
Delaware's Prevailing Wage Law

Its History, Purpose and Effect

By Peter Philips, Ph.D.

Professor of Economics, University of Utah

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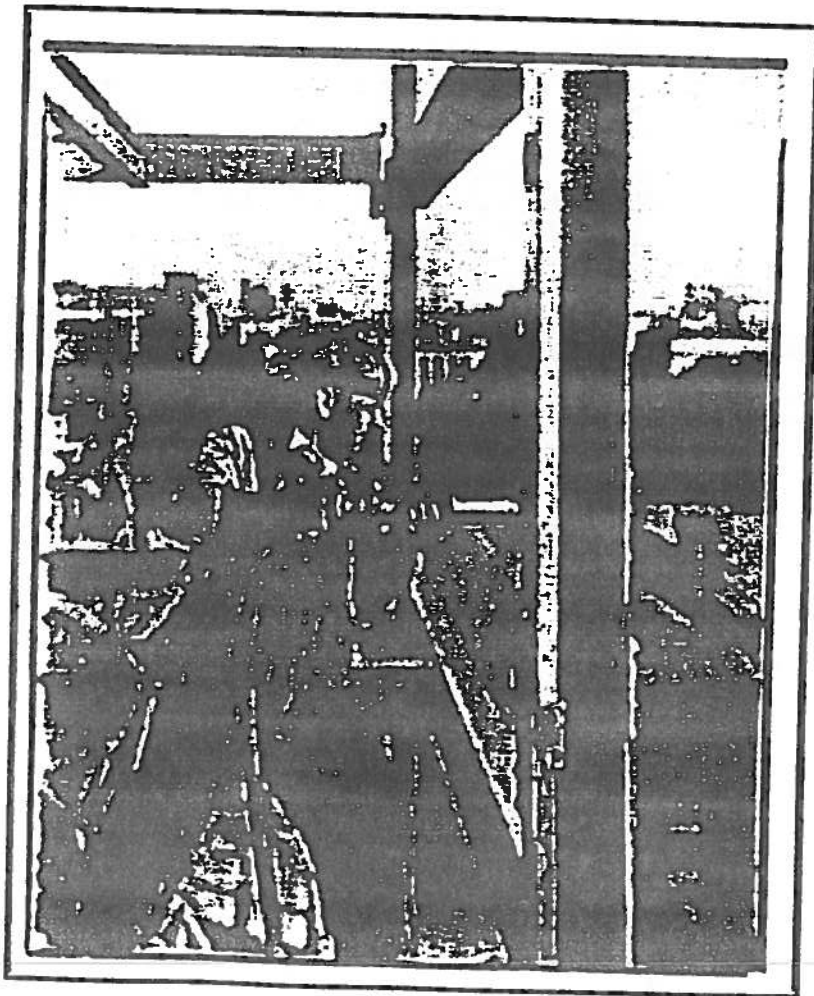


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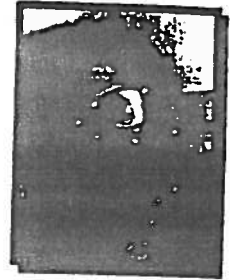
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About the Author

Peter Philips grew up in Compton and Pomona, California. He received his B.A. from Pomona College in 1970 where received the Leland Backstrand Graduating Senior Award in Economics. Philips received his MA. (1976) and his Ph.D. (1980) from Stanford University. Philips is a Professor of Economics at the University of Utah. He is co-editor of *Three Worlds of Labor Economics* (M.E. Sharpe, 1986) and co-author of *Portable Pensions for Casual Labor Markets* (Quorum Books, 1995). Philips has published widely on the canning and construction industries in journals such as *Industrial and Labor Relations Review*, *Industrial Relations*, *Business History*, the *Journal of Economic History*, *The Journal of Economic Literature* and the *Cambridge Journal of Economics*. Philips has been a consultant for the U.S. Labor Department analyzing the supply of cannery labor in California, and he has worked as an expert on the Davis-Bacon Act for the U.S. Justice Department. The Davis-Bacon Act regulates wage payments to construction workers on federal public works. Philips is a respected expert on prevailing wage laws and on employment, training wages and benefits in the construction industry. He has testified before state legislative committees in Ohio, Indiana, Oklahoma, New Mexico and California on their state prevailing wage laws. Along with other researchers at the University of Utah, Philips has analyzed the effects of prevailing wage laws on public construction costs, construction worker incomes, apprenticeship training, worker safety and minority access to construction work.

Philips has received awards for his teaching and community service, including the University of Utah Lowell Bennion Public Service Professorship, the University of Utah Presidential Teaching Scholar Award and the University of Utah, College of Social and Behavior Science Superior Teacher Award. Philips is married with two children.



Executive Summary

Nationally, prevailing wage laws date back to the Republican Congress of 1868 that passed a National Eight-Hour Law that provided for an eight-hour day on public construction. Congressional debate made it clear that when the working day was shortened from 12 or 10 hours per day to eight, workers were still to be paid the prevailing daily wage. Ulysses Grant was the first President to call for the enforcement of prevailing wage regulations. Kansas in 1891 was the first state to pass a prevailing wage law. The Supreme Court upheld the constitutionality of this law. Justice John Marshall Harlan stated that the purpose of the law was to raise labor standards not only in construction but by example for all blue collar workers. Some have claimed that prevailing wage laws were really Jim Crow laws. However, the leading judicial opponent at the time to Jim Crow laws was this same Justice Harlan. Had these laws had discriminatory intent, Justice Harlan would have been the first to point that out. Instead he approved of the law as a legitimate governmental effort to shorten the working day and raise living standards. The current federal law, the Davis-Bacon Act, was sponsored by a Republican Representative Bacon from New York and a Republican Senator Davis from Pennsylvania and signed by Republican President Herbert Hoover in 1931. The Delaware prevailing wage law was originally passed in 1933 and signed by Republican Governor Clayton Douglass Buck. The purpose of both the state and federal law was to promote development in the construction industry down a high-skill, high-wage growth path.

Construction is currently in a severe skill-shortage crisis. A survey by the Business Roundtable indicates that 60% of the major corporate purchasers of construction services are currently encountering a shortage of skilled construction workers. Three-fourths of these companies indicate the problem is getting worse. A major construction trade paper, the *Engineering News Record*, has found similar trends. Both the Business Roundtable and the *Engineering News Record* indicate that the problem of skill shortages is primarily a problem for open shop (i.e. nonunion) contractors. The Business Roundtable report "Confronting the Skilled Construction Work Force Shortage" states: The union sector has always excelled in craft training through the joint labor/management apprenticeship programs...the open shop, as a whole, has not supported formal craft training to the extent necessary.

U.S. Bureau of Apprenticeship data presented in Chapter 3 of this report support these findings. Eighty-two percent of all apprentices graduating to journeyworker status in construction come from joint labor/management programs created through collective bargaining. In some trades such as operating engineer and iron workers, more than 98% of all graduating apprentices come from programs established and paid for through collective bargaining. Union-management apprenticeship programs for the three crafts—electricians, plumbers and sheetmetal workers alone account for over \$100 million in annual training expenditures financed by collectively bargained contributions into apprenticeship programs. The union-management apprenticeship for sheetmetal workers in the Delaware and Philadelphia area admit 45 new apprentices per year and spend \$750,000 to \$900,000 per year financing a four year apprenticeship program. The roofer apprenticeship program for Local 30 in Delaware admits 75 new apprentices per year and spends \$200,000 per year on training. The open shop sector does not engage in nearly the same amount of training simply because there is no collectively bargained contract encouraging and enforcing training. Unionized contractors must put future training costs in every bid they make. The contract requires it. But on the open shop side, pressures to win bids often induce contractors to forego long-term costs for short term competitive advantage. Without the controlling power of a collectively bargained contract, the construction industry becomes vulnerable to skill crises and the industry begins to slip away from a high-skill, high-wage development path towards a low-skill, low-wage strategy. An example of the difference between the high-skill and the low-skill construction paths is seen in an examination of union and nonunion contractors in Pennsylvania. In 1995-96, nonunion contractors employed on 79% as many carpenters as did union contractors. Nonunion contractors employed only 76% as many electricians, only 73% as many sheetmetal workers and only 67% as many plumbers and pipefitters. However, the nonunion contractors employed 211% more unskilled construction laborers. In effect, the nonunion contractor was using more unskilled laborers and fewer skilled craft workers to try to build the same structure.

Low skills and low wages are primarily a problem for those who find themselves in poorly paying, insecure jobs. But the problem of low wages cannot be contained to the poorly paid workers themselves. Low wages in construction bring with them, hand in hand, low benefits. In 1992, the last year for which data are available, the average pension contribution paid to a union construction worker was \$2,991 and the average health insurance premium paid for a union construction worker was \$4,533. In short, the collectively bargained contract made sure that not only were the future training needs of the industry included in the cost of current construction but also the future health and old age needs of the labor force was included in construction costs. In contrast, in Delaware in 1992, the average pension contribution contributed on behalf of a nonunion worker

was \$70 per year. The average health insurance premium was \$143 per year. Obviously, no one could retire on pension contributions that small. And no one could get reasonable health coverage on insurance contributions that small. What is happening in the nonunion sector is key workers are receiving health and retirement benefits but workers who move from contractor to contractor are going uncovered. This means that absent the requirements of a collectively bargained contract, the nonunion contractor can shave his or her bid by foregoing today, the long term health and old-age needs of the construction labor market.

Outside collective bargaining, short-run competitive pressures induce many, if not all, open shop contractors to put off long-term costs to attain short-term competitive advantages. The result is that many construction workers go untrained and uninsured. In the long-run these problems can come back to haunt in terms of skill shortages, lower quality construction and increased social welfare costs.

Some costs of repealing prevailing wage laws are immediate. Workers who are less trained are more vulnerable to on-the-job injuries. In chapter 4, a comparison of construction injury rates in Delaware compared with Virginia—the closest state without a prevailing wage law—shows that serious injuries are 20% higher in Virginia. Obviously, injuries are most costly to those who get hurt. But on-the-job injuries are also costly to the contractor and the consumer. Higher injury rates raise construction costs by increasing workers compensation premiums and interrupting work schedules. Thus, the worker, the contractor and the consumer all face higher costs tied to the absence or repeal of prevailing wage laws.

Eleanor Craig has claimed that prevailing wage laws raise public construction costs in Delaware by 11% and that this cost overshadows the benefits of a high-skilled, decently paid, safer construction labor force. Her calculation is simplicity itself. She assumes that labor costs amount to 50% of total construction costs. She predicts that wage rates would fall by 22% on public projects if prevailing wage regulations are eliminated. She then quietly assumes that a drop in wages of 22% will not affect training, retention or productivity. Then as the night follows the day, if labor costs are 50% of total costs, and labor costs fall by 22%, then total costs must fall by 11%.

The problem with Eleanor Craig's analysis is that it is hypothetical. It is not an analysis of government projects under prevailing wage regulations and without those regulations. It is a hypothetical model based on doubtful assumptions. In fact, labor costs as a percent of total costs in Delaware construction run around 29% not 50%. When wage rates are lowered, experienced and skilled workers eventually leave for greener pastures. In fact, when construction shifts away from collective bargaining towards the open shop, apprenticeship training falls. These facts are at variance with

Eleanor Craig's assumptions. Because her assumptions are wrong, her conclusion is unreliable.

In chapter 2 of this study, we examine the actual square foot construction costs of schools built in states with and without prevailing wage laws over the period 1991 to 1997. This study includes more than 1700 elementary schools, almost 900 middle schools and over 600 high schools. It turns out that in states with prevailing wage laws, public elementary schools cost 3% more to build than do private elementary schools that are not governed by this regulation. However, in states that do not have prevailing wage laws governing elementary school construction, public elementary schools cost almost 8% more than private elementary schools. A second analysis examined over 200 schools built in three states that changed their prevailing wage regulations in the 1990s. Kentucky enacted a law in 1996 while Michigan and Oklahoma judicially suspended their laws in 1995. Breaking down square foot costs by state and school type (elementary, middle and high schools), in six of the nine comparisons it was cheaper to build a new school when prevailing wage laws were in force. Two formal linear regression statistical models capable of controlling for other factors confirm the hypothesis that there is no measurable or statistically significant increase in construction costs associated with prevailing wage regulations.

There are clear and present benefits to prevailing wage regulations. By supporting collective bargaining in construction, prevailing wage regulations encourage training, promote health insurance and old age pensions, open the door for women and minorities to obtain high-skilled, blue collar jobs, and generally promote the benefits of a high-skill development path in one of the major industries of the economy. Skilled construction workers are middle class citizens and good neighbors. Eleanor Craig presents a hypothetical benefit that would come at the cost of less training, less opportunity, less skilled construction and the proliferation of a low-skilled, itinerant and insecure labor force. Her hypothetical savings, while not huge should, nonetheless, surely be measurable. An examination of new school construction costs in states with and without prevailing wage laws broken down by type of school could not find Eleanor Craig's hypothetical 11% savings. The reasons her hypothetical savings could not be found are two: she overestimated the role labor costs play in total construction costs and she underestimates the role wage rates and collective bargaining play in building and maintaining a skilled and productive work force. Keeping prevailing wage regulations in Delaware is a solid way government policy can help insure that Delaware's construction industry continues down a high-skilled, high-wage development path.

1

The History of Prevailing Wage Regulations with a Special Focus on Delaware

The First Federal Prevailing Wage Law (1868).

In this matter of manual labor I look only to the rights and interests of labor. In this country and in this age, as in other countries in other ages, capital needs no champion;... Whatever tends to dignify manual labor or to lighten its burdens, to increase its rewards or enlarge its knowledge, should receive our sympathies and command our support.

U.S. Republican Senator Wilson from Massachusetts
1868 Debate over the National Eight Hour and Prevailing Wage
Law¹



Ulysses S. Grant was the first President to seek enforcement of a federal prevailing wage law.

The first federal eight hour day law was enacted on June 25, 1868. It also was the first federal prevailing wage law. The country had just passed through a Civil War that among other things had kick-started massive industrialization across the north and west of the country. The next thirty years would see the emergence of a new class of wealth and power in the country. Men such as J.P. Morgan, John D. Rockefeller, and Andrew Carnegie were using the rapid growth stimulated by the Civil War as a foundation for accumulating economic power never before seen in the country.

At the same time, the lives of working people were in flux. Hours of labor had always been long but they had moved to the pace and the rhythms of the farm. Shoe factories in New England, meat packing plants in Chicago and woolen mills in California changed all that. Work was being harnessed to the time clock and the production line

¹ The Congressional Globe, 40th Congress, Second Session, June 24, 1868.

supervisor. People were being ground down by the pace of machinery, the demands of the supervisor and the strain of 12 hour days and six day weeks.

In 1868 Congress addressed this issue with the National Eight Hour Day law. The idea was to set labor standards, to guide the labor market, to nudge it away from the stretching out of the workday towards competitive behavior that emphasized increased productivity within a limited set of hours. It was felt that the market could not get there by itself. Short run competitive pressures would continually push for the longer day. But by regulating the market, it could be forced to find its own best self-interest, competition over productivity rather than competition over sweating labor. The legal doctrine of individual contract prevented Congress from directly regulating the market, but Congress could regulate its own contracts. Thus, public works was targeted as a way of indirectly trying to regulate all labor markets. Republican Senator Conness of California captured most of these ideas in one line of argument:

[The Eight-Hour Law] is but a very small boon that the working men of America ask from the Congress of the United States, namely: that the example be set by the Government of reducing the number of hours of labor. I know that the passage of this bill cannot control in the labor of the country; but the example to be set by the Government, by the passage of this bill, is due to the laboring men of the country, in my opinion. I know that labor in the main, like every other commodity, must depend upon the demand and supply. But, sir, I for one will be glad, a thousand times glad, when the industry of the country shall become accommodated to a reduced number of hours in the performance of labor. After forty or fifty years of such advance in the production of the world's fabrics by the great improvements that have been made by inventions, and the application of steam as a power, by which the capital of the world has been aggregated and increase many fold, I think that it is time that the bones and muscles of the country were promised a small percentage of cessation and rest from labor, as a consequence of that great increase in the productive industries of the country.²

Prevailing wage regulations were an integral part of the first national eight-hour law. For Congress said that when hours on public works were cut from 12 to 8, the daily wage should not be cut from (say) \$1.20 to 80 cents. In those days, construction workers were paid by the day. Congress said that when hours were cut, the contractor on public works still had to pay the daily wage that was current in the locale in which the work was being done. Enforcement of the current wage provision proved difficult. Twice Republican President Grant had to issue proclamations directing contractors and government agents to respect the current wage provision of the eight-hour day law.³

² Congressional Globe, op cit.

³ On May 19, 1869, President Grant issued the following proclamation:

that, from and after this date no reduction shall be made in the wages paid by the Government by the day to such laborers, workmen and mechanics on account of any such reduction of hours of labor. In this declaration

On May 11, 1872 Grant reiterated with greater detail and emphasis in a second proclamation that per diem wages should not be cut with the required shorter hours:

Thus, the principle of a prevailing wage law at the federal level predates the Davis-Bacon Act by fifty years. The purpose of the federal law was to set labor standards regarding hours and wage rates in the public sector presumably with the hope that these standards might spread to the private sector. That the purpose was thwarted in enforcement is indicated by Grant's need to make the same proclamation twice. It was also thwarted by legal decisions emphasizing the rights of individuals to contract without government interference.

Frustrated by problems of implementation and court rulings, the American Federation of Labor, in its first convention in 1881 stated what it thought the purpose of the law was and complained that it was not being enforced:

Resolved...that the National Eight Hour law is one intended to benefit labor and to relieve it partly of its heavy burdens, that the evasion of its true spirit and intent is contrary to the best interest of the Nation; we therefore demand the enforcement of said law in the spirit of its designers.⁴

The next year the AFL convention went on to argue "that the system of letting out Government work by contract tends to intensify the competition between workmen, and we demand the speedy abolishment of the same." Further by focusing on enforcing the federal law, "the enforcement of the National Eight-hour law will secure adoption of similar provisions in nearly all the States of the Union."⁵ Thus, the AFL wanted to get the government out of the business of pushing wages down and into the business of pushing hours of work down.

Public works were targeted for regulation not so much because construction unions were a particularly powerful interest group but because under legal theories of the time, general governmental regulation of the labor market was viewed as a violation of the individual right to freely make contracts. However, the government was a party to contracts for public construction. Therefore, the government, like any party to a contract, could set conditions under which it was willing to contract for construction services. Proponents of hours and wage regulations on government works hoped these conditions would serve as a model and standard for private work in and out of construction.

...I, Ulysses S. Grant, President of the United States, do hereby again call attention to the act of Congress aforesaid, and direct all officers of the executive department of the government having charge of the employment and payment of laborers, workmen and mechanics employed by or on behalf of the government of the United States to make no reduction in the labor wages paid by the day to such laborers, workmen and mechanics on account of the reduction of the hours of labor.

The Statutes at Large and Proclamations of the United States of America from March 1871 to March 1873
Vol. XVII, Boston, 1873, pp. 955-56.

The Statutes at Large and Proclamations of the United States of America, from December 1869 to March 1871
Vol. XVI, Boston, 1871, p. 1127.

⁴ Federation of the Organized Trades and Labor Unions of the United States and Canada, 1881.

"Declaration of Principles" in *Proceedings of the American Federation of Labor, 1881 to 1888*, Reprinted 1905, Pantograph Printing, Bloomington, Illinois (hereinafter *Proceedings*), 1881 p. 3. This organization changed its name to the American Federation of Labor in 1886.

⁵ *Proceedings*, 1882, pp. 4 and 18.

British (1890) and Canadian (1900) Laws.

The country has no interest in keeping down the price of labour ; on the contrary, the country is interested in the advancement of the labour market....It is better for the workingman, for high wages enable him to supply himself with more of the necessaries, more of the comforts, more of the luxuries of life. This is better for the country also, as it stimulates the consumption of manufactured goods of all kinds. Higher wages benefit not only him who receives but him who gives, and they benefit not only the parties directly concerned, but the whole community.

Canadian Postmaster General
1900 Workmen's Wages on Government Contracts Debate

In England in 1890, the House of Lords issued the Report of the Sweating Commission. Sweatshop labor conditions had become a scandal. Construction was seen as one of the sweatshop industries. The system of contracting and subcontracting and lowest bidder acceptance led to a form of competition that was deleterious. To obtain a contract in the short run, contractors would ignore long term costs of the industry, such as training. Having shaved on a bid to win a government contract, contractors were trying to offset their costs through shoddy workmanship. Contractors who won a job would shop it around to laborers, seeing who would take the biggest pay cut to get a job. In response to these practices, Parliament enacted a prevailing wage law as part of a larger set of reforms designed to reign in the prevalence of sweatshop competitive practices.

Canada followed the English example in 1900. The Canadian Parliament was persuaded that there was a high-wage, high-skilled growth path and a low-wage, low-skilled growth path opening up before Canada. The high-wage path was seen as preferable because it promoted solid skills and good workmanship on public works, it created middle class citizens and it stimulated demand for local manufactured goods.

The First State Prevailing Wage Law--Kansas (1891).

In February 1891, Samuel Gompers, president of the American Federation of Labor, visited Topeka, Kansas, to speak on what the local newspaper called "the great topic of labor." Ten years earlier, the AFL — at its own creation — had laid out legislative aims that included the eight-hour work day, the elimination of child labor, free public schooling, compulsory schooling laws, the elimination of convict labor, and prevailing wages on public works. These proposals were based on a belief that the American labor market should consist of highly skilled workers earning decent wages, with time for family, and with children free to earn an education. In pursuit of these aims, Gompers' political strategy in Kansas allied him with the Republican Party.

On the morning of Gompers' arrival, the Alliance Party, known to history as the Populist Party, withdrew an earlier invitation for him to speak in the hall of the state House of Representatives, which the party controlled. Gompers, who represented 900,000

workers. had fallen out of favor with the Populists. reportedly because of his belief that the trade unions should not form a political party with the Alliance.⁶ Gompers and the AFL took the position that unions should be nonpartisan. Rather than form a labor party, Gompers advocated that unions support those of any party who would support the needs of working men and women. In Kansas in 1891, this made Samuel Gompers an ally of the Republican Party. The Republicans, who controlled the Kansas Senate, invited Gompers to speak there, and he did.

Gompers was in Kansas to focus on the eight-hour day. Like other Americans, Kansans in 1891 typically worked six days per week, ten to twelve hours per day. In the older trades and crafts, such as carriage making and saddle making, where the work pace was slow and under the workers' direction, the long work-day was tolerable. In the newer factories producing shoes, textiles, and the like; in the mines; and in the urban putting-out systems in needlework, six-day weeks and twelve-hour days were grueling. The AFL had made its prime objective a shortened work-day and work week with as little cut in pay as possible. In his Topeka speech, Gompers declared:

Our banner floats high to the breeze and on that banner float is inscribed, "Eight hours work, eight hours rest and eight hours for mental and moral improvement."⁷

At that time, when there were no income supplement programs for the poor, low-income parents worked *and* had to send their children to work to make ends meet. This practice was later referred to by a North Carolina newspaper editor as "eating the seed corn." Each generation of poor condemned its offspring to poverty because the children grew up as illiterate as their parents. The prevalence of cheap child labor, which accounted for 5 percent of the manufacturing labor force in 1890 and a larger proportion of service sector workers, kept wages down and forced adult workers to put in the long hours to make ends meet. Gompers wanted regulation to force employers and the poor to adopt a strategy, however painful in the short run, of a high-wage, high-skilled growth path where children were in school and workers had the skills to justify wages that would allow for a family life. Gompers said,

The Federation endorses the total abolition of child labor under 14 years of age; an eight hour law for all laborers and mechanics employed by the government directly through contractors engaged on public work, and its rigid enforcement; protection of life and limb of workmen employed in factories, shops and mines; ...the extension of suffrage as well as equal work for equal pay to women....The Federation favors measures, not parties.⁸

⁶ *Topeka State Journal*, February 24, 1891, col. 4, p. 4.

⁷ *Topeka Daily Capital*, February 25, 1891, p. 1.

⁸ *Topeka State Journal*, February 25, 1891, col. 3-4, p. 1.

Gompers also pleaded for workers to be paid the "current" daily wage so they could afford the reduced work time. Government was being asked to set a good example for the private sector, to show that a refreshed labor force could produce in eight hours what a fatigued and bedraggled labor force turned out in ten or twelve hours. The prevailing wage law in its infancy was an attempt to obtain shorter working hours for *all* labor. The AFL paid attention to public works, however, because government at all levels was a major purchaser of construction. The AFL said government should not try to save money by eroding the wages of its citizens.

With similar logic, the AFL called for an end to convict labor. Many states employed convicts to pay for their keep. Convicts built roads on chain gangs, operated farms, made textiles, and sewed garments. Convict-made goods were sold, forcing down prices and the wages of working free citizens.

In February 1891, the Second Annual Convention of the Kansas State Federation of Labor, in Topeka, approved a bill concerning state-paid wages. That month, the bill, which included the prevailing wage section, called "for an Eight Hour Law" and was brought forth by Mr. Avery of the Typographical Union No. 121, Topeka. The bill stated,

That in no case shall any officer, board, or commission, doing or performing any service or furnishing any supplies to the State of Kansas under the provisions of the act be allowed to reduce the daily wages paid to employees engaged with him (or them) in performing such service or furnishing such supplies, on account of the reduction of hours provided for in the act. That in all cases such daily wages shall remain at the minimum rate which was in such cases paid and received prior to the passage of the act.⁹

The eight-hour bill was one of four labor-related bills pending in the legislature: the weekly pay bill, the child-labor bill, and the bill to make the first Monday in September a holiday, which would become known as Labor Day. In addition, that year the Kansas State Federation of Labor approved a resolution calling "for the abolition of convict labor when in competition with free labor."¹⁰

The eight-hour bill, Senate Bill 151, failed in the Kansas senate March 6, 1891, with the prevailing wage section removed. But by March 10, when the prevailing wage section was put back in, the bill became law. This first prevailing wage law stated:

That not less than the current rate of per diem wages in the locality where the work is performed shall be paid to laborers, workmen, mechanics and other persons so employed by or on behalf of the state of Kansas....¹¹

⁹ *Sixth Annual*, 215.

¹⁰ *Sixth Annual*, 124.

¹¹ L 1891 Ch. 114 p.192-193.

We do not know the immediate impact of the Kansas prevailing wage law. But a report from the Oklahoma labor commissioner in 1910 may well have applied to Kansas. The Oklahoma law was patterned after the Kansas act. It was passed in 1908. It was reported to have had the intended effect of setting wage and hour standards not only on public works but in related labor markets. The Oklahoma Commissioner of Labor stated in 1910:

The eight hour law has been of inestimable value to the laboring men of this state....The common laborer, who was heretofore employed ten and twelve hours per day, is now, under the provisions of this bill, allowed to work but eight hours....The law has not only affected the laborers and those who are dependent upon this class of work for a living, but it has gone further, and in many localities has gradually forced railroad companies, private contractors [i.e. private construction] and people of that class to pay a high rate of wages for unskilled labor.¹²

Some people have argued that the historic reason prevailing wage laws were passed was to exclude African Americans from construction job sites. Prevailing wage laws have been described by some as Jim Crow laws. This is a difficult case to make for Kansas. The Kansas law was examined by the U.S. Supreme Court in *Atkins v. Kansas* (1903). The Supreme Court Justice who wrote the deciding opinion upholding the constitutionality of the Kansas prevailing wage law was Justice John Marshall Harlan. Harlan wrote:

When the eight hour law was passed the legislature had under consideration the general subject of the length of a day's labor, without specific reference to the purpose or occasion of their employment. The leading idea clearly was to limit the hours of toil of laborers, workmen, mechanics and other persons in like employment to eight hours, without reduction in compensation for the day's service.¹³

John Marshall Harlan, Supreme Court Justice

¹² Chas. L. Daugherty, Labor Commissioner, Oklahoma Department of Labor, Third Annual Report, Oklahoma City, OK, 1910, p. 327. The primary concern in both Kansas and Oklahoma was to use public works hours and wage policies to set and improve local labor standards. A typical enforcement case in Oklahoma as reported by the Labor Commissioner follows:

[Anadarko, May 10, 1908] We were advised that the O'Neill Construction Company had cut the wages on public works at Anadarko from twenty-five cents to seventeen and one-half cents per hour...[C]ontract was taken with the understanding that twenty-five cents per hour should be paid. The work was not progressing as rapidly as necessary to the cost within the estimate, hence the contractors tried to take advantage of the situation by reducing pay. After thoroughly discussing the matter before the [city] council and contractor, the wages were restored to twenty-five cents. (p. 320)

Second Annual Report Oklahoma Labor Commissioner
Chas. L. Daugherty, Oklahoma City, OK, August 7, 1909.

¹³ Quoted in: Oklahoma, Department of Labor, Second Annual Report, Oklahoma City, OK, 1909, p. 327; See also *Atkins v. Kansas*, 191 U.S. 207 (1903).

Harlan's opinion about the purpose of Kansas' law is especially interesting in light of the largely unsupported proposition that these laws were Jim Crow laws. Justice Harlan is known to history as the single Supreme Court Justice who spoke out against Jim Crow. In his famous dissent against the Supreme Court's 7-1 validation of the separate but equal doctrine that legitimized racial segregation in the case of Plessy vs. Ferguson in 1896, Harlan argued vigorously for equal treatment of the races. If the Kansas law had been a Jim Crow law in intent or effect, Justice Harlan would have been the first to declare it so and argue against its existence.



U.S. Supreme Court Justice John Marshall Harlan, an outspoken legal opponent of Jim Crow laws in the 1890s, upheld the constitutionality of prevailing wage laws. He said the purpose of the Kansas law was to shorten the working day without decreasing the prevailing daily wage. Had prevailing wage laws been Jim Crow laws in intent or effect, Justice Harlan would have objected to their constitutionality.

The Federal Davis-Bacon Act (1931)

For four years before the 1931 passage of the Davis-Bacon Act, 14 bills were introduced in Congress to establish prevailing wages in construction. Republican Representative Robert L. Bacon (NY) in 1927 introduced the first bill proposing a prevailing wage for construction, H.R. 17069. This member of Congress justified his measure as follows:

The Government is engaged in building in my district a Veteran's Bureau hospital. Bids were asked for. Several New York contractors bid, and in their bids, of course, they had to take into consideration the high labor standards prevailing in the State of New York...The bid, however, was let to a firm from Alabama who had brought some thousand non-union laborers from Alabama into Long Island, N.Y.; into my district. They were herded onto this job, they were housed in shacks, they were paid a very low wage, and the work proceeded...It seemed to me that the federal Government should not engage in construction work in any state and undermine the labor conditions and the labor wages paid in that State...The least the federal Government can do is comply with the local standards of

wages and labor prevailing in the locality where the building construction is to take place.¹⁴

Hearings for a federal prevailing wage law began in 1927 and continued in 1928 and 1930, but no bill was passed. On March 3, 1931, Bacon's original proposal, which he had reintroduced as H.R. 16619, was signed into law by Republican President Herbert Hoover.¹⁵

Critics of the Davis-Bacon Act have assumed that because Rep. Bacon targeted an Alabama contractor in his complaint about cheap labor practices, Bacon was aiming his complaint at black labor. But in fact Rep. Bacon in his testimony had indicated that the Alabama contractor had brought up a mixed crew of both black and white workers.¹⁶ Indeed, at the time, two-thirds of all Alabama construction workers were white. While the hod carriers and laborers were likely to have been blacks from Alabama, the brick masons and carpenters were likely to have been white.¹⁷ The notion that Rep. Bacon was aiming his legislation as a Jim Crow attack on southern blacks is thinly supported speculation.

Republican Representative Fiorello LaGuardia was familiar with this particular Alabama contractor. He mentioned this issue as he argued for the passage of the Davis-Bacon Act in 1931. He argued on the floor of the House:

A contractor from Alabama was awarded the contract for the Northport Hospital, a Veterans' Bureau hospital. I saw with my own eyes the labor that he imported there from the South and the conditions under which they were working. These unfortunate men were huddled in shacks living under most wretched conditions and being paid wages far below the standard. These unfortunate men were being exploited by the contractor. Local skilled and unskilled labor were not employed. The workmanship of the cheap imported labor was of course very inferior....all that this bill does, gentlemen, is to protect the Government, as well as the workers, in carrying out the policy of paying decent American wages to workers on Government contracts. [Applause.]¹⁸

¹⁴ U.S. House of Representatives, *Hearings before the Committee on Labor on HR 17069*, 69th Congress, 2nd Session, p. 2, February 18, 1927.

¹⁵ *Hearings Before the Committee on Labor, House of Representatives-Seventy-First Congress*, January 31, 1931. Bacon's proposal was re-introduced in 1930 as H.R. 9232 by Congressman Elliot W. Sprout from Illinois, while Bacon proposed a complementary bill.

¹⁶ "In the case that I cite the [Alabama] contractor has also brought in skilled nonunion labor from the South to do this work, some of them negroes and some of them white, but all of them are being paid very much less than the wage scale prevailing in New York State..." *Hearings Before the House Committee on Labor on HR 17069*, 69th Congress, 2nd Session, p. 4, February 18, 1927.

¹⁷ See George F. Will, "It's time to repeal the Davis-Bacon Act," *Deseret News*, Feb. 5, 1995 and David Bernstein, "The Davis-Bacon Act: Let's Bring Jim Crow to an End" Cato Institute, January 18, 1993. In Alabama, in 1930, only 34 percent of all brick and tile layers, carpenters, electricians, painters, plasterers, cement masons, plumbers and construction laborers were black. U.S., Bureau of the Census, *Fifteenth Census of the United States, Population Volume IV "Occupations by States"*, G.P.O., 1933, Table 12, p. 121.

¹⁸ U.S., Seventy-First Congress, Third Session, *Congressional Record-House*, February 28, 1931, p. 6510.



New York Republican Representative Fiorello LaGuardia strongly defended the Davis Bacon Act. He decried the exploitation of Southern workers--both black and white--and claimed that the Davis Bacon Act's purpose was to ensure that decent wages were paid on Government projects.

The Davis-Bacon Act required payment of prevailing wages on federally financed construction projects. However, the original language of the law was vague, and prevailing wages generally were not determined before the acceptance of bids. In 1935, Democratic President Roosevelt signed clarifying amendments to the act, which became the basis of the current Davis-Bacon Act.

In 1935, Roosevelt's Secretary of Labor, Francis Perkins, established the original rules for determining the Davis-Bacon prevailing rates. The prevailing wage was said to be the wage paid to the majority, if a majority existed; if not, the 30-percent rule was used. The 30-percent rule means if 30 percent of the workers in an area are paid the same rate, that rate becomes the prevailing rate there. The 30-percent rule often resulted in the union wage being the prevailing wage. If the 30-percent rule did not apply, because at least 30 percent of the workers in a given occupation in the local labor market did not receive the same wage rate, the average wage rate was paid to workers doing the same job. The prevailing wage was determined this way for 50 years.

In 1985, Republican President Reagan changed administration of Davis-Bacon, creating the 50-percent rule. This rule holds that if 50% plus one wage rates for an occupation in a local labor market are the same to the penny, then that wage rate is said to prevail. If no one wage rate accounts for more than 50% of all wage rates for an occupation in a local labor market, then the average wage rate for that occupation prevails. Under the old rules, if union wage rates accounted for more than 30% of all wage rates for an occupation, then the union wage rate prevailed. Under the new rules, union wage rates must represent more than 50% of all wage rates in an occupation before union wage scales prevail under Davis-Bacon.



Republican President Herbert Hoover supported the passage of the Davis Bacon Act. The Act was named after Republican Representative Robert Bacon and Republican Senator James Davis. Hoover signed the Act in 1931.

Delaware (1933).

Seven states passed prevailing wage laws between 1891 (Kansas) and 1923 (Nebraska). Sixteen states, including Delaware (1933) passed prevailing wage laws between 1931 and 1937. Eventually all but nine states would pass prevailing wage laws. (See Table 1.)

Little is known about the debate in the Delaware legislature surrounding the passage of the state's prevailing wage law. No known record of the debate exists in either newspapers or legislative archives. We have a general understanding of the philosophy of these laws from contemporary debates over Davis-Bacon. But silence in the Delaware legislative record makes the 1933 state law speak for itself. Section 1 of "AN ACT Requiring Minimum Rate of Wages in Public Building Specifications and Contracts" states:

[S]pecifications upon which contracts are entered into for the construction, alteration or repair of any public work, for which the State of Delaware appropriates any part of the funds, shall, as far as possible, contain the minimum rate of wages which may be paid by the contractor, or his subcontractors, for the work performed by laborers and mechanics employed on such public work, and such laborers or mechanics shall be paid not less than such minimum wage or wages.¹⁹

The law did not say what the minimum wage was to be. It is not clear whether there would be one minimum wage for all of construction or a minimum wage for each occupation. If the law called for occupational minimum wages, it was still not clear whether these minimums would be for the entire state or specific local labor markets. Finally, what did the legislature mean by "as far as possible"?

We may speculate that "as far as possible" was referring to the administrative and logistical costs of implementing the law. And we may further speculate that given the tenor of the times and the contemporaneous passage of similar state laws, a minimum wage was to be set for each occupation rather than for all of construction. Whether that wage was applied on a county-by-county basis or for the whole state, we do not know.

Some insight into the administration of Delaware's law comes from a failed effort to amend the law in 1951. Senate Bill 326 attempted to delete the phrase "as far as possible" and to insert the usage of Davis-Bacon prevailing wages for any county in Delaware where Davis-Bacon wage rates had been declared.²⁰ (Davis-Bacon declares wages on a county-by-county basis but sometimes does not bother declaring wage rates in counties where no federal construction is anticipated.) This amendment to Delaware

¹⁹ House Bill No. 219, Title 15, Chapter 172, Approved, April 21, 1933, "Minimum Wage Rates on Public Buildings, Masters, Apprentices and Employees Contracts, Delaware Public Archives, Hall of Records, Dover Delaware, 19901.

²⁰ An Act to Amend Chapter 90 of the Revised Code of Delaware 1935, Entitled "Employers and Employees", Relative to the minimum Rate of Wages to be Paid Upon Public Building Projects, April 3, 1951, Delaware Public Archives, Hall of Records, Dover Delaware, 19901.

prevailing wage law failed in the Senate 7 in favor to 9 against on the 72nd legislative day of 1951. A likely interpretation of this amendment may be that prevailing wages were not systematically set in all counties of Delaware. Perhaps the use of Davis-Bacon wage rates was intended to extend prevailing wages from urban to rural areas. And perhaps the phrase "as far as possible" was used to prevent the application or updating of wage rates in rural areas. Unfortunately, the debate around this amendment is missing, so that these speculations must be viewed as hypotheses only.

In 1961, the record becomes somewhat clearer as a result of a court case clarifying the interpretation of the Delaware prevailing wage law. Joseph Callaway, an expert carpenter and cabinet maker, was employed by N.B. Downing Company to build cabinets and other items that would be installed in public schools. Callaway was paid \$1.90 per hour while the minimum wage for carpenters on state public works was \$2.60. Callaway sought reimbursement but the judge held that off-site work was not covered by the Delaware prevailing wage law. For our purposes, this historical record clears up a key issue tangential to the legal case. By 1961 at the latest, the Delaware prevailing wage law was proclaiming specific occupational minimum wages. Furthermore, in the judges decision, he saw Delaware's prevailing wage law as analogous with several other state laws and the Davis-Bacon Act.²¹ Thus, the interpretation and implementation of Delaware's law by the 1960s construed the state's law to be similar to the many other prevailing wage laws in the country. Similar in implementation, Delaware's prevailing wage law must be seen as similar in intent and philosophy with other prevailing wage laws dating back to the 1930s and before.

In 1962, Delaware House Bill 29 sought to regularize the informal implementation of Delaware's law. The "as far as possible" phrase was eliminated. In its stead, a \$2,000 minimum project size threshold was established. The Delaware Department of Labor and Industrial Relations was given formal responsibility to determine minimum wages. The amended law now clearly indicated that a minimum wage was to be set by occupation.²² And the prevailing wage was to relate to "projects of a character similar to the construction work in the city, town, village or other civil subdivision of the State". Thus, the structural differences in the construction labor market between types of construction was recognized by the amended law. Finally, the law defined what a prevailing wage was:

Determination of the prevailing wage rates shall be based on the average of the actual wages paid to a majority of the employees employed in the type of construction work involved, and performing work in the county for which a prevailing wage is determined.²³

²¹ 53 Del. 493, 172 A.2d 260, Joseph N. Callaway v. N.B. Downing Co. June 21, 1961.

²² Each public construction contract was required to contain "minimum wages to be paid various classes of laborers and mechanics..." The use of the plural for wages and the phrase "various classes of laborers and mechanics" codified what apparently was the practice of setting distinct occupational wages. 12th General Assembly of the State of Delaware, House Bill 29 with Senate Amendments 1, 2 & 3, Approved May 16, 1962.

²³ *Ibid.*

This provision made it clear that prevailing wages were for local labor markets within specific sectors of construction. However, left vague was the arithmetic definition of a prevailing wage. The "average of the actual wages paid to a majority of the employees" seems to mean one had to have a sample of more than 50% of the workers in an occupation in an area. Then one took an average wage from that sample.

Whatever the meaning, the first implementation of the amended law sparked controversy. In July of 1962 the *News Journal* reported:

Both labor and management are kicking up a fuss over minimum wage rates set by the State Department of Labor and Industrial Relations in its first "prevailing wage" order. The unions claim the rates are too low and contractors insist they're too high...Under the [newly amended] law the Department of Labor and Industrial Relations still must fix minimum rates for highway contracts in Kent and Sussex Counties and for other state contracts in all three counties. [Department of Labor Chairman Joseph A.] Bradshaw said the agency establish the rates after studying reports from both contractors and the unions. He said the department tried to come up with figures representing what "a majority" of highway workmen actually are being paid...Under the order, unskilled laborers would receive a minimum of \$1.65 an hour. The hourly rates for other crafts would range up to \$3.60 for crane operators.²⁴

In 1972, the Delaware prevailing wage law was amended again to provide more effective enforcement of the law. Three new enforcement subsections were added to the law. The first required the Department of Labor to investigate all claims of nonpayment of prevailing wages. If a contractor was found out of compliance and refused to come into compliance within fifteen days of notification from the Department of Labor, then the Secretary of Labor could terminate the work of the contractor. Any costs associated with the termination of a contract or subcontract had to be born by the violating contractor.

A second provision said that if a contractor was convicted of willfully refusing to pay prevailing wages, then said contractor could be fined from \$500 to \$2000 and prevented from taking another public works contract for three years.

A third section provided that individual laborers or mechanics could sue in civil court any contractor that failed to pay prevailing wages. The workman could recover lost wages plus interest. Willful violations of the law could result in treble damages. The workman could also recover reasonable attorney's fees.²⁵ In 1986, this section was amended to allow the Department of Labor to sue on behalf of under-paid laborers and

²⁴ *News Journal*, July 23, 1963.

²⁵ House Bill 423 as amended by Senate Amendment No. 2, Approved May 24, 1972.

mechanics without first receiving permission from them. Also, it was made clear that if a workman sued and lost, he was not liable for the court costs of the defendant.²⁶

In 1994, the Delaware prevailing wage law was given a significant overhaul. The law's project cost threshold had been slowly rising over the 1962 to 1994 period, from \$2,000 to \$5,000 to \$10,000. In 1994, it was raised to \$100,000 on new construction and \$15,000 on renovations. The Department of Labor's division of Annual Affairs was to determine the prevailing wage in an annual survey. The amended law said

The prevailing wage shall be the wage paid to the majority of employees performing similar work ...or in the absence of a majority, the average wage paid to all employees reported.²⁷

Thus, the Delaware law as now written used the same formula as the Davis-Bacon Act for defining the prevailing wage. The amended law called for sworn payroll records on public jobs to be provided weekly to the Department of Labor. The fine for willful violation of the law was raised to a range between \$1,000 and \$5,000. Contractors now had a two strike clause. Upon a second violation of the law within two years of a first violation of the law, guilty contractors would be prohibited from bidding on public works for three years. Workers retained the right of private action against offending employers with the right to reasonable attorney's fees. However, workers who lost in court were no longer protected from paying attorney's fees. The newly amended law imposed a two-year limit on complaints. Contract managers were partially protected from civil liability although they were instructed by the law to monitor compliance with the law.²⁸ In 1995, the law was further amended to prohibit employer discrimination against any worker who made a complaint or provided information to the Labor Department regarding enforcement of the prevailing wage law.²⁹

Thus, the Delaware prevailing wage law has evolved over the years to a definition of prevailing wages that is occupation, industry sector and county specific. The formula matches the current Davis-Bacon 50% switching rule between the modal wage and the mean wage. Prevailing wage surveys are annually administered by an agency of the Delaware Department of Labor. And the law applies to new construction worth over \$100,000 and renovations valued at over \$15,000. Penalties for violations range from \$1,000 to \$5,000 per violation, and aggrieved employees have the right to take private action in court seeking damages. Repeated violations can lead to three-year debarment from bidding on public works.

Conclusions.

Prevailing wage laws emerged from a concern that cutthroat competition over wages in construction would lead the industry down a low-wage, low-skill development path. This was said to put the quality of construction at risk and lead to an itinerant, footloose low-

²⁶ House Bill No. 687. Approved June 30, 1986.

²⁷ House Bill No. 528 as amended by House Amendment No. 1.

²⁸ House Bill 528 as amended by House Amendment No. 1, approved July 5, 1994.

²⁹ Senate Bill 163 approved June 26, 1995.

wage construction labor force. Poor construction workers would make poor neighbors and potential burdens on the community. Reasonably paid construction workers, on the other hand, held out the possibility of being solid neighbors, good citizens and productive members of the community. Government, by the operation of prevailing wage laws, was supposed to get out of the business of cutting government costs by cutting the wages of its citizens. Whatever labor standards had been established, whatever wages prevailed in a local community, that is what the law said government should pay on public works.

The bidding process on government works differs significantly from the private sector. In the private sector, the owner of the construction project can overlook the lowest bidder for a higher bid that promises better quality or performance. In the public sector, the lowest bonded bid must be accepted. Contractors have an incentive to shave costs on the initial bid and hope to make up those costs in change orders or in a favorable interpretation of the jobs specifications. Owner dissatisfaction cannot lead to debarment from subsequent public jobs as long as the letter of the law and specifications are adhered to. This bidding structure puts an added downward pressure on wages and an upward pressure on hidden costs.

It is intriguing that at precisely the same time Delaware passed its prevailing wage law, it passed a law preventing contractors who won state jobs from subsequently shopping the bid around to subcontractors. Each general contractor was required to submit a list of his subcontractors with his bid on a state job. The general was not allowed to cut his costs after winning the bid by placing an ultimatum on his subcontractors to cut their price or lose the job.³⁰ This provision regulating the relationship between general contractors and subcontractors reveals the distinctive propensity of the construction industry to forego long term consideration for the most short-run of cost savings. This is what the British Sweating Commission was concerned about in the 1890s. And this is one of the fundamental rationales for prevailing wage laws. These laws are designed to focus competition on the long run; the laws seek to encourage competition over skills and productivity rather than over short-run wage cutting advantages.

But if these laws are successful in focusing competition on the factors that raise the productivity of construction in the long run and help justify a better-paid construction labor force, then three things must be true. First, where prevailing wage laws exist, training in construction must be more common and of a higher quality. Second, where prevailing wage laws exist, the income and benefits of construction workers must be higher. And third, despite higher wages, income and benefits, where prevailing wage laws exist, construction costs must be roughly equivalent to construction costs where prevailing wage laws are absent. We now set about the task of investigating these three questions.

³⁰ AN ACT requiring Contractors on all Public Buildings to name their Sub-contractors approved April 20, 1933.

Table 1: Prevailing Wage Laws by State, Year Passed and Repealed

States having prevailing wage laws	Year passed	States without prevailing wage laws		
Alaska	1931	Georgia		
Arkansas	1955	Iowa		
California	1931	Mississippi		
Connecticut	1935	North Carolina		
Delaware	1933	North Dakota		
District of Columbia	1931	South Carolina		
Hawaii	1955	South Dakota		
Illinois	1931	Vermont		
Indiana	1935	Virginia		
Kentucky	1940			
Maine	1933			
Maryland	1945			
Massachusetts	1914			
Michigan	1965			
Minnesota	1973			
Missouri	1957			
Montana	1931			
Nebraska	1923			
Nevada	1937			
New Jersey	1913			
New Mexico	1937			
New York	1894			
Ohio	1931			
Oklahoma*	1909			
Oregon	1959			
Pennsylvania	1961			
Rhode Island	1935			
Tennessee	1953			
Texas	1933			
Washington	1945			
West Virginia	1933			
Wisconsin	1931			
Wyoming	1967			
		States that repealed prevailing wage laws	Year passed	Year of repeal
		Alabama	1941	1980
		Arizona	1912	1984
		Colorado	1933	1985
		Florida	1933	1979
		Idaho	1911	1985
		Kansas	1891	1987
		Louisiana	1968	1988
		New Hampshire	1941	1985
		Utah	1933	1981

*The enforcement of Oklahoma's law was judicially suspended in 1995.

2

An Analysis of the Impact of Prevailing Wage Laws on Construction Costs

with a Special Focus on Eleanor Craig's Claim that Delaware Can Save 11% on Its Total Construction Costs by Eliminating the State Prevailing Wage Law.

Introduction.

Few people would object to a law that had as its purpose the promotion of decent wages and benefits for the citizens of a state. Fewer still would object to a law that promoted training and the creation of skills that would justify the payment of decent wages. Not many would object to a law that promoted the availability of health insurance for working class families. Few would be the opponents to widespread private pension programs that helped provide old age security for construction workers and their spouses. The other chapters of this report show that the intent and effect of prevailing wage laws are, in fact, ones that few people would object to. The purpose of these laws was and is to promote productive skills, decent wages, solid health insurance, and widespread pensions among construction workers both on public and private construction.

Construction workers make up around 5% of the total labor market. Historically, construction has been a place where working class families could make middle class incomes. The carpenter next door to you could afford his or her house. Economic security led to social security. Construction workers made good neighbors. With the aid of collective bargaining and prevailing wage regulations, the construction labor market has been a major American success story and a minor economic miracle.

Left unorganized and unregulated, the construction labor market has all the makings of a secondary labor market of low skilled, itinerant, foot-loose workers. With perhaps the exception of the harvest labor market in agriculture, construction is the most unstable area of work; it is seasonal; and it suffers from wide swings of booms and busts. Workers move from contractor to contractor. Outside the framework of collective

bargaining and prevailing wage regulations, contractors have few incentives to train most of their workers. Worker retention to the industry is also problematic. These are the classic signs of what economists call a casual, low-wage, secondary labor market. The American success and the minor miracle is the fact that through collective bargaining and prevailing wage regulations, many construction workers have been able to build highly skilled, craft-based careers out of the flux and uncertainty that characterizes almost all aspects of construction. This benefits these workers directly and it benefits the communities within which they live. If construction develops along a high-skill, high-wage growth path, then the 5% of the workforce in construction and their families become community assets. If construction develops along a low-skill, low wage path, then the construction workers become a community liability. Given the choice between a high skill growth path and a low skill growth path, why would anyone oppose prevailing wage laws?

Some will oppose prevailing wage laws simply because they have a vested interest in the low-wage development path. These contractors seek a comparative advantage in using low-wage, low-skilled labor. They hope the race will become a race to the bottom and in such a competition, they think they have an advantage. Prevailing wage laws present serious problems for contractors whose major comparative advantage is that they do not pay health insurance, they do not provide pensions, and they do not train apprentices. But few would change prevailing wage regulations simply to expand the opportunities of low-wage contractors.

The major rationale presented to justify a repeal of prevailing wage regulations is the allegation that prevailing wage laws raise government construction costs. This argument is appealing for two reasons. First, if government could save significant sums of money on its construction costs without sacrificing the quality of construction, then several worthwhile constituencies might well gain from these savings. For example, perhaps we could build more schools for the same amount of money; or cut taxes; or both, if the savings were truly substantial. Second, it seems intuitively plausible that if wages are cut, money will be saved. This is where these critics of prevailing wage laws often go wrong. Sure, if you cut wage rates, and nothing else changes either now or in the future, then you will save money on construction costs. But in what walk of life can you cut wage rates by 20% or more with no effect on morale, productivity or business strategies? Everybody still comes to work. No one quits. Workers still happily invest in maintaining and expanding their skills. Employers still try to save on labor costs by buying expensive equipment.

You can build a dam with buckets and shovels. Your workers will need few skills and your wage rates will be low. Or you could build a dam with heavy earth moving equipment and you will need to hire high-skilled, high-wage equipment operators. But just because the bucket-and-shovel approach allows for low wage rates does not mean that your dam will be either cheaper or quicker to build. The belief that cutting wage rates cuts labor costs or construction costs needs to be carefully examined. We begin this examination by looking at a hypothetical analysis of possible construction cost savings developed by Eleanor Craig.

Professor Craig's Hypothetical Savings of 11% on Total Construction Costs.

Eleanor Craig claims that Delaware could build 10 schools for the cost of nine by eliminating Delaware's prevailing wage law. She argues that there is an "11% premium on total project cost" attributable to Delaware's prevailing wage regulations.³¹ The calculation Professor Craig goes through to come to this conclusion is simple.

She surveyed contractors on 8 state projects--mostly school construction projects. She asked these contractors three key questions. First, how much did those contractors pay their workers on the public project? Second, how much would they have paid those workers on a comparable private project? And, third, what was labor costs as a percent of their total costs on the project?

From these three questions, she derived two key numbers. She found that wages were 22.6% lower on private projects. She also found that labor costs were 48.7 percent of total project costs. She then made the following calculation:

- If labor costs are almost half of total costs, (50%)
- And labor costs fall by about 22%
- Then, if prevailing wage regulations are eliminated--total costs must fall by 11%.

This calculation requires one assumption. Professor Craig explicitly assumes that when wages and benefits fall by 22%, labor productivity remains the same. If, at a lower wage rate, contractors hire less experienced or less skilled workers, then those lower wages do not necessarily translate into cost savings for the state. Either the contractor will have to hire more workers to offset their lower productivity, or work less productive workers longer, or tolerate lower quality results. Any of these factors could partially or completely wipe out hypothetical savings from lower wage rates. Professor Craig assumes these complications away in her projection of cost savings from lower wage rates.

Professor Craig's analysis is hypothetical. She is not examining the cost of public construction under prevailing wage regulations with the cost of public construction absent those regulations. Rather, she is developing a hypothetical scenario of what might happen. Like all hypothetical scenarios, Professor Craig's analysis is only as reliable as the assumptions she makes and the data she uses. As it turns out, her data are not consistent with standard sources on costs in the construction industry.

Labor Costs According to the United States Census of Construction.

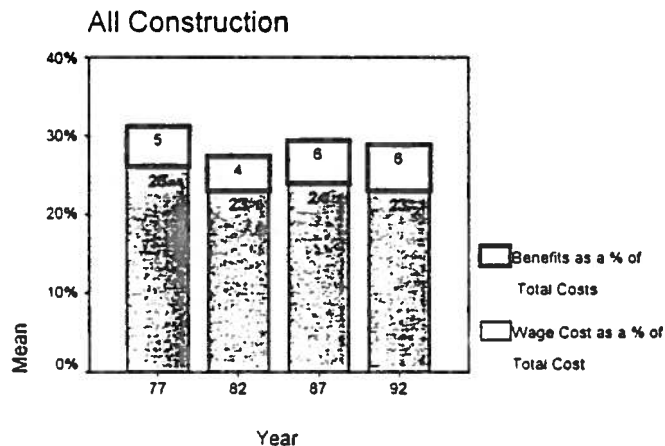
There is a standard source on labor costs in the construction industry. The U.S. Census of Construction surveys construction contractors in every state every five years. The results of the most recent survey, taken in 1997, have yet to be released. However, we have data on labor costs as a percent of total costs in construction for the United States as a whole and for Delaware going back to 1972. These data are for thousands of

³¹ Eleanor D. Craig, Delaware's Prevailing Wage Laws, November 17, 1997, p. 2.

contractors and they are not gathered for the purpose of any specific study. The Census of Construction is systematically relied upon by researchers and analysts of the construction industry.

We will see that labor costs as a percent of total costs are much lower than estimated by Professor Craig. This is important. Professor Craig is hypothetically estimating how much the public entities within the state of Delaware can save on their public construction costs if they participate in policy changes that will result in lowering construction workers wages by 22%. Whatever hypothetical savings there might be will depend in part on how much labor costs account for total costs. If labor costs are half of overall costs, then cutting wages by 22% might cut costs by 11% if workers of the same skill and productivity are willing to continue working for 22% less. If labor costs are only one-fourth of total construction costs, then a 22% wage cut can only generate a 5.5% savings on state construction costs even if there is no loss of skills and experience when wages are cut. Thus, it matters what labor costs are.

For all construction in Delaware, labor costs--including wages, benefits and payroll taxes--run slightly less than 30% of total construction costs. Figure 1 shows labor costs as a percent of total costs broken down into wages and benefits for Delaware from 1977 to 1992. The dip in 1982 is associated with the building recession of that year. Generally, there has been a slow downward trend in labor costs as a percent of total costs associated with technological change that has enhanced the productivity of labor and price changes which, in turn, have raised material costs relative to labor costs. Benefit costs in this graph are slightly overstated because they include not only benefits going to construction workers, but also benefits paid to non-construction workers employed by construction contractors.

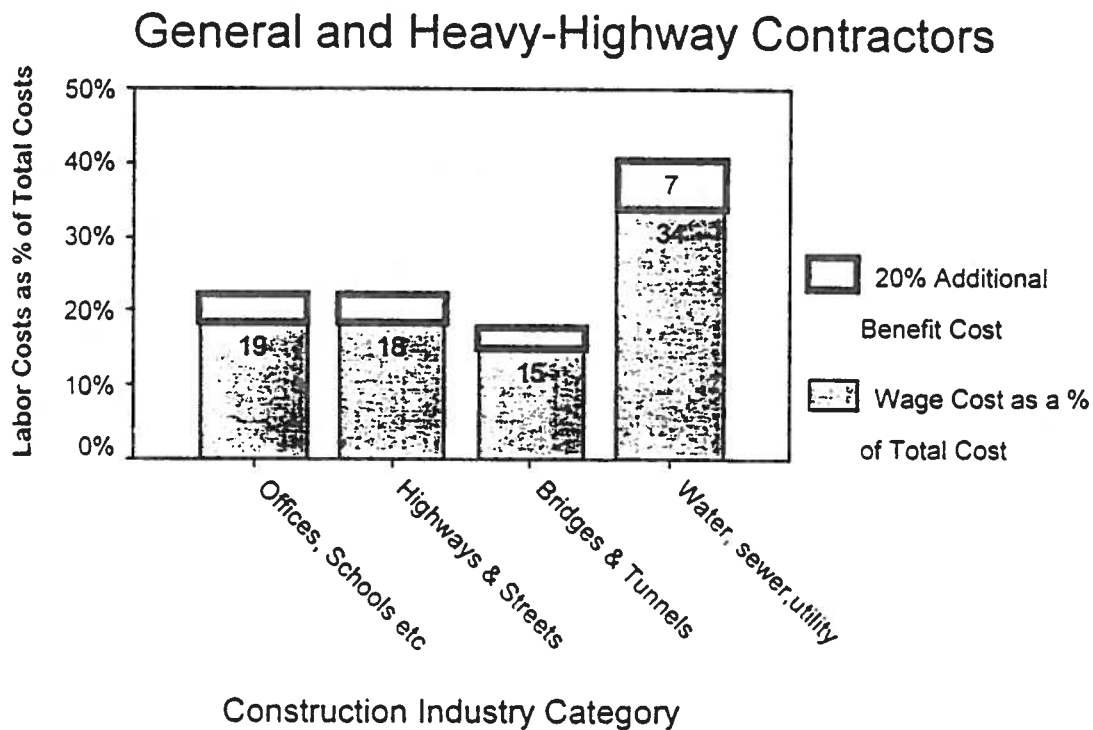


Source: 1992 U.S. Census of Construction

Benefits overstated by including office & other non-construction workers

Figure 1: Labor Costs as a Percent of Total Costs for All Construction in Delaware, 1977 to 1992

The Census of Construction for Delaware also breaks labor costs and total costs down by contractor type. Unfortunately, in this breakdown only wage costs are included. In order to calculate total labor costs, I add 20% of wage costs as benefit costs. This is higher than Professor Craig's estimate of a 17.5% benefits to wage ratio.³² Figure 2 shows, for Delaware, labor costs--including estimated benefits--as a percent of total costs for specific types of general and heavy-highway contractors.³³ For commercial contractors (office buildings, schools, churches, etc.), wage costs account for 19% of the total cost of construction. Estimated benefits account for an additional 4% of total costs. Thus, labor costs account for about 23% of the net value of the work done by commercial contractors. I say net value because the Census of Construction quite rightly excludes from commercial contractors the value of work done by subcontractors. To calculate overall labor costs on a commercial job or a school project, one must consider not only the costs of the general contractor but also the subcontractors. We will do this momentarily. However, first, let us look at heavy and highway contractors.



Source: U.S. Census of Construction-Delaware

Average of Data for 1987 and 1992

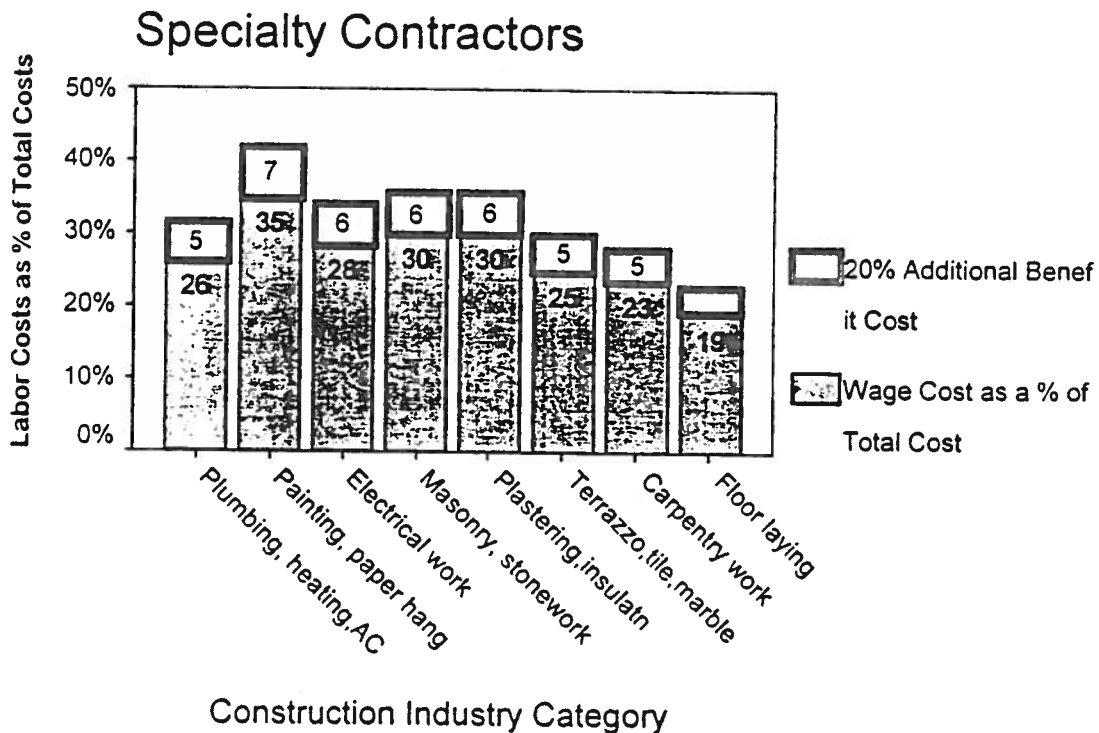
Figure 2: Labor Costs as a Percent of Total Costs for Delaware General Contractors, and Heavy and Highway Contractors

³² Craig, p. 2.

³³ I average percentages for 1992 with percentages for 1987 in order to smooth out any effect on labor costs associated with the business cycle.

For highway and street contractors, the use of non-heavy and highway subcontractors is limited. Thus, the 22% labor-cost-as-a-percent-of-total-cost reported by highway and street contractors is an accurate reflection of labor costs in this type of construction. Labor costs are typically lower in heavy and highway construction because the use of heavy equipment increases labor productivity substantially. The use of labor augmenting equipment that raises labor productivity permits the payment of higher wage rates, while at the same time cutting labor costs as a percent of total costs. You could build Hoover dam with buckets and shovels; wage rates would be low but labor costs as a percent of total costs would be high. And, the dam would probably cost more to build.

Labor costs as a percent of total costs are typically higher for specialty subcontractors compared to general contractors and heavy/highway contractors. This is because typically the general contractors bear a larger share of material costs and heavy/highway contractors have heavier equipment to augment the productivity of their workers. Figures 3 and 4 show labor costs as a percent of total costs for specialty contractors in Delaware.

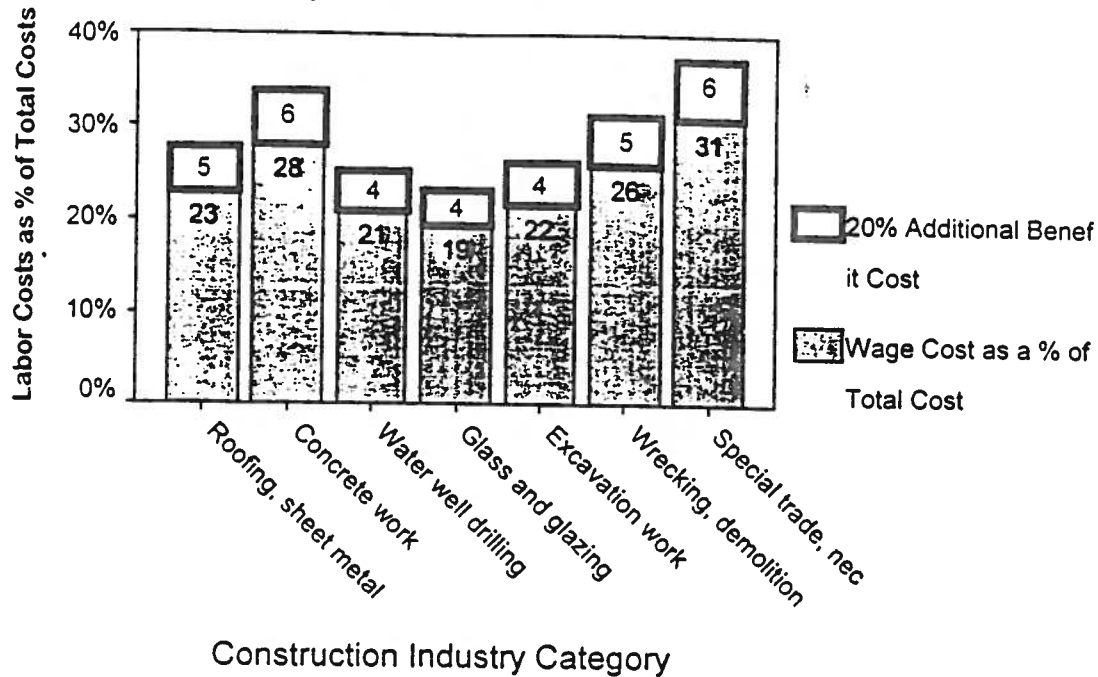


Source: U.S. Census of Construction-Delaware

Average of Data for 1987 and 1992

Figure 3: Labor Costs as a Percent of Total Costs for Delaware Specialty Contractors, Part I

Specialty Contractors



Source: U.S. Census of Construction-Delaware
Average of Data for 1987 and 1992

Figure 4: Labor Costs as a Percent of Total Costs for Delaware Specialty Contractors, Part 2

One of the first things to notice in these figures is that labor costs as a percent of total costs do not fluctuate directly with wage rates. For instance, in Figure 3, labor costs for high paid plumbers account for 31% of total costs. Electrician wages and benefits account for 34% of total costs. In contrast, lower paid painters' wages and benefits account for 42% of the total value of work done by painting contractors. This difference is partly due to the fact that pipe and wire cost more than paint. But it is also due to the fact that high wages for electricians and plumbers reflect their skills and productivity. High wage rates, if they induce higher labor productivity, can actually reduce labor costs as a percent of total costs. Low wage rates, if they mean a loss of skills, can in some cases result in higher labor costs as a percent of total costs.

There are two problems with Professor Craig's hypothetical calculation of how much the state of Delaware will save by eliminating the state's prevailing wage law. First, she assumes that labor costs are a higher percentage of total costs than, in fact, they are. Second, she assumes that lowering wage rates by 23% will have no effect, whatsoever, on the experience and skills of construction workers on public projects. We will address the issue of wage rates and skills in a moment. First, let us speculate for a moment why Professor Craig missed so drastically in her estimation of labor costs on public works.

Why Did Professor Craig Overestimate Labor Costs on Public Works?

The Census of Construction, as its name indicates, is a census. This means that questionnaires are filled out by practically every construction contractor in the country. Professor Craig's survey was a sample. That means she queried a number of contractors (110), but, on the other hand, she may have missed some important ones. Given her results are at odds with the more comprehensive and accurate Census of Construction, her sample was probably incomplete and unrepresentative.

Furthermore, Professor Craig's sample is not weighted by the number of workers employed by each contractor. So, one contractor might report a 75% labor cost as a percent of total cost and a second might report a 25% labor cost as a percent of total cost. She would have averaged these two and derived a 50% labor cost as a percent of total cost. But the first contractor may have employed only a handful of workers for a short time and the second contractor may have employed many workers over the lifetime of the project. By not weighting her observations by the number of workers and the time they worked on a project, she may have inadvertently over-estimated true labor costs as a percent of total costs.

Professor Craig's sample may have over-represented nonunion contractors. Nonunion contractors pay lower wage rates. But they do not necessarily have lower labor costs as a percent of total costs. Lower wage rates often induce employers to use technologies and crew strategies that emphasize the use of unskilled labor and restrict the use of capital equipment training (human capital). Union contractors, having negotiated higher wage rates, have an incentive to use capital intensive strategies emphasizing skilled labor. Thus, Professor Craig's sample may have a higher labor cost as a percent of total cost compared to the Census of Construction simply because her sample is bottom-heavy with labor-intensive, non-union contractors.

It may be that Professor Craig gets her numbers wrong simply because she asked the wrong question. Her goal is to estimate how much money the state can save on its construction costs if wage rates are cut. Thus, she wants to know what labor costs are as a percent of the total cost of construction. The total cost of construction (not counting land acquisition, architectural fees and construction management) is the accepted bid-price of the job plus any change orders agreed upon during the job. This money goes to cover labor cost, material cost and contractor profits. It is the cost of construction to the government. And to figure out how much money the government will save by cutting

wage rates. Professor Craig wanted to know what labor costs were as a percentage of this accepted bid price. But it is quite possible that this is not the number she got from her questionnaire. If she asked a question like: "What are labor costs as a percent of your total costs?" to a contractor, she is likely to have been told where labor stood relative to the contractor's other costs. The contractor's profits are not part of the contractor's costs. Contractor profits are a part of the government's construction costs. Labor will be a higher percentage of the contractor's costs because the contractor's costs exclude profits. Labor will be a lower percentage of the overall costs of construction, because that overall cost will include contractors' profits. Professor Craig's substantial over-estimate of labor costs as a percent of total costs may simply be due to having poorly designed the questions in her survey.

Professor Craig may say that her seeming over-estimate proves her case. If labor costs as a percent of total costs are 30% on most construction in Delaware but they are 50% on school construction, surely this reflects how much prevailing wage regulations bloat labor costs on public works.

This argument does not work for three reasons. First, if labor costs are so bloated on public works, why are labor costs as a percent of total costs for heavy and highway work so low? Almost all of this work is regulated either by the state or federal prevailing wage law. Yet labor costs are lowest in this sector of construction.

Second, while the Census of Construction does not break out school construction contractors as a separate category, a U.S. Department of Labor study has done this. In 1979, the U.S. Bureau of Labor Statistics published a study of school construction costs by region in the United States. The BLS study aggregated school types and presented data on four regions, Northeast, Midwest, South and West. The relevant data for our purposes is presented below.

Table 2: Hourly Wage Rates and Total Costs as a % of Total Construction Costs

Elementary and Secondary School Construction		
1972	Hourly Wage Rate	Wages as a Percent of Total Cost
Northeast	\$7.75	27.9%
North Central	\$7.43	29.3%
South	\$5.22	27.3%
West	\$7.22	29.0%

Source: U.S. Bureau of Labor Statistics, John G. Olsen, "Labor and Material Requirements for New School Construction," *Monthly Labor Review*, April 1979, Vol. 102, Number 4, p. 41.

These are old statistics but their age make them more instructive. In 1972, prevailing wage laws were widely enforced in the Northeast (including Delaware). If prevailing wage laws bloat relative labor costs now, they should have bloated those costs then. But, in fact wage costs as a percent of total costs were 27.9% in the Northeast. This does not include benefits. Adding another 6 % for benefit and payroll taxes would

bring labor costs up to about 34% of total costs in 1972. If prevailing wage laws did not bloat labor costs then, there is little reason to believe they are doing so now.

Professor Craig's hypothetical calculation of state savings on construction costs stands on two legs--an estimate of labor costs as a percent of total costs, and, an assumption that labor productivity does not change when wage rates change. Now it appears that the first leg of this scenario is a lot shorter than Professor Craig supposed. If labor costs on public works are only 30% of total costs as opposed to her estimate of 50%, then no matter what the truth about labor productivity, the pie to be carved up by cutting wage rates by 22% is smaller than she thought. Now let us turn to the second leg of her hypothetical scenario--the relationship between wage rates and productivity.

Wage Rates and Labor Costs.

An interesting point to be derived from Table 2 is that hourly wage rates varied considerably between the Northeast region and the South (\$7.75 versus \$5.22 in 1972). In contrast, wage costs as a percent of total costs were almost the same in the two regions (27.9% versus 27.3%). The analyst, John Olsen, commented on these facts as follows:

Average hourly earnings also varied by region. Hourly earnings for all construction workers averaged \$6.78, ranging from \$5.22 in the South to \$7.75 in the Northeast. Wages as a percent of contract costs varied from just above 27 percent in the South to slightly above 29 percent in the North Central. Although average hourly wage rates in the Northeast were higher than those in the North Central region, wage costs as a percent of total contract costs were lower. Among other factors, this irregular trend could result from regional differences in productivity rates and in relative material costs. (pp. 40-41)

Could it be that as wage rates are cut experienced workers leave for better paying jobs elsewhere? Could it be that as wage rates rise, contractors find it worth their while to spend the money needed to better train their workers and provide them with new, better equipment? Could it be, in other words, that Professor Craig was wrong to assume that a 22% wage cut would have no effect, whatsoever, in the short run or in the long run, on labor productivity in construction?

Figure 5 shows the wages earned in 1992 by construction-electricians in Delaware and Virginia. Virginia is an interesting comparison because it is a lower wage state, it has fewer construction unions and it has never had a state prevailing wage law. In 1992 dollars, Delaware electricians earned, on average \$27,530 per year. Virginia construction-electricians earned 20% less--\$22,188. Did this drop in wages result in a drop of labor costs as a percent of total costs? The answer is--Yes, by two percent. As Figure 6 shows, wage costs as a percent of total costs for electrical contractors in Delaware in 1992 were 28%. In Virginia--a lower wage state with fewer construction unions and no state prevailing wage law--labor costs as a percent of total costs for electrical contractors was 26%. Thus, for a drop in wages similar to that predicted by

Average Income Comparison

Electrical Workers

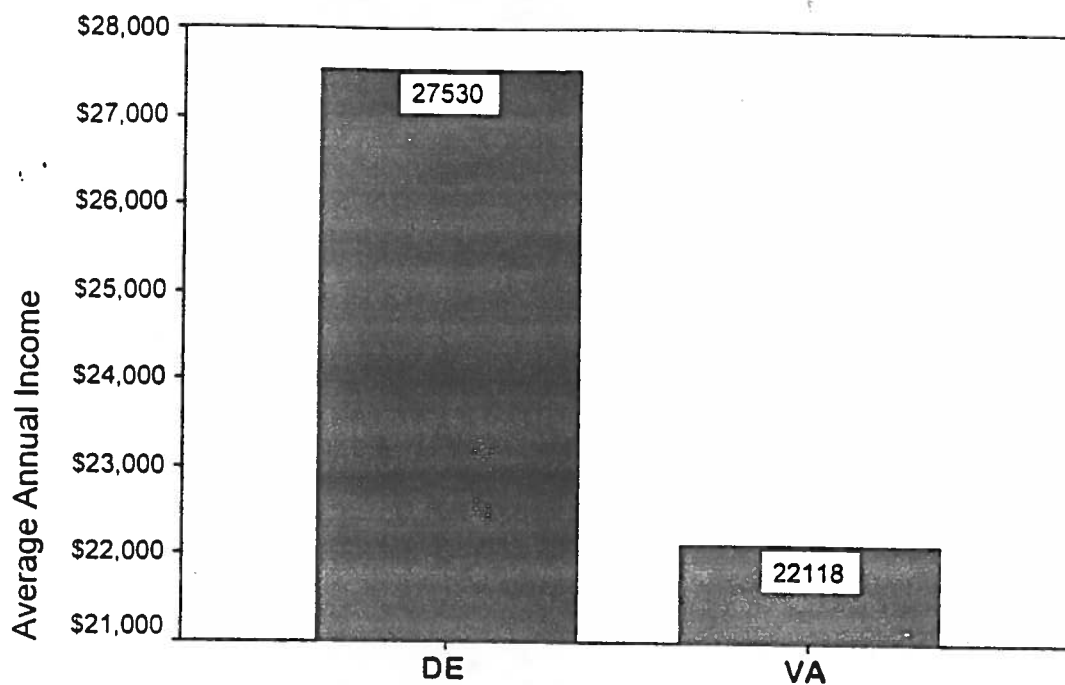


Figure 5: Average Wage Difference Between Construction-Electricians in Delaware and Virginia, 1992 (Source: U.S. Census of Construction, 1992)

Wage Cost as a % of Total Cost:
Electrical Contractors in Delaware vs. Virginia

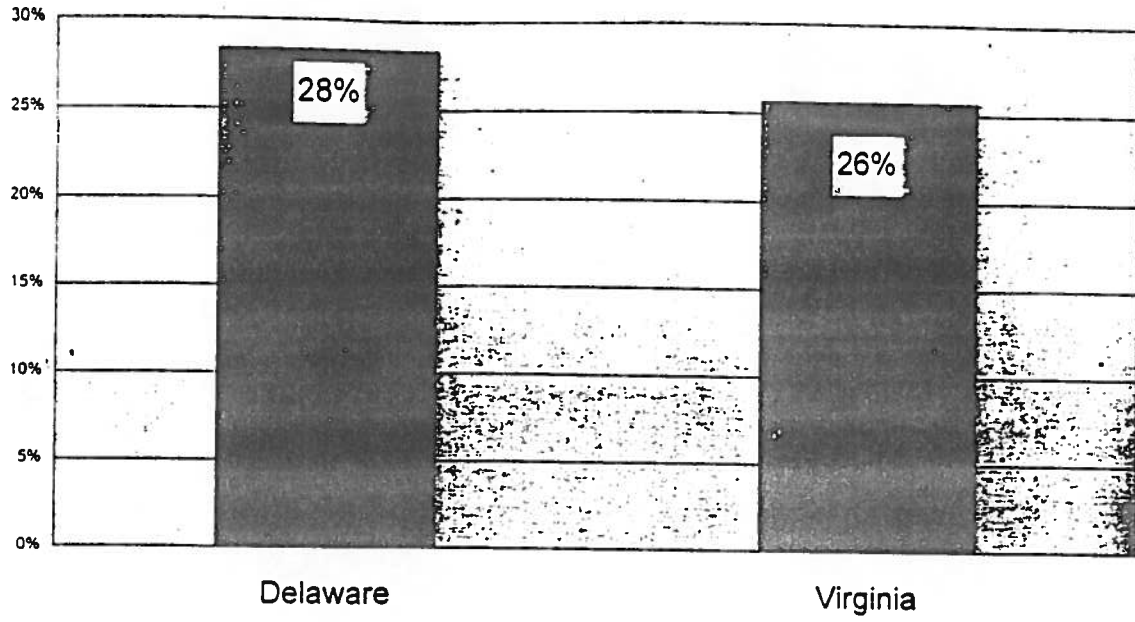


Figure 6: Wage Costs as a Percent of Total Costs in Delaware and Virginia for Electrical Contractors, 1992 (Source: U.S. Census of Construction)

Professor Craig, labor costs as a percent of total costs did not fall by 10% or 11%. In this case, they fell by 2%. On average for all construction, wages in Virginia are 15% lower than wages in Delaware but wage costs as a percent of total are only 2 percent lower.³⁴

Intriguingly, in some cases the relationship between wages and labor costs inverts. In 1992, Virginia highway and street contractors paid 14.5% less in wages to their construction workers than did Delaware highway and street contractors. Yet, even though Delaware highway and street construction workers earned more, labor costs as a percent of total costs were 4% less in Delaware compared to Virginia. Either asphalt and cement are way more expensive in Delaware compared to Virginia or Delaware road workers are better trained and equipped and more productive than their counterparts in Virginia. And this is not the only example.

Roofing and sheetmetal contractors paid out 20% more in wages than did their Virginia counterparts in 1992. Yet labor costs as a percent of total costs for roofing and sheetmetal contractors were virtually the same in both states. Plastering and insulation contractors in Delaware shelled out 8% more in wages than did their counterparts in Virginia, yet labor costs as a percent of total costs were no higher for insulation and plastering contractors in Delaware than they were in Virginia.

All of this simply goes to show that you cannot blindly assume that as wage rates fall, labor productivity will remain unchanged. This second leg of Professor Craig's hypothetical story is very shaky. In all likelihood, in the long run at least, when wage rates go up, contractors respond by training their workers more, equipping them with better machinery and tools, organizing crews more efficiently and doing all the things contractors are supposed to do to remain efficient and competitive.

This too shows that Professor Craig's hypothetical approach at trying to assess the impact of prevailing wage regulations on costs simply does not work. It is garbage in, garbage out analysis. If you assume that labor costs are a relatively high proportion of total costs and productivity will not change when wage rates are dropped substantially, then of course you are going to predict substantial cost savings. But when you have the wrong assumptions and facts, your predictions will be wrong, too. A better way to assess the effects of prevailing wage regulations on costs is simply to look at costs where these laws are applied, and, where they are not in force.

A Comparison of School Construction Costs

Tables 3 and 4 show the median square foot construction costs for building new schools over the period July, 1991 to July, 1997. The accepted bid price of the schools were inflated to 1997 dollars using the consumer price index-housing. This allows for a direct comparison of square foot construction costs for school built in different years.³⁵

³⁴ All these calculations come from the U.S. Census of Construction, 1992, Geographical Series.

³⁵ The data are from the F.W. Dodge Corporation, the standard service provider of project information in the construction industry. Alternative price indices were tried to examine whether results were dependent on the price index chosen. Results were basically the same regardless of the price index used to translate information into constant 1997 dollars.

Table 3: Square Foot School Construction Cost in States with and without State Prevailing Wage Laws (Notice Caution in Footnote)

Square Foot School Construction Cost by States with and without State Prevailing Wage Laws							
LEGAL STATUS	ELEMENTARY SCHOOLS Median	Number of Obs.	MIDDLE SCHOOLS Median	Number of Obs.	HIGH SCHOOLS Median	Number of Obs.	Number of Obs.
No Law	\$69	N=31	\$70.98	N=18	\$73.80	\$73.80	N=25
Has Law	\$91	N=64	\$73.86	N=28	\$86.42	\$86.42	N=33
% Increase In Cost	31.5%		4.1%			17.1%	

Note: Data are for 1991 to 1997 inflated to 1997 Dollars Using the Consumer Price Index-Housing

Source: F W. Dodge Corporation Start Cost Data

Caution: these data are for private schools only--no public schools are included

Table 4: Square Foot School Construction Costs by Public and Private Projects (Notice Caution in Footnote)

Square Foot Public and Private School Construction Costs Compared							
OWNERSHIP OF PROJECT	Number of Obs.	ELEMENTARY SCHOOLS Median Sq. Ft. Cost	Number of Obs.	MIDDLE SCHOOLS Median Sq. Ft. Cost	Number of Obs.	HIGH SCHOOLS Median Sq. Ft. Cost	Number of Obs.
Private Project	N=80	\$69.01	N=31	\$70.98	N=18	\$73.80	N=25
Public Project	N=52	\$74.51	N=63	\$72.04	N=292	\$81.80	N=218
% Increase In Public Cost		8.0%		1.5%		10.8%	

Note: Data are for 1991 to 1997 inflated to 1997 Dollars Using the Consumer Price Index-Housing

Note: Public Projects exclude Federal projects.

Source: F W. Dodge Corporation Start Cost Data

Tables 3 and 4 seem to suggest that prevailing wage laws do increase the cost of building schools. Table 3 shows that in states with state prevailing wage laws, 64 elementary schools were built at a cost of \$91 per square foot. In contrast, in states without state prevailing wage laws, the cost was \$69 per square foot. The elementary schools cost 31.5% more in states with state prevailing wage laws. An unwary analyst might conclude that prevailing wage laws raise construction costs 31.5%. **However, Table 3 presents data for private schools only.** These schools were built without prevailing wage regulations regardless of whether or not they were in a state with a prevailing wage law. Prevailing wage laws cover public projects only. The fact that the median square foot cost was higher for private schools in states with prevailing wage laws simply reflects the fact that most states without state prevailing wage laws are in the South, high plains or Rocky Mountain West. Square foot construction costs are lower in these regions for private as well as public projects for a variety of reasons. Medical costs are generally lower in these regions of the country; so is the overall cost of living. Thus, in assessing school construction costs in states with and without state prevailing wage laws, we will need to take into consideration overall differences in construction costs in these groups of states.

Table 4 divides school construction into public and privately built schools. It too seems to suggest that prevailing wage regulations raise school construction costs. Public

elementary schools cost 8% more per square foot than private elementary schools. Public high schools cost almost 11% more per square foot to build than private high schools. But these data refer only to public and private schools built in states that do not have a state prevailing wage law. Thus, the public-private cost differential cannot be laid at the foot of prevailing wage regulations. This reminds us that in assessing the effects of prevailing wage regulations on building costs, we must keep in mind that similar public and private buildings, such as elementary schools, may differ in the quality and nature of their construction.

Table 5: Square Foot Cost of New School Construction Broken Down by State WITH and WITHOUT State Prevailing Wage Laws and then Broken Down by Public and Private Schools

Square Foot Cost of New Public and Private School Construction in States with and without a State Prevailing Wage Law							
LEGAL STATUS	OWNERSHIP OF PROJECT	ELEMENTARY Median Cost	Number of Obs.	MIDDLE Median Cost	Number of Obs.	HIGH Median Cost	Number of Obs.
State WITHOUT a Prevailing Wage Law	Private Project	\$69.01	N=31	\$70.98	N=18	\$73.80	N=25
	Public Project	\$74.44	N=650	\$72.27	N=299	\$81.47	N=229
	% Increase in Public Cost	7.9%		1.8%		10.4%	
State WITH a Prevailing Wage Law	Private Project	\$90.72	N=64	\$73.86	N=28	\$86.42	N=33
	Public Project	\$93.57	N=1083	\$82.16	N=543	\$84.18	N=388
	% Increase in Public Cost	3.1%		11.2%		-2.6%	

Note: Data are for 1991 to 1997 inflated to 1997 Dollars Using the Consumer Price Index-Housing
 Note: Public Projects exclude Federal projects.
 Source: F.W. Dodge Corporation Start Cost Data

Table 5 presents the proper comparison. The square foot cost of new construction for elementary, middle and high schools is presented. These data are first broken down into states with state prevailing wage laws and states that do not have state prevailing wage laws. Then the data are broken down a second time into public schools and private schools. Finally, for both states with laws and states without laws, a comparison is made. How much more or less expensive is it to build a public school? Table 5 compares 1083 public elementary schools in states with a prevailing wage law to the construction of 64 privately built elementary schools in those states. The public elementary schools cost 3.1% more per square foot than the private elementary schools. Perhaps this implies that prevailing wage laws raise elementary school construction costs by about 3%. But, in states with no prevailing wage laws, public elementary schools cost almost 8% more than private elementary schools. This raises doubts about attributing the difference in public versus private elementary school construction costs in prevailing wage law states to prevailing wage regulations.

Public middle schools cost 11.2% more than private middle schools in prevailing wage law states--much more than the 1.8% difference in states without prevailing wage laws. But public high schools in non-prevailing wage law states cost 10.4% more than private high schools in those states. In stark contrast, in prevailing wage law states,

public high schools cost 2.6% less than private high schools. The data in Table 5 do not support the contention that prevailing wage laws raise school construction costs.

Using a Linear Regression Model to Measure the Effect of Prevailing Wage Laws on School Construction Costs.

In economics, a statistical technique called linear regression is a standard method for measuring the effect one factor upon another controlling for other things. For instance, we can develop a model designed to predict the cost of building a school based on

- Whether it is an elementary, middle or high school
- how many square feet are in the project
- how many stories the building is
- what kind of building materials are used in construction
- whether or not the school is public or private, and

Controlling for these factors, we can then ask the question: if the school is being publicly built in a state with a prevailing wage law, will it cost more?

Table 6 presents a linear regression model that predicts total school construction costs (excluding land acquisition, architect fees and construction management fees) based on the size of the building, the number of stories, the type of building materials used, whether or not the school is an elementary, middle or high school, whether the school is public or private and whether the school was built under a prevailing wage law.

Table 6: A "Here-There" Cross-State Linear Regression Model Predicting Total Construction Costs for Elementary Schools, Middle Schools and High Schools

Variable*	Estimated Effect	Statistically Significant?	Significance Probability
(Constant)	5.02	Yes	0%
Log of Total Square Feet	0.93	Yes	0%
Log of the Number of Stories	0.12	Yes	0%
Marker for Wall Board Framing	3%	Yes	1%
Marker for Wood Framing	7%	Yes	0%
Marker for Steel Framing	1%	No	57%
Marker for Cement Framing	-1%	No	79%
Middle School	-2%	No	15%
High Schools	2%	Yes	9%
Public Project	13%	Yes	0%
Effect of Prevailing Wage Law	-3%	No	38%

Dependent Variable: Log of Total Project Value in 1997 Dollars Deflating with the CPI-Housing

*Estimated Coefficients for State Dummy Variables Omitted from Table

Adjusted R-square=89%

Number of Observations=3 246 schools

This linear regression model covers the construction of 3,246 schools encompassing all states except Hawaii. The model in Table 6 is a "fixed effects" model that enters in a dummy variable for each state to capture differences in the cost of construction in that state. The coefficients estimating the individual state effects are not reported in the table. The model is a good fit of the data (as indicated by an adjusted R-square statistic of 89%).

The model indicates that as the size of a school goes up, the total cost of the school rises. But it also indicates that there are economies of scale associated with larger schools so that while the total cost goes up with increasing size, the square foot cost goes down. This is shown in the estimated effect (or coefficient) for the variable--the log of total square feet for the school being built. This coefficient is .89. This means that if you doubled the size of a school from (say) 50,000 square feet to 100,000 square feet, the size would go up by 100% but the cost would only go up by 89%. This indicates that as schools get larger, the total cost goes up, but the square foot cost goes down.

The model in Table 6 controls for a variety of technical factors--total square feet, number of stories, type of building materials--and the model also controls for whether or not a middle school costs more than an elementary school or whether a high school costs more than an elementary school. For a middle school of exactly the same size as an elementary school, built of the same material, having the same number of stories, the model estimates that a high school will cost 2% more. This is a statistically significant result at the 10% level. There are three standard levels of statistical significance--1%, 5% and 10%. In simple terms, 10% means statistically I have a 1-in-10 chance of being wrong, and 1% means I have a 1-in-100 chance of being wrong. Rarely do economists accept higher levels of probability in this test as statistically significant. Thus, the model also indicates that a middle school of the same size as an elementary school with the same number of stories and using the same materials would cost 2% less than an elementary school. But this result is not statistically significant. This means that for all practical purposes, an elementary school and a middle school of the same size will cost the same amount.

Now the model asks the question whether or not public schools cost more than private schools controlling for other factors such as size. The model estimates that public schools (in states with and without prevailing wage laws) cost 13% more than private schools. The estimated cost difference associated with public school buildings is statistically significant at all standard levels of probability. This cost difference may be due to design differences or other features typically found in public schools compared to private schools. Public school buildings may have a longer life span than private school buildings, or other factors may account for this cost difference. But this cost difference exists in both states with and without prevailing wage laws as shown in Table 5. This is not a cost differential that can be attributed to prevailing wage laws simply because this cost differential is found where there are no prevailing wage regulations.

Finally, the model estimates the cost effect of prevailing wage laws. The model estimates that controlling for other factors, building a public school in a prevailing wage

law state will cost 3% less than building the same public school in a state without a prevailing wage law. However, this is not a statistically significant estimate. For all practical purposes there is no statistical difference between building a public school in a state with or without a prevailing wage law. How can the model say there is no difference in the cost of public school construction in states with prevailing wage laws compared to states without prevailing wage laws when Table 5 suggests that on average square foot public school construction costs are higher in states with prevailing wage laws. Once again, the answer is that, on average, private school construction costs are also higher in states with prevailing wage laws. Once these cross-state differences in construction costs are accounted for, there is no statistically measurable effect on total construction costs associated with prevailing wage regulations. These results are consistent with the proposition that prevailing wage laws promote higher skills and better equipment and more efficient management that offset higher wage rates and prevent a significant rise in labor costs.

The foregoing analysis might be thought of as a "here-and-there" analysis that compares construction costs in states with and without prevailing wage laws. We can also do a "before-and-after" analysis in three states that have changed their laws in the 1990s. At the end of 1995, both Oklahoma and Michigan judicially suspended their prevailing wage laws. Oklahoma's law was suspended because the State Supreme Court found that Oklahoma's method of using Federal Davis-Bacon wage rates was an unconstitutional delegation of state authority to the Federal Government. Michigan's law was suspended based on a court ruling that it was superceded by Federal ERISA regulations. In contrast, in July of 1996, Kentucky re-imposed a law which had been legislatively withdrawn from regulating school construction in 1982. Thus, we have three cases of before-and-after with two cases going from law-to-no-law and one case going from no-law-to-law.

Table 7 shows the square foot construction costs of new schools built in the three states that have recently changed their prevailing wage laws. The time period covered is 1991 to 1997. The effects of inflation have been adjusted for using the consumer price index for housing. Within each state, schools are broken down into elementary, middle and high schools. The difference between square foot costs of building without a prevailing wage law is compared to the cost of building with a prevailing wage law for each state and building type. If it were cheaper to build without a prevailing wage law, then each or most of the numbers in the last column (which subtracts building costs under prevailing wages from building costs without prevailing wage regulations) would be negative. In fact, in three cases these numbers are negative while in six cases they are positive, indicating that on average, building costs came in cheaper under prevailing wage regulations.

Table 7: The Square Foot Cost of School Construction in Three States that Have Changed Their Prevailing Wage Laws

		Cost WITHOUT Law		Cost WITH Law		Difference WITHOUT minus WITH Law
		Number of Schools	Square Foot Cost	Number of Schools	Square Foot Cost	
Kentucky (Reinacted Law in July of 1996)	ELEMENTARY SCHOOLS	18	\$84.98	23	\$78.52	\$6.45
	MIDDLE SCHOOLS	9	\$77.89	11	\$76.17	\$1.72
	HIGH SCHOOLS	3	\$87.15	9	\$81.24	-\$14.10
Michigan (Suspended Law at End of 1995)	ELEMENTARY SCHOOLS	20	\$108.31	22	\$93.13	\$15.18
	MIDDLE SCHOOLS	17	\$91.61	17	\$94.37	-\$2.76
Oklahoma (Suspended Law at End of 1995)	HIGH SCHOOLS	13	\$112.33	11	\$100.64	\$11.69
	ELEMENTARY SCHOOLS	7	\$51.27	12	\$59.18	-\$7.91
	MIDDLE SCHOOLS	2	\$53.83	10	\$53.15	\$0.87
	HIGH SCHOOLS	5	\$53.02	4	\$52.90	\$0.13

However, before we leap to the conclusion that it is cheaper to build schools under prevailing wage laws, we should apply the same fixed effects, linear regression model to these before-and-after data that we applied to the earlier here-and-there school construction cost data.

Table 8: Before-and-After Regression Model of Total Construction Costs in Three States that Changed their Prevailing Wage Law

Variable	Estimated Effect	Statistically Significant?	Significance Probability
(Constant)	3.86	Yes	0%
Log of Total Square Feet	1.00	Yes	0%
Log of the Number of Stories	-0.01	No	93%
Market for Wall Board Framing	-5%	No	24%
Marker for Wood Framing	9%	Yes	3%
Marker for Steel Framing	2%	No	96%
Marker for Cement Framing	0%	No	97%
Middle School	-8%	No	10%
High Schools	1%	No	89%
Public Project	7%	No	52%
Michigan	59%	Yes	0%
Kentucky	42%	Yes	0%
Effect of Prevailing Wage Law	-4%	No	32%

Dependent Variable: Log of Total Project Value in 1997 Dollars Deflating with the CPI-Housing
 Adjusted R-square=89%
 Number of Observations=209 schools

Table 8 presents the same regression model as Table 6 but this model focuses only on the three states that changed their prevailing wage regulations in the 1990s. The number of observations in this model are only 209 compared to over 3,000 in the here-there model in Table 6. The focus variable in Table 8 is the effect of a change in the prevailing wage law on total construction costs. This before-and-after model estimates that controlling for the size and type of school and other factors, the effect of having a prevailing wage law was to lower total school construction costs by 4%. But this is not a statistically significant result. For all practical purposes the model indicates that the imposition of prevailing wage laws in these three states had no statistically measurable effect on school construction costs.

Conclusion.

Eleanor Craig predicts that Delaware can save 11% on its public construction projects if the state eliminates its prevailing wage regulations. This 11% taxpayer savings is achieved by cutting wage rates by 22%. Her prediction is based on a hypothetical model that is based on two assumptions. First, she assumes that labor costs as a percent of total costs is 50%. This is important because her predicted savings can come only from labor

costs. The higher labor costs are, as a percent of total costs, the more a wage cut will translate into a cut in total costs. Second, she assumes that when workers find their wages cut by 22%, no experienced and skilled workers will leave for other jobs. She assumes that contractors paying higher wage rates do not try to offset those higher wage rates with better training and better equipment for their work force. In short, she assumes that a 22% wage cut will not result in any loss of productivity whatsoever. This is important because if there is a loss in productivity, then wages will have to fall even further than 22% to obtain her hypothetical 11% savings in total cost.

Professor Craig's hypothetical analysis does not square with the facts. The U.S. Census of Construction for Delaware shows that typical labor costs in Delaware construction are around 30% of total costs--not 50%. This is important. Accepting all other aspects of her analysis, if labor costs are only 30% of total costs, then wage rates will have to fall by 37% to obtain her predicted 11% savings in total costs. But would labor productivity really remain the same if wage were cut by more than one-third?

A comparison of wages and labor as a percent of total cost in Delaware and Virginia casts doubt on Professor Craig's second assumption--that you can move wage rates around substantially with no effect on labor productivity. Construction electricians in Delaware earn 20% more than construction electricians in Virginia. Yet wage costs as a percent of total costs for Delaware electrical contractors are 28%, and wage costs as a percent of total costs for Virginia electrical contractors are 26%. A 20% drop in wages results in only a 2% drop in wage costs as a percent of total costs. And this example is not out of the ordinary. On average, Delaware construction workers earn 14% more than Virginia construction workers. Yet, labor costs as a percent of total costs in Delaware are only 2% higher than in Virginia.

A better way to analyze the potential effect of prevailing wage regulations on public construction costs is to look at actual regulated and unregulated, public and private projects. The median square foot construction cost of public and private schools in states with and without prevailing wage laws were compared. This was broken down into separate comparison of elementary schools, middle schools and high schools. On average, public elementary schools in prevailing wage law states cost 3% more than private elementary schools in those states. But public elementary schools in states without prevailing wage laws cost almost 8% more than private elementary schools in those states. In the case of high schools, public high schools in states without prevailing wage laws cost 10% more than private high schools in those states. In contrast, public high schools in prevailing wage law states actually averaged 2.6% less per square foot than private high schools in prevailing wage law states. These results do not support the assertion that an elimination of prevailing wage regulation will substantially lower public construction costs.

A "here-and-there" linear regression model was developed to estimate the effect of prevailing wage regulations on total construction costs for schools, controlling for other factors. This model controlled for the type of school, the size of the project, and building characteristics. It also controlled for general differences in construction costs

between states with and without prevailing wage laws and general differences between the cost of public and private construction (whether or not done under prevailing wage regulations). Controlling for these factors, this model could find no statistically significant impact on total construction costs due to prevailing wage requirements.

We then focused on three states that have changed their prevailing wage laws in the 1990s--Kentucky (which enacted a law for schools in the middle of 1996), and Michigan and Oklahoma (both of which judicially suspended their laws at the end of 1995). A comparison of the differences in average square foot cost before and after broken down by state and school type showed that for the most part, school construction costs were as cheap or cheaper under prevailing wage laws compared to without these regulations.

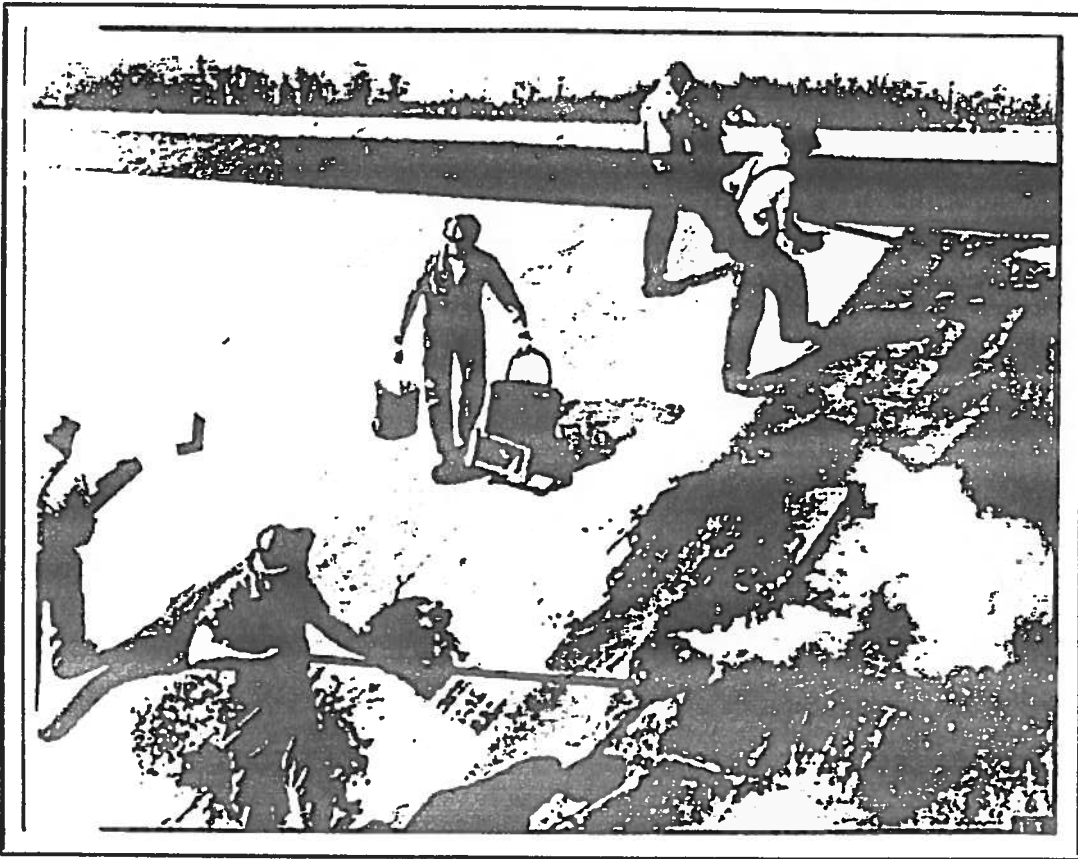
These results were formally tested in a second linear regression model that could control for the size of the school, building materials used and other factors. This regression model estimated that under prevailing wage laws in these three states, total school construction costs were 3% less expensive. However, this result was not statistically significant. For all practical purposes, controlling for other factors, there was no measurable difference between school construction costs with or without prevailing wage laws in these states that changed their laws in the 1990s.

Professor Craig presents Delaware with an untested hypothesis. The two assumptions of that hypothesis--that labor costs in state construction as a percent of total costs are 50%, and that labor productivity has no relationship to wage rates--do not square with the facts found in the U.S. Census of Construction for Delaware. When Professor Craig's hypothesis is tested against actual school projects built under prevailing wage regulations compared to schools built without these regulations, the test failed. Professor Craig is proposing to cut workers' wages by 22%. The reward she promises for the guaranteed pain doled out to some Delaware citizens is general and substantial taxpayer relief. The data indicate that while the pain for some is certain, the reward for Delaware taxpayers is unlikely. Professor Craig presents Delaware with a no-win proposition.

3

What Would a Repeal of Delaware's Prevailing Wage Law Do to Apprenticeship Training?

with a Special Focus on the Current Skills Crisis in Construction.



Roofers in the 1920s

The *Engineering News Record* (ENR) is a significant industry trade paper in construction. The Business Roundtable is a major organization of owners who purchase construction services. Both have recently done surveys attesting to the presence of significant skill shortages in the U.S. construction industry. Our recent extended economic prosperity has expanded the demand for construction services. This expanded demand has precipitated the skill crisis in construction. But the underlying cause of this crisis has been the slow shift over the last twenty years towards open shop construction. On average, open shop contractors train less. They employ a less skilled labor force. These facts help account for the fact that union contractors can pay measurably higher wage rates to a more trained labor force and not have significantly higher labor costs.

As this chapter will show, the open shop trains only one out of every four construction apprentices. Because apprentices in open shop programs have lower graduation rates, less than one out of every five apprentices graduating to journeyman status in construction come from the open shop. In some trades, such as operating engineers and iron workers, only 2% of the graduating apprentices come from open shop programs. In collectively bargained apprenticeship programs, women and minority apprentices are less likely to graduate than white male apprentices. In open shop programs this is also true. However, a woman or a minority apprentice in a collectively bargained program is more likely to graduate than a white male apprentice is likely to graduate in an open shop program. Thus, a change in public policy discouraging collective bargaining in construction would have the dual effect of lowering the amount of apprenticeship training in the face of a skills shortage and lowering even further the opportunities for women and minorities to obtain skilled careers through apprenticeships. We begin a discussion of these issues by considering some of what the *Engineering News Record* and the Business Roundtable have said about the scope and causes of the current skills and training crisis in construction.

The industry has known for much of the past decade that it was headed for manpower trouble when the business cycle turned up....Nonunion contractors working in bustling areas appear to have the biggest manpower problems, according to the survey results. For example, 56% of the union crafts in the West reportedly have no labor shortages while only 10% of the open shop crafts have no problem. "I would guess that some of the labor shortage exists because the open shop has pirated all the available, qualified union workers, and now suffers the lack of training programs of their own to produce open-shop crafts people," says Donald A. McKay, chairman of union mechanical and sheet metal contractor Tougher Industries, Albany, N.Y. "Its frustrating to hear them whine to the owners for help with their educational programs, while spending a pittance on training." McKay notes that the Alliance of Mechanical, Electrical and Sheet Metal Contractors spends about \$100 million a year to train union workers in those trades....

"Craft Shortages Creeping In," *Engineering News Record* (ENR), December 25, 1995, Vol. 235, No. 26, pp. 34-5.

Companies are currently experiencing significant problems in staffing construction projects, resulting in escalating costs and costly schedule delays....In late 1996, The Business Roundtable surveyed its member companies...Over 60 percent of the survey respondents indicated they had encountered a shortage of skilled craft workers, and 75 percent reported the trend had increased over the past five years....The union sector has always excelled in craft training through the joint labor/management apprenticeship programs...the open shop, as a whole, has not supported formal craft training to the extent necessary. They have succeeded by attracting skilled workers from the union sector as market share shifted and recruiting skilled workers from competitors as individual workload changed. As the well begins to dry up, the ability to use these methods decreases....Through the years, the subject of funding for training has come up repeatedly. All of the discussion has been on the open shop side. Training on the union side has always been required and paid for by the owner. A trained work force was expected and guaranteed by the contractors with costs passed on to the owner as part of the collective bargaining labor rate. It has been a different story on the open shop side.

"Confronting the Skilled Construction Work Force Shortage,"
The Business Roundtable, Construction cost Effectiveness
Task Force, October, 1997, pp. 2, 5, 6, 8 & 14.

Prevailing wage laws promote collective bargaining. Collective bargaining, in turn, promotes higher wage rates in construction. Yet, as the previous chapter has shown, there is no measurable correlation between prevailing wage laws and higher construction costs. How can this be? How can contractors pay higher wage rates and yet not have measurably higher construction costs? The answer lies in training.

Apprenticeship Training Under Collective Bargaining and the Open Shop

Contractors that participate in collective bargaining do the lion's share of apprenticeship training in construction. The following Figure 7 shows the number of newly enrolled construction apprentices in the United States for each year since 1989.³⁶ These data are broken down by the apprentices employed by union and nonunion contractors. While the number of new apprentices entering construction varies with the construction business cycle, the proportion trained under collective bargaining remains roughly the same. Approximately three out of every four new apprentices enroll in programs created by collective bargaining.

³⁶ These data are from the U.S. Department of Labor, Bureau of Apprenticeship Training. They represent approximately 70 percent of all construction apprenticeship programs in the United States. A few states do not report their apprenticeship training to the U.S. Labor Department. These states include Delaware. Consequently, we do not have Delaware specific information on apprenticeship training.

New Apprentices by Year

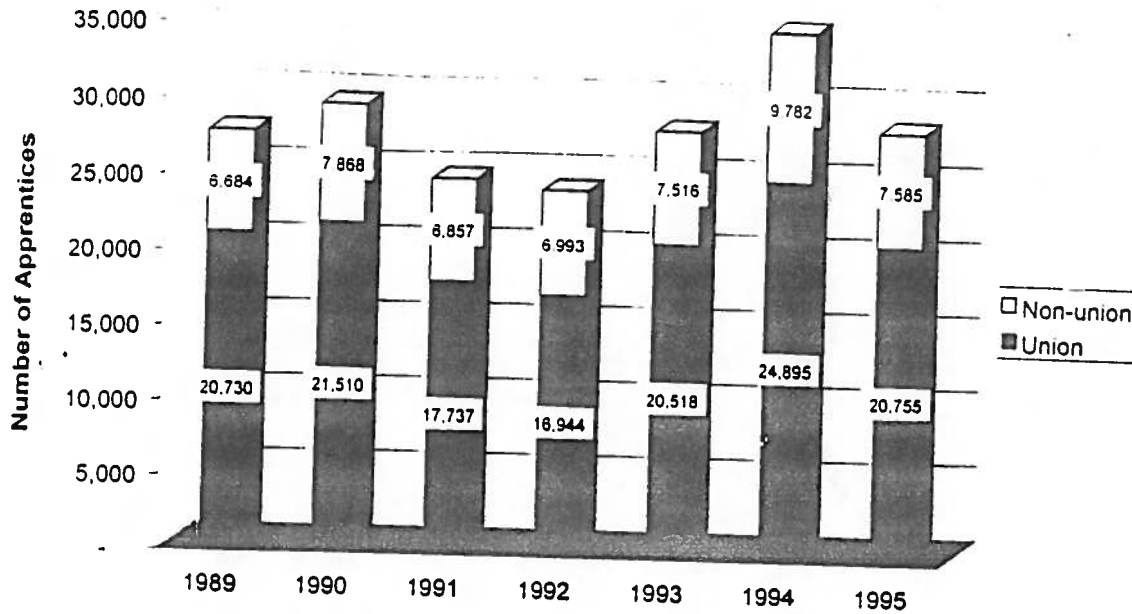


Figure 7: The Number of Newly Enrolled Construction Apprentices by Year and Union and Nonunion Programs, 1989 to 1995

Collective bargaining requires that contractors contribute a specified amount of money for every hour of worked into an apprenticeship training fund. This fund is used to hire instructors, to buy tools, equipment and materials and to pay for instructional facilities. In effect, all apprentices who enter programs maintained by collective bargaining are on scholarships provided by their employers. This means contractors who have signed collectively bargained agreements have a vested interest in seeing that their apprentices get trained and graduate.

In open shop apprenticeship programs, the apprentice typically must pay a larger share of his or her own training costs. This may come in the form of tuition payments, lower wages, or both. As a result, the contractors have less of a vested interest in assuring that enrolled apprentices graduate. Consequently, not only are three out of every four new apprentices enrolled in collectively bargained programs, but also, once enrolled in a collectively bargained program, the apprentice is almost twice as likely to graduate. The following Figure 8 shows that for the entering classes of 1989 and 1990, by the end of 1995, 37% of the apprentices in collectively bargained programs had dropped out. In contrast, over half--54%--in the open shop programs had dropped out. In the collectively bargained programs, 41% of the classes entering in 1989 and 1990 had graduated to journeyman status while only 25% of the apprentices in the open shop had graduated to journeyman status. In both types of programs, 21% of the classes entering in 1989-90 were still enrolled apprentices by the end of 1995. Thus, not only does collective bargaining encourage training, it encourages the completion of training.

Graduation Rates for Apprentices Under Collective Bargaining and in Non-Union Programs

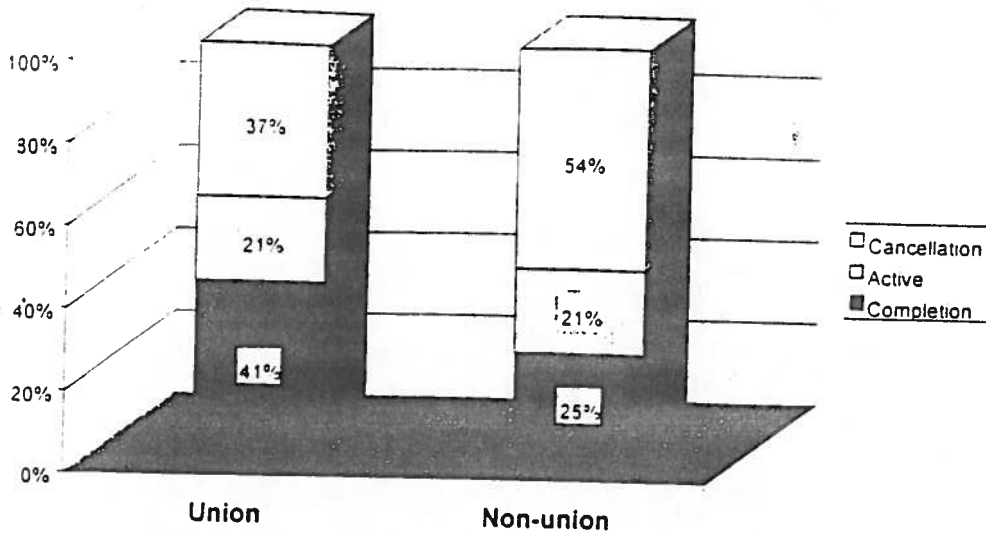


Figure 8: Graduation Rates by 1998 for Apprentices Enrolled in 1989-90 Under Collective Bargaining and the Open Shop

Sheet Metal Workers Joint Apprenticeship Program: Local Union 19 and Participating Employers

1. The first year requires 144 hours of daytime instruction providing skills needed to use sheet metal tools, to layout, to fabricate and install. Plus an in depth introduction to job safety and procedures.
2. The second year requires 144 hours of daytime and 144 hours of evening classes in welding, job cost awareness, sheet metal products, shop fabrication and field installation. Apprentices also continue to improve their math and drafting skills.
3. Third year: 144 hours of daytime instruction covering fabrication techniques for architectural water proofing systems for modern commercial and residential buildings. Apprentices learn to read blueprints and specifications to better understand how all the components create the finished building. 200 additional evening hours are dedicated to HVAC installation including basic electric, start-up and heating.
4. 144 hours provides fine tuning of more intricate skills covered in the past, drawing and sketching skills are expanded to Computer Aided Design

In covering the Philadelphia and Delaware area, this program enrolls 45 apprentices per year—90% graduate—and spends \$750,000 to \$900,00 per year.

The rubber meets the road in construction apprenticeship training when the apprentice turns out as a journeyman. As the following Figure 9 indicates, overall, collectively bargained programs turn out 82% of all construction journeymen and women trained through apprenticeship in the construction industry. In some crafts, open shop apprenticeship programs account for only one or two percent of all the apprentices graduating to journeyman status. For instance, only 2% of the apprentices graduating to journeymen status among operating engineers or structural steel workers (iron workers) come from open shop apprenticeship programs. Only 9% of the graduating bricklayers and 8% of the graduating carpenters come from open shop apprenticeship programs. Even among plumbers where the open shop has its largest share of graduating apprentices, two-thirds of all plumber-apprentices graduate from collectively bargained programs.³⁷

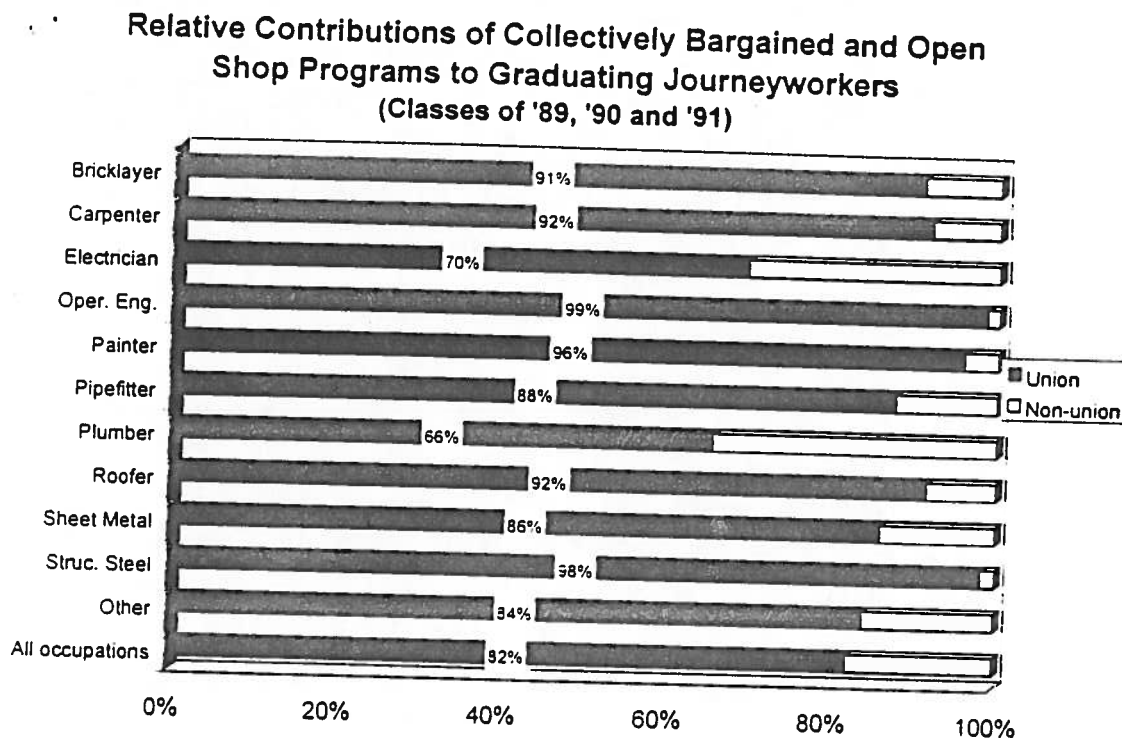


Figure 9: Share of Journeyworkers Graduating from Apprenticeship Programs Broken Down by Occupation and Collectively Bargained versus Open Shop Program

Delaware's Iron Workers Local 451 and signatory contractors together admit 10 to 25 apprentices per year to a 3-year program. Over 90% of the apprentices graduate. Through collectively bargained contributions, contractors and the union spend \$20,000 per apprentice in a 6000-hour training program that covers the layout, fabrication, placing, tying and welding of structural steel. Because iron work is inherently dangerous, 25% of all training is devoted to safety skills.

³⁷ These are graduation rates at the end of 1995 for apprenticeship classes having entered in 1989, 1990 or 1991.

The Use of Skilled and Unskilled Labor Under Collective Bargaining and the Open Shop

Union contractors and nonunion contractors approach the job site with very different work crews. The average nonunion contractors use a labor strategy that relies upon a limited number of skilled workers leading a larger number of unskilled workers through the construction process. For example, a skilled nonunion electrician may oversee a set of unskilled wire-pullers. The skilled nonunion electrician will color code studs and the wire-pullers will pull wire through those studs based on color coding. In a contrasting example, the skilled union electrician may pull the wires himself or have an apprentice do this. The nonunion contractor may have a cost advantage with his low-wage, unskilled approach to wiring a building as long as everything is simple and expected. But the union contractor may have the cost advantage if unexpected problems crop up that only a skilled and knowledgeable worker can handle. The nonunion contractor relies on his limited number of skilled workers to handle the unexpected. However, an unskilled worker can make a mistake without even knowing that a mistake was made. The union contractor with a more skilled labor force seeks a cost advantage by knowing that each activity is done by someone who knows the ins and outs of that activity. So problems are nipped in the bud rather than done over when caught. In short, the union contractor pays a higher wage rate but tries to offset that higher wage rate with fewer, more skilled and productive workers.

Figure 10 illustrates the difference between the labor force strategies of the average union and nonunion contractors. These are data from Pennsylvania in 1995-96. They divide building construction contractors into those working under collectively bargained contracts and those working without a collectively bargained contract. The top 5 most commonly found occupations in building construction are reported in Table 9. These occupations account for 68% of all union workers and 62% of all nonunion workers with the exception of apprentices which were excluded from the survey.³⁸ Union contractors employed a higher percentage of carpenters, electricians, sheetmetal workers and plumbers-pipefitters compared to nonunion contractors. In contrast, a higher percentage of the nonunion contractors' crew mix consisted of unskilled laborers. The foregoing apprenticeship data and these employment data show that on average, open shop contractors train less and use fewer skilled workers compared to union contractors.

The Joint Apprenticeship Training and Safety Committee of Operating Engineers Local 542 and Participating Employers for Delaware and Eastern Pennsylvania employs a staff of 14 instructors, mechanics and office personnel. It spent \$1.5 million in 1996 to train apprentices on a wide range of construction equipment. Apprenticeship training on heavy equipment is especially expensive simply because modern, heavy equipment are expensive to buy and update. Nationally, 99% of all operating engineer apprentices are trained by joint union-management programs.

³⁸ These data come from the Pennsylvania State Data Center Prevailing Wage Survey commissioned by the Pennsylvania State Labor Department, data file 'working3.txt'

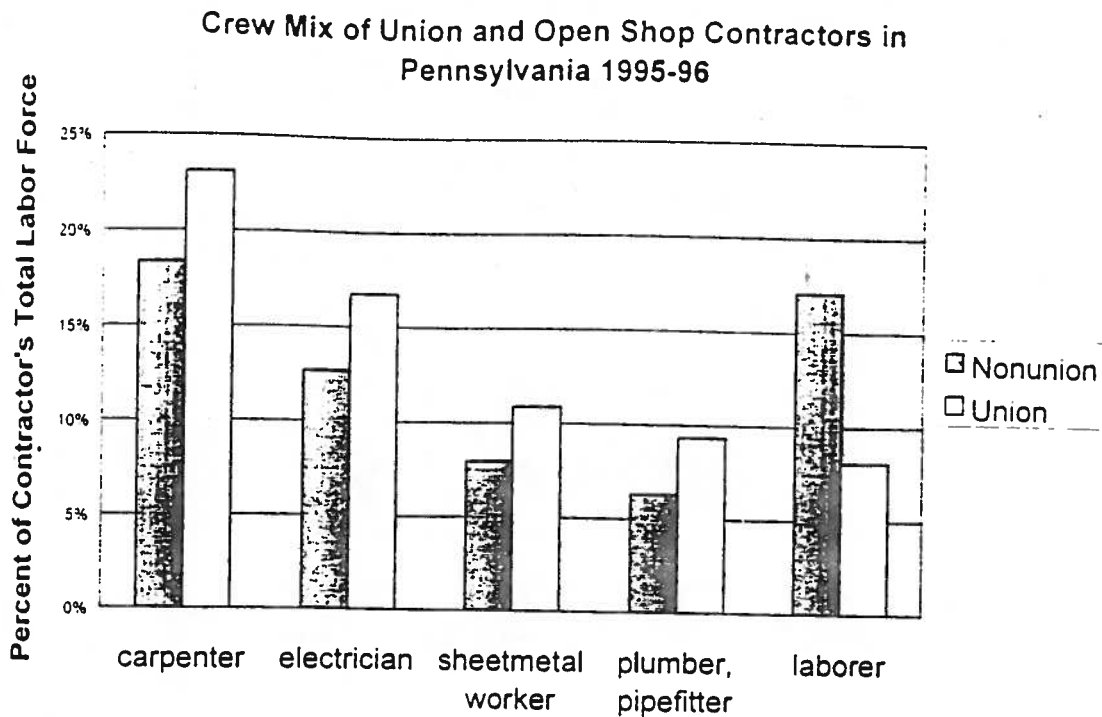


Figure 10: Relative Use of Skilled and Unskilled Labor by Union and Nonunion Contractors, Pennsylvania, 1995-96

- Delaware's United Association of Plumbers and Pipefitters Local 74 has just built a \$3 million training facility with over 17,000 square feet of shop and classroom space. Plumbing and pipefitting apprentices go through a 5-year program consisting of 1200 hours of classroom instruction and 8,500 hours of on-the-job training. Journeymen continue their education with courses on OSHA safety, hazardous materials, computer aided design drawing, clean room working environments, medical gas certification, welding certification, plumbing code and other craft related courses to keep members on the cutting edge of changes in the plumbing and pipefitting industry.**
- Through hourly contributions to a joint training fund, signatory employers and the union expend one-half million dollars per year on training of Delaware plumbing and pipefitting apprentices and journeymen.**

Table 9: Nonunion Contractor Use of Skilled and Unskilled Labor Compared to Union Contractors, Pennsylvania 1995-96

Occupation	Nonunion	Union	Nonunion as a Percent of Union
carpenter	18%	23%	79%
electrician	13%	17%	76%
sheetmetal worker	8%	11%	73%
plumber, pipefitter	6%	9%	67%
laborer	17%	8%	211%

To see more clearly the relative use of skilled and unskilled labor under collective bargaining and in the open shop, Table 9 repeats the foregoing data on carpenters, electricians, sheetmetal workers, plumbers-fitters and laborers. By taking the ratio of nonunion to union use of these occupations in their crew mix, we see that on average, nonunion contractors in Pennsylvania in 1995-96 use 79% as many carpenters, 76% as many electricians, 73% as many sheetmetal workers, 67% as many plumbers and pipefitters but over twice as many laborers. The employment of relatively fewer skilled workers by open shop contractors may help explain, in part, why open shop contractors train fewer apprentices. But the fact that open shop contractors train fewer apprentices may also help explain why they end up using relatively fewer skilled workers.

Possible Reasons Why the Open Shop Trains Less and Uses Fewer Skilled Workers

Why do [open shop] contractors not train? Many reasons are given. It is cost prohibitive. Investment is lost when a trained worker moves to a competitor. Many fail to recognize the need or appreciate the productivity effects.

---"Confronting the Skilled Construction Work Force Shortage," The Business Roundtable, Construction cost Effectiveness Task Force, October, 1997, p. 6.

Training in the construction industry is a classic case of what economists call a market failure. Construction is a boom-bust industry in many respects. Not only does the construction business cycle swing much more widely than does the economy as a whole, but also, specific contractors have to gear up and slow down their operations based on their own particular fortunes at winning construction bids. Along with this boom-bust, ramp-up/shut-down structure that is fairly unique to construction, the industry is organized along a complicated structure of subcontracting. Subcontracting is a way for a contractor to allow a more expert subcontractor to handle a particularly difficult or specialized part of a project. It is also a way to export headaches. When in doubt, it is sometimes better to contract out. Labor skill shortages can be just the kind of headache worth contracting out.

The boom-bust, ramp-up/ramp-down, subcontract-out headaches structure of construction makes most contractors focus on the short-run. In the short-run, the available supply of trained construction workers is fixed. If you have a shortage, all you can do is bid craftsmen away from someone else. It takes four to five years to turn an electrician, plumbing, fitter or sheet metal apprentice into a skilled journeyman. By the time you train someone for the job, the job is gone.

Anyway, if you train someone, you might just be subsidizing your competitor. The worker you train in all likelihood will be down the road and working for your competitor in the not too distant future. If you undergo training costs and your competitor does not, then your competitor can have his cake and eat it too. He can win that job today, since he has lower costs today because he does not train. And, he has just as much chance as you do of having skilled labor tomorrow because skilled labor moves around. You, the honest contractor that diligently trains for the future--you're a chump in the cutthroat competition that is the construction industry.

The historical solution to the market's failure to train in construction has been collective bargaining. A collectively bargained contract between a union representing construction workers and an association representing contractors has traditionally resolved the problem of meeting long-term training needs in a market that rewards only the short run calculations of contractors. If you and I as contractors are signatories to a collectively bargained contract, that contract will not allow me to be injured by you, my competition. Together, you and I and the other signatory contractors have agreed that for the good of the industry in the long-run, so much per hour (say 50 cents) will be put into an apprenticeship training fund. That means for every hour any of my workers are on a job, 50 cents goes for training apprentices. When I write up my bid, I know I have this cost. But what is more, I know you have this cost as well. I know that you might win the bid over me, but it won't be because I kept in mind the future training needs of the industry and you didn't. We both have to put the collectively bargained training costs into our bid. No pirating is possible because in the future I may hire the worker you trained but I shared in the cost of that worker's training. Thus, with collective bargaining in place, the contract serves as a mechanism for the market to provide training.

Roofers Joint Apprenticeship Program Local 30 and Participating Employers

This apprenticeship program enrolls approximately 75 new apprentices each year. On average, 40% graduate and the program spends \$175,000 to \$200,000 per year for apprenticeship training.

Conclusion.

Public policies that reduce construction apprenticeship training in the face of a critical skills shortage are wrong-headed and self-defeating. Repealing Delaware's prevailing wage law would seriously threaten the ability of the state's construction industry to provide a well-trained workforce to meet the public and private needs for high-quality construction services. The fact is that over 8 out of every 10 graduating construction apprentices in the United States come from programs financed and managed by collective bargaining. In some crafts such as operating engineers and structural steel workers (also known as iron workers) collective bargaining accounts for virtually all the apprentices trained in these skills. Construction apprenticeship programs jointly managed by contractors and unions are one of the best examples of the labor-management cooperation that many observers believe is crucial for world-class competitive success in the next century. Public policy should encourage this kind of cooperation. And that is just precisely what prevailing wage laws encourage. By tolerating and promoting the practice of collective bargaining in construction, prevailing wage laws promote labor-management cooperation, apprenticeship training, continued training of the journeyworker and the development of a high-skilled labor force.

Solid, high-quality, registered and monitored apprenticeship training also makes for a safer labor force. Safety training is a central focus of each and every collectively bargained apprenticeship program in Delaware. It stands to reason that a more carefully trained labor force is a safer labor force. As the next chapter will show, a comparison of injury rates in Delaware compared to Virginia--the closest state that does not have a prevailing wage law--shows that serious construction injury rates in Virginia are 20% higher than they are in Delaware. Higher injury rates hurt the worker and the worker's family. They also increase workers compensation costs and interfere with construction schedules. Construction is an inherently dangerous industry. Prevailing wage laws keep down the costs of injuries the right way by encouraging the training that reduces the risk of injury in the first place.

Training Is Becoming Continual for Unionized Electrical Workers

The national Electrical Contractors Association and the International Brotherhood of Electrical Workers Local 313 for Delaware jointly operate a traditional five-year apprenticeship program and an innovative continuing education program for journeyworkers. In a field subject to rapid technological innovation, the Joint Labor-Management Apprenticeship Training Committee has committed its resources not only to training apprentices, but to constantly upgrading the skills of all its members at no cost to the membership. In the last seven years half of the 550 journeyworkers in the local have taken continuing education classes focusing on new technologies within the industry. Almost \$100,000 per year are spent to support this basic and continuing education for unionized electrical workers in Delaware.

4

The Risk of Increase in Injuries in Delaware Construction Should the State Repeal Its Prevailing Wage Law And a Comparison with Virginia

The General Relationship Between Prevailing Wage Regulations and Safety

The general recipe for safety in construction is simple: larger, more experienced contractors working with well-trained and experienced crews are safer than smaller, less-experienced contractors working with less experienced and less trained workers.³⁹ Repeals of state prevailing wage laws set in motion a train of events that lead to the proliferation of less experienced contractors teaming up with less trained and less experienced workers. This leads to more injuries.

Cutthroat competitiveness in contracting. The repeal of the state prevailing wage laws often will lead to a burgeoning of start-up contractors with limited track records. These new entrants join existing contractors in a heated bidding process that can put safety at risk.

Because of their relative inexperience, new firms tend to face greater on-site coordination problems than firms with longer track records. Such problems can add to costs, but also directly endanger safety. Problems in coordination, perhaps related to delivery of materials and equipment, or in scheduling work with subcontractors, lead to greater uncertainty with respect to the construction schedule. Uncertainty is a breeder of

³⁹ C. Culver, M. Marshall, and C. Connolly, *Construction Accidents: The Workers' Compensation Data Base, 1985-1988*, Washington, DC, OSHA Office of Construction Engineering, 1992.

safety risk, as workers can less easily anticipate and plan for the daily contingencies of work.

New entrants in the industry also are generally smaller in size than established firms. Smaller firms have worse safety records than larger firms, in part because of greater laxity of enforcement of safety rules and the relative absence of formal safety programs.

Of greatest importance, however, is the firm's reaction to increased pressure to cut costs in the face of intensified competition and cost overruns. There is a tendency to speed up work and cut back on safeguards in the face of such pressures.

Workforce turnover. When state prevailing wage laws were repealed, worker turnover increased significantly, as the industry found it harder to retain workers for long-term careers (see Chapter Three). Repeals resulted in a decline in the union share of the construction labor market, driving down average construction wages in the state and decreasing union apprenticeship training for construction. The decline in wages and in health and pension benefits (see Chapter Five) drove experienced construction workers from their trades to careers in other industries.

In states that retain their prevailing wage law — compared with those that never had such a law or repealed such a law — the proportion of construction workers receiving training is higher and injury rates are lower. A decline in wages and benefits leads to a flood of inexperienced workers into the industry as well as a decline in skilled, experienced workers needed to supervise the recruits and to assure that they work safely.

Decline in the skill base of the construction labor market. Experience is a major determinant of safe work performance — and productivity. Training of skilled construction workers is normally conducted through apprenticeship training programs, most of which are operated by unions and employers through joint trust funds. An integral part of this training is learning on the job while properly supervised. In that way, workers learn from experience while on a variety of projects. Among other things, apprentices are trained to identify and correct ergonomic problems, to detect physical hazards, and to detect the presence or release of hazardous chemicals. Knowledge about safety and health hazards, appropriate protective measures, and hazard communication methods are all important elements that apprenticeship programs provide.

When prevailing wage acts are repealed, training and apprenticeship programs decline and the skill base of workers erodes. Without employer incentives to continue apprenticeship programs, knowledge of proper safety and health procedures declines as well.

Summary. The combination of these factors — cutthroat competition, a decline in training, and an erosion of career attachments to the industry — affects the safety-related skill and experience base of the construction labor force. Workers become more injury-prone and less knowledgeable about the kinds of risks they are taking. Furthermore, as the workforce becomes less skilled and its wages in construction decline, workers are

forced to take more safety risks to simply make a living. Furthermore, contractors caught in the competitive speed-up often press their workers to hurry and take more chances. Workers are put at increased risk in an already hazardous industry.

The Potential Rise in Injuries in Delaware: A Comparison with Virginia

Annually, the various state departments of labor in cooperation with the U.S. Department of Labor, Bureau of Labor Statistics, conduct an occupational injury and illness survey. This survey reports for a variety of industries, including construction. The survey reports the number of workers employed in each industry category, the number of injury cases and the number of injury cases that result in lost days from work. I have gathered these surveys for the period 1976 to 1991. Figure 13 below shows the average annual injury rate per worker in Delaware compared to Virginia for the years 1976 to 1991. Figure 13 also shows the average annual serious injury rate for these two states. Recall that Virginia, geographically, is the closest state to Delaware which does not have a state prevailing wage law. Figure 13 shows that Virginia has substantially more injury cases per construction worker than does Delaware. And serious cases per construction worker occur more often in Virginia than in Delaware.

Figure 11 shows that on average, 10.8% of all Delaware construction workers experience an injury each year. Serious injuries occur to 4.9% of all Delaware construction workers each year. These data reflect the fact that construction is one of the most dangerous occupations in the American labor force. However dangerous construction work is in Delaware, it is more dangerous in Virginia. Figure 13 shows that on average 13.2% of all Virginia construction workers experience an injury in a year, and that 5.9% experience a serious injury (defined as requiring lost days from the job site). These differences in injury rates are both statistically significant and practically important. Table 10 reports the results of a statistical test of the significance of the difference in the averages for injuries in the two states. These statistical tests indicate that the averages are indeed statistically significantly different from each other.

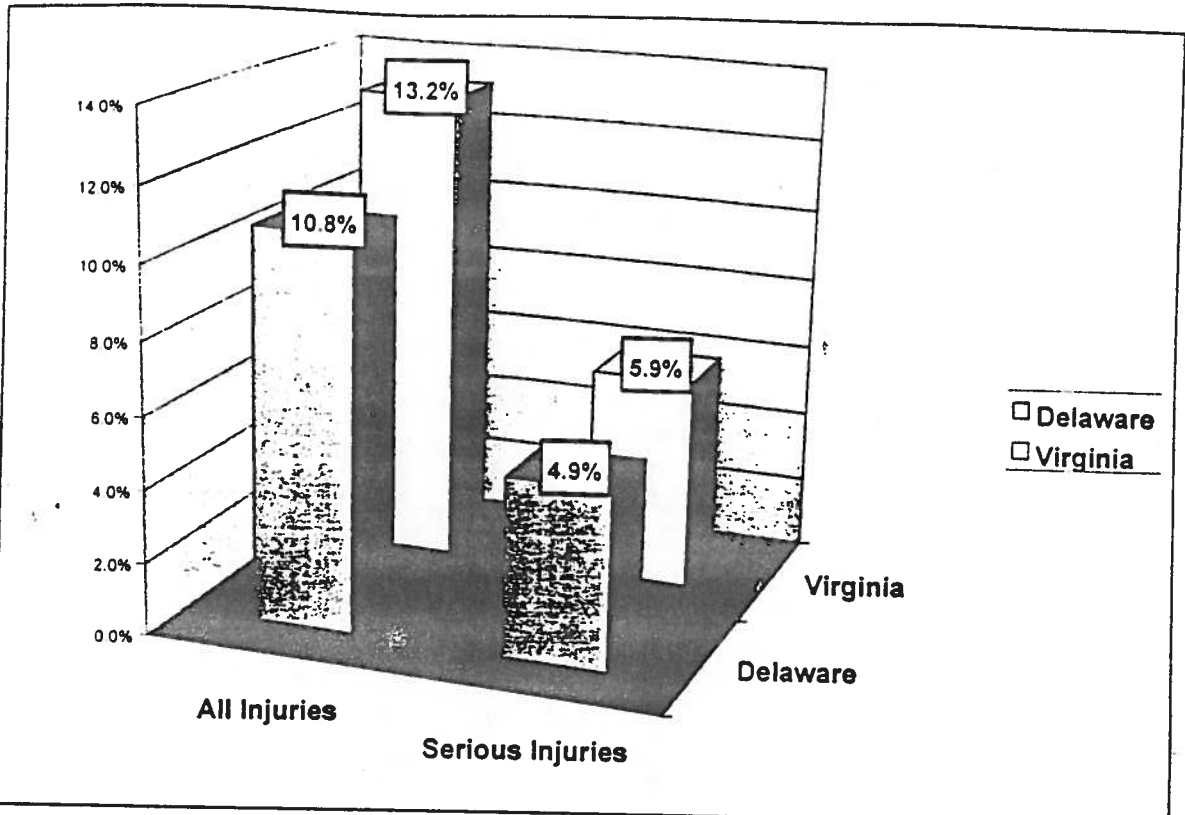


Figure 11: Construction Injury Rates and Serious Injury Rates in Delaware and Virginia, 1976 to 1991 (Source U.S. BLS)

Independent Samples Test

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Serious Injunes	Equal variances assumed	-3.322	77	.001
	Equal variances not assumed	-3.256	65.357	.002
Injuries	Equal variances assumed	-4.208	77	.000
	Equal variances not assumed	-4.330	76.518	.000

Table 10: Statistical Test of the Significance of the Difference in Average Construction Injury Rates in Delaware in Virginia

Not only are the construction injury rates in Virginia statistically significantly higher than Delaware, but the differences in injury rates matter. Figure 12 shows that all construction injuries are 23% higher in Virginia and serious injury rates are 20% higher in Virginia. Obviously, injuries hurt the injured most. But others are harmed, too. Workers compensation costs rise with increased injury rates. Policy makers faced with higher workers comp costs are often forced into the uncomfortable position of cutting workers comp benefits to reign in costs in the face of higher injury rates. Medical costs have typically risen faster than inflation. So, higher injury rates have a magnified effect on construction costs simply because every year it costs more to heal the hurt worker. Those who advocate the repeal of prevailing wage laws as a cost savings measure rarely include in their calculus the effects of increased injuries on construction costs.

Increase in Injury Rate in VA Compared to DE

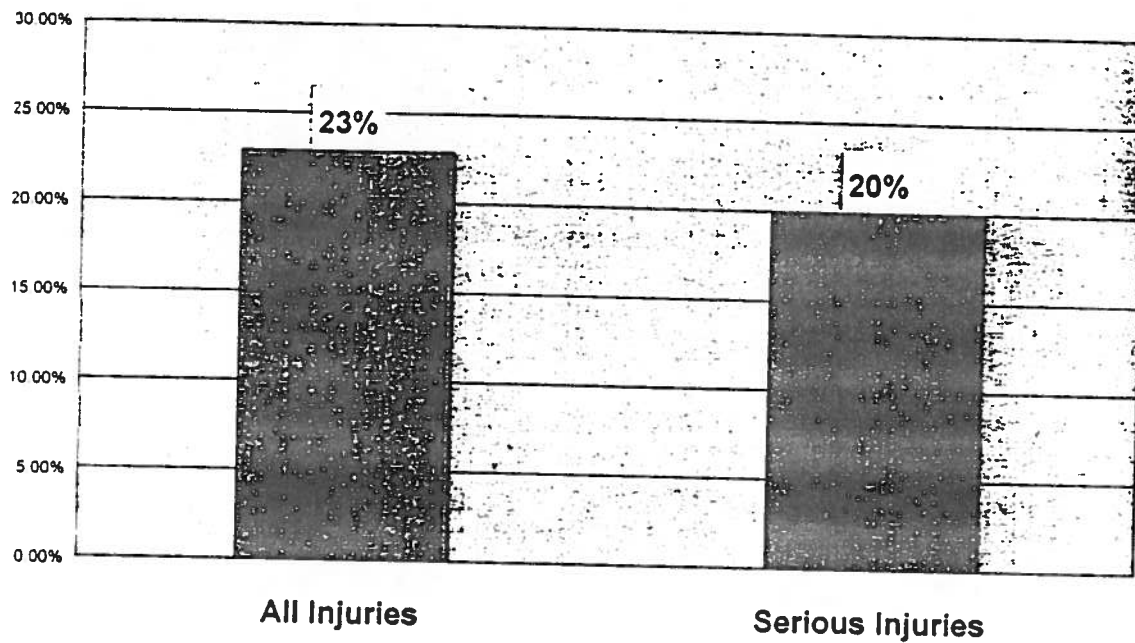


Figure 12 : Percent Increase in Construction Injury Rates in Virginia Compared to Delaware

What Would a Repeal of Delaware's Prevailing Wage Law Do to Health and Old Age Insurance Coverage in Delaware Construction?

Pension and health benefits play two crucial roles in the construction industry. First, by providing needed income security in old age and needed health coverage today, these benefits permit adults with families to participate in the industry while knowing that their families' basic needs are insured. Second, pension and health benefits help create and preserve needed skills within the industry. People willing and capable of acquiring the skills needed for solid, high quality construction are also people capable of acquiring the skills needed by many industries. If the construction industry cannot provide the basic benefits needed by families, the construction industry will steadily lose its better and more experienced workers to other industries that will provide these benefits.

Merit shop contractors have difficulty paying their workers pension benefits or health insurance. This difficulty is rooted in the same market failure that prevents training on the open shop side of the industry. Construction workers move from job to job. They must simply because today's building gets built and today's road gets paved. So eventually, the construction worker has to move on. In doing so, the worker often changes employers. Merit shop contractors find it both awkward and not worth their while to insure the health and old age of workers that will be with them a limited amount of time. So merit shop contractors develop insurance programs for their key workers who do stay for years. But the merit shop contractors find little reason and much difficulty in providing these same insurance benefits to the transient worker.

Collective bargaining provides a mechanism for allowing and inducing contractors to provide health insurance and pensions. Construction projects still come to an end. Construction workers still move on to new employers. But the new employer like the old is a signatory to the collective bargaining agreement. That agreement requires that each employer contribute so much per hour on the worker's behalf into a pension fund and into health insurance. Thus, when a union construction worker's child gets sick, the child is covered by health insurance. And when a union construction worker retires, he or she has something more than Social Security to look forward to. This is not only good for the construction worker and his or her family, it is good for the community as well. Construction represents around 5% of the labor market. Thus, in round terms, construction workers and their families

represent 5% of our neighbors--neighbors that can afford a doctor when a child is ill and neighbors who can take care of themselves when they are old. These are neighbors that are less of a burden on the community as a whole.

Table 9 shows the average employer contribution per worker in Delaware construction on an annual basis from 1982 to 1992. The figures are inflation adjusted so that earlier years can be directly compared to later years.

Table 11: Annual Average Kansas Employer Contributions per Worker to Pensions and Health Insurance in Kansas Construction 1982 to 1992 And the Percentage of Merit (or Open) Shop Workers Covered by Insurance in Delaware

Year	Employer Contribution per Worker Union Employer		Open Shop Employer		Percentage of Workers Covered By Insurance in the Open Shop	
	Pension	Health	Pension	Health	Pension	Health
1982	\$1,748	\$1,594	\$50	\$30	3%	2%
1983	\$1,772	\$934	\$38	\$64	2%	2%
1984	\$2,274	\$4,072	\$39	\$68	2%	2%
1985	\$2,158	\$3,739	\$18	\$70	1%	2%
1986	\$3,805	\$5,754	\$29	\$142	1%	2%
1987	\$2,556	\$3,915	\$27	\$19	1%	0%
1988	\$5,434	\$5,866	\$37	\$125	1%	0%
1989	\$1,777	\$3,052	\$44	\$177	2%	0%
1990	\$2,171	\$3,044	\$53	\$174	2%	6%
1991	\$2,638	\$4,357	\$58	\$190	2%	4%
1992	\$2,991	\$4,533	\$70	\$143	2%	3%

Source: U.S. Labor Department Form 5500
In constant (or inflation adjusted) 1996 dollars

Looking at union employers first, Table 11 shows that over the ten years--1982 to 1992--in Delaware, union contractors have contributed from about \$1,700 to about \$3,000 per year to pension programs for their workers. In inflation-adjusted dollars, this contribution has almost doubled over the time period. In contrast, union employer contributions to health insurance almost tripled over the period, from almost \$1,600 per worker in 1982 to over \$4,500 per worker in 1992. The reason for this is clear: health costs rose dramatically over the period. Union contractors attempting to preserve their workers' health benefits found they had to pay an increasing premium for health coverage.

Nonunion contractors in Delaware also increased their health premium per worker over the period 1982 to 1992. However, the average premium per worker was low to begin with (\$30 per worker) and low at the end (\$143). This is not because merit contractors could find cheap health insurance that would give coverage for \$143 per worker per year. Rather it is because most of the merit shop workers simply were not covered. Key workers that remain with the Merit Shop contractor receive coverage but most workers, the ones who come and go with the job, do not. Consequently, the average health expenditure per worker is quite low.

While Merit Shop contractors did increase health premiums between 1982 and 1992, pension contributions per worker rose very little--from \$50 per worker per year in 1982 to \$70 per worker per year in 1992. Again, these are averages. In all likelihood the true pattern is that key workers in the open shop receive some pensions. But the great majority of workers in the open shop receive no pensions whatsoever. This brings the average down to a paltry \$70 per worker. When an open shop contractor says "We have pension and health insurance", the key questions is to ask are 1) which of your workers are covered by these benefits, and 2) what is the employer contribution to these programs?

What percentage of merit shop workers are covered by health insurance from their employers? An estimate can be made from looking at the average health premiums of a merit shop and a union shop worker. Assuming the merit shop contractor does not provide substandard health insurance for the worker who is covered, then the cost of insurance for a construction worker should be roughly the same on the union and merit side of the industry. Thus, assume that the merit shop contractor pays the same health insurance premium as the union shop contractor. Table 12 shows that the average premium on the merit shop side of the market is only 3% of the contribution per worker on the union side of the market. Given the assumption that the merit and union contractor pay the same health premium for the worker who is covered, then only 3% of the merit contractor's workers are being covered by health insurance. If more than 3% are being covered, then it is because the merit shop contractor is buying less health coverage.

A similar analysis can be made for pensions. If all merit shop workers are covered by a pension, then merit contractors in Delaware are paying only \$70 per year to help out their workers in retirement. Alternatively, if the merit contractor contributes almost \$3,000 per year towards his workers' retirement as the union contractor does, then only 2% of all merit shop workers are being covered by pensions.

Would the repeal of Delaware's prevailing wage law reduce the amount of health insurance and pension coverage received by Delaware construction workers and their families? Looking at benefits paid to Virginia construction workers suggests that the answer is yes.

Table 12: Health and Old Age Insurance in Delaware and Virginia, Averages for 1982-92

	Delaware	Virginia	Virginia to	Delaware
	Average	Average	Delaware to	to Virginia
	1982-92	1982-92	Ratio*	Ratio*
Average Construction Employment	17,104	147,620		9
Average Construction Spending	\$1,670,666,727	\$12,502,606,182		7
Total Pension Benefits Paid Out to Construction Workers in 1996 Dollars	\$5,529,062	\$17,673,468		3
Total Health and Welfare Benefits Paid Out to Construction Workers in 1996 Dollars	\$13,337,283	\$29,303,373		2
Total Employer Contributions to Pension Funds in 1996 Dollars	\$9,361,229	\$16,953,150		2
Total Employer Contributions to Health and Welfare Funds in 1996 Dollars	\$13,503,993	\$27,067,326		2
Average Pension Contribution per Worker	\$547.32	\$114.84		5
Average Health and Welfare Contribution per Worker	\$789.53	\$183.36		4
Percent of Total Construction Spending Going to Pension Contributions	0.6%	0.1%		4
Percent of Total Construction Spending Going to Health Contributions	0.8%	0.2%		4

*Ratios rounded to the closest whole number
 Source: U.S. Labor Department Form 5500

Virginia is the closest state, geographically, to Delaware that does not have a state prevailing wage law. Averaging construction employment in each state over the years 1982 to 1992, Table 12 shows that Virginia has, on average, nine times as many construction workers as does Delaware. Despite having nine times as many workers, Virginia contractors, over the period 1982 to 1992 shelled out only twice as much money as Delaware contractors in pension contributions or health insurance premiums. The average annual pension contribution for construction workers in Delaware was almost \$550 per worker while the average pension contribution in Virginia was barely \$115 per worker. The average health contribution in Delaware was almost \$790 per worker over the period 1982 to 1992 while the average contribution per worker in Virginia was \$183. In Delaware, 1.4 cents for every construction dollar was spent on health and old age insurance. In contrast, in Virginia, only 3/10ths of a penny for every construction dollar spent went to health and pension contributions. This is one-fifth the amount spent on health and old age insurance in Delaware. Virginia, having never had a prevailing wage law, roughly demonstrates what would likely happen to health and old age insurance for construction workers and their families in Delaware should Delaware's prevailing wage law be repealed. One should expect insurance coverage for health and old age in Delaware construction to fall by a factor of five subsequent to repeal.

Solid communities need solid health and old age insurance. People who cannot take care of themselves when they are ill or when they are old become burdens on their families and burdens on the community. We saw in Chapter 2 that the alleged cost savings from prevailing wage repeal do not exist, or, at best are insubstantial. In this chapter we find that the policies that discourage collective bargaining in construction pose a real and measurable threat of lost health insurance and a less secure old age for many of Delaware's citizens. Prevailing wage laws encourage collective bargaining in construction. Collective bargaining, in turn, encourages the payment of health and pension benefits not simply to a handful of key

construction workers who move with the contractor from job to job, but also to the majority of construction workers who move from contractor to contractor. Collective bargaining, in short, privatizes the cost of health and old age. Without collective bargaining in construction, Delaware risks pushing health and retirement costs of caring for Delaware construction workers and their families onto Delaware taxpayers.

