, among all other states, Idaho's neighbors seem to be a natural choice for comparison for the reason, if nothing else, that we can control for common region-specific factors that do not vary over time. Responses to nationwide economic fluctuations vary substantially across regions. Focusing on a particular region minimizes this problem. In analyzing the evolution of unionization rates, we also consider the experience of states with an industry mix that was similar to that of Idaho to account for differences arising from the composition of industrial activity.

Our empirical analysis has two main parts. First, we look at the evolution of the unionization rate before and after the law. We find that there was a large decline in unionization between 1981 and 1984, the year before the bill was introduced to the legislature. The unionization rate then rebounded somewhat until 1987, the year the law officially took effect, but continued to decline persistently thereafter. Idaho's unionization rate gradually became very similar to the average unionization rate of other RTW states with a similar industrial mix. When we compare Idaho's unionization rate also to that of its geographic neighbors, we find that, particularly in the manufacturing sector, Idaho's unionization rate exhibits a significantly faster decline.

Second, we investigate the manufacturing sector's performance pre- and post-law. We observe that in the post-law period, Idaho experienced a significant and persistent annual growth in manufacturing employment and in the number of establishments, as opposed to virtually zero growth in both of these variables in the pre-law period. The difference between the pre-law and post-law growth rates in Idaho was significantly larger compared with other states in the region. In addition, we find that the fraction of total manufacturing employment in large manufacturing establishments increased significantly in Idaho after the law was passed. The average size of large manufacturing establishments also grew substantially in the post-law period.[7] Our observations are consistent with the hypothesis that Idaho became more attractive for large plants because of declining unionization.

Overall, our findings indicate that the increase in Idaho's industrial growth rate is strongly related to the decline in unionization. While we are tempted to associate the patterns observed with the passage of the law itself, the timing of the decline in the unionization rate prevents such a definitive conclusion. The large decline in unionization started about four years prior to the almost two-year-long bureaucratic process that eventually led to the passage of the law. This prompts us to consider the hypothesis that the passage of the law might actually have been a consequence of the decline in unionization and growing anti-unionism in Idaho, rather than a cause. Consequently, while the declining unionization appears to be responsible for the strong post-law growth trends in Idaho, we cannot fully ascribe the initiation of the trends to the law itself. The *passage* of the law, however, seems to have strengthened and reinforced the trends.

Literature Review

One expects that a first-order effect of the passage of a RTW law would be a reduction in the

[5] We examined, in particular, the *Directory of Incentives for Business Investment and Development in the United States*, published by the National Association of State Development Agencies.

[6] The RTW neighbors, Nevada, Utah, and Wyoming, adopted the law in 1951, 1955, and 1963, respectively. The time period between these years and our first observation year (1975) is long enough to give us some comfort that the potential effects of the RTW law must have already been realized to a large extent in these states.

[7] In general, larger establishments are more likely to be unionized and, therefore, have more incentives to avoid unions. See Long (1993), Galarneau (1996), and Lowe (1998) for evidence on this in Canada.

union membership rate. There are several reasons why this might be the case. As Ellwood and Fine (1987) point out, the most obvious reason is that the passage of the law makes unions less attractive to workers because unions no longer have the ability to enforce payments and fines. These effects depress new union organizing and also deter the replacement of decertified unions. If a state's labor force is growing, then less union organizing means also a reduction in the union membership rate.

Most earlier studies, surveyed by Moore and Newman (1985) and Moore (1998), found a weak relationship between the passage of RTW laws and the level of the union membership rate. However, this does not mean that unionization activity was not influenced by RTW laws. Using 1951-77 data for 50 states on new union organizing activity (a measure of new membership flow into unions, rather than the level of unionization), Ellwood and Fine (1987) presented convincing evidence that the passage of RTW laws led to a decline in new union organizing of about 46 percent for the first five years after the legislation and 30 percent during the next five. This reduction in organizing disappears after a decade. The level of union membership, as a result, declines in most states by about 5 to 10 percent after the 10 years, which may not have been detected by the econometric methods used in the previous studies. Further tests reveal that these findings are robust to time-invariant differences across states. Idaho's experience provides a natural setting to further assess the evolution of the union membership rates before and after the passage of the law. Since we are looking at the same state both before and after, time-invariant state-specific factors should be irrelevant for the pattern of evolution in the union membership rates.

As we mentioned before, an important concern is whether declining union strength is a catalyst for the passage of RTW laws, as opposed to being a result of it. If the passing of RTW laws is a consequence rather than the cause, then the reduction in union organizing should be visible during the immediate years before the passage of the law. Ellwood and Fine (1987) investigated this possibility by analyzing the evolution of new union organizing for seven states prior to the adoption of the law; they detected no reduction in union organizing during that period and concluded that the decline in union organizing is likely to have been caused by the passage of RTW laws.

According to the anecdotal evidence in Kendrick (1996), one possible source of the events that led to the eventual passage of the law was the "Bunker Hill" incident. In 1984, employees of the Bunker Hill mining company in Idaho voted for voluntary pay cuts and other concessions to keep the company from going out of business. The union headquarters in Pittsburgh overruled this vote, resulting in a loss of 1500 jobs. The Bunker Hill incident might have initiated a change in attitude toward unions in Idaho. If this is the case, then a growing anti-unionism in the state might be the reason for the eventual passage of the law.

The rest of our paper is organized as follows. We present evidence in the next section on the evolution of unionization before and after the RTW law was enacted, followed by evidence on the growth in manufacturing.

PATTERNS OF UNIONIZATION IN IDAHO

Unionization Across Industries

We used data from the Census Bureau's Current Population Survey (CPS) to estimate unionization rates. We describe the characteristics of the data and methodology in the appendix. The employment and establishments data for our analysis of manufacturing comes from the Census Bureau's County Business Patterns data set and is also described in the appendix.

We start our analysis by examining the evolution of the unionization rate in Idaho. We compare the trends in Idaho's unionization rate with the average trend in both RTW states and NRTW states that had an industrial mix similar to that of Idaho in the years prior to the passage of the law, 1977-86. For this we construct a measure of dispersion using the employment shares in broadly defined industries.[8] We identi-

[8] We computed the following measure of *distance* ($\bar{\Delta}_k$) to Idaho for each of the 50 states in terms of industrial mix and performed the comparison for the closest "neighbors":

$$\bar{\Delta}_k = \frac{1}{T}\Sigma_{t=1}^{T}\Sigma_{i=1}^{N}(s_k^{it} - s^{it})^2,$$

where s_k^{it} is the employment share in industry i in state k in year t, N is the number of industries, T is the total number of years in the sample period, and s^{it} is the index for Idaho, defined similarly. We used employment data from the following industry classifications: agricultural, mining, construction, manufacturing, transportation, wholesale trade, retail trade, finance insurance and real estate services, and personal services. The distribution of this measure had the following characteristics: the maximum value was 0.143, the mean was 0.019, and the 5th, 25th, 50th, 75th, and 90th percentiles were 0.002, 0.005, 0.014, 0.024, and 0.035. We selected states with a distance of less than 0.005.

Figure 2

Evolution of Unionization in Manufacturing Industries

Idaho vs. RTW States

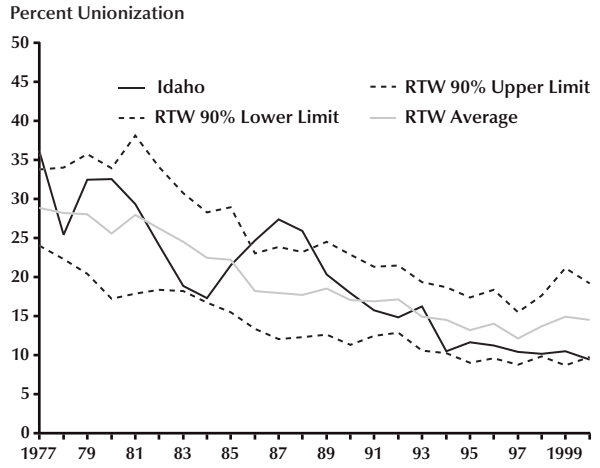
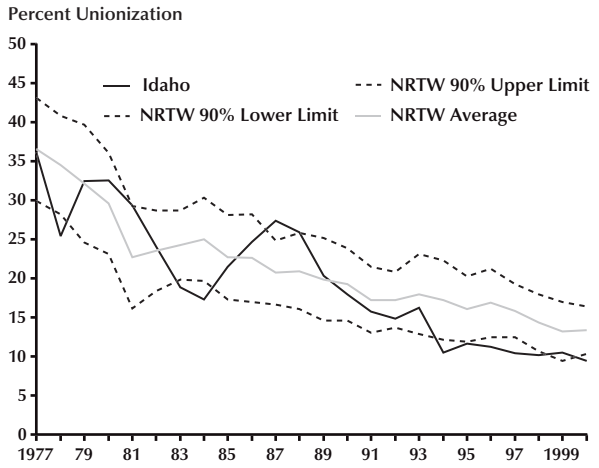


Figure 3

Evolution of Unionization in Manufacturing Industries

Idaho vs. NRTW States



fied 11 such states: 5 RTW states (Kansas, Nebraska, Utah, Virginia, and Iowa) and 6 NRTW states (California, Colorado, Minnesota, Oklahoma, Oregon, and Washington).

So how do the patterns in unionization rates differ across industries? The manufacturing sector, being traditionally highly unionized, behaved quite differently compared with the nonmanufacturing sector. Figures 2 and 3, respectively, compare the unionization rate in manufacturing to the average of RTW and NRTW states. What is most interesting about the trend for Idaho's unionization is the relatively large decline that occurred between 1981 and 1984, prior to the passage of the law, and the pronounced recovery in the 1984-87 period, during which much of the debate about the passage of the law took place. We observe that the manufacturing unionization rate in Idaho gradually converged to the average unionization rate in RTW states. The convergence took place mostly after 1987, and this rate remained within the confidence bands and below the average for RTW states that had similar industrial composition prior to 1987. Figure 3 indicates that the manufacturing unionization rate in Idaho remained within the confidence bands for the average for NRTW states for most of the sample period, but fell below the lower confidence band in 1994 and remained away from the average thereafter.

The patterns observed in Idaho's manufacturing unionization rate do not seem to result from business cycles that affected all other states uniformly. However, since Idaho is a small state, its manufacturing unionization rate may have been subject to fluctuations in the unionization rate of a small number of industries, particularly in the period prior to the passage of the RTW law. Examining Idaho's unionization rates in narrowly defined manufacturing industries, we discovered that fluctuations in the years prior to 1987 were closely related to fluctuations in the food manufacturing industry.

Figure 4 shows the evolution of the overall unionization rate in Idaho versus the average unionization rate in the five states with RTW laws and a similar industrial mix.[9] Idaho's unionization rate was around 17 percent in 1977; by 2000 it was down to about 9 percent, a decline of almost 50 percent. The average rate for RTW states also declined steadily, starting in 1981. Throughout the period of analysis, in 1983, 1984, and then again in 1987, 1989, 1991, 1992, and 1994, Idaho's unionization rate was significantly different from the average RTW state's unionization rate, at the 90 percent confidence level. In the years 1977-81 we observe that Idaho's unionization rate was close to the upper confidence band. In just three years, during the period 1981-84, the

[9] Note that there was no change in other states' RTW law status during 1977-2000. Idaho was the only state that changed status during this period. Louisiana became a RTW state in 1976 and is included with the other RTW states throughout the period. Excluding Louisiana did not change our conclusions.

Figure 4

Evolution of Unionization in All Industries

Idaho vs. RTW States

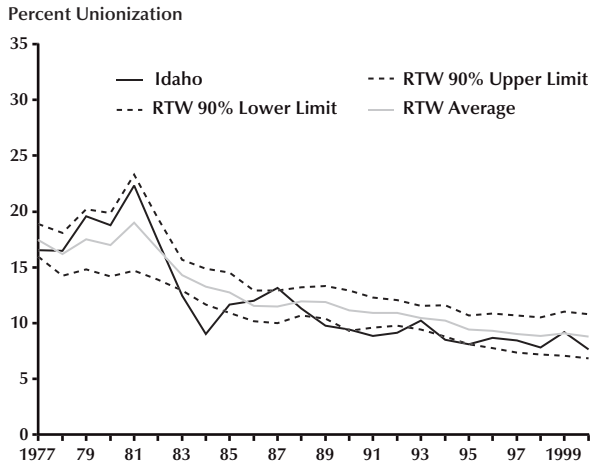
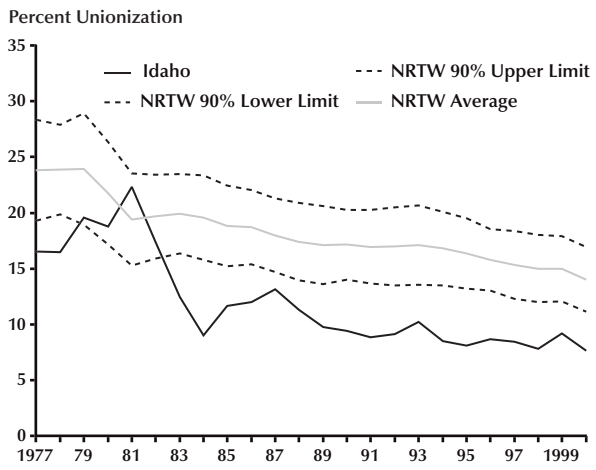


Figure 5

Evolution of Unionization in All Industries

Idaho vs. NRTW States



unionization rate fell from about 22 percent to almost 9 percent, a decline of about 60 percent. The decline observed for the average rate for RTW states was not as pronounced.[10] The pattern between 1984 and 1987 also exhibits a partial recovery in the unionization rate. After the law took effect in 1987, however, we observe a persistent decline in the unionization rate.

In Figure 5, we compare Idaho with the six closest NRTW states. First, note that on average, a NRTW state had a unionization rate of about 24 percent in 1977, compared with 17 percent for RTW states. These figures were about 14 percent and 9 percent, respectively, in 2000. The difference in unionization rates between the two groups of states persisted throughout the sample period. In the years 1979-82, Idaho's unionization rate is not statistically distinguishable from the average unionization rate in NRTW states. In the years following the 1981-84 decline, however, we can reject the equality of the two rates. Idaho's unionization rate hit the lower confidence bound for the NRTW states' average around 1982 and consistently remained below that bound for the rest of the analysis period. From the patterns observed in Figures 4 and 5, Idaho's unionization rate very early diverged from the NRTW states' average unionization rate and approached the RTW states' average. As shown in Figures 6 and 7, this behavior was largely due to the behavior observed in the nonmanufacturing sector. In both figures, the dip during the 1981-84 period is visible and highly pronounced, and even as early as 1982 the unionization rate in nonmanufacturing industries had converged to the average unionization rate in RTW states and was statistically below the NRTW states' average. It is therefore likely that the quick convergence in Idaho's overall unionization rate was unrelated to the passage of the RTW.[11]

Idaho's Neighbors

To investigate the trends in the unionization rate further, we concentrate on Idaho's geographic neighbors and run a simple state-by-state regression of the form

[10] As explained in the appendix, prior to 1983, unionization rates were calculated based on samples that are roughly one-third of the samples that are used after 1983. The estimated unionization rates are less precise for the period before 1983 due to sample variability, especially for smaller states, and in particular for 1981, when the sample sizes were roughly one-third of the samples in 1977-80. Estimates of overall and nonmanufacturing unionization rates were less sensitive to sampling problems than those for the manufacturing sector. Still, when we discount 1981 and 1982, the decline observed in the manufacturing unionization rate from 1980 to 1983 is reliably estimated.

[11] As previously footnoted, the estimates of overall and nonmanufacturing unionization rates during the period 1977-86 were not likely to be seriously affected by the small sample sizes used by the CPS before 1983, even accounting for 1981, as the sample sizes used in the estimation exceeded the thresholds described in the appendix for reliability of the estimates. We are, however, silent on the driving factors of unionization in Idaho's nonmanufacturing industries, as the focus of our analysis is the manufacturing sector. We did verify, however, that the 1981-84 decline was not due to closures of large unionized firms.

Figure 6

Evolution of Unionization in Nonmanufacturing Industries
Idaho vs. RTW States

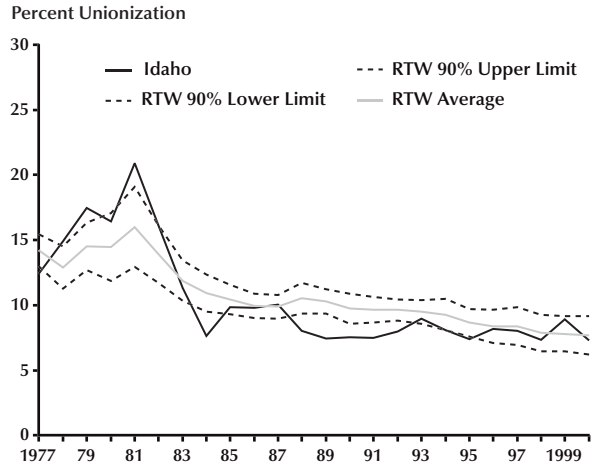


Figure 7

Evolution of Unionization in Nonmanufacturing Industries
Idaho vs. NRTW States

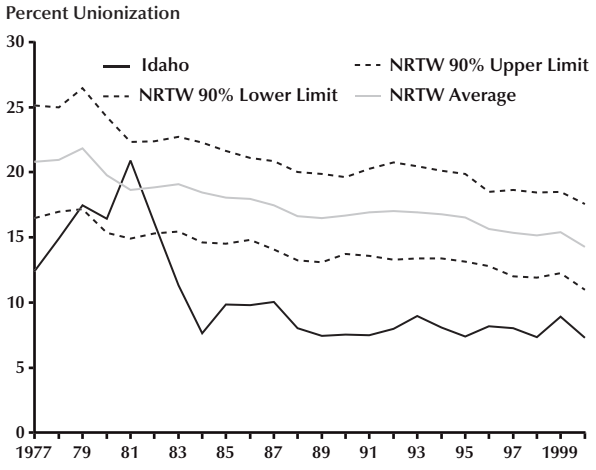


Table 1

Change in Unionization Rate by State and Industry

	Overall			Manufacturing			Nonmanufacturing		
	1977-86	1987-2000	F (Prob)	1977-86	1987-2000	F (Prob)	1977-85	1987-2000	F (Prob)
U.S.	**–3.7** [–0.3]	**–1.8** [0.06]	27.37*** (0.00)	**–4.7** [0.3]	**–3.3** [0.06]	15.54*** (0.00)	**–2.8** [0.3]	**–1.2** [0.08]	17.97*** (0.00)
Idaho	**–6.4** [1.8]	**–2.8** [0.7]	3.2* (0.08)	**–5.8** [2.0]	**–8.0** [0.8]	1.06 (0.31)	–6.3 [2.5]	–0.5 [0.7]	4.75** (0.04)
Washington	**–3.0** [0.7]	**–1.7** [0.3]	2.98* (0.09)	**–4.1** [0.9]	**–2.5** [0.3]	2.73 (0.11)	**–2.4** [0.7]	**–1.2** [0.3]	2.25 (0.14)
Oregon	**–3.6** [1.0]	**–2.1** [0.4]	1.71 (0.20)	**–7.6** [0.7]	**–5.7** [0.7]	3.14* (0.09)	–1.6 [1.1]	**–1.3** [0.4]	0.06 (0.81)
Montana	**–4.2** [0.7]	**–2.1** [0.4]	6.48*** (0.01)	–3.0 [2.7]	**–5.3** [0.9]	0.65 (0.43)	**–4.4** [0.6]	**–1.8** [0.3]	11.36*** (0.00)
Nevada (RTW)	**–3.1** [0.9]	0.2 [0.4]	10.34*** (0.00)	–9.2 [3.9]	–0.5 [2.5]	3.46* (0.07)	**–2.9** [0.8]	0.2 [0.4]	10.22*** (0.00)
Utah (RTW)	**–5.5** [1.4]	**–3.7** [0.6]	1.26 (0.27)	**–9.6** [1.7]	–2.6 [1.2]	11.49*** (0.00)	**–4.7** [1.4]	**–4.0** [0.7]	0.17 (0.68)
Wyoming (RTW)	–3.5 [1.5]	**–3.8** [0.2]	0.02 (0.88)	0.2 [2.1]	2.8 [3.3]	0.45 (0.51)	–3.7 [1.6]	**–4.0** [0.2]	0.04 (0.83)

NOTE: Heteroskedasticity-autocorrelation consistent standard errors are in brackets. Figures in bold indicate significance at 1 percent. ``F'' gives the F statistic for the test of equality of coefficients across two time periods. Probability values for the F statistic are in parentheses. *, **, and *** indicate significance of the F statistic at the 10, 5, and 1 percent levels, respectively.

$$(1)\quad \log u_t = \alpha_{PRE} + \beta_{PRE} D(t-t_0) + \Delta\alpha_{POST}(1-D) + \beta_{POST}(1-D)(t-t_0) + \varepsilon_t,$$

where $t_0 = 1977$, $t = 1977,\ldots,2000$, and D is a dummy variable that takes on a value of 1 if $t < 1987$ and 0 otherwise. In this projection, α_{PRE} is the intercept term for the pre-law period, β_{PRE} is the pre-law slope coefficient, $\Delta\alpha_{POST}$ is the post-law increment in the intercept, and β_{POST} is the post-law slope coefficient. The estimated values of β_{PRE} and β_{POST} are multiplied by 100 and are presented in Table 1. With the log specification, the figures in the table can be interpreted as the annual percent rate of change in unionization. We also present the test results for the equality of the growth rates across the two periods $\beta_{PRE} = \beta_{POST}$.

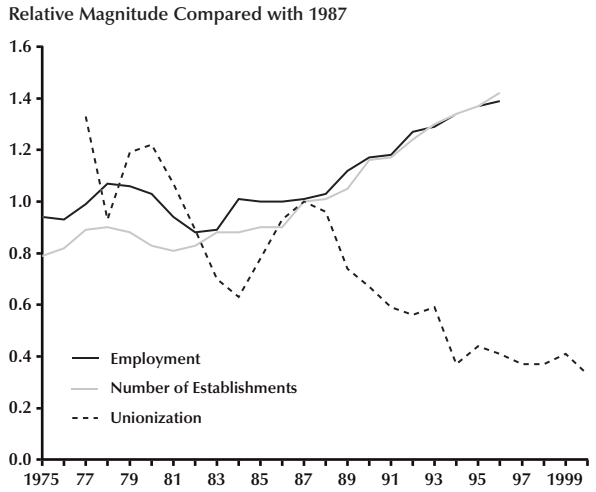
We observe a persistent decline in unionization rates. When all industries are considered, columns 1 and 2 reveal that, in general, the magnitude of the decline was higher in the 1977-86 period in all states in the region and in the United States, except for Wyoming. In Idaho, the rate of decline in overall unionization slowed down from 6.4 percent in the pre-law period to 2.8 percent in the post-law period. The difference between these two rates, however, is statistically significant only at the 10 percent level. Note also that, in both periods, Idaho's rates of decline were higher than the U.S. rates and most of those for its neighboring states.

When manufacturing is considered separately, columns 4 and 5 provide a different view. In fact, the decline in Idaho's manufacturing unionization rate accelerated somewhat in the post-law period, surpassing both the U.S. and its neighboring states, which, for the most part, exhibited a slowdown in the rate of decline. The difference between Idaho's unionization rates in manufacturing pre-law and post-law is not statistically significant because of the relatively high standard deviation for the pre-law period. Overall, the slowdown in the rate of decline of unionization did not apply to Idaho's manufacturing and was primarily driven by nonmanufacturing industries, as can be seen in the last two columns.

The findings in this section suggest that Idaho's unionization rate declined substantially over the sample period, approaching the average unionization rate in RTW states. While the decline in the unionization rate, especially in manufacturing, is persistent after 1987, a substantial part of the decline appears to have happened before 1987. The pattern between 1984 and 1987, during which much of the debate about the passage of the law took place, exhibits a partial recovery in the unionization rate. After the law took effect in 1987, we observe a continuing decline in the unionization rate, especially in manufacturing. Particularly during the period prior to 1987, large fluctuations in Idaho's unionization rate in manufacturing seem to be related to the behavior of individual industries.

Figure 8

Evolution of Key Indicators in Idaho's Manufacturing Industry



MANUFACTURING

We now turn to the industrial organization consequences of declining unionization in Idaho. We focus on two main indicators. First, we look at the growth in employment and the number of establishments in manufacturing industries and compare Idaho with its neighbors, in both the pre- and post-law periods. If the passage of the law has had an important positive effect on manufacturing growth, then we expect to observe an acceleration in the growth rate of employment and the number of establishments in Idaho. Second, we look at the changes in the importance of large establishments in manufacturing in Idaho, again, for both periods. As Holmes (1998) argues, large manufacturing establishments are more likely to be attracted to RTW states because larger plants are more likely to be unionized. This argument suggests that we might expect an influx of new large establishments into Idaho or an expansion of existing establishments.

Employment Growth

Figure 8 is a preliminary look at the evolution of the three key variables in Idaho's manufacturing,

Table 2

Manufacturing Growth Rates in Idaho and Its Neighbors (Simple Time Averages, Percent Annual Growth)

	Employment		No. of establishments		Average establishment size	
	1975-86	1987-96	1975-86	1987-96	1975-86	1987-96
Idaho	0.76	3.71	1.27	3.99	–0.39	–0.21
	[6.38]	[2.56]	[4.20]	[3.16]	[6.73]	[3.17]
	(1.36*)		(1.98**)		(0.08)	
Washington	1.57	2.18	2.86	1.96	–1.04	0.29
	[5.34]	[6.23]	[4.16]	[2.44]	[7.48]	[6.94]
	(0.25)		(–0.59)		(0.43)	
Oregon	1.18	1.67	2.32	1.19	–0.98	0.55
	[6.86]	[2.64]	[4.23]	[2.52]	[7.54]	[4.30]
	(0.21)		(–0.74)		(0.57)	
Montana	–0.33	1.35	1.94	2.09	–2.10	–0.51
	[6.80]	[3.47]	[5.43]	[4.34]	[6.79]	[6.33]
	(0.71)		(0.07)		(0.56)	
Nevada (RTW)	6.15	4.84	5.46	6.01	0.96	–1.00
	[9.22]	[5.02]	[6.52]	[3.43]	[10.42]	[5.64]
	(–0.40)		(0.24)		(–0.53)	
Utah (RTW)	3.51	3.26	3.01	3.57	0.58	–0.17
	[4.52]	[2.64]	[2.93]	[3.55]	[5.69]	[4.96]
	(–0.15)		(0.41)		(–0.32)	
Wyoming (RTW)	–1.42	3.32	2.19	2.69	–0.53	0.87
	[9.66]	[3.39]	[6.50]	[4.16]	[9.63]	[7.26]
	(0.59)		(0.21)		(0.38)	

NOTE: Standard deviations in brackets. Figures in parentheses are the t statistics associated with the difference of the variable's average across two periods of analysis. * and ** indicate significance at the 10 and 5 percent levels, respectively, for a one-sided test; t statistics are based on unpaired comparisons with unequal variances.

where we have normalized each variable by its 1987 value. Before 1987, there is considerable fluctuation in both employment and the number of establishments, with no visible growth trend. Unionization exhibits a decline, but is also subject to wide fluctuations, as discussed before. The pattern after 1987 is remarkably stable for all three series. Employment and the number of establishments grew steadily in that period by about 40 percent compared with their 1987 level, and unionization declined by more than 60 percent.

Table 2 shows the simple average annual growth rates in employment, number of establishments, and average establishment size in manufacturing for Idaho and its neighbors. Consider employment and the number of establishments first. From 1975 to 1986, Idaho's manufacturing employment grew at a rate of 0.76 percent annually on average. The average growth rate in the number of establishments was around 1.27 percent per year. However, there is a large standard deviation associated with both of these figures, a reflection of the fluctuating manufacturing growth in the state in that period, as depicted in Figure 8. Idaho's NRTW neighbors did not fare much better. Washington and Oregon appear to have experienced higher growth rates, but the standard deviations are so high that the differences with respect to Idaho are not statistically significant. Idaho's RTW neighbors appear to have fared much better in this period, except for Wyoming. Overall, it seems that the period before the law was a period of weak growth, especially for NRTW states.

This pattern changes dramatically in the post-law period. Idaho's growth rates were much higher compared with those in the pre-law period. Furthermore, the difference between the two periods' growth

Table 3

Manufacturing Growth Rates: Results from State-by-State Regressions

	Employment			No. of establishments		
	1977-86	1987-2000	F (Prob)	1977-85	1987-2000	F (Prob)
Idaho	–0.03	**3.7**	**58.97**	0.6	**4.1**	**82.71**
	[0.4]	[0.2]	(0.00)	[0.3]	[0.2]	(0.00)
Washington	1.1	0.4	0.48	**2.4**	**2.1**	0.93
	[0.5]	[0.8]	(0.49)	[0.2]	[0.2]	(0.34)
Oregon	0.02	**1.2**	3.17	**2.0**	**1.6**	2.04
	[0.6]	[0.2]	(0.09)	[0.2]	[0.2]	(0.17)
Montana	–1.3	**1.2**	**15.74**	**1.8**	**2.6**	2.58
	[0.6]	[0.1]	(0.00)	[0.6]	[0.2]	(0.12)
Nevada (RTW)	**5.0**	**4.3**	0.49	**4.9**	**6.1**	4.39
	[0.7]	[0.6]	(0.49)	[0.5]	[0.2]	(0.05)
Utah (RTW)	**3.3**	**3.1**	0.28	**2.9**	**4.0**	**8.85**
	[0.3]	[0.1]	(0.60)	[0.2]	[0.3]	(0.00)
Wyoming (RTW)	–0.03	**2.7**	3.99	**2.1**	**3.0**	2.07
	[1.3]	[0.2]	(0.06)	[0.4]	[0.3]	(0.16)

NOTE: Heteroskedasticity-autocorrelation consistent standard errors are in brackets. Figures in bold indicate significance at 1 percent. ``F'' gives the F statistic for the test of equality of coefficients across two time periods. Probability values for the F statistic are in parentheses.

rates turns out to be statistically significant, unlike the case with neighboring states. Idaho's post-law growth rates also exceeded those of its NRTW neighbors and were similar to those of its RTW neighbors (although the pairwise comparisons are not always statistically significant due to large standard errors). Overall, the patterns of change in the growth of employment and the number of establishments point to a post-law acceleration of growth in Idaho, but not in any of the neighboring states.

Table 3 shows the results of a regression analogous to equation (1). The dependent variable is either the logarithm of employment or the number of establishments in manufacturing. The most notable result from this table is the exceptionally large growth rate of Idaho in the post-law period for both variables. The annual employment growth rate was about 3.7 percent post-law, compared with an almost zero annual average growth pre-law. The growth rate in the number of establishments was about seven times larger compared with that in the pre-law period. Idaho did much better after the RTW law was passed, compared with most other states in the region, both in employment and the number of establishments. The differences in these growth rates across the two periods have high statistical significance for Idaho, but not for most of the other states.

Manufacturing Employment Share

Before turning to the analysis of establishment size, we report how the share of manufacturing as a fraction of total private employment evolved in Idaho. Again we compare Idaho against other states that had a similar industrial mix in the period prior to 1987. This analysis indicates that Idaho experienced a substantial change in industrial mix, especially after the passage of the RTW law.[12] Figure 9 compares Idaho's manufacturing share with the average manufacturing share in the six NRTW states we identified earlier. First, note that manufacturing's average employment share in NRTW states declined throughout the sample period, which is an indication of the steady decline in the manufacturing sector in the United States, especially during the last quarter of the twentieth century. Idaho's manufacturing share was far below the NRTW average

[12] Constructing a distance measure analogous to that of footnote 9, we observed that Idaho also experienced a substantial change during our sample period in the composition of its manufacturing industry. For brevity, we omit this analysis.

Figure 9

Evolution of Manufacturing Share
Idaho vs. NRTW States

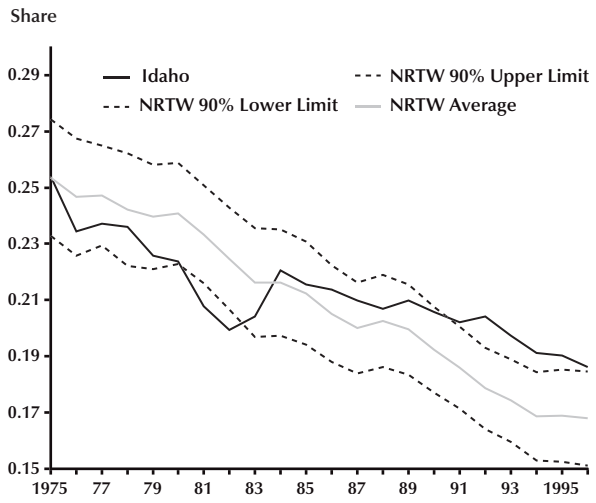
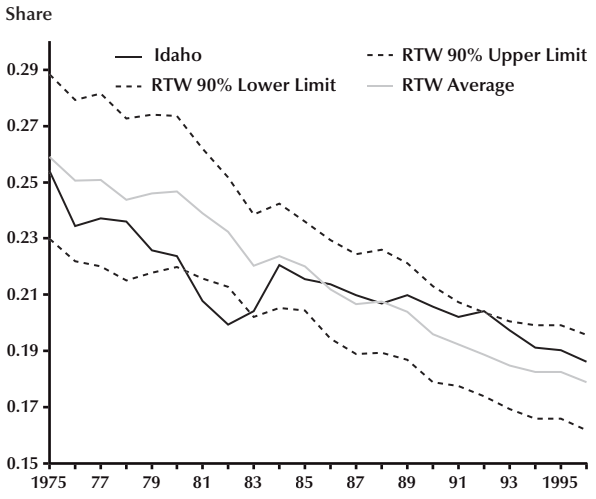


Figure 10

Evolution of Manufacturing Share
Idaho vs. RTW States



during the 1975-82 period and declined at a much faster rate than the average share in NRTW states. This trend slowly started to change around 1982; from 1984 onward, the manufacturing share in Idaho was above the NRTW average and declined much more slowly, which is consistent with accelerated growth in Idaho's manufacturing employment in this period. By 1987, Idaho's share exceeded the NRTW average, and the difference gradually became statistically significant. By the end of the analysis period, we can reject the hypothesis that Idaho had a manufacturing share similar to an "average" NRTW state with, initially, a similar industrial composition. The comparison with the RTW states' average share in Figure 10 is consistent with this finding. While Idaho's share was much lower than the average RTW states' share before 1982, it gradually became closer to the average afterward.[13]

Average Establishment Size

Considering the results in Table 2 regarding the change in average establishment size, defined by the number of employees per establishment, we do not observe any definitive pattern. In all states, the difference in the average growth rates in this variable across the two periods was insignificant. This, however, does not necessarily mean that Idaho did not become an attractive location for larger plants or that existing plants had less incentive to expand. It is well-known that there has been an ongoing nationwide trend toward smaller establishments.[14] It is possible that the increasing fraction of small plants in Idaho masked the increasing importance of larger establishments. To investigate this possibility, we look at the evolution of two measures: (i) the fraction of manufacturing employment in large establishments and (ii) the average size of large establishments. Following Holmes (1998), we define an establishment as "large" if it has at least 100 employees.[15] If large establishments became more important in Idaho's manufacturing sector after the law, then the first measure is expected to be higher in the post-law period. Similarly, if existing large establishments expanded, or if new large establishments that chose Idaho as a location after the law were larger than their pre-law counterparts on average, then we should see an increase in the second measure, too.

As Table 4 clearly indicates, the two variables

[13] The observations in this section also apply if we consider *all* RTW and NRTW states, not just those with an industrial mix similar to that of Idaho.

[14] See, for example, Davis (1990) and Davis and Haltiwanger (1990). The trend toward smaller establishment sizes might also be responsible for declining unionization, as explored by Even and Macpherson (1990).

[15] This choice is somewhat ad hoc, but as reported by Holmes (1998), 70 percent of all manufacturing establishments in 1992 were classified in this category. Outside manufacturing, the figure was 38 percent.

Table 4

Large Establishments in Manufacturing: Idaho and Its Neighbors

	Average fraction of employment in large establishments		Average establishment size in large establishments	
	1975-86	1987-96	1975-86	1987-96
Idaho	0.66	0.68	324.6	348.2
	[0.015]	[0.007]	[16.3]	[10.8]
	(2.97)		**(4.03)**	
Washington	0.70	0.69	444.1	451.6
	[0.013]	[0.018]	[25.3]	[42.1]
	(–1.06)		(0.49)	
Oregon	0.63	0.61	157.9	148.4
	[0.016]	[0.007]	[7.5]	[3.7]
	(–3.69)		**(–3.84)**	
Montana	0.51	0.43	261.6	224.8
	[0.035]	[0.028]	[22.6]	[11.1]
	(–5.84)		**(–4.96)**	
Nevada (RTW)	0.51	0.47	236.5	236.6
	[0.020]	[0.035]	[21.4]	[16.3]
	(–2.84)		(0.01)	
Utah (RTW)	0.68	0.68	355.3	358.3
	[0.015]	[0.011]	[30.0]	[11.0]
	(0.01)		(0.32)	
Wyoming (RTW)	0.43	0.42	198.9	184.3
	[0.035]	[0.020]	[16.6]	[8.9]
	(–0.31)		(–2.48)	

NOTE: Standard deviations in brackets. Figures in parentheses are the t statistics associated with the test for the equality of the variable's average across two periods of analysis. Figures in bold indicate significance at 1 percent; t tests are based on unpaired comparisons wth unequal variances.

measuring the importance of large establishments in the manufacturing sector experienced a significant increase in Idaho after the law was passed, but this did not occur in any of the neighboring states. There was about a 3 percent increase in the average fraction of employment in large establishments after the law, and the average establishment size for large establishments grew by about 24 employees, or by 7 percent. These results are consistent with the view (i) that Idaho became an attractive location for large establishments after the RTW law was passed and (ii) that the importance of large establishments in the manufacturing sector increased.

CONCLUSION

We have examined the impact of RTW laws on a state's industrial performance using Idaho's recent experience. We have presented evidence that, even as a late adopter of the law, Idaho experienced a strong decline in unionization and an acceleration in manufacturing growth. Evidence from Idaho's neighbors suggests that a similar pattern was not experienced by other states in the region, which indicates that a regional boom is not a likely explanation. We are cautious, however, in associating the increase in manufacturing growth with the passage of the law. The exact starting time of the decline in unionization and the narrow time frame of fluctuations in the unionization rate before the passage of the law suggest that the relation is not clear cut. The initial decline in unionization and its subsequent rebounding between 1984 and 1987 can potentially be related also to evolving expectations about the eventual ruling on the RTW law—because the bureaucratic process and political battles for the passing of the RTW law took almost two years, with several developments in favor of and against union-

ism. Adding to our skepticism is the Bunker Hill incidence mentioned earlier, which, by itself, may have been a turning point for the attitudes toward unions in Idaho. In summary, while we are tempted to associate the growth patterns and the decline in unionization with the passage of the law, we cannot rule out the possibility that the RTW law was a result of growing anti-unionism in Idaho and may not have been the cause of growth, per se.

In terms of policy implications, one has to be cautioned before prematurely claiming that Idaho's exceptional growth pattern would apply to every state considering the adoption of the law. Idaho's experience would definitely be more valuable than the evidence from other RTW legislation in the past because it took place in an environment where unionization had already lost considerable ground. As the analysis presented here suggests, even the process leading to the passage of the law may be quite important for the timing of events and the patterns of growth in key variables. Examining the behavior of union organizing activity through certification elections, as well as analyzing the effects on wages, can provide a more detailed analysis of the impact of the RTW law on unionization. The recent experience of Oklahoma, together with Idaho's, can be used for this purpose. The ongoing work by Dinlersoz and Hernández-Murillo (2001) aims to provide more evidence in this direction.

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Appendix

DATA DESCRIPTION

Unionization Rates

Estimates of union membership rates by state and by state industry were obtained using the May files of the Census Bureau's Current Population Survey (CPS) for the period 1977-81, and from the Merged Outgoing Rotation Groups CPS files for the period 1983-2000, following the methodology of Hirsch, Macpherson, and Vroman (2001). The 1982 CPS did not include any questions pertaining to unions, and we set our estimate for 1982 to the average of the estimates in 1981 and 1983. For 1983 and onward, each year included all 12 months of the CPS, with each month including the outgoing rotation groups that were asked the union questions. Prior to 1981, the May surveys administered the union questions to *all* rotation groups; therefore the estimates before 1981 are based on samples that are one third of the size of the samples used after 1983. The May 1981 CPS administered the union questions only to the *outgoing* rotation groups, making sample sizes roughly one-third of the samples used in 1977-80. Union estimates for 1981 are, therefore, the least reliable.[16]

Due to the varying sample sizes, much of the year-to-year variation in the estimated unionization rates before 1983 can be attributed to sampling error. This would be a more serious problem if one wished to reliably estimate union earnings, for example, as opposed to simply estimate union membership rates as we did. The sample sizes of major industry groups in Idaho (overall, manufacturing, and nonmanufacturing) were within the standard measures used in the literature and the Census Bureau's guidelines (larger than 100 employees), except for manufacturing and particularly in 1981.

We were able to verify that our estimates of the proportion of union members from the employed population closely matched those of Hirsch, Macpherson, and Vroman (2001) at the national and state levels. Our estimates of state-industry rates use the same methodology, but there were no available series to verify accuracy.

Data on Industries

The data on industries come from the Census Bureau's County Business Patterns data series for the years 1975-96. The data covers all taxpaying establishments with one or more paid employees. The employment figures are taken from the mid-March period of every year. An establishment is defined as a single location where business is conducted or where services or industrial operations are performed. Establishment size designations are measured by paid employment in the mid-March pay period. Establishment counts for 1983 and onward are based on a determination of active status as of anytime during the year. For the years prior to 1983, establishment counts are based on whether the establishment was active in the fourth quarter. The data is available at the national, state, and county levels. Further details on this data set can be obtained from the Census Bureau's Web site, < www.census.gov > .

[16] Every household that enters the CPS is interviewed each month for 4 months, then ignored for 8 months, then interviewed again for 4 more months. The union questions are asked only to households in their fourth and eighth interview. These are the outgoing rotation groups.