What the Research Tells Us About the Costs and Benefits of Prevailing Wage Laws

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Executive Summary

This study provides a review of the research examining the costs and benefits of prevailing wage laws. An extensive body of peer-reviewed research focuses on the impact of prevailing wage regulations on the cost of public construction. Related research examines the effect of the wage policy on the level of bid competition, an important determinant of building costs. There are numerous benefits of prevailing wage laws. The study reviews the data and research regarding the effect of the policy on work for local contractors, formal training and injuries, payroll tax revenue, and military veterans employed in construction. The study also reviews the research regarding the effect of changes in the prevailing wage coverage threshold on work for local contractors and construction costs. Summaries of the research are described in this section. More detailed descriptions of the research are provided in the sections of the report.

Prevailing Wages, Construction Costs, and Bid Competition

The preponderance of research that has been peer-reviewed, and is based on the statistical examination of contractor bids, indicates that projects built under prevailing wage requirements are no more costly than comparable projects that are not covered by the wage policy. This research is based on the examination of schools, highways, assorted municipal buildings, and affordable housing construction with 78 percent of studies finding that prevailing wage standards are not associated with increased costs. Excluding the affordable housing studies, and focusing only on the typical structures built with public funds (schools, highways, and other public facilities), 90 percent of studies indicate that prevailing wage laws do not increase construction costs.

While labor costs are about 60 percent of production costs in the overall U.S. economy, information from the U.S. Census Bureau indicates that blue-collar construction worker wages and benefits average 23 percent of the total cost of all types of construction. This figure is 24 percent in Montana. Other research indicates that more skilled construction labor replaces less-skilled counter parts, and capital equipment replaces all grades of labor when wages increase in the construction industry. Consequently, minor changes in labor productivity and utilization are needed to counter the cost impact of prevailing wages.

A complementary line of research examines the impact of prevailing wage regulations on the level of bid competition. These studies compare schools, highways, and a variety of other public structures that were built with and without the wage regulation. All of these studies indicate that prevailing wage standards are not associated with reduced bid competition.

Economic Impact of Prevailing Wage Laws

By protecting low wage rates, prevailing wage laws protect work for local contractors and their employees. In this way, the policy plays an important economic development function by retaining more of the jobs, income, and spending in the area where the construction work is completed. The spending of local construction workers stimulates local retail and service industries. Consequently, prevailing wage regulations benefit industries that are unrelated to the construction industry.

Studies examining library construction in California, school construction in the Minnesota, and highway construction in Indiana and Iowa find that when prevailing wages apply, more work is completed by local contractors and local employees. Conversely, these studies also find that when the wage policy does not apply to a project, more work is completed by contractors and workers from outside the area, or are from other states.

Cost and Economic Impacts of Changes to Prevailing Wage Coverage Thresholds

Prevailing wage regulations have minimum project value thresholds at which point workers must be paid prevailing wage rates. Publicly-funded projects with values less than the threshold are exempt from the law. Projects with values greater than the threshold are covered by the wage policy. Project value thresholds vary by state. Illinois, Massachusetts, Nebraska, New York, Texas, and Washington do not have minimum threshold coverage values. On the other hand, Maryland and Delaware have $500,000 thresholds. The threshold value for Montana is $25,000.

A study of public school construction in Nevada finds that avoiding prevailing wage regulations by increasing the threshold value is not associated with reduced building costs. Prevailing wage requirements played no role in the relative cost of schools built above and below the $100,000 threshold. Similarly, the wage policy did not influence relative costs when the threshold was increased to $250,000. This is the only peer-reviewed study to examine this issue.

The only study to examine the economic impact of changes in minimum project value thresholds finds that increases in prevailing wage thresholds are associated with reductions in the value of *all* construction work in a state completed by domiciled contractors. Between 2007 and 2012, Indiana, Ohio, and Oregon increased their coverage thresholds. Information from the U.S. Census Bureau indicates that when Indiana increased the threshold by $100,000, the share of all construction value completed by in-state contractors fell 2.7 percentage points. When Oregon's threshold increased by $25,000, market share for in-state contractors decreased by 1.6 percentage points. Ohio had a $10,405 threshold increase and the in-state contractor share fell 0.5 percentage points.

Prevailing Wages and Military Veterans in the Construction Industry

Research also illustrates several ways military veterans who are employed in the construction industry benefit from prevailing wage laws. Findings indicate that veteran construction workers in states with prevailing wage laws of at least average strength earn approximately 9% more in wage and salary income compared to veteran construction workers in states with relatively weak or no prevailing wage laws. Stronger prevailing wage laws increase the number of veteran construction workers who receive employer-provided health insurance by 14.4 percent compared to veterans employed in construction in those states with weak or no prevailing wage laws. Strong and average prevailing wage laws increase the earnings and health insurance coverage of veterans working in construction. These policies also reduce veteran poverty. Adequate prevailing wage protection is associated with an approximate 25 percent decrease in veteran construction workers who earn incomes below the official poverty level compared to their counterparts in states with no or inadequate prevailing wage laws.

With these labor market outcomes, it is not surprising that veterans are more likely to work in construction in states with strong and average prevailing wage laws. While veterans represent

about 5.8 percent of the overall workforce in the U.S., veterans make up 6.9 percent of the construction workforce. The veteran participation rate in construction is two percentage points higher in states with strong or average prevailing wage laws.

Apprenticeship Training and Prevailing Wage Laws

Construction is distinct from other industries in that the inherent instability of building activity creates strong disincentives for employers and employees to invest in a highly skilled, efficient, and safe workforce. Due to fluctuations in seasons and economic activity, construction is historically the most unstable sector of U.S. economy. The end result of instability in the construction industry is a loose attachment between contractors and their employees. When work is available, contractors take on additional workers, but typically shed employees when a project is completed, the season comes to an end, or the economy slows. As a consequence, there is little incentive for contractors to incur the expenses associated with training. There is no guarantee that the trained worker will be retained and it is likely that at some point a trained employee may work for a competing contractor. From the worker's perspective, there is also little incentive to incur the costs of training due to intermittent spells of unemployment between projects, transitions to work in other industries, and seasonal layoffs.

Prevailing wage laws play an important role in formal training by providing strong incentives for union and nonunion contractors to employ apprentices on covered projects. Under Montana's prevailing wage law, apprentices are paid as indicated by the approved training program. Typically, apprentice wage rates are based on a fraction of the corresponding journey rate. Compensation may start as low as 40% of the journey worker rate and increase with progress through the training program. This wage savings creates a high demand for apprentices on public works projects that drives skill development for the entire construction industry. Consequently, it is not surprising that research shows a strong connection between prevailing wage laws and training in the construction industry. For example, apprenticeship enrollments are from 6% to 8% higher in states with prevailing wage laws compared to states without the wage policy. Apprentices in states with prevailing wage laws complete their on-the-job and classroom training at a faster rate than apprentices in states without the wage policy.

According to the *Economic Census of Construction*, the value of federal, state, and local construction represents 25.2% of the total value of building activity in Montana. Much of this construction spending is covered by federal and state prevailing wage standards. The large percent of building activity covered by prevailing wage regulations in Montana substantially increases the demand for apprentices. As a consequence, apprenticeships in construction are disproportionately high. For example, construction apprentices represented 79 percent of all apprentices in the state in 2019. While apprentice workers represent approximately three percent of employment in Montana's occupations with apprenticeships, this percent is larger in several construction occupations. For instance, apprentices constitute 25.8 percent of plumbers, 20.5 percent of sheet metal workers, and 39 percent of structural steel workers. Of the top ten occupations by active apprenticeship employment for Montana in 2019, at least seven were construction occupations (not including electricians who may work in other sectors such as manufacturing).

Prevailing Wage Laws and Injuries in Construction

Construction workers are exposed to many hazardous tasks and conditions such as work at height, excavations, noise, dust, power tools and equipment, confined spaces, and electricity. As a consequence, construction is one of the most perilous occupations. While construction employment represented only 5.1% of employment in the U.S. in 2019, this industry accounted for 25 percent of job-related deaths in that year.

Prevailing wage laws do not include safety requirements. Rather, the wage policy affects injury rates in construction indirectly through the linkage between prevailing wages, apprenticeship training, and the relation between training and safety. Several studies indicate that construction worker injuries, with various levels of severity are lower in states with prevailing wage laws. In addition to worker economic loss, pain, and even death, injuries on construction sites can bring work to a halt and delay completion times.

Prevailing Wage Laws and Payroll Tax Revenue

Between 1979 and 1995, 10 states repealed their prevailing wage laws. Research tracking changes in construction worker income, benefits, and payroll taxes for over a decade following repeal indicate decreases in these measures relative to similar workers in states that did not repeal their wage standards. Findings indicate that blue-collar construction worker income decreased by as much as 4.2 percent. Legally required benefits, including social security, workers injury-compensation insurance, and unemployment insurance contributions decreased for the group of employees that include blue and white-collar workers in the building industry by up to 10.1 percent. Annual average voluntary benefits paid by employers, that include health insurance, and pension contributions for blue- and white-collar construction employees, decreased by up to 16.0 percent relative to workers in non-repeal states.

The disproportionately larger decrease in legally required benefits (as high as 10.1 percent), compared to the decrease in income (about 4 percent), is consistent with an increase in underground labor practices in states that repealed prevailing wage laws. Misclassifying workers as subcontractors, under-the-table cash payments, and wage theft are growing problems in the construction industry. These types of payroll fraud are associated with decreased collections of state and federal payroll taxes including workers injury-compensation insurance, and unemployment insurance contributions. Researchers estimate that 11.4 percent of Nevada's construction labor force was either misclassified as a contractor or working off-the-books in 2018. These payroll practices cost the state about $31 million in contributions for Nevada's workers compensation fund and nearly $12 million to the unemployment insurance program in 2018.

Prevailing wage laws play an important role in discouraging underground labor practices that impact payroll taxes. Similar to other jurisdictions, Montana's prevailing wage law includes the requirement that contractors submit weekly certified payroll records that include each worker's name, job assignment, hours worked, total hourly compensation, and other information. This requirement discourages contractors who engage in underground labor market practices from participating in projects that are covered by the state's wage standard. The additional requirement that at least 50 percent of the employees of each contractor working on the jobs be a bona fide Montana resident further discourages the practice of importing vulnerable and exploited workers from other states.

Montana's Prevailing Wage Law

Montana's prevailing wage law requires the payment of minimum wage and benefit rates for public works contracts involving construction services (heavy, highway and building) or nonconstruction services that are funded by the state, counties, municipalities, school districts, or other political subdivisions.[1] The policy applies to contracts with a total cost of $25,000 or more. The law also requires that at least 50 percent of the employees of each contractor are residents of Montana.

The intent of the law is to protect local labor market standards by eliminating wage-cutting as a method of competing for public contracts.[2] Relatively large construction projects funded by the State of Montana may attract contractors from surrounding states with lower wage standards. In the absence of minimum prevailing wage rates, competition between in and out-of-state contractors may induce local contractors to reduce worker compensation. Consequently, Montana's prevailing wage laws allow all contractors to compete on a level playing field with respect to labor costs. By protecting local labor standards, the policy also prevents the wages from adversely affecting the equal opportunity of Montana contractors to bid on, and be awarded public works projects. The purpose of the law is to also maintain the general welfare of workers on public projects and also maintain wage rates at a level to attract a highly skilled workforce needed for quality workmanship.

Introduction to the Study

[1] Public Contracts/Prevailing Wage Laws, Montana Department of Labor & Industry. Accessed at: Public Contracts/Prevailing Wage Law (mt.gov)
[2] Prevailing Wage Guide, Montana Department of Labor & Industry. Accessed at: Prevailing Wage Guide (mt.gov)

The purpose of this study is to review the research regarding the costs and benefits of prevailing wage laws. An extensive body of peer-reviewed research focuses on the impact of prevailing wage regulations on the costs of public construction. Related research examines the effect of the wage policy on the level of bid competition, an important determinant of building costs. There are numerous benefits of prevailing wage laws. The study reviews the data and research regarding the effect of the policy on local work for local contractors and their employees, how changes in the prevailing wage coverage threshold affects work for local contractors, formal training and safety in the construction industry, the employment and compensation of construction workers who are military veterans, and the effect of the policy on payroll tax revenue.

Construction Costs

It is intuitive to think that increases in wage rates lead to increases in production costs and to higher prices for goods and services. This perception is supported by data for the U.S. economy where labor costs are approximately 61 percent of all private sector production costs.[3] Consequently, wages and labor costs have a disproportionately larger impact, compared to the cost of materials, supplies, or energy on overall costs of production. Business practitioners and those who follow data on the U.S. economy are also aware that increases in wage rates and labor costs accompanied by increases in labor productivity are associated with stable production costs

[3] According to data from the Bureau of Labor Statistics multifactor productivity program, labor's average share of costs in the private business sector (excluding government enterprises) is 61.3% for the 2010 to 2019 period. See "Private Business and Private Nonfarm Business Multifactor Productivity Tables," Multifactor Productivity, Bureau of Labor Statistics, U.S. Department of Labor. Accessed at: http://www.bls.gov/mfp/mprdload.htm.

and inflation.[4] In recognizing that wages and labor productivity both affect costs, it is necessary to adjust the initial intuition that higher wages automatically mean higher costs and prices.

By extension, the initial intuition suggests that since prevailing wage laws establish a floor below which wages cannot fall, the policy contributes to increased construction costs. There are important differences between the impacts of wages on costs in the overall economy and in the construction industry that do not support the intuitive view. While labor costs are a relatively high percentage of total production costs for the overall economy, these costs are a low percentage of total costs in the construction industry. The most reliable data on construction costs can be obtained from the U.S. Census Bureau's *Economic Census of Construction*.[5] These data are derived from a survey of construction contractors in every state, every five years. Data from the most recent *Economic Census of Construction* indicates that labor costs (wages and benefits) for all types of construction are approximately 23% of total building costs.[6] The corresponding figure for Montana is 24%. Numerous studies use data from the *Economic Census*

[4] According to the Bureau of Labor Statistics, "Increases in hourly compensation tend to increase unit labor costs and increases in productivity tend to reduce them." See "News Release" Bureau of Labor Statistics, September 20, 2021. Accessed at: https://www.bls.gov/news.release/pdf/prod2.pdf.

[5] See the U.S. Census Bureau, 2017 *Economic Census of Construction*, Construction: Geographic Area Statistics. Accessed at: https://www.census.gov/data/tables/2017/econ/economic-census/naics-sector-23.html.

[6] The *Economic Census of Construction* for 2017 does not report labor costs as a percent of total costs. This ratio must be calculated based on other data. Here, labor costs, as a percent of total construction cost is derived by dividing total construction worker payroll, plus proportionally allocated total fringe benefits, by the net value of construction work. The net value of construction is based on the value of work completed by a contractor, less the value of work subcontracted to other contractors. The *Economic Census of Construction* defines construction worker payroll as the gross earnings paid in the reporting year to all construction workers on the payroll of construction establishments. It includes all forms of compensation such as salaries, wages, commissions, dismissal pay, bonuses, and vacation and sick leave pay, prior to deductions such as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The *Economic Census of Construction* defines the net value of construction as the receipts, billings, or sales for construction work done by contractors, less the value of construction work subcontracted to others. The net value of construction does not include contractor business receipts from retail and wholesale trade, rental of equipment without operator, manufacturing, transportation, legal services, insurance, finance, rental of property and other real estate operations, and other nonconstruction activities. Receipts for separately definable architectural and engineering work for others are also excluded. Nonoperating income such as interest, dividends, the sale of fixed assets, and receipts from other business operations in foreign countries are also excluded. See Economic Census of Construction, Geographic Area Statistics, 2017. Accessed at: : https://www.census.gov/data/tables/2017/econ/economic-census/naics-sector-23.html.

of Construction for different years and segments of the construction industry and also find that labor costs are a low percent of overall construction costs.[7]

While it is an established practice to consider the combined effects of wages, labor costs, and labor productivity when considering cost pressures and inflation for the U.S. economy, these relationships are almost always ignored in the policy debate over the cost impact of prevailing wages. It is important to keep in mind that wage rates in the construction industry are linked to productivity and efficiency. Blankenau and Cassou (2011) find that the use of skilled and unskilled construction labor is very sensitive to wage rates. When construction wage rates increase, more skilled and productive construction workers replace less skilled workers. Changes in wage rates also affect the use of other construction inputs and costs. Balistreri, McDaniel, and Wong (2003) find that when wages increase, more capital equipment and machinery is used in construction in a way that increases labor productivity. Duncan and Lantsberg (2015) find that in states with average or strong prevailing wage laws, labor costs (wages and benefits) are higher, but material and fuel costs and contractor profits are lower compared to states with weak or no wage policies. It follows that the use of higher paid and productive construction workers results in more efficient use of materials and fuels.

All of these features of the construction industry require modification to the initial intuition that prevailing wage rates increase construction costs. Since labor costs are a low percent of total construction costs, relatively minor changes in labor productivity, material and

[7] See for example, Philips, Peter. 2014. "Kentucky's Prevailing Wage Law: An Economic Impact Analysis." Accessed at: http://www.faircontracting.org/wp-content/uploads/2014/02/Kentucky-Report-2014-Philips.pdf. Also see, Duncan, Kevin and Waddoups, Jeff. 2014. "Does the Release of Davis-Bacon Certified Payrolls Cause Competitive Harm to Contractors?" Accessed at: https://www.denvergov.org/content/dam/denvergov/Portals/741/documents/PW_General/Torres%20Report%20on%20Certified%20Payrolls-%20Duncan%20and%20Waddoups%20December%202014%20Final.pdf.

fuel costs, and contractor profit are needed to offset any inflationary effect of prevailing wages. The preponderance of academic research indicates that prevailing wage laws are not associated with increased construction costs, suggesting that these types of cost-saving adjustments take place under the wage policy.

Research that appears in academic journals has been reviewed by peer experts before publication of the study. A peer-review is not based on whether reviewers agree with the research results. Rather, the purpose of the review is to ensure quality, provide credibility, and maintain standards in the discipline. One benefit of this type of review is that peer experts are more likely to detect errors and shortcomings that may not be obvious to casual readers. Peer-reviewed studies typically use statistical analysis that provides a cost estimate of the wage policy as well as information on whether the estimate is statistically significant. A statistically significant estimate implies causation. On the other hand, an estimate that is not statistically significant is likely due to random chance, implying the lack of correlation.

Academic research on prevailing wages typically compares bid-costs of projects covered by prevailing wage laws to the bid-costs of projects that are not covered by the wage policy, taking into consideration other factors that affect construction costs.[8] Contract bids are used as the measure of total construction costs due to the difficulty in obtaining information on change orders and follow-up maintenance.[9] Researchers have examined the effect of prevailing wage

[8] For example, if prevailing wage projects are larger or more complex than projects that are not covered by the wage policy, and if this information is not included in the statistical analysis, results will indicate that prevailing wage projects are more expensive. Consequently, it is necessary to examine the effect of the wage policy taking into account project size, complexity and other factors related to construction costs.

[9] The two studies that have been able to collect information on add-on charges report that these additional costs are lower on projects covered by prevailing wages. See Bilginsoy, Cihan. (1999). "Labor Market Regulation and the Winner's Curse," *Economic Inquiry*, 37(3): 387-400 and Peter Philips, Garth Mangum, Norm Waitzman, and Anne Yeagle. 1995. "Losing Ground: Lessons from the Repeal of Nine "Little Davis-Bacon" Acts. Working Paper, Department of Economics, University of Utah. Accessed at: https://ohiostatebtc.org/wp-content/uploads/2014/04/Losing_Ground_17.pdf

laws on the construction of schools, highways, affordable housing, and various of other building types. This review provides a summary of these studies. A more detailed review of previous research can be found in Duncan and Waddoups (2020) and Duncan and Ormiston (2018).

Prevailing Wage Laws and School Construction Costs

Researchers examine the effect of prevailing wages on school construction for two reasons: 1) the cost of education, including school construction is important to the public and to policy makers, and 2) since these types of projects are relatively similar, the effect of the wage policy on costs can be measured with greater accuracy. While the research on prevailing wage laws studies the impact of the wage policy on a variety of construction industry outcomes such as apprenticeship training, injuries, and local work for local contractors, the policy debate is focused on the effect of prevailing wages on the cost of public construction. This research has examined the cost impact of the wage policy for schools built between 1989 and 2018 and at the level of the school district, a metropolitan area, in several states and provinces, and across the nation.

In an examination of schools built between 2009 and 2018 in the Clark County, Duncan and Waddoups (2020) find that Nevada's wage policy has no statistically significant effect on school construction costs. This study also finds that avoiding prevailing wage regulations by increasing the threshold value is not associated with reduced building costs. Prevailing wage requirements played no role in the relative cost of schools built above and below the $100,000 threshold. Similarly, the wage policy did not influence relative costs when the threshold was increased to $250,000.

Onsarigo, Duncan, and Atalah (2020) examine public schools built in Ohio between 2013 and 2014. Some of the construction projects received federal funding and were covered by federal Davis-Bacon prevailing wage requirements. Results indicate that the cost of these schools were no different than the school construction that was not covered by the wage policy. Atalah's (2013a, 2013b) examination of school construction in Ohio over the 2000 to 2007 period also suggests that this state's prevailing wage policy is not related to construction costs.

Azari-Rad, Philips and Prus (2002) examine winning bids for public and private schools built in states between 1991 and 1999 that were, and were not covered by prevailing wage laws. Results indicate that prevailing wage laws do not have a statistically significant impact on construction costs. In a follow-up study, Azari-Rad, Philips and Prus (2003) expand their analysis to compare schools built in states with prevailing wage laws of differing strength. Regardless, their analysis of schools built between 1991 and 1999 finds that prevailing wage laws (strong, weak, or otherwise) are not related to school construction costs.

Several studies have taken advantage of the introduction of minimum construction compensation rates in British Columbia to examine the effect on school construction productivity and costs. Bilginsoy and Philips (2000) examine the impact of British Columbia's Skill Development and Fair Wage Policy on the construction of schools built before and after the introduction of the wage policy. Results indicate the absence of statistically different cost differences for schools built before the introduction of prevailing wages. Bilginsoy's (1999) examination of schools built before and after the wage policy finds a similar result. Bilginsoy also finds that the cost-reducing effect of additional bid competition is greatest for projects covered by the minimum compensation standard. Duncan, Philips, and Prus (2014) examine the effect of British Columbia's prevailing wage standard by including a control group of private

school projects. This analysis of school projects indicates that before the introduction of the prevailing wage policy, the cost of building public schools was approximately 40% higher than the costs of comparable private schools. This cost differential did not change after the wage policy was introduced. In several studies, Duncan, Philips, and Prus, (2012, 2009, and 2009) find that the efficiency and productivity of school construction changed in ways that stabilized building costs after the introduction of the fair wage policy. Taken together, all of the studies of prevailing wages in British Colombia provide a consistent and comprehensive analysis that fails to find an effect on school construction costs or efficiency consistent with the view that prevailing wages increase construction costs.

The study by Vincent and Monkkonen (2010) is the only peer-reviewed study of school construction that is based on the statistical examination of project-level bid information that finds a statistically significant prevailing wage cost effect. There examination of public schools built across the U.S. finds a prevailing wage cost effect ranging from 8% to 13%. Of the 13 peer-reviewed studies that are based on the statistical examination of the project-level bid information to examine the effect of prevailing wages on school construction costs, 12 (92 percent) provide evidence that the wage policy is not associated with increased construction costs.

Prevailing Wage Laws and Highway Construction Costs

Four peer-reviewed studies examine the effect of federal and state level prevailing wage laws in Colorado, Iowa, and across the US. Two studies by Duncan (2015a and 2015b) compare the cost of highway resurfacing projects in Colorado that were funded by the State of Colorado (and not covered by a prevailing wage standard) with federally funded projects (covered by the Davis Bacon Act). These projects were built between 2000 and 2011. Results indicate that there

is no statistically significant difference in construction costs between state and federally funded projects, between costs for contractors who switch between federal and state projects, and when the prevailing wage determination decreased from all union rates to average rates for most of the detailed job classifications involved in highway construction in Colorado.

Manzo (forthcoming) compares the cost of highway projects in Iowa that are covered by the federal Davis-Bacon Act prevailing wage rates to the cost of comparable projects that have been stripped of federal regulations through the state's "federal-aid swap" policy. This program allows states and local governments to bypass federal Davis-Bacon prevailing wage standards, Disadvantaged Business Enterprise goals, and Buy America provisions on highway projects. This policy allows a jurisdiction to reallocate or "swap" federal funds for state funds on some projects, and then concentrate federal monies on specific projects. The result of swapping funding is that fewer highway projects are built without federal prevailing wage standards, contractor diversity goals, and American-made iron and steel standards. The Iowa Department of Transportation approved a federal-aid swap program in 2018. The comparison of projects built between 2016 and 2020 indicates that swapped projects were no less expensive than projects built in Iowa that were not covered by prevailing wage laws, nor were swapped projects less expensive than federal projects that retained federal standards, including Davis-Bacon prevailing wages.

On the other hand, in an examination of 50 state departments of transportation, Vitaliano (2002) finds that the cost inefficiency of state-level prevailing wage laws adds about 8% to the annual cost of maintaining the nation's highway system. This impact is statistically significant. Vitaliano's analysis includes state construction costs and costs associated with the administration of prevailing wage standards in states with these policies.

Prevailing Wage Laws and Costs of other Building Construction

Three peer-reviewed studies examine the effect of prevailing wages on the construction costs of a variety of building types. An examination of public works projects in five northern California cities (Palo Alto, Mountain View, San Carlos, San Jose, and Sunnyvale) built between 2006 and 2007, finds no evidence that prevailing wage policies affect the bid process or outcome in a way that increases construction costs. This study by Kim, Chang, and Philips (2012) includes public works at airports, parks and playgrounds, fire, police, and community buildings, as well as road construction. The authors do not find any support for the view that wage policies discourage bidding by nonunion contractors, reduce the number of bidders, or prevent nonunion contractors from winning bids on prevailing wage projects. Their findings indicate that prevailing wage laws of northern California cities are not associated with higher construction costs.

In an analysis of the minimum construction compensation standard in British Columbia, Duncan and Prus (2005) find that the introduction of the policy did not alter the construction cost differential between a wide array of public and private building. Public structures were from 43% to 40% more expensive to build than private structures before and after the introduction of the wage policy. This study has the advantage of including a control group of projects that were not affected by the wage policy and takes into consideration the type of structure (schools, hospitals, clinics, assembly buildings etc.), project size, and other characteristics of the building.

Kaboub and Kelsay (2014) examine the construction of projects in 12 midwestern states between 1993 and 2002. Results for 13 different project types (hospitals, schools, manufacturing and office buildings, etc.) indicate that while public projects are more expensive than the

construction of comparable private structures, the presence of prevailing wage laws did not alter this cost differential.

Prevailing Wage Laws and the Cost of Affordable Housing Construction

While the research addressing prevailing wages and the cost of building schools, highways, and offices, etc. generally finds no statistically significant cost effect, the results regarding the construction of affordable housing differ. There are three peer-reviewed studies that examine the effect of prevailing wage requirements on the cost of building affordable housing in California that was subsidized by state and federal Low-Income Housing Tax Credit policies. All three studies utilize data obtained from the California Tax Credit Allocation Committee extending over the 1997 to 2016 period. All of the studies find that construction and total project costs are higher, in terms of statistical significance, when prevailing wages apply. Cost impacts range between 5% and 37% (Dunn, Quigley, and Rosenthal 2005, Palm and Niemeier 2017, and Littlehale 2017). The variation in results between these three peer-reviewed papers is due to the different statistical models used by the researchers. Littlehale's model yields a lower cost estimate because his analysis takes project size and complexity into consideration. If affordable housing projects that are covered by prevailing wages are larger and more complex, omitting this information from the analysis will result in cost estimates that are too high.

There are several possible explanations of why the results for affordable housing differ from those of other building types. First, residential construction requires fewer skills than other building activity. In this case, low skilled, low wage workers may have a cost advantage over higher paid, higher skilled workers in this type of construction. The additional regulations associated with affordable housing construction, particularly the submission of certified payroll

records required by prevailing wage regulations, may deter those contractors who engage in wage theft and other illegal compensation standards to reduce bids and construction costs. By making certified payroll records public and accessible on-line, the State of California has made it easier for construction workers employed on prevailing wage projects to compare their earnings to those reported by the contractor.[10] Regardless, illegal cost-saving practices such as worker misclassification (paying workers as contractors instead of employees), wage theft, and the hiring of undocumented laborers are problematic in the construction industry, particularly for residential construction.[11] Regardless of the sector, construction had the highest level of back wage settlements ($36.1 million) in FY 2021 among the U.S. Department of Labor's low wage, high violation industries.[12] Construction ranked second, behind food services, with respect to the number of back wage cases and workers involved.

In sum, there have been 23 peer-reviewed studies examining the cost implications of prevailing wage laws since 1999. Among the peer-reviewed studies that examine all building types (schools, highways, assorted buildings, and affordable housing) 18 of 23 (78 percent) fail to find a statistically significant prevailing wage cost effect. Few states apply prevailing wage standards to affordable housing construction. Publicly funded construction in most states is focused on school and highway construction. Including only these building types, 18 of 20 (90

[10] See "eCPR Search," Department of Industrial Relations, State of California. Accessed at: https://efiling.dir.ca.gov/eCPR/pages/search. For a simple illustration of viewing a certified payroll, at the web site select a small county (Alpine) at the *County* prompt. Select the date of program inception (2-1-18) at the *Date Range From* prompt and the current date at the *Date Range To* prompt. Click *Search* and PDF copies of weekly and complete certified payrolls can be selected for public works completed in this county. Employee names, addresses, and social security numbers are redacted.
[11] Juravich, Tom, Ablavsky, Essie, and Williams, Jake. 2015. "The Epidemic of Wage Theft in Residential Construction in Massachusetts," Labor Center, University of Massachusetts-Amherst. Accessed at: https://www.umass.edu/lrrc/sites/default/files/Wage_Theft_Report.pdf.
[12] U.S. Department of Labor, Low Wage, High Violation Industries. Accessed at: Low Wage, High Violation Industries | U.S. Department of Labor (dol.gov)

percent) of studies indicate that prevailing wage laws are not associated with increased construction costs.

Bid Competition

Many prevailing wage opponents assert that one way the wage policy increases construction costs is by reducing the level of bid competition. This claim is often made in the absence of any empirical evidence.[13] There have been five peer-reviewed studies that empirically examine the effect of the wage policy on the level of bid competition. All of these studies are based on the statistical analysis of contractor bids and all find that prevailing wage requirements do not reduce the number of bidders. In an examination of public works projects in five northern California cities, Kim, Kuo-Liang, and Philips (2012) find no evidence that prevailing wage policies affect the number of bidders. In an examination of highway construction in Colorado, Duncan (2015) finds that the level of bid competition does not differ between federally funded projects that require the payment of prevailing wage laws and adherence to the Disadvantaged Business Enterprise policy and state-funded projects that are not subject to either of these policies. In an examination of the of school construction costs in British Columbia, Bilginsoy (1999) finds that introduction of prevailing wage requirements was associated with an increase bid competition that diminished over time. Onsarigo, Duncan, and Atalah (2020) find that prevailing wage requirements do not have a statistically significant effect of the level of bid competition for school construction in Ohio. Duncan and Waddoups (2020) similarly find that Nevada's prevailing wage standard does not influence the level of bid competition for school construction in Clark County. The level of bid competition is an important determinant of

[13] For an example, see George Leef. 2010. Prevailing Wage Laws: Public Interest or Special Interest Legislation? *Cato Journal*, 30(1):137-154.

contractor bids and construction costs. All of the studies that have used data on project bids and the number of bidders as the basis of their examination find that the wage policy does not increase costs by reducing the level of bid competition.

Economic Impact

By protecting local wages, prevailing wage laws also protect work for local contractors and construction workers. There are several studies indicating that more of the employment, income, and spending remain in the area where construction activity is located when prevailing wage requirements apply to a project. In the examination of school projects construction in the Minneapolis-St. Paul metro area, Manzo and Duncan (2018) find that with prevailing wage regulations, 74 percent of total bid values for prevailing wage projects were awarded to metro-based contractors.[14] The remaining 26 percent of total bid values on prevailing wage projects was awarded to contractors located in other parts of Minnesota or in other states. For projects in the metro area that were not covered by prevailing wage standards, only 64 percent of combined bid values were awarded to local contractors. The other 36 percent of total bid values were awarded to contractors located in other areas of the state.

An examination of library construction in Santa Clara County, California reveals that 39 percent of subcontractors employed on prevailing wage projects were county-resident businesses (Economic Policy Brief 2011). The corresponding figure when prevailing wages did not apply was 23 percent. Since local contractors are three times more likely to use local construction

[14] Manzo, Frank and Duncan, Kevin. 2018. "An Examination of Minnesota's Prevailing Wage Law. Effects on Costs, Training, and Economic Development." Accessed at: https://midwestepi.files.wordpress.com/2018/07/mepi-csu-examination-of-minnesotas-prevailing-wage-law-final.pdf

workers, more labor income and spending remained in the county when prevailing wages applied.

Manzo (2016) illustrates how the weakening and eventual repeal of Indiana's prevailing wage law benefited low wage, out-of-state construction workers in Kentucky. Along the southern border with Kentucky, public works construction employment in Indiana decreased by about 800 jobs after the wage policy was weakened. Along the bordering counties in Kentucky, public works construction employment grew by about 800 jobs over the same period. Average construction wages were lower in Kentucky, suggesting that weakening the wage policy resulted in greater demand for low wage, out-of-state workers.

Manzo (forthcoming) compares the cost of highway projects in Iowa that are covered by the federal Davis-Bacon Act prevailing wage rates to the cost of comparable projects that have been stripped of federal regulations through the state's "federal-aid swap" policy. This program allows states and local governments to bypass federal Davis-Bacon prevailing wage standards, Disadvantaged Business Enterprise goals, and Buy America provisions on highway projects. This policy allows a jurisdiction to reallocate or "swap" federal funds for state funds on some projects, and then concentrate federal monies on specific projects. The result of swapping funding is that fewer highway projects are built without federal prevailing wage standards, contractor diversity goals, and American-made iron and steel standards.

The Iowa Department of Transportation approved a federal-aid swap program in 2018. The comparison of projects built between 2016 and 2020 indicates that projects requiring the payment of Davis-Bacon prevailing wages are 8 percent less likely to be awarded to out-of-state

contractors compared to swapped projects and other highway construction that was not covered by prevailing wage requirements.

Economic Impact and Coverage Thresholds

Prevailing wage regulations have minimum project value thresholds that determine when workers must be paid prevailing wage rates. Publicly-funded projects with values less than the threshold are exempt from the law. Projects with values greater than the threshold are covered by the wage policy. Project value thresholds vary by state.[15] Illinois, Massachusetts, Nebraska, New York, Texas, and Washington do not have minimum threshold coverage values with all state projects covered by prevailing wage regulations. On the other hand, Maryland and Delaware have $500,000 thresholds. The threshold value for Montana is $25,000.

Manzo and Bruno (2016) examine the effect of changes in minimum project value thresholds and find that increases in prevailing wage thresholds are associated with reductions in the value of all construction work in a state completed by domiciled contractors.[16] Over the five-year period from 2007 to 2012, three states raised their prevailing wage coverage thresholds. Indiana increased the threshold by $100,000 and the in-state contractor share fell 2.7 percentage points. Oregon's threshold increased by $25,000 with the market share of in-state contractors decreasing by 1.6 percentage points. Ohio had a $10,405 threshold increase and the in-state contractor share fell 0.5 percentage points.

[15] See Dollar Threshold Amount for Contract Coverage, U.S. Department of Labor. Accessed at: https://www.dol.gov/agencies/whd/state/prevailing-wages

[16] https://illinoisepi.org/site/wp-content/themes/hollow/docs/prevailing-wage/ILEPI-PMCR-Prevailing-Wage-Thresholds-FINAL.pdf

Military Veterans

Based on the analysis of data from the U.S. Census Bureau for 2014, Manzo, Bruno, and Duncan (2016) illustrate several ways military veterans who are employed in the construction industry benefit from prevailing wage laws. Findings indicate that veteran construction workers in states with strong or average prevailing wage laws earn approximately 9% more in wage and salary income compared to veteran construction workers in states with weak or no prevailing wage laws.[17] Strong and average state-level prevailing wage laws increase the number of veteran construction workers who receive employer-provided health insurance by 14.4 percent compared to veterans employed in construction in those states with weak or no prevailing wage laws. While strong or average prevailing wage laws increase the earnings and health insurance coverage of veterans working in construction, these policies also reduce veteran poverty. Adequate prevailing wage protection is associated with an approximate 25 percent decrease in veteran construction workers who earn incomes below the official poverty level compared to their counterparts in states with no or inadequate prevailing wage laws.

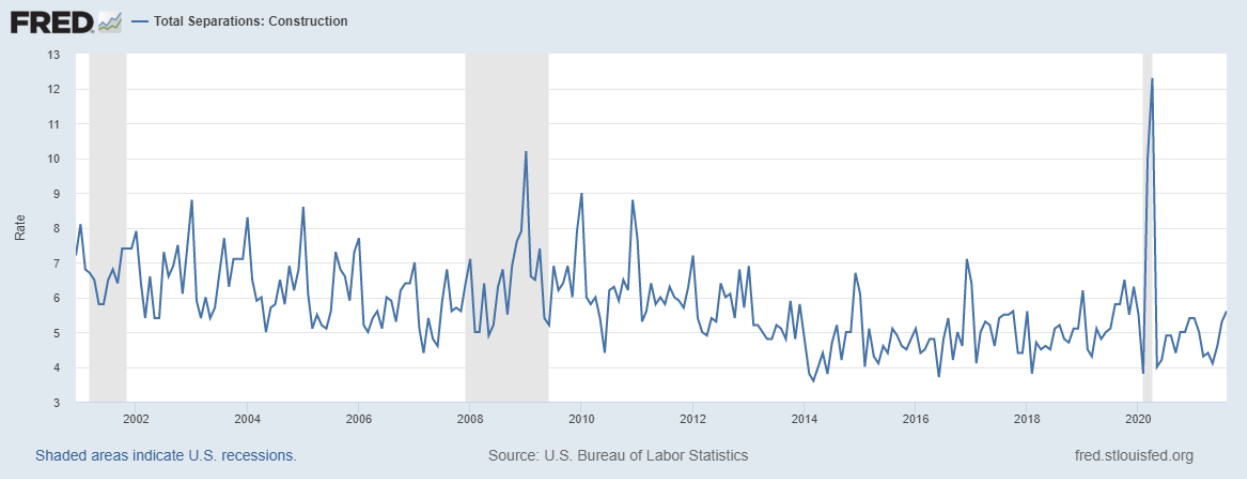
With these labor market outcomes, it is not surprising that veterans are more likely to work in construction in states with strong and average prevailing wage laws. While veterans represent about 5.8 percent of the overall workforce in the U.S., veterans make up 6.9 percent of the construction workforce. This percentage is two percentage points higher in states with strong or average prevailing wage laws.

[17] The strength of any given state's prevailing wage law is determined by the threshold dollar amount when workers are covered under the policy (if there is a contract threshold), the breadth of projects and specific trades that are covered, the method for setting the prevailing wage rate, and enforcement mechanisms in place to ensure compliance. Distinctions by Thieblot (1995) have since been updated by Duncan and Lantsberg, who conclude that there were 25 states with "strong" or "average" prevailing wage laws and 25 states with either a "weak" prevailing wage policy or no law at all in 2012 (Duncan & Lantsberg, 2015a).

Apprenticeship Training

Construction is distinct from other industries in that the inherent instability of building activity creates strong disincentives for employers and employees to invest in a highly skilled, efficient, and safe workforce. Due to fluctuations in seasons and economic activity, construction is historically the most unstable sector of U.S. economy. Monthly fluctuations in rates of employment separations for the construction industry and for total nonfarm are illustrative. Data reported in Figure 1 indicate the rates of employment separations range from a pre-pandemic high of 10.2 percent in January 2009 to a low of 3.6 percent in March of 2014.

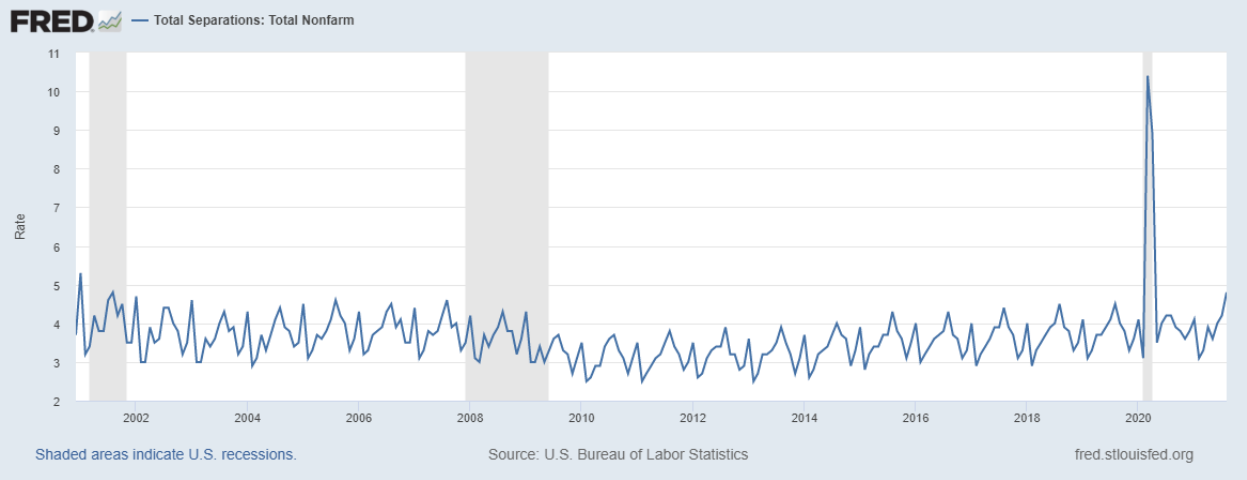
Figure 1. Rate of Employment Separations, Construction, 2000 to 2021.



Source: FRED Economic Data at: https://fred.stlouisfed.org/series/JTU2300TSR

Data reported in Figure 2 reveal a significantly reduced range in rates of employment separations for the overall economy with a pre-pandemic high of 5.3 percent in January 0f 2001 and lows of 2.5% in February of 2010 and 2011.

Figure 2. Rate of Employment Separations, Total Nonfarm (includes Construction, 2000 to 2021.



Source: FRED Economic Data at: https://fred.stlouisfed.org/series/JTUTSR

The end result of instability in the construction industry is a loose attachment between contractors and their employees. When work is available, contractors take on additional workers, but typically shed employees when a project is completed, the season comes to an end, or the economy slows. As a consequence, there is little incentive for contractors to incur the expenses associated with training. There is no guarantee that the trained worker will be retained and it is likely that at some point a trained employee may work for a competing contractor. From the worker's perspective, there is also little incentive to incur the costs of training due to intermittent spells of unemployment between projects, transitions to work in other industries, and seasonal layoffs.[18] Economic fluctuations exacerbate the training problem, with downturns resulting in fewer jobs for trainable young people followed by a shortage of skilled workers when the economy expands.

[18] For a detailed explanation see Philips, Peter, "Dual Worlds: The Two Growth Paths in U.S. Construction," in Building Chaos: An International Comparison of the Effects of Deregulation on the Construction, (Peter Philips and Gerhard Bosch, eds.) Routledge Press, London, 2003.

The challenges associated with training workers exist alongside the need for a skilled labor force that can build customized projects. Unlike manufacturing where the product and the production process are uniform, the majority of construction "output" is not standardized. Outside of residential construction, the majority of building sites, designs, and logistics vary from project to project. Broadly trained craft workers are needed to adjust to the non-routine aspects of customized construction.

The building industry has responded to the mismatch between strong disincentives to train and the need for a skilled, safe, and sustained workforce by creating formal apprenticeship training programs. Apprenticeships typically involve a mix of on-the-job training and in-class theoretical education that covers the basic and specialized skills of a particular craft (for carpenters, electricians, and plumbers, etc.).[19] During the on-the-job component of training, the apprentice earns less than the fully-trained journey worker.[20] With this arrangement the cost of training workers is shared between the apprentice and the employers who are sponsoring the training. Accordingly, apprenticeship programs address the disincentives that discourage employers and workers from pursuing training. Upon successful completion of the program, the apprentice becomes a certified journey worker. The program results in a relatively homogenous skilled workforce in an industry that is otherwise largely free of certifications that reveal worker quality.

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[19] On-the-job training ranges between 6,000 to 8,000 hours (3-4 years) with in-class instruction ranging between 430 to 580 hours. See Bilginsoy, Cihan. 2003. "The Hazards of Training: Attrition and Retention in Construction Industry Apprenticeship Programs." *Industrial and Labor Relations Review*, Vol. 27, Issue 1, pp. 54-67.

[20] Compensation varies with the program, but usually starts at 50% of the hourly rate for the corresponding journey worker and increases with progression through the training program. See Bilginsoy, Cihan. 2007. "Delivering Skills: Apprenticeship Program Sponsorship and Transition from Training." *Industrial Relations*, Vol. 46, No. 4, pp. 738-763.

The Office of Apprenticeships at the U.S. Department of Labor works in conjunction with approved State Apprenticeship Agencies to set basic standards for programs that meet federal requirements for formal apprenticeship and prevailing wage work. Within this framework, sponsors have freedom to determine program content, applicant qualifications, and other aspects of the program.[21] In the open shop (nonunion) segment of the construction industry, apprenticeship programs are sponsored by a single contractor or by groups of nonunion employers. These employers unilaterally determine program content, set entry requirements, select apprenticeships, and monitor trainee progress. In the unionized sector, apprenticeship training is jointly determined and managed by unions and contractors who are signatories to collective bargaining agreements.

Regulatory incentives to encourage training are not extensive in the U.S. construction industry. Prevailing wage laws play an important role in formal training by providing strong incentives for union and nonunion contractors to employ apprentices on covered projects. Under Montana's prevailing wage law, apprentices are paid as indicated by the approved training program.[22] Typically, apprentice wage rates are based on a fraction of the corresponding journey rate, starting as low as 50% and increasing with program progress. This wage savings creates a high demand for apprentices on public works projects that drives skill development for the entire construction industry. Consequently, it is not surprising that research shows a strong connection between prevailing wage laws and training in the construction industry. For example, Bilginsoy (2005) finds that apprenticeship enrollments are from 6% to 8% higher in states with prevailing wage laws compared to states without the wage policy. Bilginsoy also finds that apprentices in

[21] See "What is Registered Apprenticeship?" ApprenticeshipUSA, Employment and Training Administration, U.S. Department of Labor. Accessed at: https://www.doleta.gov/OA/apprenticeship.cfm.
[22] Montana Prevailing Wage Rates for Building Construction Services 2021, Montana Department of Labor. Accessed at: MONTANA (mt.gov)

states with prevailing wage laws complete their on-the-job and classroom training at a faster rate than apprentices in states without the wage policy. This effect is strongest in states with stronger prevailing wage laws.[23]

According to the *Economic Census of Construction*, the value of federal, state, and local construction represents 25.2% of the total value of building activity in Montana.[24] Much of this construction spending is covered by federal and state prevailing wage standards. The large percent of building activity covered by prevailing wage regulations in Montana substantially increases the demand for apprentices. As a consequence, apprenticeships in construction are disproportionately high. For example, construction apprentices represented 79 percent of all apprentices in the state in 2019.[25] While apprentice workers represent approximately three percent of employment in Montana's occupations with apprenticeships, this percent is larger in several construction occupations. For instance, apprentices constitute 25.8 percent of plumbers, 20.5 percent of sheet metal workers, and 39 percent of structural steel workers. Of the top ten occupations by active apprenticeship employment for Montana in 2019, at least seven were construction occupations (not including electricians who may work in other sectors such as manufacturing).

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[23] Armand Thieblot developed a classification system for state prevailing wage laws into weak, average, and strong policies. These are based on the contract value threshold that prevailing wages apply, the level of coverage at the municipal, county, or state level, the types of work/trades excluded, the determination of prevailing wage rates, and other items. See Thieblot, Armand. 1995. *State Prevailing Wage Laws: An Assessment at the Start of 1995*, Associated Building Contractors, Inc., Rosslyn, VA.

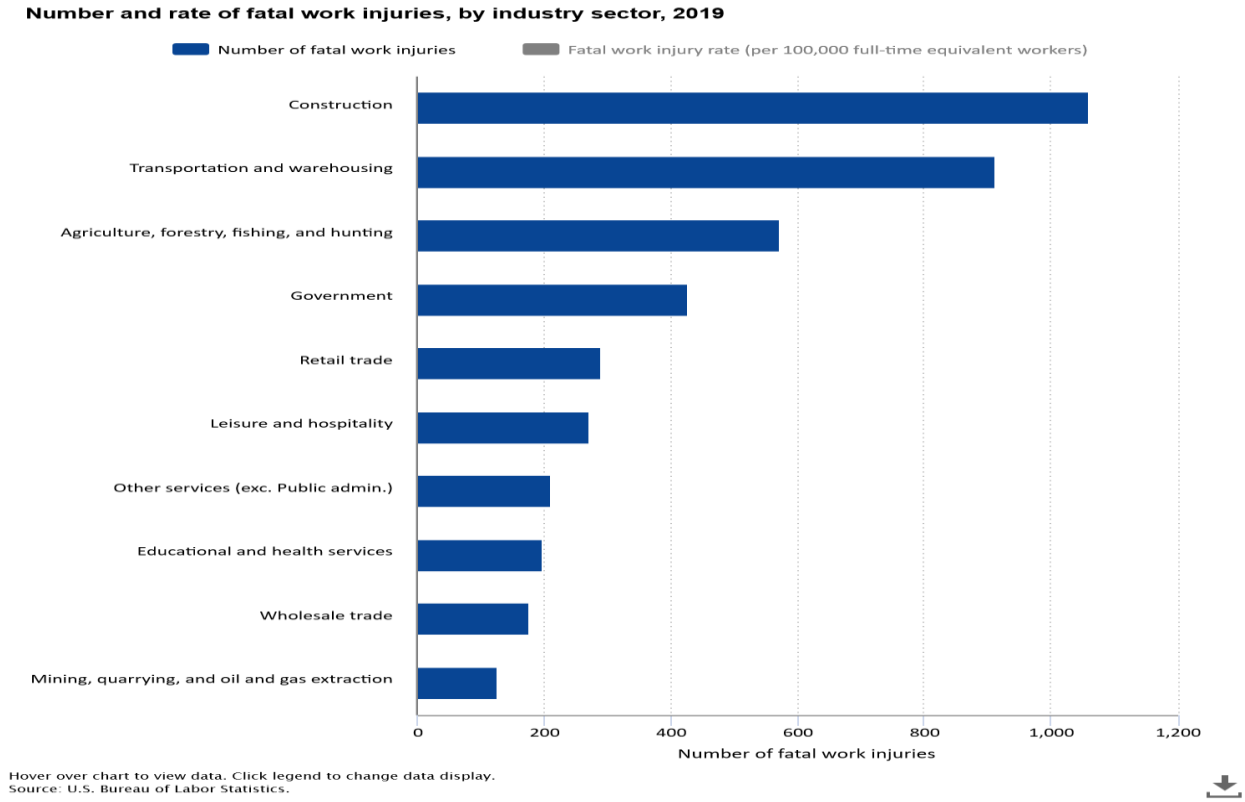
[24] U. S. Census. (2017. "Construction: Geographic Area Statistics. Accessed at: https://data.census.gov/cedsci/table?q=EC1723BASIC&g=0400000US30&tid=ECNBASIC2017.EC1723BASIC&hidePreview=true

[25] Registered Apprenticeship Program, 2020, Montana Department of Labor & Industry. Accessed at: https://lmi.mt.gov/_docs/Publications/LMI-Pubs/Special-Reports-and-Studies/Apprenticeship-Data-Report-2020.pdf

Injury Rates

Construction workers are exposed to many hazardous tasks and conditions such as work at height, excavations, noise, dust, power tools and equipment, confined spaces, and electricity. As a consequence, construction is one of the most perilous occupations. Data presented in Figure 3 indicate that the construction industry leads all industries with respect to the number of fatal injuries in 2019. Construction employment represented only 5.1% of employment in the U.S. in 2019, yet this industry accounted for 25% of job-related deaths in that year.[26]

Figure 3. Number of Fatal Injuries by Industry Sector, 2019



Source: Graphics for Economic News Releases, Bureau of Labor Statistics. At: https://www.bls.gov/charts/census-of-fatal-occupational-injuries/number-and-rate-of-fatal-work-injuries-by-industry.htm

[26] See March 2021, Quarterly Census of Wages and Employment; Accessed at: https://www.bls.gov/cew/downloadable-data-files.htm . Construction fatalities were 1,061 out of 4,247 for all U.S. industries in 2019. See Graphics for Economic News Releases, Bureau of Labor Statistics. At: https://www.bls.gov/charts/census-of-fatal-occupational-injuries/number-and-rate-of-fatal-work-injuries-by-industry.htm

Prevailing wage laws do not include safety requirements. Rather, the wage policy affects injury rates in construction indirectly through the linkage between prevailing wages, apprenticeship training, and the relation between training and safety. By creating incentives to employ and train apprentices, prevailing wage laws are associated with increased formal training. For instance, Bilginsoy (2005) finds that the supply of apprentices is from 6% to 8% higher in states with prevailing wage laws, and even 10% higher in those states with the strongest wage policies (even after taking into consideration state differences in construction output, unemployment as well as regional differences). Apprenticeship training in the construction industry requires classroom and on-the-job education on how to perform a task correctly and safely. By encouraging formal training in the construction industry, prevailing wage laws are associated with reduced injuries. For example, Azari-Rad (2005) examines non-fatal injury rates among all construction between 1976 and 1999 and finds that all non-fatal injury rates are lower in states with prevailing wage laws. Rates for injuries resulting in no lost days of work, lost workdays, and days away from work were lower by 7% to 10% in prevailing wage states compared to states without the wage policy. These results are statistically significant and take into consideration other factors such as region, unemployment rate and trends over time that also affect injuries. Philips (2014) finds that construction workers reported 12% more disabilities (hearing, vision, memory loss and difficulty climbing stairs, dressing, bathing, etc.) in states without prevailing wage laws compared to states with the wage policy between 2009 and 2011.

Philips, Mangum, Waitzman, and Yeagle (1995) find that injuries per construction worker and serious injuries per construction worker were from 5% to 9% higher in states that did not have prevailing wage policies compared to states with the wage policy. This study also finds that in the states that repealed their prevailing wage laws between 1978 and 1991, injury case

rates increased by 14%, serious injury rates increased by 15%, and work days lost to injury increased by 12%. These differences are statistically significant and this analysis takes into consideration other factors such as region, state unemployment rate, and trends over time.

Payroll Tax Revenue

Between 1979 and 1995, 10 states repealed their prevailing wage laws.[27] Fenn, Pleites, Zorigbaatar, and Phillips (2018) examine the effects of repeal on blue-collar construction worker income, required benefits, and voluntary benefits. Data over the 1972 to 2012 period indicate that annual average income earned by all blue-collar construction workers in the states that repealed their prevailing wage laws decreased relative to similar workers in states that did not repeal their wage standards. Estimates of the relative decrease range from 1.9 percent and 4.2 percent. Legally required benefits, including social security, workers injury-compensation insurance, and unemployment insurance contributions, also decreased for the group of employees that include blue and white-collar workers in the building industry. Estimates of the relative decrease range from 3.8% to 10.1%, compared to similar workers in states with prevailing wage laws. Annual average voluntary benefits paid by employers that include health insurance, and pension contributions for blue- and white-collar construction employees decreased from 11.2% to 16.0% to counter parts in non-repeal states.

The disproportionately larger decrease in legally required benefits (as high as 10.1 percent), compared to the decrease in income (about 4 percent), is consistent with an increase in underground labor practices in states that repealed prevailing wage laws. Misclassifying workers

[27] For a list of state repeals see Dollar Threshold Amount for Contract Coverage, U.S. Department of Labor. Accessed at: https://www.dol.gov/agencies/whd/state/prevailing-wages

as subcontractors, under-the-table cash payments, and wage theft are growing problems in the construction industry.[28] These types of payroll fraud are associated with decreased collections of state and federal payroll taxes including workers injury-compensation insurance, and unemployment insurance contributions. For example, Waddoups, Duncan, and Ormiston (2021) estimate that 11.4 percent of Nevada's construction labor force was either misclassified as a contractor or working off-the-books in 2018. These payroll practices cost the state about $31 million in contributions for Nevada's workers compensation fund and nearly $12 million to the unemployment insurance program in 2018.

Prevailing wage laws play an important role in discouraging underground labor practices that reduce payroll tax revenue. Similar to other jurisdictions, Montana's prevailing wage law requires that contractors submit weekly certified payroll records that include each worker's name, job assignment, hours worked, total hourly compensation, and other information.[29] This requirement discourages contractors who engage in underground labor market practices from participating in projects that are covered by the state's wage standard. The additional requirement that at least 50 percent of the employees of each contractor working on the jobs be a bona fide Montana resident further discourages the practice of importing vulnerable and exploited workers from other states.[30]

Vigorous enforcement of prevailing wage laws is important to prevent the payroll fraud and to ensure the many benefits of the wage standard. Job site inspections and audits of certified

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[28] See Philips, Peter, and Blatter, David. 2017. "Two Roads Diverge: Hidden Costs of the Low Wage Approach to Construction." Accessed at: https://www.aeaweb.org/conference/2017/preliminary/paper/32Na4BK9

[29] See 24.17.301 Required Records, Montana Secretary of State. Accessed at: https://rules.mt.gov/gateway/ruleno.asp?RN=24.17.301

[30] See Public Contracts/Prevailing Wage Law, Montana Department of Labor & Industry. Accessed at: https://erd.dli.mt.gov/labor-standards/public-contracts-prevailing-wage-law/

payroll records by the Montana Department of Labor are important enforcement tools. These activities require adequate funding and staffing. Third-party inspections of certified payroll records (via Montana's open records request) add to these efforts without increasing public expense.

To further encourage transparency with respect to payroll practices on public works projects, the State of California, Department of Industrial Relations (DIR) requires contractors and subcontractors on all public works projects to use an electronic certified payroll reporting system (eCPR). It is through the eCPR searchable database that the public may view and print out certified payrolls. Employee names, addresses and social security numbers are redacted from the publicly available information.[31] This practice allows contractor employees and third-parties to ensure that workers are properly compensated on public works projects.

[31] See "eCPR Search," DIR. Accessed at: https://efiling.dir.ca.gov/eCPR/pages/search. For a simple illustration of viewing a certified payroll, at the web site select a small county (Alpine) at the *County* prompt. Select the *Date Range From* prompt and the current date at the *Date Range To* prompt. Click *Search* and PDF copies of weekly and complete certified payrolls can be selected for public works completed in this county. Employee names, addresses, and social security numbers redacted.

Selected References

Atalah, Alan. (2013) (a). "Comparison of Union and Nonunion Bids on Ohio School Facilities Commission Construction Projects," *International Journal of Economics and Management Engineering*, 3(1): 29-35.

Atalah, Alan. (2013) (b). "Impact of Prevailing Wages on the Cost among the Various Construction Trades," *Journal of Civil Engineering and Architecture*, 7(4): 670-676.

Azari-Rad, Hamid. 2005. "Prevailing wage laws and Injury Rates in Construction." In Hamid Azari-Rad, Peter Philips, and Mark Prus (Eds.), *The Economics of Prevailing Wage Laws*, pp. 123–148. Aldershot, UK: Ashgate, 2005.

Azari-Rad, Hamid; Peter Philips; and Mark Prus. (2003). "State Prevailing Wage Laws and School Construction Costs," *Industrial Relations*, 42(3): 445-457.

Azari-Rad, Hamid; Peter Philips; and Mark Prus. (2002). "Making Hay When It Rains: The Effect Prevailing Wage Regulations, Scale Economies, Seasonal, Cyclical and Local Business Patterns Have on School Construction Costs," *Journal of Education Finance*, 27: 997-1012.

Balistreri, Edward; Christine McDaniel; and Eina Vivian Wong. (2003). "An Estimation of U.S. Industry-Level Capital-Labor Substitution Elasticities: Support for Cobb-Douglas," *The North American Journal of Economics and Finance*, 14: 343-356.

Bilginsoy, Cihan. (2005). Wage Regulation and Training: The Impact of State Prevailing Wage Laws on Apprenticeship." *The Economics of Prevailing Wage Laws*. Editors: Hamid Azari-Rad, Peter Philips, and Mark Prus. 149-168.

Bilginsoy, Cihan. (1999). "Labor Market Regulation and the Winner's Curse," *Economic Inquiry*, 37(3): 387-400.

Bilginsoy, Cihan and Peter Philips. (2000). "Prevailing Wage Regulations and School Construction Costs: Evidence from British Columbia," *Journal of Education Finance*, 24: 415-432.

Blankenau, William and Steven Cassou. (2011). "Industry Differences in the Elasticity of Substitution and Rate of Biased Technological Change between Skilled and Unskilled Labor," *Applied Economics*, 43: 3129-3142.

Duncan, Kevin and Waddoups, Jeffery. 2020. "Unintended Consequences of Nevada's Ninety-Percent Prevailing Wage Rule." *Labor Studies Journal*, Vol. 45, Issue 2: 166-185.

Duncan, Kevin, and Russell Ormiston. 2018. "What Does the Research Tell Us About Prevailing Wage Laws." Labor Studies Journal 44 (2): 139-60.

Duncan, Kevin. (2015) (a). "The Effect of Federal Davis-Bacon and Disadvantaged Business Enterprise Regulations on Highway Maintenance Costs," *Industrial and Labor Relations Review*, 68(1): 212-237.

Duncan, Kevin. (2015) (b). "Do Federal Davis-Bacon and Disadvantaged Business Enterprise Regulations Affect Aggressive Bidding? Evidence from Highway Procurement Auctions," *Journal of Public Procurement*, 15(3): 291-316.

Duncan, Kevin and Lantsberg, Alex. 2015. "Building the Golden State: The Economic Impacts of California's Prevailing Wage Policy." Accessed at: https://www.smartcitiesprevail.org/wp-content/uploads/sites/24/2017/03/SCP-Building-the-Golden-State-WEB.pdf.

Duncan, Kevin; Peter Philips; and Mark Prus. (2014). "Prevailing Wage Regulations and School Construction Costs: Cumulative Evidence from British Columbia," *Industrial Relations*, 53(4): 593-616.

Duncan, Kevin; Peter Philips; and Mark Prus. (2012). "Using Stochastic Frontier Regression to Estimate the Construction Cost Efficiency of Prevailing Wage Laws," *Engineering, Construction and Architectural Management*, 19(3): 320-334.

Duncan, Kevin; Peter Philips; and Mark Prus. (2009). "The Effects of Prevailing Wage Regulations on Construction Efficiency in British Columbia," *International Journal of Construction Education and Research*, 5(2): 63-78.

Duncan, Kevin; Peter Philips; and Mark Prus. (2006). "Prevailing Wage Legislation and Public School Construction Efficiency: A Stochastic Frontier Approach," *Construction Management and Economics*, 6: 625-634.

Duncan, Kevin and Prus, Mark. 2005. Prevailing wage laws and construction costs: evidence from British Columbia's Skills Development and Fair Wage Policy. In Hamid Azari-Rad, Peter Philips, and Mark Prus (Eds.), *The Economics of Prevailing Wage Laws*, pp. 123–148. Aldershot, UK: Ashgate.

Dunn, Sarah; John Quigley; and Larry Rosenthal. (2005). "The Effects of Prevailing Wage Regulations on the Cost of Low-Income Housing," *Industrial and Labor Relations Review*, 59(1): 141-157.

Economic Policy Brief 2011. *Economic, Fiscal and Social Impacts of Prevailing Wage in San Jose, California*. Working Partnerships USA. Accessed at: http://wpusa.org/5-13-11%20prevailing_wage_brief.pdf.

Fenn, Ari, Zhi Li, Gabriel Pleites, Chimedlkham Zorigtbaatar , and Peter Philips. 2018. "The Effect of Prevailing Wage Repeals on Construction Worker Incomes and Benefits," Public Works and Management, DOI:10.1177/1087724X18758340, p. 1-19.

Juravich, Tom, Ablavsky, Essie, and Williams, Jake. 2015. "The Epidemic of Wage Theft in Residential Construction in Massachusetts," Labor Center, University of Massachusetts-Amherst. Accessed at: https://www.umass.edu/lrrc/sites/default/files/Wage_Theft_Report.pdf.

Kaboub, Fadhel, and Kelsay, Michael. (2014). "Do Prevailing Wage Laws Increase Total Construction Costs?" *Review of Keynesian Economics*, 2(2): 189-206.

Kim, Jaewhan; Chang Kuo-Liang; and Peter Philips. (2012). "The Effect of Prevailing Wage Regulations on Contractor Bid Participation and Behavior: A Comparison of Palo Alto, California with Four Nearby Prevailing Wage Municipalities," *Industrial Relations*, 51(4): 874-891.

Littlehale, Scott. 2017. "Revisiting the Cost of Developing New Subsidized Housing: The Relative Import of Construction Wage Standards and Nonprofit Development." *Berkeley Planning Journal*, Vol. 29: 101-129. Accessed at: https://static1.squarespace.com/static/5852c7166b8f5be86b73af86/t/5acbe4e870a6adaedb71b9d7/1523311858144/bpj29_spreads.pdf

Manzo, Frank. Forthcoming. "The Effect of Federal-Aid Swap Programs and Davis-Bacon Prevailing Wages on Highway Construction Costs and Contractor Composition: Evidence from Iowa" *Labor Studies Journal*.

Manzo, Frank, and Kevin Duncan. 2018. "An Examination of Minnesota's Prevailing Wage Law: Effects on Costs, Training, and Economic Development." https://midwestepi.files.wordpress.com/2018/07/mepi-csu-examination-of-minnesotas-prevailing-wage-law-final.pdf

Manzo, Frank. 2016. Weakening Prevailing Wage Hurts Local Contractors and Workers: A Case Study from Southern Indiana. Midwest Economic Policy Institute. Accessed at: https://illinoisepi.files.wordpress.com/2016/06/ilepi-economic-commentary-southern-in-case-study1.pdf

Manzo, Frank, Bruno, Robert, and Duncan, Kevin. 2016. The Impact of Prevailing Wage Laws on Military Veterans: An Economic and Labor Market Analysis. Accessed at: http://www.faircontracting.org/wp-content/uploads/2016/08/prevailing-wage-laws-veterans.pdf

Onsarigo, Lameck, Atalah, Alan and Duncan, Kevin. (2020). "The Effect of Prevailing Wages on Building Costs, Bid Competition, and Bidder Behaviour: Evidence from Ohio School Construction," Vol. 38, No. 10: 917-933.

Palm, Matthew and Deb Niemeier. (2017). "Does Placing Affordable Housing Near Rail Raise Development Costs? Evidence From California's Four Largest Metropolitan Planning Organizations," *Housing Policy Debate*, 1-19.

Philips, Peter. (2014). *Kentucky's Prevailing Wage Law: An Economic Impact Analysis*. University of Utah. Accessed at: http://www.faircontracting.org/wp-content/uploads/2014/02/Kentucky-Report-2014-Philips.pdf.

Philips, Peter, Mangum, Garth, Waitzman, Norm, and Yeagle, Anne. 1995. "Losing Ground: Lessons from the Repeal of Nine "Little Davis-Bacon" Acts. Working Paper, Department of Economics, University of Utah. Accessed at: http://www.faircontracting.org/PDFs/prevailing_wages/losingground.pdf.

Vincent, Jeffrey and Paavo Monkkonen. (2010). "The Impact of State Regulations on the Costs of Public School Construction," *Journal of Education Finance*, 35(4): 313-330.

Vitaliano, Donald. (2002). "An Econometric Assessment of the Economic Efficiency of State Departments of Transportation," *International Journal of Transportation Economics*, 29(2): 167-180.

Waddoups, Jeff, Duncan, Kevin, and Ormiston, Russell. 2021. "Payroll Fraud in Nevada's Construction Industry: Extent and Fiscal Impact." Accessed at: https://www.leg.state.nv.us/App/NELIS/REL/81st2021/ExhibitDocument/OpenExhibitDocument?exhibitId=54568&fileDownloadName=0322_AB227_PayrollFraud_rpt_Public.pdf