

The Implications of US Worker Choice Laws for British Columbia and Ontario

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Executive Summary

Geographic entities and regions must compete for individual and business location choices and favourable investment decisions. Public policies affect this geographic competition in important ways that can be summarized as the creation of an environment—that is, an overall set of economic incentives—either strengthening or weakening local competitiveness relative to the environments characterizing other geographic entities. This study examines the effects of worker choice laws in the US—commonly referred to as “right to work” (RTW) policies—and applies the findings to British Columbia and to Ontario. RTW laws have been enacted by 24 US states; these laws prohibit collective bargaining agreements between employers and unions from forcing workers represented by a union to pay dues for its representation.

The scholarly literature generally finds that RTW laws reduce the percentage of workers covered by union contracts, and increases economic and employment growth. A new econometric analysis reported in this study finds that RTW laws in the US increase economic growth by about 1.8% and employment by about 1% in the states enacting such laws.

Manufacturing output is of particular interest in many policy contexts, and the scholarly literature finds that RTW laws have the effect of increasing manufacturing employment and output. Oklahoma is a particularly interesting case, in that it became a RTW state in 2001, and shares a border with seven states, four of which adopted RTW laws earlier; the others are not RTW states. The data suggest that the faster manufacturing growth observed in Oklahoma after 2001 was due, to some substantial degree, to the adoption of a RTW policy.

A conservative application of the econometric findings reported here, combined with the data on the Oklahoma experience, suggest that a RTW policy would increase manufacturing output in British Columbia and Ontario by about \$200.0 million (0.2%) and \$4.0 billion (0.5%), respectively. Over a 25-year period, manufacturing output would be higher by over 5.0% and over 13.0%, respectively.

In terms of aggregate economic performance, a conservative estimate is that a RTW policy would increase total economic output in British Columbia by \$3.9 billion (about \$844 per capita) and total employment by a bit less than 19,000. The respective figures for Ontario are \$11.8 billion (about \$874 per capita) and almost 57,000.

These predicted effects are not trivial, and the prospective benefits should engender a debate in Canada and in the provinces about the policy reforms needed to maintain and enhance competitive positions. A RTW law should be prominent among them.

I. Introduction

Just as firms and industries must compete for consumer purchase choices, for employees, and for capital investments, so must geographic entities and regions compete for individual and business location choices and favourable investment decisions. Public policies affect this geographic competition in important ways that can be summarized as the creation of an environment—that is, an overall set of economic incentives—either strengthening or weakening local competitiveness relative to the environments characterizing other geographic entities.¹ To some significant degree, this competitive dynamic strengthens as geographic proximity increases.

A large number of public policies affect such overall competitiveness. “Competitiveness” in this context is the ability to attract labour and capital and to produce relative economic conditions characterized by higher individual incomes, greater aggregate productivity, stronger employment growth, and the like.

Tax policies are an obvious example. Lower taxes (or effective tax rates) rather than higher—other factors held constant—would improve relative competitiveness. Tax burdens aligned more, rather than less, closely with the benefits of public spending programs are likely to do the same.² Environmental policies clearly affect competitiveness, as individuals and businesses making location decisions are likely to value environmental quality while attempting to balance it against the perceived costs of the policies used to enhance it. The tradeoffs among the amounts, quality, and costs of public services are another broad example, however obvious. Trade policies affect the degree to which a given geographic entity can exploit its comparative advantages—the productive activities that it can undertake at a (marginal) cost lower than those of other regions—thus achieving greater specialization and wealth.³ Regulatory policies and the benefits and costs that they yield are yet another obvious example.

Governments implement public policies in substantial part as a response to the demands of interest groups, which may be broad-based (or diffused) coalitions or narrow (concentrated) interests. A substantial literature has noted that concentrated interests enjoy an important advantage relative to diffused interests in terms of exerting pressures on government officials for favorable policies, in brief because lobbying and other activities intended to persuade public officials to adopt given policies are collective goods from the viewpoint of any given member of an interest group. The standard free-rider problem is likely to increase in importance with the size or diffusion of the group.⁴

In principle, such policies can be efficient—wealth-enhancing for the economy as a whole—or inefficient, that is, consistent or inconsistent with a strengthening of (regional) competitiveness as just described. Because political interest groups have powerful incentives to use democratic processes to transfer wealth to themselves from others, it is straightforward to predict that such redistribution will be an important direct or indirect effect of the policies adopted as a result of the political competition among interests engendered by democratic institutions.⁵ Under a broad range of conditions, this redistribution is inefficient—inconsistent with enhanced competitiveness—because it induces a shift of real resources into a set of activities different from those maximizing aggregate wealth, and because it induces both the winners and the losers to consume resources in efforts to effect or to prevent this redistribution rather than in socially-productive activities.⁶

The rules governing the relationship between labour unions and their members can have important implications for wages, worker productivity, the ability of firms to manage their workforces, choices between workforce expansion and capital investment, incentives for technological innovation, and similar parameters that loosely can be subsumed under the heading “costs.” In the US, section 14(b) of the *National Labor Relations Act* (NLRA, commonly termed the *Wagner Act*) allows states to enact right-to-work (RTW) laws, which prohibit collective bargaining agreements between employers and unions from forcing workers represented by a union to pay dues for its representation.

In the US, workers cannot be forced to join a union. But in states without a RTW law, workers can be required to pay dues (or agency fees) to cover the cost of collective bargaining. That cost often is less than full dues because of substantial union spending on political or other activities not related to collective bargaining.⁷ In states with a RTW law, workers cannot be required even to pay the agency fee. In principle, this does not create a free-rider problem because a union could bargain only for those members joining voluntarily. There may be a free-rider problem in practice because under the NLRA a union gains the exclusive right to represent workers upon a majority vote of the workers; a worker may not choose a different representative or to represent himself. Accordingly, a free-rider problem attendant upon a state RTW law actually is the result of the NLRA exclusivity provisions rather than the choice of workers to opt out of the formal union bargaining process, an important distinction often obscured in the public discussion.⁸

In the US, laws governing labour relations in the private sector are largely federal, but states can adopt other rules as long as they do not conflict with federal law. RTW laws are an example, as they expand the ability of a given group of workers to choose not to join a given union, while preserving the union as the sole bargaining agent for those workers.

In Canada, RTW provisions protecting workers from mandatory payment of union dues (or mandatory membership in the relevant union) are absent universally.⁹ Karabegović, Gainer, and Veldhuis find that

In all Canadian jurisdictions mandatory union membership is permitted in collective agreements and can be included as a condition of employment. In addition, all workers covered by a collective agreement can be required to pay full union dues even if they are not members of the union (2009: 21).

Their summary conclusion is straightforward:

US states tend to have balanced labour relations laws focused on providing workers and employers with choice and flexibility. Canadian jurisdictions, on the other hand, generally maintain much more biased and prescriptive labour relations laws (2009: 2).

To the extent that RTW laws in US states are efficient—that is, to the extent that they enhance jurisdictional productivity or competitiveness—the absence of such provisions in Canadian laws may yield a competitive disadvantage. There is available a literature on the relative economic performance of RTW and non-RTW states, usually measured in terms of relative growth rates of such parameters as economic growth and employment. Because it is difficult in statistical analysis to control correctly for all of the central factors determining geographic differences in economic conditions, this literature is not conclusive. But the weight of the evidence is strongly suggestive. Section II presents some basic data and summarizes the main findings in the literature. Section III presents the findings from a simple econometric estimation for 49 US states for the period 1977–2010. Section IV applies the experience of the one US state for which the relevant data are available and consistent—Oklahoma—in the context of manufacturing output to see if any reasonable hypotheses might be applied to British Columbia and to Ontario in the context of RTW policies.¹⁰ Section V offers some brief concluding observations.

Notes

1. For a useful comparison study of the US states in terms of such competitiveness parameters, see Arthur B. Laffer et al. (2013), *Rich States, Poor States: ALEC-Laffer State Economic Competitiveness Index*; William P. Ruger and Jason Sorens (2013), “Freedom In the 50 States: An Index of Personal and Economic Freedom”; Avilia Bueno et al. (2012), *Economic Freedom of North America 2012*; and James Gwartney et al. (2012), *Economic Freedom of the World: 2012 Annual Report*.

2. Note that taxes can be too low as well as too high: A zero tax environment is unlikely to yield strong competitiveness because public services are not worthless, and government may have a comparative advantage in the provision of certain services. Policing may be a good example.
3. Trade among geographic regions and nations increases competitive pressures, and thus output, by imposing constraints on the ability of governments to impose inefficient costs. It does this also by facilitating the allocation of resources and productive activities in accordance with the reduced costs and increased productivity yielded by economic specialization. Since no one is forced to trade, trade itself and the efficiencies that it promotes increase wellbeing for all, if we define “wellbeing” in a way that respects the choices that individuals make for themselves on a voluntary basis. Accordingly, this productive specialization allows each region or nation—and, in principle, each individual—to attain greater wealth and thus a higher living standard than would be the case were trade to be constrained or largely prohibited. For a nontechnical summary discussion, see Bob McTeer’s 2008 blog post, “The Impact of Foreign Trade on the Economy,” *New York Times*. Obviously, those subjected by trade to stronger competitive pressures might be made worse off in their role as producers; an obvious example is low-wage workers subjected to implicit competition from workers overseas. But most are made better off in their roles as consumers when aggregate wealth—the total consumption pie—is increased, as reflected in the downward pressure on the aggregate price level that trade exerts by increasing the size of the aggregate basket of goods and services. In plainer language: Trade makes the economy bigger and thus almost everyone better off.
4. One way to define “diffusion” is the magnitude of the effect of a given policy on the average (or median) member of the interest group, either absolutely or as a proportion of the total effect. See Mancur Olson Jr. (1965), *The Logic of Collective Action*; Douglass C. North and John J. Wallis (1982), “American Government Expenditures: A Historical Perspective,” *American Economic Review*; and Gordon Tullock (1959), “Problems of Majority Voting,” *Journal of Political Economy*. For a summary discussion, see Dennis C. Mueller (2003), *Public Choice III*, pp. 501–559.
5. Consider, for example, a majority coalition (50% of the voters plus 1) allocating budget dollars between a collective program yielding benefits for all and a special-interest program yielding benefits only for members of the majority. The majority (the median voter) has incentives to transfer dollars from the collective program to the special-interest program until two dollars of the latter have the same marginal value to members of the majority as one dollar of the former. From the social standpoint, this outcome is inefficient even if we ignore the economic cost of efforts by the majority to effect this outcome and of efforts by the minority to avoid it. See James M. Buchanan (1968), *The Demand and Supply of Public Goods*, pp. 40–75.
6. These efforts usually are called “rent-seeking” and “rent-defending,” respectively. Under some conditions, redistribution viewed in isolation (ignoring the resources consumed by rent-seeking and rent-defending) is neither efficient nor inefficient from the social standpoint, as it merely shifts wealth from one set of individuals to another. Moreover, some redistribution may be efficient if individuals care about the wellbeing of strangers, or if such policies are viewed as a form of social insurance.
7. See the decision of the US Supreme Court in *Comm’n Workers of Am. v. Beck*, 487 U.S. 735 (1988), available at <<http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=487&invol=735>>.

8. In *Communications Workers of America v. Beck*, the US Supreme Court ruled that in a union collective bargaining agreement with an employer, workers who do not join the union can be compelled to pay only the dues and fees necessary for the union to engage in collective bargaining. For a legislative history and summary discussion of relevant empirical findings on RTW laws, see Benjamin Collins' 2012 Congressional Research Report, "Right to Work Laws: Legislative Background and Empirical Research." For a useful comparison of labour laws in Canada and the US, see Amela Karabegović, Alex Gainer, and Niels Veldhuis (2009), "Labour Relations Laws in Canada and the United States: An Empirical Comparison."
9. See Karabegović, Gainer, and Veldhuis (2009), "Labour Relations Laws in Canada and the United States: An Empirical Comparison," pp. 19–23. In that study, the issue of mandatory dues is defined as the "union security" parameter, a dimension of "balance and flexibility" in labour relations laws
10. Indiana and Michigan became RTW states in 2012, a legal shift too recent to allow analysis of possible effects. As shown in Table 1, twenty-two other states have adopted RTW laws since 1943; but the available economic data are consistent and reliable only for the period beginning in 1970 for some variables, and later for others. In particular, the manufacturing data for US states begins only in 1987, and the 1987-1996 data are not consistent with the later data. See the U.S. Bureau of Economic Analysis (2013), *GDP & Personal Income Tables by State*.

Table 2 compares unionization rates in RTW and non-RTW states in 2011, in total and for the private and public sectors disaggregated. The percentage of workers covered by union contracts uniformly is higher in non-RTW states than in RTW states, in both the private and public sectors. Table 3 presents the changes in union membership percentages in RTW and non-RTW states since

data became available at the state level in 1983.¹²

Note that the data for 1991–2011 include Idaho as a RTW state; and similarly for Oklahoma for 2001–2011. Those two shifts from non-RTW to RTW status bias the changes in the aggregate percentages a bit, but both states are sufficiently small that qualitative conclusions derived from the overall trends remain valid.¹³

Over almost 30 years, the percentages of union membership among all workers declined from 20.1% to 11.8%, or by about 41%. For RTW states, the decline was about 51%, while the corresponding figure for non-RTW states was about 35%.

While correlation is not causation, these aggregate data are derived from a large number of states over a large number of years. That suggests strongly that RTW laws have the effect of reducing the rates at which work-

ers are unionized and/or are covered by union contracts. In terms of the larger economic effects of that unionization impact, one obvious question is

Table 2: Workers covered by union contracts

Category	Total Employment (millions)	Covered by Union Contract (millions)	Percent
Total	125.2	16.3	13.0
RTW	49.6	3.4	6.9
Non-RTW	75.6	12.9	17.0
Private Sector	104.8	8.0	7.6
RTW	41.2	1.6	3.9
Non-RTW	63.6	6.4	10.0
Public Sector	20.4	8.3	40.7
RTW	8.4	1.8	21.7
Non-RTW	12.0	6.5	54.0

Note: Wage and salary workers.

Note: Percentages may differ due to rounding.

Sources: Collins, "Right to Work Laws: Legislative Background and Empirical Research," *Union Membership and Coverage Database from the CPS* (data from the *Current Population Survey*), disaggregated by Barry Hirsch and David MacPherson at <<http://www.unionstats.com/>>; and author computations.

Table 3: Union membership in RTW and non-RTW states (percent of total wage and salary employment)

Year	RTW	Non-RTW	Total
1983	11.6	24.3	20.1
1991	8.5	20.2	16.1
2001	6.8	17.5	13.5
2011	5.7	15.8	11.8

Note: Wage and salary workers.

Note: RTW states in 1983 were Alabama, Arizona, Arkansas, Florida, Georgia, Iowa, Kansas, Louisiana, Mississippi, Nebraska, Nevada, North Carolina, North Dakota, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, and Wyoming. Idaho became a RTW state in 1985, and Oklahoma in 2001. See Table 1.

Sources: Collins, "Right to Work Laws: Legislative Background and Empirical Research," *Union Membership and Coverage Database from the CPS* (data from the *Current Population Survey*), disaggregated by Barry Hirsch and David MacPherson at <http://www.unionstats.com/>; and author computations.

whether previous analyses have found a relationship between unionization and/or the adoption of RTW laws, and various measures of aggregate economic growth or wellbeing.

Cohen and her colleagues (2012), in an econometric analysis of 185 cities over the period 1986–2011, find that higher rates of unionization yield less employment growth (13% lower for a one-standard deviation increase in unionization), less salary growth (5% lower), less new business formation (14% lower), and fewer initial public offerings (0.03%). Reed (2003) reports that RTW laws increased wages in 16 of 18 RTW states in 2000, an effect ranging from 0.3% to 22.6%.¹⁴ Note that Reed corrects a specification error common in the earlier literature by controlling for economic conditions in a given state at the time a RTW law was adopted.

For the period 2001–2010, Laffer and his colleagues (2013) find that the 22 RTW states grew at an annual compound rate of 4.3%, while the annual compound growth rate for the 28 non-RTW states was 3.5%.¹⁵ They find also that when the analysis is limited to states without an income tax, the respective growth rates for the RTW and non-RTW states were 4.3% and 3.5%.¹⁶ Laffer and his colleagues find similar disparities between RTW and non-RTW states for personal income growth rates (4.2% vs. 3.5%) and for the growth of non-farm payroll employment (0.4% vs. 0.1%).

Vedder (2010) reports econometric findings that RTW states had economic growth rates 23% higher than non-RTW states over 1977–2007, and increases in per capita incomes greater by 7.7%, *ceteris paribus*.¹⁷ A more recent analysis by Vedder (2011) finds real annual economic growth in RTW and non-RTW states of 3.3% and 2.6%, respectively, for 1980–2010. Vedder notes that because of higher population growth (due largely to in-migration) in the RTW states, the relative growth rates of per capita state gross product are much closer; but “a disproportionate number of in-migrants often are people not of working ages...” (2011: 308). Kersey (2007) finds for 2001–2006 that annual economic growth in RTW and non-RTW states averaged 3.4% and 2.6%, respectively; and that the respective employment growth figures were 1.2% and 0.6%.¹⁸ In an older paper, Hirsch (1997) presents a summary of the empirical literature, concluding that increased unionization rates do not increase labour productivity, but do result in reduced profitability, reduced investment in both physical capital and research and development, and lower rates of employment and sales growth.

In short, the existing empirical literature finds that real annual economic growth in RTW states is about 0.8% higher than in non-RTW states: Laffer and his colleagues (2013) find a difference of 0.8% for states with and without an income tax, Vedder (2011) finds a difference 0.7%, and Kersey (2007) reports a difference of 0.8%.

A recent compilation of several aggregate parameters for RTW and non-RTW states, prepared by the National Institute for Labor Relations Research,

Table 4: Economic parameters: RTW and non-RTW states (percent growth except where noted)

Parameter	Period	National	RTW	Non-RTW
Non-Farm Private Employment	2001–2011	6.9	12.5	3.5
Real Manufacturing Output	2001–2011	26.3	33.0	23.9
Private-Sector Employee Compensation	2002–2012	8.4	14.3	5.4

Source: National Institute for Labor Relations Research, and sources listed at <<http://nilrr.org/files/NILRR%20FACT%20SHEET%20RTW%20States%20Benefit%20--%20May%202013.pdf>>.

is summarized in Table 4. These data are consistent with the empirical findings reported in the literature.

Table 5 presents recent data on total employment for RTW and non-RTW states for 2001, 2006, and 2011. In each of the three overlapping time periods, employment growth

in percent terms was greater (or employment losses smaller) in the RTW states; all the differences are statistically significant at a 5% significance level, and are sufficiently large in percentage terms that the greater percentage

growth in the RTW states was not driven by the lower absolute levels of total employment attendant upon smaller populations.

Table 5: Employment in RTW and non-RTW states, 2001, 2006, and 2011

	Employment (millions)			Employment Change (percent)		
	2001	2006	2011	2001–2006	2006–2011	2001–2011
Total	131.6	135.8	131.3	3.2	-3.3	-0.2
RTW	49.8	52.9	51.6	6.3	-2.5	3.6
Non-RTW	81.8	82.9	79.8	1.4	-3.8	-2.5

Sources: U.S. Bureau of Labor Statistics at <<http://data.bls.gov/cgi-bin/dsrv?sm>>; and author calculations.

What is interesting about these data is the finding in the modern scholarly literature that it is new (and perhaps

young) businesses—startups—that contribute disproportionately to both gross and net employment creation.¹⁹ In a new paper, Zycher (2013) finds that an increase in net job creation by startups has a positive effect on state gross product that is significant both economically and statistically. Each net job created by startup firms is estimated to increase state gross product by almost \$1.2 million in a given year.

In short: The literature, employing a variety of approaches and data sources, generally finds that RTW states enjoy real annual economic growth rates about 0.8% higher than those characterizing non-RTW states, other factors held constant.

Notes

11. The respective state RTW laws can be found at <http://www.nrtw.org/rtps.htm>.
12. Note that union membership percentages are correlated closely with the percentages covered by union contracts, as summarized in Table 2; but they are not quite the same parameter.
13. For Idaho, total employment increased from about 411,000 in 1983 to about 475,000 in 1991, 642,000 in 2001, and 705,000 in 2011. See the data reported by the U.S. Bureau of Labor Statistics (2013), *Economy at a Glance: Idaho*. For Oklahoma, the respective figures are about 1.4 million, 1.4 million, 1.6 million, and 1.7 million. See the data reported by the U.S. Bureau of Labor Statistics (2013), *Economy at a Glance: Oklahoma*. In contrast, the respective figures for the US as a whole were about 101 million, 118 million, 137 million, and 140 million. See the data reported by the U.S. Bureau of Labor Statistics (2013), *Top Picks*.
14. W. Robert Reed (2003), “How Right-to-Work Laws Affect Wages,” *Journal of Labor Research*. The other two states were Nebraska (-0.1%) and Nevada (-14.5%).
15. These growth rates are for state gross product, and are nominal. Indiana and Michigan did not become RTW states until 2012. See Laffer et al. (2013), *Rich States, Poor States: ALEC-Laffer State Economic Competitiveness Index*, p. 36.
16. See Laffer, Moore, and Williams (2013), *Rich States, Poor States: ALEC-Laffer State Economic Competitiveness Index*, 37. Data exclude Wyoming (RTW) and Alaska (non-RTW). The respective growth rates with those two states included were 4.9% and 4.4%.
17. Richard Vedder (2010), “Right-To-Work Laws: Liberty, Prosperity, and Quality of Life,” *Cato Journal*. Vedder argues that RTW states are characterized by greater in-migration than non-RTW states because of greater economic freedom; but the higher economic growth rates observed in RTW states do not depend on that parameter in his econometric model, as the model controls for population growth.
18. Paul Kersey (2007), “The Economic Effects of Right-to-Work Laws: 2007,” pp. 5–7.
19. See John Haltiwanger et al. (2011), “Who Creates Jobs? Small vs. Large vs. Young,” working paper, Figure 5; and Steven J. Davis and John Haltiwanger (1999), “Gross Job Flows,” in Orley C. Ashenfelter and David Card, eds., *Handbook of Labor Economics*, Figures 2, 3, and 8. See also Tim Kane (2012), “The Collapse of Startups in Job Creation;” Tim Kane (2010), “The Importance of Startups in Job Creation and Job Destruction;” David Neumark et al. (2011), “Do Small Businesses Create More Jobs? New Evidence for the United States from the National Establishment Time Series,” *Review of Economics and Statistics*; and Erik Hurst and Benjamin Wild Pugsley (2011), “What Do Small Businesses Do?,” *Brookings Papers on Economic Activity*. For a nontechnical discussion of the underlying economic processes, see Martin A. Sullivan (2012), “Start-Ups, Not Small Businesses, Are Key to Job Creation,” *Tax Analysts*.

3. Some Econometric Findings

Econometric findings must be treated with care and applied conservatively in terms of deriving conclusions or policy implications, because measurement issues usually are present, because it is difficult to control for all factors influencing the variables of interest, and because the correct underlying conceptual (or economic) model—itsself a topic that can be disputed—can change over time and/or across geographic regions. Moreover, econometric estimation is based upon certain technical assumptions about the underlying statistical properties of the data, some violations of which are very likely to be present. At the same time, the findings from several or many independent analyses, each afflicted with individualized problems, can offer real insights when taken as a whole, even given an (appropriate) bias toward conservatism. That is the general approach toward interpretation adopted here.

The findings from a simple (and somewhat crude) econometric model of state gross product and total employment, for 49 US states (excluding Alaska) over the period 1977–2010 are summarized in Table 6. For a given state in a given year, real state gross product or total state employment²⁰ is assumed to be determined by the following variables:

- ❖ the number of startup firms;²¹
- ❖ net job creation by startup firms;²²
- ❖ total state employment;²³
- ❖ per capita personal income;²⁴
- ❖ total state and local government outlays;²⁵
- ❖ the population with incomes below the federal poverty level;²⁶
- ❖ pecuniary transfers from the federal government;²⁷
- ❖ real GDP for the US;²⁸
- ❖ total population;²⁹
- ❖ population aged 5–18;³⁰
- ❖ population aged 65 and over;³¹
- ❖ the five-year growth rate of total population;³² and
- ❖ the presence or absence of a RTW law in the given state and given year.³³

The number of startup firms or net job creation by those firms was also included in order to capture the effects of startup business activity on

state gross product and employment.³⁴ Total state employment is included in the equations on state gross product as a control for the size of the labour

Table 6: RTW effects: State gross product and total employment (estimated coefficients, t-statistics)

Explanatory Variable	Dependent Variable			
	SGP		Employed	
State gross product	—	—	0.01	(8.80)
Startup firms	1.59	(3.84)	0.003	(2.53)
Startup net job creation	0.31	(4.64)	—	—
Total employment	43.07	(9.56)	—	—
Per capita income	1.41	(10.17)	0.005	(6.34)
State/local government outlays	3.01	(25.86)	0.003	(4.44)
Poverty population	4.51	(1.24)	-0.26	(-13.70)
Federal transfers	-1.55	(-3.50)	-0.03	(-12.81)
US GDP	-0.13	(-0.45)	0.01	(5.92)
Total population	33.72	(9.59)	0.50	(33.38)
Population 5–18	-49.53	(-6.22)	-0.17	(-4.01)
Population 65+	-127.89	(-23.54)	-0.09	(-2.77)
5-year population growth	-9.39	(-0.02)	-1.52	(-0.51)
RTW	5418.98	(3.98)	25.97	(3.51)
Constant	-60957.18	(-14.17)	-220.93	(-9.25)
Adj R ²	0.994	—	0.998	—

Source: Author computations.

market, in order to avoid scale effects; in addition, a larger employment pool also is likely to be more diverse in terms of skills and productivity, perhaps offering a better environment for the success of startups. Per capita personal income is included as a measure of economic conditions before the adoption of RTW laws, and as a measure of the aggregate state demand for goods and services. Total state and local government outlays

are included as a measure of the demand for government output. The population of poor individuals is included as a measure of the size of the relatively less-productive population. Pecuniary transfers from the federal government are also included as a measure of an income effect (or mandate effect) increasing the demand for government output. Real US GDP is included as a proxy variable for general economic conditions affecting all states, but perhaps not proportionately. Total population is included as a control for scale effects, while the school-age and retired populations are included as controls for the non-working population given the size of the total population, and for the demand for particular kinds of government spending. The five-year growth rate of total population is included as a control for changes in general economic conditions. The RTW variable is included so as to test for its effects.

The RTW variable is significant both economically and statistically. For state gross product, the estimated coefficient implies that adoption of a RTW law increases economic output by a bit less than \$55 billion per year. That was about 1.8% for the average state in 2012.³⁵ For total employment, the

estimated effect of a RTW law is an increase in employment of about 26,000, or about 1% for the average state.³⁶

When considering state gross product, each startup firm is estimated to increase output by about \$1.6 million, and each net job created by startups is estimated to increase output by about \$310,000. An increase of 1,000 in total employment increases output by about \$43 million. An increase of \$1,000 in per capita personal income increases output by about \$1,400.³⁷ Government outlays are estimated to increase output by about \$3 on the dollar; this clearly is a wealth effect, as greater state gross product yields greater tax revenues, other things equal. An increase of 1,000 in the poverty population is estimated to increase output by about \$4.5 million; the causation is likely to run in the opposite direction, as wealthier states probably attract greater numbers of the poor, perhaps in search of employment opportunities. Federal transfers are predicted to reduce state output; again, such transfers are likely to be correlated inversely with state gross product, as an assumed corrective for adverse economic conditions. Surprisingly, economic conditions in the nation as a whole are not estimated to be a statistically significant determinant of state gross product; since the nation as a whole is the sum of the states, there may be an underlying averaging process that explains this result. Total population has a significant effect on output, holding constant the school-age and retiree populations; the remainder obviously is the working-age population except for young children. Increases in the school-age and retiree populations have the effect of reducing output, other factors held constant. The five-year population growth rate has no effect.

For total employment, the findings broadly are consistent. Each startup firm increases employment by three jobs, and an increase in per capita income of \$1,000 increases employment by about five jobs. An increase of \$1 million in state and local outlays has a statistically significant but very small effect (three jobs) on employment. An increase in the poverty population reduces employment—the causation may be the reverse or mutual—while federal transfers are associated with a reduction in employment. Higher US GDP has a small positive effect on employment; while an increase in total population increases employment by about half the population increase. Both the school-age and retiree populations are associated with lower employment. The five-year population growth rate again has no effect.

Notes

20. Data on state gross product obtained from the U.S. Bureau of Economic Analysis (2013a), *GDP & Personal Income Tables by State*. Data on total state employment obtained from the U.S. Bureau of Labor Statistics a <<http://www.bls.gov/lau/staadata.txt>>; and private communications with BLS staff.
21. Data obtained from the U.S. Census Bureau (2012a), *Firm Age by State*, Business Dynamics Statistics data tables.

22. Data obtained from the U.S. Census Bureau (2012a), Firm Age by State, Business Dynamics Statistics data tables.
23. Data on state gross product obtained from the U.S. Bureau of Economic Analysis (2013a), *GDP & Personal Income Tables by State*. Data on total state employment obtained from the U.S. Bureau of Labor Statistics at <<http://www.bls.gov/lau/staadata.txt>>; and private communications with BLS staff.
24. Data obtained from the Bureau of Economic Analysis (2013b), *Annual State Personal Income and Employment*, GDP & Personal Income Tables.
25. All data obtained from the U.S. Census Bureau, available from the author upon request; and by the U.S. Bureau of Economic Analysis (2013c), *National Income and Product Accounts Tables*.
26. Data obtained from the U.S. Census Bureau (2012b), *Table 21: Number of Poor and Poverty Rate, by State* and U.S. Census Bureau (2011a), *Census Historical Poverty Tables*; and private communications with Census Bureau staff.
27. All data obtained from the U.S. Census Bureau, available from the author upon request; *Historical Data: Annual Survey of State Government Finances*, U.S. Census Bureau (2013), *Reports about Governments*, various tables, U.S. Census Bureau, *Government Finances*, various issues, and U.S. Census Bureau, *Census of Governments*, various issues.
28. Data obtained from the U.S. Bureau of Economic Analysis (2013c), *National Income and Product Accounts Tables*, Table 1.1.1.
29. Data obtained from the U.S. Census Bureau (n.d.), *Pre-1980: State Tables*, <<http://www.census.gov/popest/data/state/asrh/1980s/tables/st7080ts.txt>>, <<http://www.census.gov/popest/data/state/asrh/1980s/tables/st8090ts.txt>>, <<http://www.census.gov/popest/data/state/totals/1990s/tables/ST-99-03.txt>>, (2010), *Historical Data: 2000s*, and (2011d), *State Totals: Vintage 2011*.
30. Data obtained from the U.S. Census Bureau (2011c), *Historical Data: Population Estimates*; (n.d.), *Pre-1980: State Tables*; (1990), *State Population Estimates and Demographic Components of Change: 1980-1990, by Single Year of Age and Sex*, <<http://www.census.gov/popest/data/state/asrh/1990s/tables/ST-99-09.txt>>, (2010), *Historical Data: 2000s* (the respective state tables), and private communications with Census Bureau staff.
31. Data obtained from the U.S. Census Bureau (2011c), *Historical Data: Population Estimates*; (n.d.), *Pre-1980: State Tables*; (1990), *State Population Estimates and Demographic Components of Change: 1980-1990, by Single Year of Age and Sex*, <<http://www.census.gov/popest/data/state/asrh/1990s/tables/ST-99-09.txt>>, (2010), *Historical Data: 2000s* (the respective state tables), and private communications with Census Bureau staff.
32. Data obtained from the U.S. Census Bureau (n.d.), *Pre-1980: State Tables*, <<http://www.census.gov/popest/data/state/asrh/1980s/tables/st7080ts.txt>>, <<http://www.census.gov/popest/data/state/asrh/1980s/tables/st8090ts.txt>>, <<http://www.census.gov/popest/data/state/totals/1990s/tables/ST-99-03.txt>>, (2010), *Historical Data: 2000s*, and (2011d), *State Totals: Vintage 2011*.
33. See Collins (2012), “Right to Work Laws: Legislative Background and Empirical Research,” 5.
34. See Benjamin Zycher (2013), “Startup Businesses and the Growth of Real State Gross Product,” monograph.
35. See the data reported by the U.S. Bureau of Economic Analysis (2013b), *GDP & Personal Income*.

36. See the data reported by the U.S. Bureau of Labor Statistics (2013c), *Databases, Tables & Calculators by Subject*.
37. We pursue here a rough estimate of the effects of RTW laws, shunting aside the obvious endogeneity issues of simultaneous determination of these variables.

4. Some Manufacturing Evidence for Oklahoma and Implications for British Columbia and Ontario

Holmes (1998) reports that manufacturing employment is about one-third higher in the counties of RTW states than in the bordering counties of non-RTW states. Since it is reasonable to assume as a first approximation that the same production technologies are available on both sides of the border, this higher employment in the RTW counties ought to reflect higher manufacturing output³⁸. Newman (1983), and Woodward and Glickman (1991) report similar findings.

Oklahoma is a useful example because it became a RTW state in 2001, and the data on manufacturing output that are consistent are available for 1997 through 2012.³⁹ Moreover, it is reasonable to assume that economic competition among states may be somewhat more pronounced when competitors share a common border, although geographic competition by no means is limited to neighbours. Oklahoma shares borders with seven states, four of which (Arkansas, Kansas, Louisiana, and Texas) became RTW states before Oklahoma.⁴⁰ (The non-RTW neighbours are Colorado, Missouri, and New Mexico.) This is a factor that may become more important for Ontario, as Indiana and Michigan became RTW states in 2012, and there is a reasonable likelihood that Ohio may do the same. This regional “neighbour” effect may be less pronounced for British Columbia (although Idaho became a RTW state

in 1985); but, again, geographic competition to a significant degree is not limited to regions with common borders.

For the years 1997 through 2001, manufacturing output in Oklahoma grew at a compound annual rate of 1.7%. For the years 2001 through 2012, the corresponding figure was 2.0%, an increase of 17.6% in percentage terms. This aggregate datum for Oklahoma is hardly conclusive—many factors other than adoption of a RTW policy affect manufacturing output—but it is consistent with the findings in the literature and with those reported above in

Table 7: Manufacturing growth, 1997–2001 and 2001–2012 (percent)

State	RTW	1997–2001	2001–2012
Arkansas	yes	-0.9	-0.3
Colorado	no	4.7	4.6
Kansas	yes	2.6	1.8
Louisiana	yes	-4.9	4.6
Missouri	no	-1.3	-0.2
New Mexico	no	2.7	7.0
Texas	yes	4.1	5.5

Source: Bureau of Economic Analysis (2013a), *GDP & Personal Income Tables by State*; and author computations.

Table 6. Table 7 presents similar computations for the seven neighbouring states.

Among the RTW states, Louisiana and Texas display a faster increase in manufacturing output than Oklahoma; energy output and the revolution in horizontal drilling and hydraulic fracturing may explain some substantial part of this observation. Arkansas experienced a slower decline, while Kansas displayed a slower growth rate. Among the non-RTW states, Colorado displayed roughly constant growth, Missouri a slower decline, and New Mexico substantially faster growth.

Given the weight of the evidence reported in the literature and in Table 6 on the effects of RTW policies, it is reasonable to assume that some part of the faster manufacturing growth observed in Oklahoma after 2001

was due to its adoption of a RTW law, thus improving its competitiveness relative to its neighbours. Table 8 presents data on manufacturing output for British Columbia and for Ontario, for 2008–2012.

Manufacturing output in British Columbia and Ontario fell at compound annual rates of 1.6% and 1.3%, respectively, between 2008 and 2012. Obviously the poor economic conditions characterizing the 2008–2009 period had much to

do with that performance; annual compound growth for manufacturing in 2009–2012 was about 3.8% and 5.3%, respectively. But manufacturing output in 2012 remained 6.4% and 5.3% lower, respectively, than in 2008, in real terms, and the scholarly literature suggests that a RTW policy would improve competitiveness.

Let us apply a conservative version of the Oklahoma experience to British Columbia and to Ontario. For British Columbia, let us assume that a RTW policy would increase manufacturing output by one-third of the Oklahoma experience, or an increase in the manufacturing growth rate of about 6%. That would yield for 2009–2012 a growth rate of 4.0% instead of the 3.8% actually observed, as a result of a RTW law. Were such a policy to have been effective in 2009, and ignoring the issue of lags in market responses, 2012 manufacturing output would have been CA\$39.5 billion, an increase of over CA\$200 million. That difference may seem small, but over, say, a 25-year period, the larger growth rate would yield an increase in total manufacturing output of over 5%.

For Ontario, consider the possibility that Ohio might follow Indiana and Michigan into the RTW group of states: It is reasonable to assume that would increase competitive pressures on Ontario in terms of overall economic performance, and for manufacturing location decisions in particular. If we apply, again, a conservative version of the Oklahoma experience to

Table 8: British Columbia and Ontario manufacturing output, 2008–2012 (billions of year 2012 Canadian dollars)

	2008	2009	2010	2011	2012
B.C.	42.0	35.1	37.4	39.1	39.3
Ontario	287.3	233.4	254.0	262.3	272.2

Source: Statistics Canada (2013a), *Tables by Province or Territory: Ontario*; and author computations.

recent Ontario manufacturing performance—say, a percentage increase in manufacturing activity half that observed in Oklahoma—a RTW law would be predicted to increase Ontario manufacturing by almost 9% in percentage terms.⁴¹ That would yield 5.8% annual growth instead of the 5.3% observed for 2009–2012. Were such a policy to have been effective in 2009, and again ignoring the issue of lags in market responses, 2012 manufacturing output would have been CA\$276.4 billion, an increase of over CA\$4 billion. Over a 25-year period, manufacturing output would be over 13% higher.

Notes

38. It is possible that various public policies distort choices among production technologies, but that is an issue far outside the scope here.
39. Indiana and Michigan became RTW states in 2012, a legal shift too recent to allow analysis of possible effects. As shown in Table 1, twenty-two other states have adopted RTW laws since 1943; but the available economic data are consistent and reliable only for the period beginning in 1970 for some variables, and later for others. In particular, the manufacturing data for US states begins only in 1987, and the 1987-1996 data are not consistent with the later data. See the U.S. Bureau of Economic Analysis (2013b), *GDP & Personal Income Tables by State*.
40. See Table 1. Louisiana is included among these, even though it and Oklahoma do not quite share a border.
41. The larger assumed effect for Ontario reflects the enhanced regional competition created by RTW policies in Indiana, Michigan, and perhaps Ohio.

5. Concluding Observations

British Columbia's gross product in 2012 was about \$217.7 billion, and total employment was about 1.89 million.⁴² The econometric findings reported above suggest that a RTW law, other things equal, increases state gross product by about 1.8%, and total state employment by about 1%. The implied effect for British Columbia would be an increase in gross output of about \$3.9 billion—about \$844 per capita—and an increase in total employment of a bit less than 19,000.

Ontario's gross product in 2012 was about \$654.6 billion, and total employment was about 5.65 million.⁴³ The findings reported here suggest that an RTW law would increase Ontario's gross product by about \$11.8 billion—about \$874 per capita—and employment by about almost 57,000.

Those predicted effects are not trivial. Moreover, Indiana and Michigan adopted RTW laws in 2012, the prospective effects of which are not reflected in the data analysis above. Those policy shifts will increase the competitive pressures on Ohio to enact similar legislation, or at a minimum to implement other policies that would increase the state's competitiveness. That prospect should engender a debate in Canada and in the provinces about policy reforms needed to maintain and enhance competitive positions. A RTW law should be prominent among them.

Notes

42. See Statistics Canada (2012), *Gross Domestic Product, Expenditure-based, by Province and Territory* and (2013b), *Employment, by Enterprise Size, by Province and Territory (British Columbia)*, respectively.
43. See Statistics Canada (2012), *Gross Domestic Product, Expenditure-based, by Province and Territory* and <<http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labr77g-eng.htm>>, respectively.

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