

Four Biases and a Funeral

Dr. Vedder's Faulty Experiment Linking
Michigan's Prevailing Wage Law to
Construction Employment

By

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Introduction

We have already learned that prevailing wage laws encourage construction to develop along a high-skill, high-wage, capital intensive and human-capital intensive growth path. This leads critics of prevailing wage laws to look at the other side of the coin. If prevailing wage laws encourage skill development and capital development, then getting rid of prevailing wage laws ought to encourage just the opposite—low-skill, low-wage, labor intensive construction. All other things being equal, there is a silver lining to this dark cloud—the jobs might be lousy, but there ought to be more of them. If you build a dam with shovels and buckets, you need a lot of low wage labor to get it done. In theory, this is rock solid reasoning.

The catch is, everything else has to stay the same. It might be that high-skilled construction better supports the infrastructure needed for industrial and high-technology development. It might be that dams build by the bucket brigade fail. Because everything else does not always stay the same when you switch to a low-skill, lesser equipped, poorly paid labor force, it might be that the silver lining of this growth path—more jobs—loses its luster due to poorer overall growth or other factors. It is not a matter for theory and back of the envelop calculations. It is a matter for careful empirical research.

One economist, Richard Vedder, in a publication for the Mackinac Center for Public Policy is attracted to the silver lining promised by advocates of prevailing wage law repeal. He agrees that when prevailing wage laws are suspended or eliminated, contractors suspend training, they retrench on human capital investment, they cut investment in new equipment, and they switch to a less skilled, lower paid labor force. With less physical and human capital on the job, Dr. Vedder realizes that contractors have to throw more labor at the problem. The question is—how much unskilled labor is needed?

Dr. Vedder designed an experiment to answer the question—how many low-skilled, low wage jobs were created when Michigan suspended its prevailing wage law? Dr. Vedder uses a simple before-and-after experiment that purportedly measures how many new low-wage construction jobs were created when Michigan suspended its prevailing wage law in December of 1994. This experiment tries to control for other factors that influence construction employment. Dr. Vedder believes his experiment reliably separates out the effects of seasonal fluctuations in employment, unusual weather conditions and the overall state of the business cycle. This experiment purports to control for all the other various important factors that push construction employment up or down. Dr. Vedder says his experiment controls for the ups and downs of seasonal changes in construction employment. He says that his experiment controls for the vagaries of weather that might confound his effort to detect the effect of prevailing wage regulations. He says his experiment controls for the overall business conditions within a state. So the business cycle can be accounted for prior to measuring the effect of prevailing wage regulations on construction employment. Dr. Vedder claims his experiment accurately and reliably isolates the separate and specific effect of prevailing wage regulations on construction employment.

The punch-line of Dr. Vedder's experiment is delivered in the first bullet of the first page of Dr. Vedder's paper "Michigan's Prevailing wage Law and Its Effects on Government Spending and Construction Employment." He states:

- “During the 30 months (December 1994–June 1997) when the law was ruled invalid, more than 11,000 new jobs [in construction] were created as a consequence of the law’s invalidation—and the long term impact is much greater.”

This conclusion is wrong. Applying Dr. Vedder’s experiment to other states shows why.

- Oklahoma’s prevailing wage law was judicially annulled in November of 1995. According to Dr. Vedder’s experiment, Oklahoma lost over 2,000 construction jobs due to the elimination of the state’s prevailing wage law.
- Ohio exempted public school construction from the state’s prevailing wage law in July of 1997. According to Dr. Vedder’s analysis, Ohio lost over 6,000 construction jobs because Ohio ceased applying prevailing wage regulations to public school construction.
- In contrast, Kentucky expanded its prevailing wage law in July of 1996 to cover public school and municipal construction. According to Dr. Vedder’s experiment, Kentucky gained over 2,900 new construction jobs by extending its prevailing wage law to public school construction.

In the mid-1980s, five states repealed their prevailing wage laws. Applying Dr. Vedder’s experiment to these cases yields in round numbers the following results:

- Colorado lost 28,000 construction jobs (1985).
- Idaho lost 4,000 construction jobs (1985).
- New Hampshire lost 3,000 construction jobs (1985).
- Kansas lost 18,000 construction jobs (1987).
- Louisiana lost 12,000 construction jobs (1988).

Table 1 summarizes the predictions of Dr. Vedder’s theory, and the outcomes of his experiment in Michigan, in the three states that changed their laws in the mid-1990s and the five states that repealed their laws in the mid-1980s.

Table 1: Predicted Outcomes from the Application of Dr. Vedder’s Experiment to Four States that Changed their Prevailing Wage Laws in the Mid-1990s

State	Legal Event	Occurrence	Construction Employment		Replication Result
			Vedder’s Prediction	What Actually Happened	
Michigan	Law Suspended	Dec-94	Up	Up	
Oklahoma	Law Judicially Annulled	Nov-95	Up	Down	Wrong
Ohio	Public Schools Exempted from Law	Jul-97	Up	Down	Wrong
Kentucky	Law Applied to Schools	Jul-96	Down	Up	Wrong
Louisiana	Repealed Law	Jul-88	Up	Down	Wrong
Kansas	Repealed Law	Jun-87	Up	Down	Wrong
New Hampshire	Repealed Law	Jul-95	Up	Down	Wrong
Colorado	Repealed Law	1985*	Up	Down	Wrong
Idaho	Repealed Law	1985*	Up	Down	Wrong

*In these two cases, I was unable to determine the month of the repeal. I have assumed July.

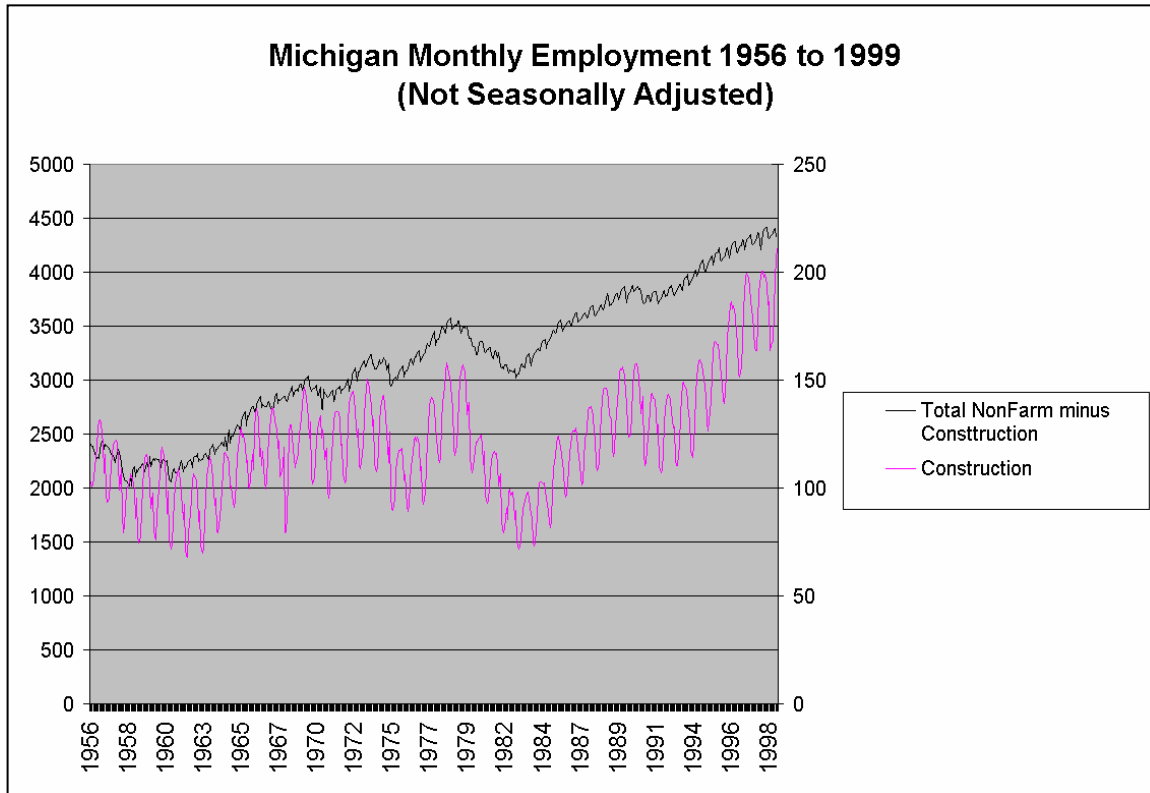
In order to determine the validity of a researcher’s results, scientists attempt to replicate that researcher’s experiment. Dr. Vedder’s results cannot be replicated using Dr. Vedder’s own experiment. This is why Dr. Vedder’s claim that Michigan gained over 11,000 new construction jobs by suspending the state’s prevailing wage law is wrong.

But if Dr. Vedder's experiment came out "wrong" in eight-out-of-eight other states that either implemented or annulled their law in the mid-1990s, or repealed their laws in the mid-1980s, why did Dr. Vedder's experiment come out "right" in the case of Michigan? The main reason is plain dumb luck. But there are four ways in which inadvertently or purposely, Dr. Vedder loaded his experiment so that it would generate the result he expected. These four biases within his experiment are:

- 1) Dr. Vedder chose before and after periods in his experiment that biased the before period towards lower employment growth and biased the after period to higher employment growth.
- 2) Dr. Vedder used his own privately calculated, seasonally adjusted, employment data rather than publicly available U.S. Bureau of Labor Statistics seasonally adjusted, employment data. When Dr. Vedder's experiment is run on public data, the results are not as "right" as Dr. Vedder reports for his own data.
- 3) Dr. Vedder claims, without supporting evidence, that December, 1994 was an unusually warm and mild month. Thus, he does not believe his own, personally calculated, seasonally adjusted data sufficiently control for the fluctuations in employment. Consequently, he artificially lowers December 1994's employment level by averaging it with his seasonally adjusted data for October and November. By his own reckoning, this "weather control" adds over 4,000 jobs to his calculation of the job gain he ties to the suspension of prevailing wage regulations. Had Dr. Vedder averaged December 1994's employment data with January and February, 1995, he would have had to subtract jobs from his estimate rather than add.
- 4) Dr. Vedder assumes a weak connection between Michigan's overall business cycle and swings in construction employment. It is well known that the construction business cycle typically swings more widely than the overall business cycle. When the economy gets a cold, construction gets the flu. When the economy is happy, construction is manic. This means that when overall employment in Michigan grows by say 10%, construction employment is likely to grow much faster, (say 20%). Dr. Vedder ignores this exponential relationship. He assumes that the construction business cycle moves in tandem with the overall business cycle. So when overall employment grows by 10%, Dr. Vedder assumes construction employment should grow by 10%. If construction employment grows by more than 10%, Dr. Vedder assumes this is "extra" job creation that can be attributed to the suspension of prevailing wage regulations. The Michigan economy did accelerate faster in the after-period of Dr. Vedder's experiment. Construction employment outraced the growth in overall employment. Rather than saying "well that is just a reflection of the manic-depressive nature of construction," Dr. Vedder says this extra employment can be laid at the doorstep of deregulation.

These are tricks. They work when you know a state suspended its law in the off-season. They work when you know that the economy accelerated after the law was suspended. They work under these conditions if the legal change is a suspension not an enactment. By applying Dr. Vedder's experiment with its embedded tricks to other states, the game changes. Some states change their law in the summer rather than the winter. Other states are moving into a slow-down rather than accelerating. The legal change might be an enactment rather than a suspension. In short, unconsciously or purposely, Dr. Vedder's experiment was custom fit to generate the "right" results when applied to Michigan. When his experiment is applied to other states, it comes out wrong each time. One of three things is possible. Either Dr. Vedder's theory is wrong, or his experiment is faulty, or both. In any case, his claim that Michigan gained 11,000 new jobs by suspending the state's prevailing wage law is false.

Figure 1.1



When the economy gets a cold, construction gets the flu. When the economy is happy, construction is manic. Figure 1.1 shows actual monthly employment in construction and overall employment in the Michigan economy from 1956 to 1999. Overall employment is measured on the left vertical axis while construction employment is measured on the right vertical axis. The churning and turbulence in construction employment is clearly greater than that for overall employment. This makes isolating the effect of prevailing wage regulations on construction employment inherently difficult. Not short of courage, Dr. Vedder tackles this problem by comparing a before period that runs from a June employment peak in 1992 to a December employment trough in 1994. This is his before period under regulation. His after period under suspension runs from a December employment trough in 1994 to a June employment peak in 1997. He could have chosen December-to-December comparisons, but he preferred to rely on privately calculated seasonal adjustments to these data to deal with this problem. When it comes to business cycle fluctuations across years, Dr. Vedder assumes that when Michigan's economy goes up 10%, construction should go up 10%. Any extra run-up in construction employment Dr. Vedder attributes to deregulation. But an examination of Figure 1 shows this to be a false assumption. During the expansion from 1982 to 1990, total non-farm Michigan employment goes from 3.2 million in June of 1982 to almost 4 million in June of 1990—up 33%. Construction employment was 80,000 in June of 1992 and rose to 144,000 by June of 1990—up 80%. This was not extra construction employment attributable to some unusual cause. This was typical of construction expansions

Understanding Richard Vedder's Experiment.

Construction employment is notoriously unstable. When the overall economy slows, construction usually tanks. When things are going well in the overall economy, usually construction goes gangbusters. In short, construction employment is hyper-sensitive to the overall booms and busts of the business cycle in the economy. In addition, to the ebb and flow of the economy during periods of boom and recession, construction is seasonal. Employment peaks in the summertime and bottoms out in the winter. Furthermore, outdoor construction is sensitive to weather interruptions. All of these factors create a churning and turbulence in construction employment that is much greater than in the economy as a whole. Thus, isolating the effects of prevailing wage laws on construction employment is no easy task susceptible to simple analysis.

Nonetheless, Dr. Vedder presents himself as up to this task through the device of a simple before-and-after experiment. He wants to compare the growth in Michigan construction employment prior to the law's suspension—to the growth construction employment after the law's suspension. Michigan courts suspended the state's prevailing wage law in December of 1994. To make this comparison, Dr. Vedder chooses two equal lengths of time, one prior to, and the other after the law's suspension. Dr. Vedder could have chosen two 2-year periods for comparison. But instead he chose 30-month segments. This creates the first of four biases within his experiment. This is an apples-to-oranges bias where his before-segment, under regulation goes from a peak employment month, June 1992, to a trough employment month, December 1994. In contrast, his after-segment under suspension goes from a trough month, December 1984, to a peak employment month, June, 1997.

1) The Time Period Bias—An Apples and Oranges Problem

Construction is seasonal. Work peaks in the summer and falls off in the winter. Dr. Vedder's before-period begins high in June 1992 and ends low in December, 1994. So, all other things being equal, his experiment would start at a high point and end at a low point. This would artificially hide whatever job growth took place in this period under prevailing wage regulations. Dr. Vedder has just the opposite problem in his after-period. He starts with a low period in December 1994 and ends with a high period in June of 1997. All other things being equal, starting in a low month and ending in a high month artificially raises the measure of how much job growth occurred while the law was suspended.

Dr. Vedder's solution to this problem is to switch from using actual employment data to seasonally adjusted employment data. In simple terms, seasonally adjusted data lowers estimated construction employment in the summer months and/or raises estimated construction employment in the winter months to smooth out the effects of seasonal variations in employment patterns.

Now a funny thing happens here. Seasonally adjusted, monthly, construction employment data for Michigan (and all other states) are published by the U.S. Bureau of Labor Statistics(BLS). They are widely available including in electronic form on the Bureau of Labor Statistics web site. Indeed the BLS state and area employment, hours and earnings web page is listed as one of the top twenty requested data series that the BLS

has to offer.¹ Without explanation, Dr. Vedder does not use this widely used, seasonally adjusted, data series. Rather he makes his own seasonally adjusted data “following [the states] standard procedures used by the U.S. Department of Commerce and other federal agencies.”² It appears that using his own data influences Dr. Vedder’s ultimate results. If you use Dr. Vedder’s methods and assumptions to the letter, but use government published seasonally adjusted employment data, Dr. Vedder’s calculations result in 1,622 fewer new construction jobs compared to his published estimate.

Because Dr. Vedder does not explain why he is making his own calculations, we cannot know if they are superior in some way to the data that are widely used. We do know, however, that his personally calculated data tilt the results of his experiment in the direction of the conclusions he ultimately supports.

So now, for better or worse, Dr. Vedder’s experiment will control for seasonality using his privately calculated data. Hopefully, the fact that his after period ends on a high note and his before period ends on a low note will now not confound his effort to detect the effect of prevailing wage regulations.

2) The Dividing Line Bias—A Two-For-One Deal

Construction can be punctuated with brief periods of exceptionally bad or surprisingly good weather. We are not talking here about the fact that it snows every winter. Typical seasonal fluctuations in weather are supposed to be accounted for by using seasonally adjusted employment data. Dr. Vedder’s weather adjustment is designed to control for snow in July and Indian Summer in December. Dr. Vedder worries that December 1994 might have been just such an extraordinary month, one that was so mild and so balmy that construction employment was abnormally high. He is afraid that December, 1994 overstated job growth under regulation by jacking up the endpoint of his before period. He is also afraid that December 1994 understated subsequent job growth in his after period by creating to high of a starting point. What to do?

What Dr. Vedder does is adjust December’s seasonally-adjusted data once again. He pulls down December’s employment by averaging it with seasonally-adjusted employment for October and November of 1994. Why do October and November numbers artificially pull employment down in December? Shouldn’t October and November employment be higher? Remember this is already seasonally adjusted data. In this adjusted data, October and November employment is lower than December’s. So by averaging December with preceding months, the endpoint for Dr. Vedder’s before period falls. This lowers his estimate of job growth from June 1992 to “December” 1994. But hey, that is not all it does.

By lowering his estimate for employment in “December” 1994, Dr. Vedder lowers the starting point for his after-period under suspension. No matter what the level of employment at the end of the after period, lowering the beginning point of the after-period automatically raises Dr. Vedder’s estimate of job growth in his after-period under suspension. It is a two-for-one deal. By average seasonally adjusted December 1994 construction employment with October and November, Dr. Vedder lowers job growth under regulation, raises job growth under suspension and widens the difference

¹ These data may be reached at <http://stats.bls.gov/top20.html>. Select state and area employment, then select Michigan. Finally select Michigan Construction Employment Seasonally Adjusted – series SAS2600002000011. Select the table format you prefer and the years you wish going back to 1982. The data are then immediately downloaded.

² See footnote 8 in Vedder “Michigan’s Prevailing Wage Law and Its Effects on government Spending and Construction Employment.”

dramatically. By Dr. Vedder's own reckoning, this "adjustment" alone adds over 4,000 jobs to his estimate of job gain under suspension. In other words, one-third of Dr. Vedder's ultimate finding would disappear if he had not changed his dividing line from the actual month December, to an average of the three months October-November-December.³

What would happen to Dr. Vedder's calculation if his dividing line between before-and-after became December-January-February instead of October-November-December? In Dr. Vedder's seasonally adjusted data, his construction employment figures for January and February 1995 appear higher than his employment figure for December.⁴ Had Dr. Vedder chosen to adjust for an allegedly unusually warm December 1994 by averaging its employment with that for January and February, then Dr. Vedder's cutoff employment figure would have gone up. The endpoint for construction employment under prevailing wage regulations would be higher, and the beginning point for employment growth under suspension would be higher. This would have tilted Dr. Vedder's experiment to find more growth under prevailing wages and less growth under suspension. And the tilt would have been substantial. Rather than adding 4,000 workers to his estimate of job gain, he would be subtracting workers.

But the arithmetic is secondary. Experiments are sometimes more revealing of the experimenter than they are of reality. Dr. Vedder introduced a control that moved around his results dramatically. He did not present any direct evidence that December 1994 was so unusually mild and balmy that it required this dramatic adjustment. When he made his adjustment he had three choices. He could have averaged three months prior to the law's suspension and tilt his experiment to find more job growth under suspension. He could have averaged three months after the suspension and tilt his experiment to find more job growth under regulation. Or he could have taken November-December-January, one month prior to suspension, the suspension month and one month after suspension. Because seasonally adjusted employment was rising, the lower month of November would have been offset by the higher month in January. Any weirdness in December could have been averaged out without tilting the experiment either way. Which of the three procedures would you have chosen? The fact that Dr. Vedder chose to tilt the experiment towards the conclusions he eventually promotes raises questions about the accuracy and reliability of those conclusions.

3) The Business Cycle Bias—When the Economy Gets a Cold, Construction Gets the Flu

Construction employment rides the demand for construction services which is associated with the overall business cycle. The entire 1990s has been an economic boom. But the boom in Michigan accelerated in the 30 months after December 1994 compared to the 30 months before suspension. Some (perhaps even all) of the faster construction job growth in Dr. Vedder's after-period is due to this pick-up in the overall economy.

Dr. Vedder tries to control for this confounding factor by looking at overall total non-farm employment growth in Michigan prior to and after the law was suspended.⁵ As it turns out, according to Dr. Vedder's calculations, in the overall Michigan economy 13% more jobs

³ This can be seen directly from Dr. Vedder's Table 1. The adjustment "For Weather Conditions" adds 4,134 new jobs to his estimate of the effect of suspending Michigan's prevailing wage law.

⁴ I say "appear" because these are privately calculated data and one has to read the data off of his Chart 2. It may be that January is higher but February is the same as December.

⁵ He uses seasonally adjusted data in his effort to avoid the apples-and-oranges problem associated with the ups and downs of seasonal employment.

were created in his after-period compared to his before-period. So the overall business cycle was booming in the second period compared to the first. Dr. Vedder tries to account for this by subtracting out 13% of the growth in seasonally adjusted construction employment in the second period. This procedure presumes a lockstep “linear” relationship between swings in the overall Michigan economy and swings in the Michigan construction economy. If this assumption is wrong, then the “extra” employment Dr. Vedder finds is simply a normal result of the construction business cycle over-shooting changes in the overall business cycle.

When the economy gets a cold, the construction industry gets the flu. When the economy is booming, the construction industry looks like it is on steroids. In short, business cycle fluctuations in the construction economy usually are more severe than business cycles in general. If the general economy grows by 10%, the construction economy might grow by 30% or even 50%. But Dr. Vedder’s control for the effects of the business cycle does not take into consideration the possibility of these exponential effects on construction. If there is a 13% growth in overall employment in an upturn, then Dr. Vedder assumes that the overall economy would generate a 13% increase in construction employment. Anything above that must not be due to general economic conditions and therefore can safely be attributed to regulatory changes.

In short, Dr. Vedder’s assumes that when the economy gets a cold, construction gets a cold. No flu shots are needed. If this assumption is false, then the “extra” employment that Dr. Vedder finds after Michigan’s prevailing wage law is suspended would actually be new jobs created by the more robust economy in his second period. Dr. Vedder’s experiment is not much of an experiment at all if he does not accurately control for business cycle effects. Just ask yourself—does the construction economy swing no more widely than the overall economy in Michigan? Are teachers and retail clerks and office workers thrown off jobs as often as construction workers? Do you think it is a good idea to design an experiment that assumes swings in construction employment look like swings in service sector employment or for public employees? Is it not possible that when Michigan’s overall economy accelerated, construction employment peeled rubber and really expanded? Is it a good idea to say “no that is not possible” and this extra employment can only be attributed to the suspension of the state’s prevailing wage law?

In Sum—Four Biases and a Funeral

Dr. Vedder sets up an experiment where the period under regulation automatically begins on a high note in June and ends on a low note in December. The period under suspension begins on a low note in December and ends on a high note in June. By itself, this procedure tilts the experiment to find less job growth under regulation and more job growth under suspension.

The dividing line of December 1994 is not of Dr. Vedder’s choosing. That is when the law changed. But Dr. Vedder could have chosen to compare two 24-month periods rather than two 30-month periods. This would have created a level playing field of December-to-December in both his before and after periods. Hoping perhaps for the benefits of six months more of data at either end of his experiment, Dr. Vedder chose to run the risk of biasing his results with unbalanced time segments.

To allay this bias, Dr. Vedder used seasonally adjusted data that presumably smoothes out the differences between June and December. But here Dr. Vedder uses his privately calculated, seasonally adjusted data rather than publicly available data from the U.S. Bureau of Labor Statistics. A replication of Dr. Vedder’s experiment with BLS data for

Michigan shows that Dr. Vedder's private calculations tilt the experiment's outcomes in favor of finding 1,600 more new jobs under suspension.

Dr. Vedder then worries about the possibility that the weather in December of 1994 was so unusual as to confound his private effort to seasonally adjust his employment data. So he artificially widens the line between his before and after periods. He averages December's construction employment with November and October. By his own reckoning, Dr. Vedder admits that this trick adds another 4,000 jobs to his estimate of new jobs created by the suspension. If Dr. Vedder had averaged December 1994 with the seasonally adjusted employment levels for January and February of 1995, he would have been subtracting jobs from his estimate of job gain rather than adding. Dr. Vedder presents no evidence showing that the weather in December 1994 was all that unusual. If he thought that was the case, a neutral adjustment would have been to average December with one month prior to suspension and one month after suspension. Dr. Vedder does not explain why he chose a tilting procedure when a neutral one was available to him.

Plunging forward, Dr. Vedder then tackles the most difficult problem—the business cycle. He does so in the simplest of ways. He assumes that the relationship is linear. When the economy gets a cold, construction gets a cold. This assumption allows him to conclude that any job growth in construction over and above job growth in the general economy is “extra”. He then attributes this “extra” job growth to the suspension of Michigan's prevailing wage law. But if, when the general economy muscles up, the construction economy looks like its on steroids, then the relationship between the general business cycle and the construction business cycle is not simple and linear. Rather it is complex and exponential. When the economy swoons, construction tanks. When the economy sails, construction flies. If this is true, then Dr. Vedder's “extra” construction employment may simply be the result of a general boom accelerating in his after period compared to his before period.

The proof is in the pudding and a funeral is in the making. Dr. Vedder has a theory. He says that controlling for seasonality, the weather, and the business cycle, when prevailing wage regulations are applied construction employment falls. When prevailing wage laws are lifted, construction employment rises. Dr. Vedder has an experiment. He says it shows that 11,000 extra new jobs were created in construction when the Michigan prevailing wage law was suspended. Completing the circle, Dr. Vedder's experiment seems to confirm his theory. But the rules of science say that you live or die on the ability to replicate your experiment. In fact, when applied to the three other states that changed their prevailing wage laws in the 1990s, and five other states that repealed their prevailing wage laws in the mid-1980s, Dr. Vedder's experiment contradicts his theory each time.

Applying Dr. Vedder's Experiment to Other States.

When we apply Dr. Vedder's experiment to eight other states that changed their laws, each time the results come out wrong.⁶ Whenever prevailing wage laws are eliminated, Dr. Vedder's experiment shows that construction employment went down. When in the case of Kentucky, prevailing wage regulations were applied to public school construction, Dr. Vedder's experiment says that new construction jobs went up—over and above what they would otherwise have been. In short, in eight replications of Dr. Vedder's experiment, Dr. Vedder's theory was contradicted each time. Either Dr. Vedder has a lousy theory, a lousy experiment, or both. In any case, Dr. Vedder's claim that 11,000 new construction jobs were created in Michigan when it suspended its prevailing wage law proves false and unreliable.

Summary of the Eight Cases

In November of 1995, Oklahoma's Supreme Court annulled that state's prevailing wage law. Oklahoma's law had used the federal Davis-Bacon wage rate determinations for the state's prevailing wages. The Court said this was an unconstitutional derogation of state powers to the federal government.

In July of 1996, Kentucky applied its prevailing wage law to public school construction. Schools had been exempted from the state law since 1982.

In July of the 1997, Ohio went in the opposite direction. Ohio exempted public school construction from the state's prevailing wage regulation. So we have three states that relaxed or suspended their prevailing wage law while one state applied prevailing wage regulations to schools. What results do we get when we apply Dr. Vedder's experimental procedures to these three cases?

In 1985 three states repealed their state prevailing wage laws. New Hampshire did so in July and I have assumed that the lifting of the Colorado and Idaho laws occurred in July also. Kansas repealed its law in June of 1997 and Louisiana repealed its law in July of 1988.

Table 2 summarizes the predictions of Dr. Vedder's theory, and the outcomes of his experiment in Michigan, and the eight other states that changed their prevailing wage laws in the mid-1990s.

⁶ The cases under consideration are ones where a prevailing wage law has either been applied or suspended. There are numerous cases in the 1980s and 1990s where laws have been strengthened or weakened by administrative reform implemented either by legislatures or state executives. One administrative reform is worth mentioning because it supports Dr. Vedder's hypothesis. In the case of Indiana, in July of 1995, the administrative bodies responsible for determining prevailing wages were decentralized. In rural areas this had the effect of weakening the Indiana law while in urban areas, the law may have been strengthened. Assuming the net effect of the reform was a weakening of the state law, an application of the Vedder experiment leads to an estimate of job gains associated with this administrative reform. A systematic application of Dr. Vedder's experiment to all the administrative changes that took place in prevailing wage regulations over the last 20 years is beyond the scope of this paper.

Table 2: Predicted Outcomes from the Application of Dr. Vedder's Experiment to Four States that Changed their Prevailing Wage Laws in the Mid-1990s

State	Legal Event	Occurance	Construction Employment		Replication Result
			Vedder's Prediction	What Actually Happened	
Michigan	Law Suspended	Dec-94	Up	Up	
Oklahoma	Law Judicially Annualled	Nov-95	Up	Down	Wrong
Ohio	Public Schools Exempted from Law	Jul-97	Up	Down	Wrong
Kentucky	Law Applied to Schools	Jul-96	Down	Up	Wrong
Louisiana	Repealed Law	Jul-88	Up	Down	Wrong
Kansas	Repealed Law	Jun-87	Up	Down	Wrong
New Hampshire	Repealed Law	Jul-95	Up	Down	Wrong
Colorado	Repealed Law	1985*	Up	Down	Wrong
Idaho	Repealed Law	1985*	Up	Down	Wrong

*In these two cases, I was unable to determine the month of the repeal. I have assumed July.

In the case of Michigan, Dr. Vedder's theory and experimental results square up. His theory predicts that suspending the law would result in increased employment. His experiment finds increased employment. But in each of the other cases Dr. Vedder's theory is contradicted by his experiment. In science, confidence in results comes from successful replication. The failure to replicate Dr. Vedder's results in each instance basically means he is wrong.

In the case of Michigan, Dr. Vedder summarizes his results in his Table 1 of his report. This is the table where he reports finding 11,000 new construction jobs. The tables below are replicas of Dr. Vedder's Table 1 applied to eight additional states. Table 3 reports the results of Dr. Vedder's experiment for Oklahoma.

Oklahoma

Oklahoma annulled its prevailing wage law in November of 1995, roughly one year after Michigan suspended its law. Dr. Vedder's experiment has us compare the 30 months prior to the law's annulment to 30 months after the annulment. We begin by looking at raw construction employment figures that are not seasonally adjusted. These data show that in the period November 1995 to July 1998 Oklahoma construction created -1,800 fewer jobs than during the period May 1993 to November, 1995.

Table 3:

The Impact of the Annulment of Oklahoma's Prevailing Wage Law on Construction Employment: Allowing for Seasonal, Weather, and Cyclical Adjustments		
Adjustment	Employment Impact	Accumulative Adjustment Impact
None(Actual Observed Change)	-1,800	-1,800
For Seasonal Patterns	-200	-2,000
For Weather Conditions	267	-1,733
For Business Cycle (-20%)	-347	-2,080

Time Period: 30 Months Prior to and 30 Months After Law's Change in November of 1995

Source: Author's calculations based on data from the U.S. Bureau of Labor Statitistics

Current Employment Statistics, State and Area, Oklahoma Construction Employment

Seasonally adjusted data		
	total non-farm jobs	construction jobs
change in the first period by:	92,200	7,167
change in the second period by:	110,800	5,433

Because construction is seasonal we have the problem that the before-period goes from a seasonally high month, May to a seasonally low month, November. This beginning and endpoint artificially lower job growth under Oklahoma's law. We also have the problem that the after period begins at a low point in November and ends in a high point in May.

Following Dr. Vedder's experiment, we then look at seasonally adjusted data. Here we use seasonally adjusted monthly construction employment data for Oklahoma published by the U.S. Bureau of Labor Statistics. Adjusting for high notes and low notes in the seasonal pattern of construction employment, Dr. Vedder's experiment indicates that actually, 2,000 jobs were lost to Oklahoma construction when the state annulled its prevailing wage law.

Now we widen the line between before-and-after by using the average of October through December seasonally adjusted employment. By doing so, 267 new jobs are added to Dr. Vedder's calculus based on the presumption that November 1995 in Oklahoma was an unusually mild month just like December was in Michigan the year before.

Now Dr. Vedder's experiment adjusts for the effects of the business cycle. Using seasonally adjusted data, 20% more new jobs in the overall Oklahoma economy (not just construction) were created in the "after" period compared to the before. Dr. Vedder's method states that if the overall economy has 20% more new jobs, then construction should have 20% more new jobs due to the business cycle. But Oklahoma construction was losing jobs according to Dr. Vedder's experiment. According to Dr. Vedder's method for controlling business cycle effects, Oklahoma's business cycle was hiding the effects of the law's annulment. Were it not for the faster growth in the "after" period, Oklahoma would have lost 20% more jobs in construction after the law was eliminated. Correspondingly, 347 jobs (20% of the 1,733 observed losses) are added to the loss column. When completed, Dr. Vedder's experiment shows that Oklahoma lost over 2,000 jobs in construction when it lost its prevailing wage law.

Kentucky

Table 4

The Impact of the Enactment of Kentucky's Prevailing Wage Law on Construction Employment: Allowing for Seasonal, Weather, and Cyclical Adjustments		
Adjustment	Employment Impact	Accumulative Adjustment Impact
None (Actual Observed Change)	-25,200	-25,200
For Seasonal Patterns	26,700	1,500
For Weather Conditions	1,133	2,633
For Business Cycle (12%)	316	2,949

Time Period: 30 Months Prior to and 30 Months After Law's Change in July of 1996

Source: Author's calculations based on data from the U.S. Bureau of Labor Statistics

Current Employment Statistics, State and Area, Kentucky Construction Employment

	Seasonally adjusted data	
	total non-farm jobs	construction jobs
change in the first period by:	110,900	6,433
change in the second period by:	98,100	9,067

Kentucky changed its law in July. The year was 1996. Thus, the time period for the 60 month experiment runs from January to July and then from July to January. Unlike

Oklahoma and Ohio, Kentucky implemented prevailing wage regulations by applying them to public school and municipal construction.

The seasonally unadjusted raw employment data show a loss of 25,200 construction jobs after Kentucky strengthened its law. But once seasonally adjusted data are used, the outcome is reversed. According to Dr. Vedder's experiment, Kentucky gained 1,500 new construction jobs due to the application of its prevailing wage law to school construction.

When the cutoff line between before and after of July 1996 is widened to include May and June, an additional 1,133 jobs fall into the gain column due to Dr. Vedder's control for weather conditions.

Finally, Dr. Vedder's experiment factors in the effects of the business cycle. Kentucky's overall economy slowed in the after period of the experiment. It created 13% fewer new jobs overall. Dr. Vedder's method calls for adding 13% more jobs to the impact of strengthening the law. Those jobs would have been there had the economy not slowed. So in the end, almost 3,000 new jobs were added to the Kentucky economy according to Dr. Vedder's experiment because Kentucky applied its prevailing wage law to public school construction.

Ohio

Table 5

The Impact of the Exclusion of Schools from Ohio's Prevailing Wage Law on Construction Employment: Allowing for Seasonal, Weather, and Cyclical Adjustments		
Adjustment	Employment Impact	Accumulative Adjustment Impact
None(Actual Observed Change)	-14,900	-14,900
For Seasonal Patterns	2,600	-12,300
For Weather Conditions	667	-11,633
For Business Cycle (42%)	4,886	-6,747

Time Period: 24 Months Prior to and 24 Months After Law's Change in July of 1997

Source: Author's calculations based on data from the U.S. Bureau of Labor Statistics

Current Employment Statistics, State and Area, Ohio Construction Employment

	Seasonally adjusted data	
	total non-farm jobs	construction jobs
change in the first period by:	186,500	20,067
change in the second period by:	128,000	8,433

One year later, in July of 1997, Ohio went in just the opposite direction as Kentucky. Ohio exempted its public schools from prevailing wage regulations.

In this case, the experiment can only go for four years rather than five because the latest data available at the time this is being written are employment figures for July, 1999. So the before and after periods in this experiment are two years each rather than 30 months.

Dr. Vedder's experiment reports that after the exemption of schools, construction employment growth in Ohio fell by 14,900 jobs. When seasonally adjusted data are used, this job loss is still 12,300. Seasonal effects are smaller in this experiment because this is a July to July comparison.

When the cutoff line is widened to average May to July monthly employment in 1997, 667 jobs are taken out of the loss column. When the business cycle is considered another 5,235 jobs come out of the loss column. The Ohio overall economy had slowed in the second period. Overall new job growth was smaller by 45%. Thus, according to Dr. Vedder's procedure, 45% of the 11,633 job loss was due to the slowdown in the overall economy. The remaining 6,398 lost jobs can, according to Dr. Vedder's experiment, be laid at the feet of the legislative act that exempted Ohio schools from prevailing wage regulations.

Repeals in the Mid-1980s

Between 1985 and 1988, five states repealed their prevailing wage laws. The application of Dr. Vedder's experiment requires the use of seasonally adjusted employment data for 30 months prior to and 30 months after the implementation or suspension of a law. The U.S. Bureau of Labor Statistics publishes seasonally adjusted employment figures back to around 1982. So in the case of these five repeal states, we can apply Dr. Vedder's experiment.⁷ The methods used are the same as in the foregoing three states that changed their laws in the 1990s. The states now under consideration are Colorado, Idaho and New Hampshire, all of which repealed their laws in 1985, and Kansas (1987) and Louisiana (1988). In the cases of Colorado and Idaho, I was not able to determine the precise month the law was lifted. In these cases, I have assumed that the month of July marked the boundary between law and no law. I experimented with other months for these two states and found results that are basically consistent with the results I am reporting.

Colorado

Table 6

The Impact of the Repeal of Colorado's Prevailing Wage Law on Construction Employment: Allowing for Seasonal, Weather, and Cyclical Adjustments		
Adjustment	Employment Impact	Accumulative Adjustment Impact
None (Actual Observed Change)	-52,400	-52,400
For Seasonal Patterns	26,800	-25,600
For Weather Conditions	-1,467	-27,067
For Business Cycle (-5%)	-1,353	-28,420

Time Period: 30 Months Prior to and 30 Months After Law's Change in July of 1985*

Source: Author's calculations based on data from the U.S. Bureau of Labor Statistics

Current Employment Statistics, State and Area, Colorado Construction Employment

	Seasonally adjusted data	
	total non-farm jobs	construction jobs
changed in the first period by:	105,900	3,133
and changed in the second period by:	6,200	-23,933

*I could not determine the precise month Colorado's repeal came into effect. Experiments with other months in 1985 yield similar results.

⁷ Prevailing wage legislation at a state level begins with Kansas in 1891. By the late 1960s, all but 9 states had passed prevailing wage laws. Starting with Florida in 1979, 9 states repealed their laws by 1988. Five of these nine states repealed their laws between 1985 and 1988. The four earlier states repealed their laws too soon for the use of BLS seasonally adjusted data.

Actual employment in Colorado construction rose by 16,000 prior to repeal and fell by 36,000 after repeal. Seasonally adjusting these data yields a rise of 2,400 prior to repeal and a fall of 23,200 after repeal. The net loss therefore was 25,600 jobs. Adjusting for weather conditions adds another almost 1,500 to the job-loss column. While construction employment fell after repeal by some 23,000 jobs, the overall Colorado labor market grew slightly. Consequently, an additional 5% in lost jobs is added to the job loss column measuring the effect of Colorado's prevailing wage repeal.

Idaho

Table 7

The Impact of the Repeal of Idaho's Prevailing Wage Law on Construction Employment: Allowing for Seasonal, Weather, and Cyclical Adjustments		
Adjustment	Employment Impact	Accumulative Adjustment Impact
None(Actual Observed Change)	-13,000	-13,000
For Seasonal Patterns	9,600	-3,400
For Weather Conditions	0	-3,400
For Business Cycle (-20%)	-680	-4,080

Time Period: 30 Months Prior to and 30 Months After Law's Change in July of 1985*

Source: Author's calculations based on data from the U.S. Bureau of Labor Statistics Current Employment Statistics, State and Area, Idaho Construction Employment

	Seasonally adjusted data	
	total non-farm jobs	construction jobs
change in the first period by:	23,400	1,900
change in the second period by:	4,800	-1,500

*I could not determine the precise month Idaho's repeal came into effect. Experiments with other months in 1985 yield similar results.

Actual Idaho construction employment grew in the before-period by 6,700 jobs and fell after repeal by 6,300 jobs. This yields a net loss of 13,000 jobs. When seasonally adjusted data are used, the net loss is less—3,400 jobs. The weather adjustment has no effect on this estimate. In adjusted employment terms, the Idaho economy expanded briskly in the before period (23,400 new jobs) and expanded slowly in the repeal period (4,800 new jobs). In contrast, construction adjusted employment grew before repeal and shrank after repeal. And additional 680 lost jobs are added to the calculation of job loss due to the repeal because overall employment grew while construction employment shrank.

New Hampshire

Table 8

The Impact of the Repeal of New Hampshire's Prevailing Wage Law on Construction Employment: Allowing for Seasonal, Weather, and Cyclical Adjustments		
Adjustment	Employment Impact	Accumulative Adjustment Impact
None(Actual Observed Change)	-15,200	-15,200
For Seasonal Patterns	10,000	-5,200
For Weather Conditions	1,200	-4,000
For Business Cycle (23%)	920	-3,080

Time Period: 30 Months Prior to and 30 Months After Law's Change in July of 1985

Source: Author's calculations based on data from the U.S. Bureau of Labor Statistics

Current Employment Statistics, State and Area, New Hampshire Construction Employment

		Seasonally adjusted data	
		total non-farm jobs	construction jobs
changed in the first period by:		73,000	8,700
and changed in the second period by:		56,500	4,700

New Hampshire repealed its prevailing wage law in July of 1985. Actual construction employment grew by 14,000 jobs in the before period and shrank by 1,200 jobs in the post-repeal period. This net loss of 15,200 jobs falls to a net loss of 5,200 jobs once seasonally adjusted data are used. The weather adjustment drops this loss to 4,000 jobs. New Hampshire's overall labor market grew more slowly in the second period. Thus, 920 jobs are taken out of the loss column calculating the effect of the repeal to account for this slowdown in the overall economy.

Kansas

Table 9

The Impact of the Repeal of Kansas' Prevailing Wage Law on Construction Employment: Allowing for Seasonal, Weather, and Cyclical Adjustments		
Adjustment	Employment Impact	Accumulative Adjustment Impact
None(Actual Observed Change)	-16,700	-16,700
For Seasonal Patterns	9,900	-6,800
For Weather Conditions	233	-6,567
For Business Cycle (186%)	-12,185	-18,751

Time Period: 30 Months Prior to and 30 Months After Law's Change in June of 1987

Source: Author's calculations based on data from the U.S. Bureau of Labor Statistics

Current Employment Statistics, State and Area, Kansas Construction Employment

Seasonally adjusted data		
	total non-farm jobs	construction jobs
changed in the first period by:	27,000	1,733
and changed in the second period by:	50,100	-4,833

Kansas repealed its prevailing wage in June of 1987. Actual construction employment grew in the before-period by 6,000 workers and fell after repeal by 10,700 workers. This net loss of 16,700 jobs is reduced when seasonal data are used to a net loss of 6,800 workers. The weather adjustment adds back in 233 workers. In seasonally adjusted terms, the Kansas economy expanded after repeal but the construction labor market shrank. Thus, according to Dr. Vedder's methods, the Kansas construction labor market would have lost 12,185 more jobs due to repeal had Kansas' overall economy not accelerated its expansion after repeal. So the final calculated loss of construction jobs attributable to prevailing wage law repeal in Kansas is, in this experiment, 18,751 jobs.

Louisiana

Table 10

The Impact of the Repeal of Louisiana's Prevailing Wage Law on Construction Employment: Allowing for Seasonal, Weather, and Cyclical Adjustments		
Adjustment	Employment Impact	Accumulative Adjustment Impact
None(Actual Observed Change)	11,900	11,900
For Seasonal Patterns	14,700	26,600
For Weather Conditions	1,467	28,067
For Business Cycle (-140%)	-39,996	-11,929

Time Period: 30 Months Prior to and 30 Months After Law's Change in July of 1988
 Source: Author's calculations based on data from the U.S. Bureau of Labor Statistics
 Current Employment Statistics, State and Area, Louisiana Construction Employment

Seasonally adjusted data		
	total non-farm jobs	construction jobs
changed in the first period by:	-64,700	-17,133
and changed in the second period by:	92,200	10,933

Louisiana lifted its prevailing wage law in July of 1988. The period prior to the repeal was characterized by an overall slowdown in the Louisiana economy. The labor market had lost 64,700 jobs. The period after the repeal was a significant turn-around. The job market gained 92,200 jobs. Actual employment in construction in the before period showed a job loss of 9,100 construction workers while in the after period actual construction employment grew by 2,800 workers. Thus, in actual employment, the after period showed a net gain of 11,900 jobs. Once seasonally adjusted data are used, the after-period gain jumps to 26,600 jobs. When the weather adjustment is made, the gain comes to 28,000 jobs. But the business cycle adjustment in Dr. Vedder's experiment reverses this result. The Louisiana overall economy (using seasonally adjusted data) moved from a job loss of 64,700 jobs prior to repeal to a job gain of 92,200 jobs after repeal. This is a 143% jump. Following Dr. Vedder's procedure for adjusting the business cycle, a 143% is expected in construction as well (regardless of regulatory changes). So consequently, almost 40,000 jobs are deducted from the construction job gain column. These 40,000 jobs would have been there, according to Dr. Vedder's experiment, simply due to the business cycle. So at the end of the experiment, there is a calculated job loss due to repeal of almost 12,000 construction jobs.⁸

⁸ Alternative methods for controlling the effects of the business cycle would not yield this surprising result. This underscores the weakness in the way Dr. Vedder's experiment controls for the business cycle.

Conclusion

Perhaps Dr. Vedder's theory is probably not wrong. Too much evidence elsewhere confirms Dr. Vedder's belief that when you eliminate prevailing wages, you eliminate training; you cut capital investment; you cut wages, and the labor force becomes younger, less experienced, less formally educated and more reliant on non-citizens. But Dr. Vedder's theory has a caveat. More low wage jobs are created *ceteris paribus*—Latin for “all other things being equal.” Maybe all other things are not equal when you shift to a low-skill, poorly equipped, low-wage labor force. Maybe the quality of construction fails to support economic development. Maybe lower wages cuts tax revenues. We really do not know.

What we do know is that in eight replications, Dr. Vedder's experiment comes out wrong. Perhaps Dr. Vedder's experiment is poorly designed. In this case, his theory has not been contradicted, it is just that his experiment is useless. But if his experiment is wrong, his numbers are wrong. His 11,000 jobs gained for Michigan because of suspension is wrong.

The Mackinac Center for Public Policy which published Dr. Vedder's report presents a “Guarantee of Quality Scholarship.” Like all guarantees, it is worth reading carefully.

The Mackinac Center for Public Policy is committed to delivering the highest quality and most reliable research on Michigan issues. The Center guarantees that all original factual data are true and correct and that information attributed to other sources is accurately represented. The Center encourages rigorous critique of its research. If the accuracy of any material fact or reference to an independent source is questioned and brought to the Center's attention with supporting evidence, the Center will respond in writing.⁹

The Mackinac Guarantee does not warrant that Dr. Vedder's experiment could be replicated for other states. It does not guarantee that that Dr. Vedder's claimed job gain of 11,000 new, low-wage, low-skill Michigan construction jobs due to prevailing wage suspension is the right number. In short, with respect to all the important issues on employment in Dr. Vedder's report, the Mackinac Guarantee is invalid. This is not a guarantee of quality scholarship. It is a guarantee that the footnotes are correct. Some guarantees are like that. You think one thing is warranted but it turns out that it is not. The Mackinac Center is right in calling for a rigorous critic of this research. Otherwise one might think that Dr. Vedder's figure of 11,000 new, low-skill, low-wage jobs due to prevailing wage suspension was a guaranteed result of quality scholarship.

⁹ This is on the title page of Dr. Vedder's report.