

The Causal Effect of Labor Unions

In The U.S. Context

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A Research Design Perspective

My focus is very narrow – the U.S. (mostly), industrial unions (mostly). I have used a number of research designs and my personal evaluations:

Research Design

Cross Section

Panel Data

Before–After Design with
a “control group”

Regression Discontinuity

How “Good is it”

Minimally OK at best

Minimally OK but maybe
better than cross-section

A little better?

Best

The Puzzle

<u>Research Design</u>	<u>Estimated Wage Effect</u>
Cross Section	10% – 40%
Panel Data	10% – 40%
Before–After Design with a “control group”	10% – 40%
Regression Discontinuity DiNardo and Lee (2004)	-2 to 0 percent ¹

1 With enough precision to easily rule out a 5 percent wage gain after 4-7 years following the election

One of these is not like the others!

A Research Design Perspective

My Resolution

There are lots of ways to resolve the puzzle.

1. Every published estimate except DiNardo and Lee (2004) is biased.
2. Every published estimate except DiNardo and Lee (2004) is unbiased.
3. There are easy ways to reconcile such estimates. I would like to treat both DiNardo and Lee (2004) and the others – “ceteris paribus” comparisons – seriously.
4. One immediate problem is that the interpretation of the “ceteris paribus” estimates are unclear because they are not specific about the “manipulation” (as in “No Causation Without Manipulation.”)
5. The ceteris paribus estimates are not merely a chimera but estimate a different (but also interesting) parameter.
6. The conclusions aren't particularly unique.

A Research Design Perspective

My Resolution

Research Design

Cross Section

Panel Data

Before–After Design with
a “control group”

Regression Discontinuity

Experiment or Intervention

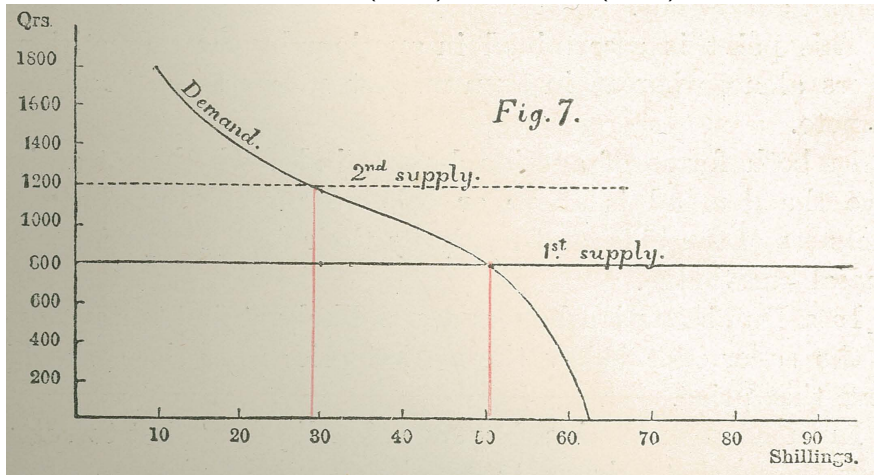
Who Knows?

A person lucky enough to get a union job. A firm effect. But where do the unionized jobs come from? “Abolishing Unions” I.E. Card, Lemieux and Riddell (2003) for Canada, the UK, and the US. DiNardo and Lemieux (1997) for the U.S. and Canada. The “Reagan” and “Thatcher” Experiments.

Obvious. The effect of unionizing a single establishment.

In The "Beginning"

The "modern" / "textbook" labor economics approach is as old as "supply and demand" and predates Alfred Marshall's development of the demand curve. Jenkin (1868) and Jenkin (1870):



In The “Beginning”

1. In Mankiw's Macroeconomics (1997), for example, this picture is used to explain the existence of unemployment (The complete list also includes minimum wage legislation and efficiency wages under the rubric real-wage rigidity)
2. Jenkin (1868), ironically, reviews and rejects Mankiw-like arguments except for unimportant and very “local” situations.
3. Jenkin concludes (like Adam Smith) that (subject to some constraints, like protection for “knobsticks”) unions are a good thing – they raise wages but don't create unemployment.
4. He concludes the problem is a misunderstanding about “demand” and “supply.” What affects the number of workers who are “willing” to “supply their labor” at a given price?

Motive but not Method

1. Although the unit of observation that would seem to be the most appropriate would be the establishment (Pencavel 1994, Freeman and Kleiner 1999) the focus has been on individual level data.
2. Pre-H. Gregg Lewis' landmark review, Friedman (1950) argued that industrial unions in the main had **no** effects on either wages or employment.
If they couldn't affect the supply of labor they couldn't do anything. They mainly existed to take credit for things that would have taken place anyway.
3. Lewis (1963) moved the U.S. consensus to the view that union wage gap was on average 15 percent.

Motive but not Method

1. Although with little empirical evidence, Freeman and Medoff (1984) argued on the basis of the overwhelming evidence of union wage differentials that the employment effects must be small, essentially on the basis of Jenkin's original diagram.
2. Some dissent on the basis that something like the "efficient contracts" model argued that unions didn't merely raise wages but acted as a way to transfer "rents" from capitalists to workers.

Types of Individual Estimates

From Kuhn (1987) reviewing Lewis (1986)

Excluding 'macro' estimates, which are known to be contaminated by "extent-of-unionism" effects and have now thankfully been superseded by estimates on individual data, Lewis reviews three kinds of union wage effects . . .

- ▶ *OLS earnings regressions on individual, cross-section data . . .*
- ▶ *panel studies . . .*
- ▶ *simultaneous equation studies . . .*

. . . [with these latter two studies representing essentially] attempts to solve [the problem] of 'omitted-variables' bias.

What “Ceteris” is Paribus?

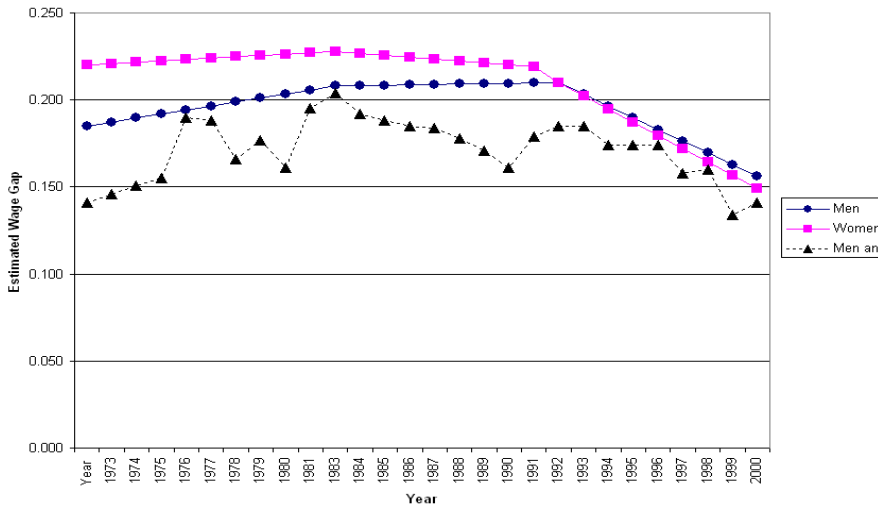
1. U.S. developments on the econometrics have been impressive, but focused for (understandable) reasons on trying to estimate increasingly complicated variants of :
2. $E[w_i(1) - w_i(0)]$
3. ATE, LATE, MTE, PRTE, etc.

Although generally not “quasi – experimental” a prodigious effort spent on compelling attempts to satisfy “ceteris paribus” conditions.

Many, Many, Compelling Ceteris Paribus Comparisons

- ▶ Ashenfelter (1978) who constructs control groups based on industry, race, and worker type (i.e. craftsmen, operatives, laborers)
- ▶ Freeman (1984) who compares wage rates for the same individual at different points in time. At one point in time the workers is in a unionized job at a different point in time the worker is in a non-unionized job.
- ▶ Lemieux (1998) compares wage rates for the same individual who holds two jobs, one of which is unionized, the other which is not.
- ▶ Krashinsky (2004) compares wage rates of identical twins one who is unionized and one who is not.
- ▶ Card (1992) who constructs control groups based on observable characteristics which tend to receive the same wage in the non-union sector as well as controlling for differences in permanent characteristics (i.e. person-specific fixed effects)

Union Wage Gaps – Always 15% – 40%



Interpretation Problem

Ceteris paribus seems to be satisfied, but the problem is,

What is the experiment?

The DiNardo – Lee Experiment – The Reality

- ▶ In the U.S. the right of workers (not previously “unionized”) in an private sector establishment (not a firm or industry) to bargain collectively usually happens as the result of a process which results in workers voting in a secret ballot election.
- ▶ If fifty-percent plus 1 workers vote in favor the union, the workers have won the right to bargain collectively. In two papers DiNardo and Lee (2002), DiNardo and Lee (2004), we analyze the experiment that comes from this process for the period 1984-2001.
- ▶ This is how most establishment became unionized since the end of World War II became to unionized.

Naive Comparisons Look Bad for Unionization

	N	Full Sample	Union Loss	Union Win	Difference
Survival (Indicator Variable), 2001	27622	0.417 (0.003)	0.430 (0.004)	0.400 (0.005)	-0.030 (0.006)
Employment, 2001	26355	83.4 (1.7)	88.3 (2.2)	76.8 (2.7)	-11.5 (3.5)
Log of Employment, 2001	10265	4.42 (0.01)	4.51 (0.02)	4.30 (0.02)	-0.22 (0.03)
Sales Volume, 2001	25719	14225 (321)	16250 (454)	11501 (441)	-4750 (633)
Log of Sales Volume, 2001	9629	9.34 (0.02)	9.48 (0.02)	9.14 (0.03)	-0.35 (0.04)

Important Note

1. The NLRB is often described as an important “beginning”, but in some ways was it “the end” (Freeman 1998). More on this later.
2. For example, striker replacement de facto legal since 1938 (Mackay decision)
3. Employer under no requirement except to “bargain in good faith.” No legal mechanism to “force” employer to change his/her behavior in any way.
4. With later legislation, essentially limited **legal** union organizing effectively to “one (or a few) establishments at a time.”
5. No election is actually required. (Eaton and Kriesky 2001, Budd and Heinz 1996)

Sidenote

- ▶ A “bizarre provision” (McCulloch and Bornstein 1974) in the law creating the National Labor Relations Board (NLRB) (the body that conducts union recognition elections) is that it must refrain from employing “individuals for the purpose of . . . economic analysis”!¹
- ▶ The law also creates “laboratory conditions” for our experiment.

¹The history of the provision is obscure, but may have to do with allegations of “communist” influence. (Gross 1974, McCulloch and Bornstein 1974)

The DiNardo – Lee Experiment – The Econometrics

- ▶ This reality comes close to an “ideal” randomized controlled trial for those firms who have a probability of facing a “close” vote.
- ▶ Two sets of otherwise similar firms – one by chance becomes unionized, the other one, by chance, is not.
- ▶ Plenty of over-identification tests – all pass.

The Picture

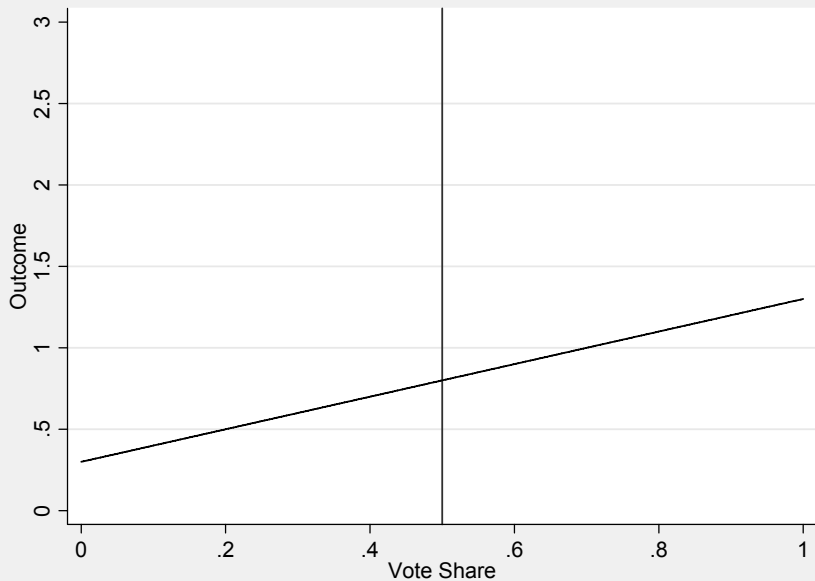
Plot $E[\text{Outcome} | \text{Vote Share} = \text{specific value}]$

If plot is smooth through 50%, there is no effect.

If plot “jumps” at 50 percent, the vertical height at the 50% vote share is the causal effect.

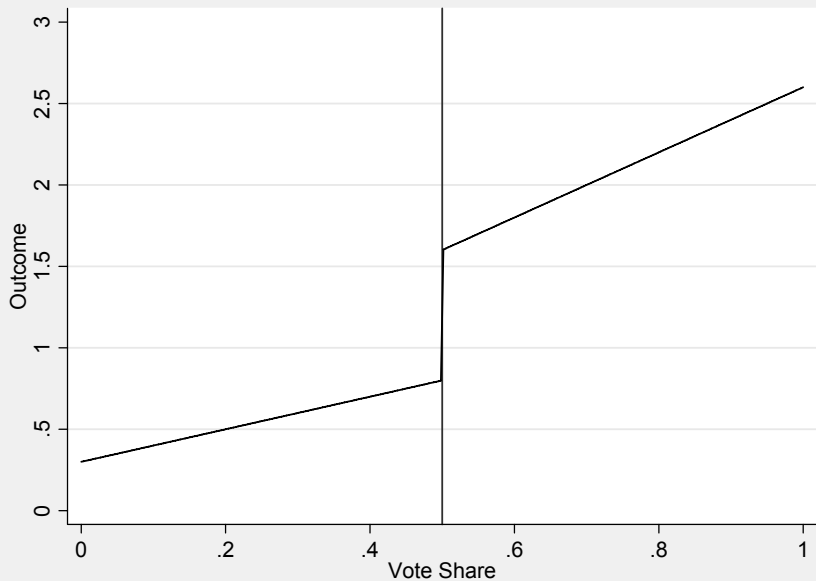
Idealized Regression Discontinuity

No Effect or "Balanced Covariates"

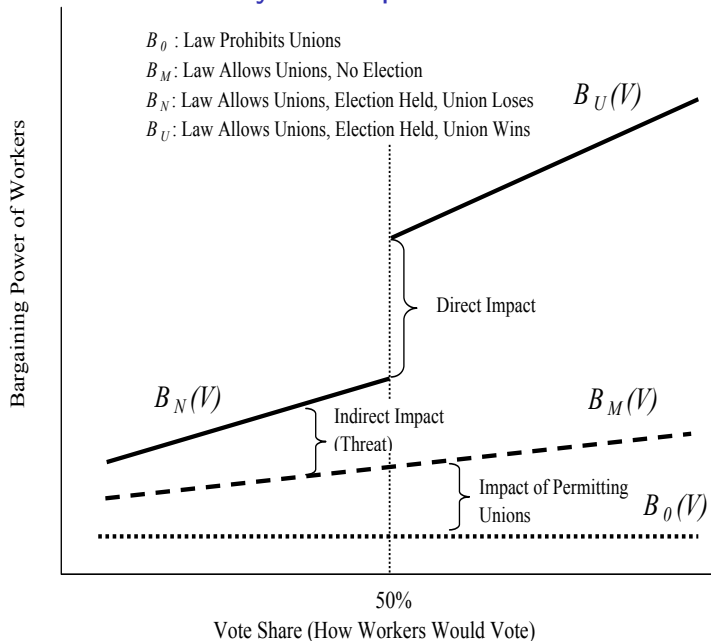


Idealized Regression Discontinuity

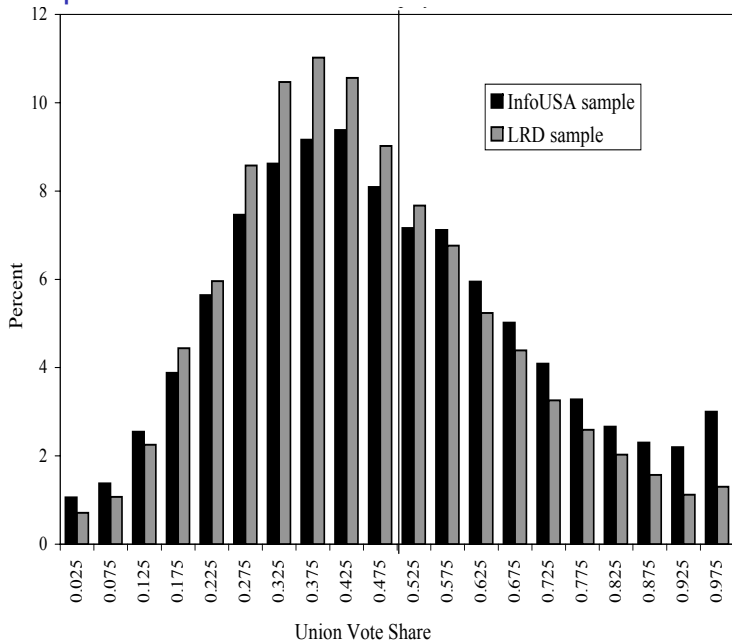
Causal Effect



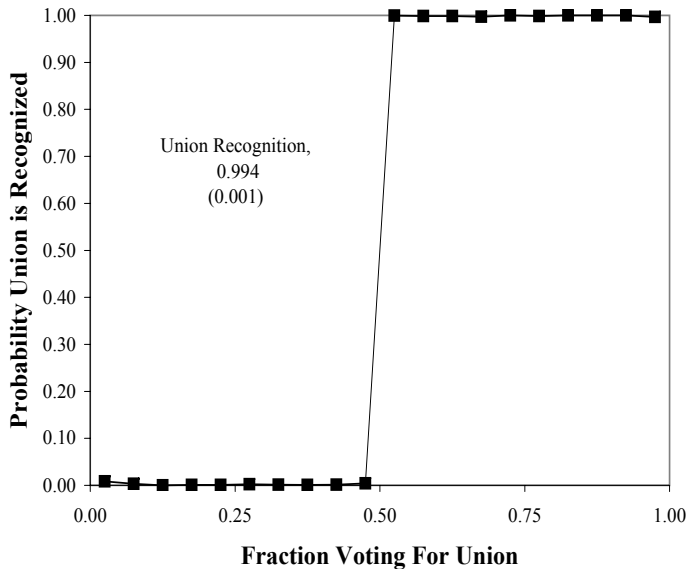
What is identified by the experiment?



The Experiment is Relevant



There is a Clear Discontinuity



Is It Even Possible to Estimate a Union Wage Effect? I

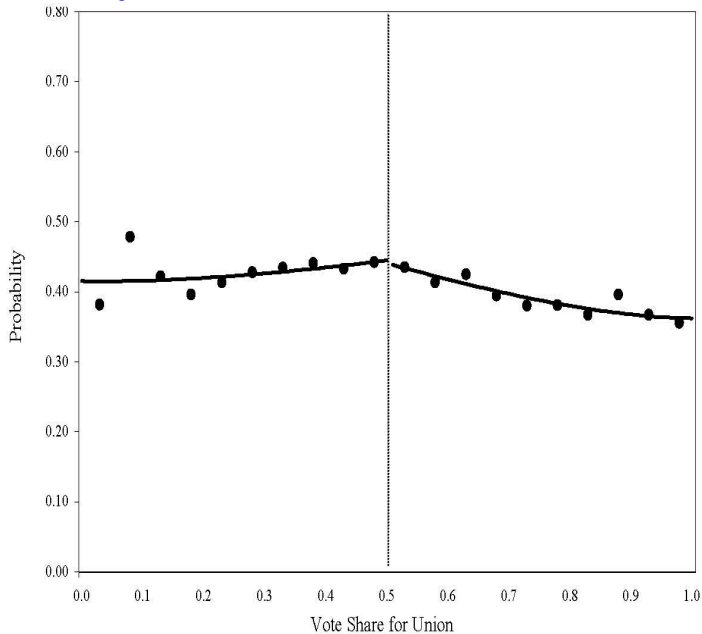
In general, the answer is **No** if the world looks like a variant of Jenkin's picture where "above market" rates lead to establishment failure.

1. To make this clear, suppose the experiment was randomly allow a subset of workplaces where the union would win a vote if it conducted.
2. In principle, you would like to compare the wages at those plants where unions were allowed to those where they were not.
3. Further suppose unions "kill the goose that lays the golden egg."

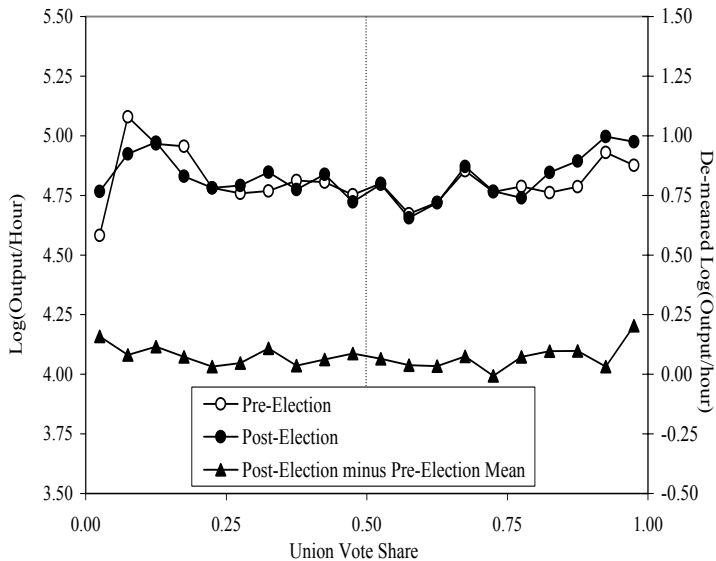
Is It Even Possible to Estimate a Union Wage Effect? II

4. If that is true, you are only able to estimate the effect of unionization on survival. You couldn't estimate a wage effect because the remaining unionized firms would be a selected example (you might be able to bound the wage premium.)
5. You can only look at the treatment effect on wages if firms have no impact on survival.

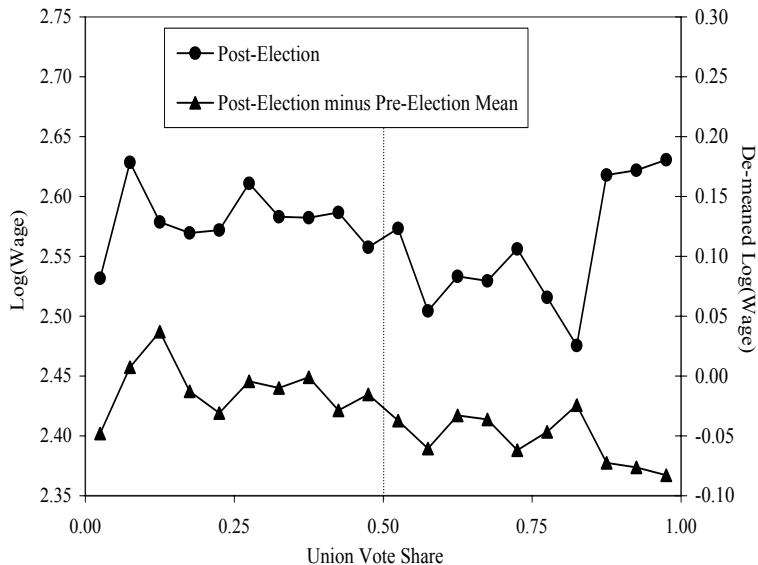
“Fortunately”, No Effect on Survival



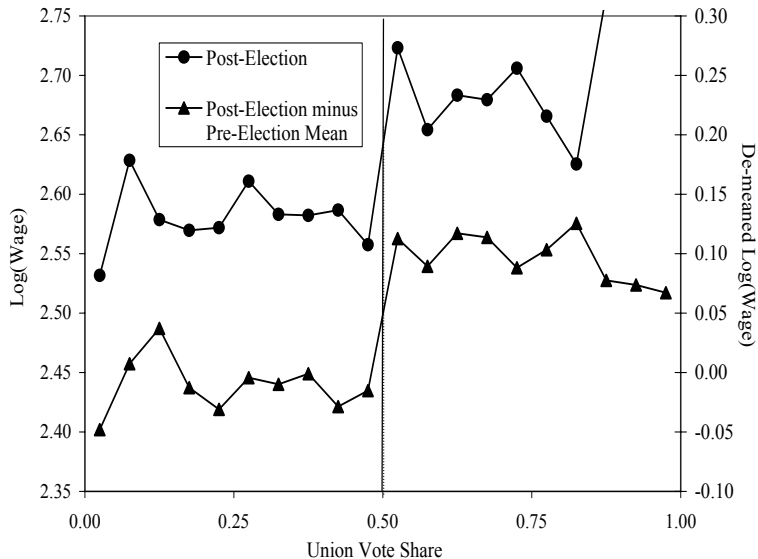
No Effect on Output



No Effect On Wages



What we should have expected to see with a 15% differential



Surprise?

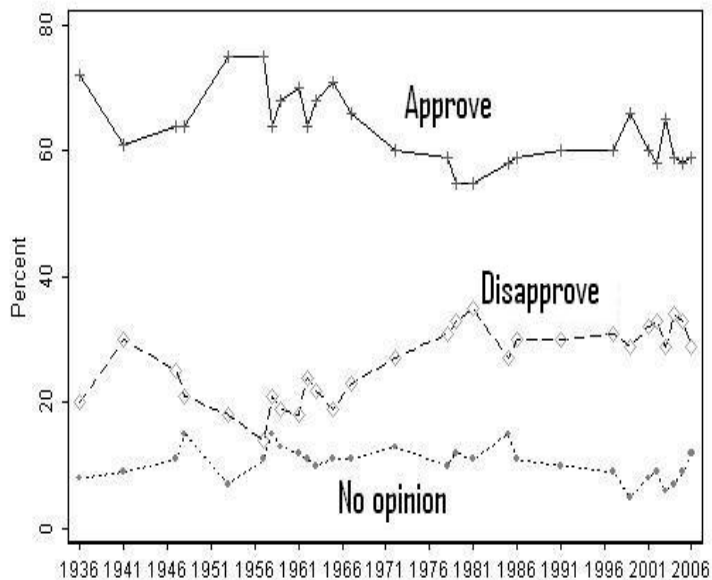
No effects on:

1. Establishment survival
2. Sales
3. Productivity
4. Total man-hours
5. etc.
6. Wages

Did We Have the Most Salient Experiment

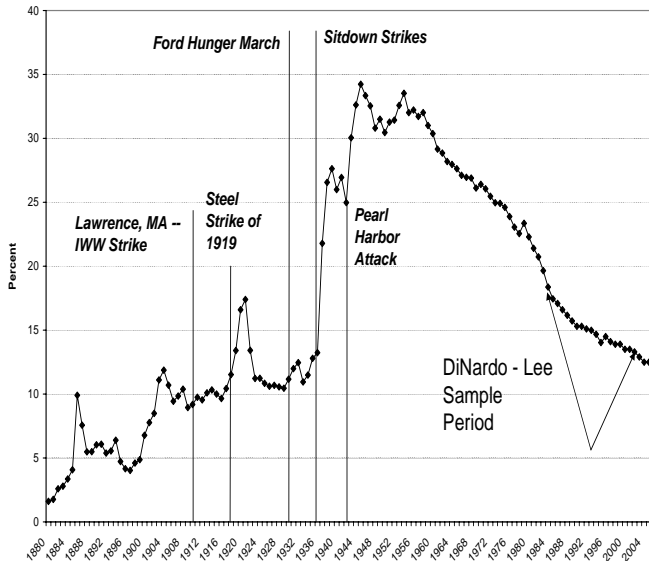
- ▶ Arguably yes – at least since the end of World War II.
- ▶ Over significant business opposition, unions were “allowed” to organize under NLRB regime.

Sidenote: Are Unions Less Popular Now



How Did Unions Organize Before World War II

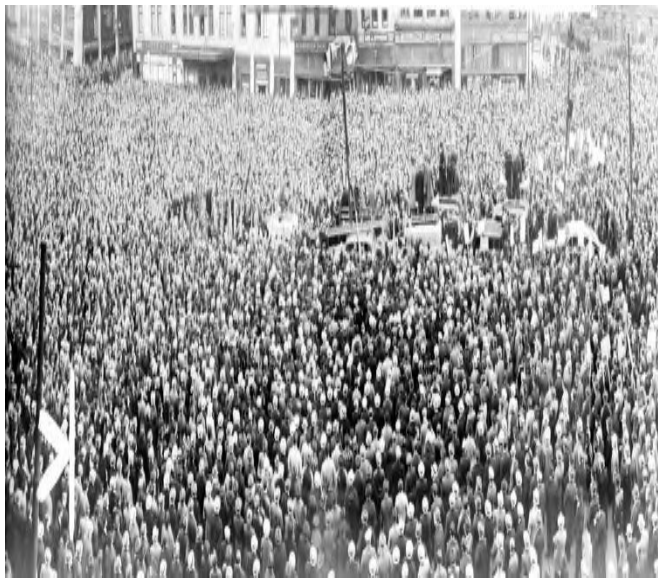
Most unionization before World War II was **far less voluntary**.



Recognition Without Elections or even “Card Checks”

1. To take one example, for two of the “Big Three” automakers, there was no election. Henry Ford “allowed” an election whose outcome was certain in advance (except maybe to him!)
2. How did the unions do it?
3. “High demand????” No. The Great Depression.

UAW – General Motors



UAW – Chrysler



UAW – Ford

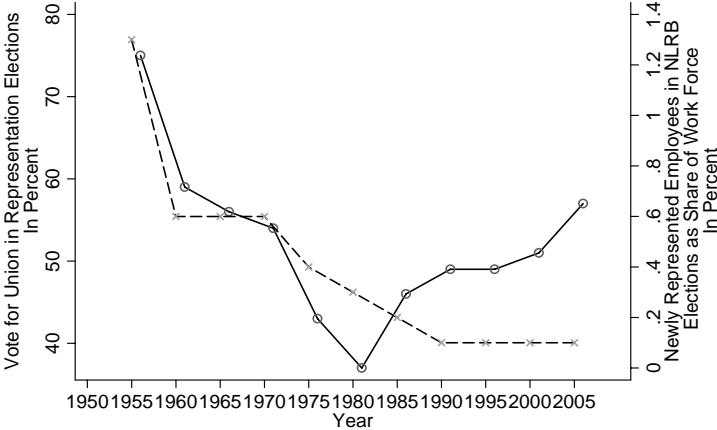


A Little Help from World War II

and less help from the NLRB

World War II may have “helped” prevent a quick “slide back” to pre-existing expectations.(Freeman 1998)

NLRB Elections Were **Never** a Large Fraction of Workers

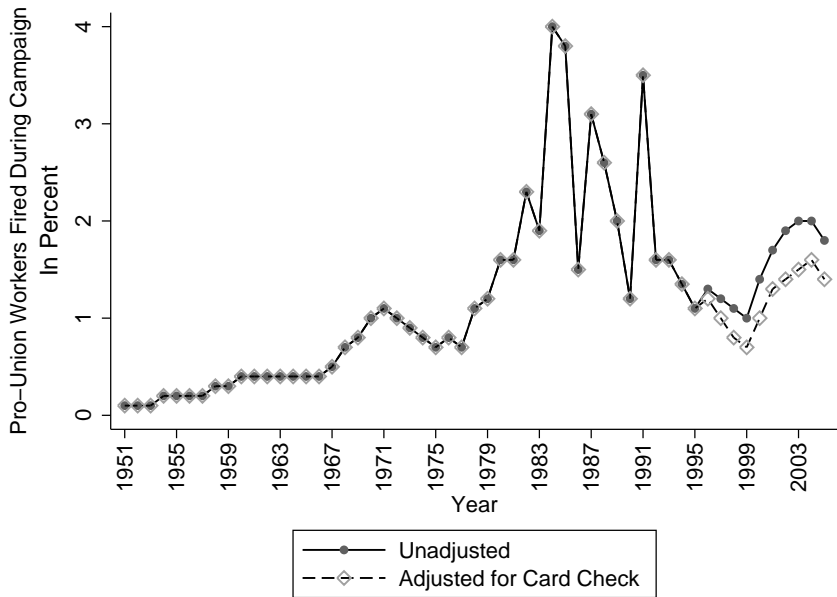


—○— Vote For Union In NLRB Election
---*--- New Union Members as Fraction of Employed

Threat Effects

1. NLRB elections aren't/weren't a serious threat.
2. When we tried assessing whether wages rise in response to an election, even when the union eventually loses the point estimates are small and statistically insignificant, ruling out, for example, a 3 percent union wage “threat” effect, 3 years after the election.
3. Perhaps of the action is with “threat” effects but not of the type usual envisioned.
4. What affects “the willingness to supply labor” at a given wage?
5. Why has “voluntary recognition” or card-check become more common? (Schmitt and Zipperer 2007) To minimize “cost” of organizing.

Has Management Opposition Technology Gotten Better?







Lots of Theories

- ▶ The traditional models **are** fragile – (Jenkin 1870, Manning 1994) “Putty–Clay” versus “Putty – Putty.” Other models:
- ▶ Skaperdas (1992) — Conflict Technology.
- ▶ Acemoglu and Robinson (2000) — Why Did the West Extend the Franchise?
- ▶ How to put these propositions to a “severe” test?





Some Conclusions

1. The effect of unions organizing a single establishment is zero in terms of wages, productivity, etc. that the firm must pay. (May have other effects – working on these.)
2. One way to think about conventional “ceteris paribus” union wage effects is that they are “contaminated” by a “firm” or “industry” fixed effect.
3. But where do these fixed effects come from?
4. Labor Unions?






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