The Impact of Oregon's Prevailing Wage Rate Law

Effects on Costs, Training, and Economic Development

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Executive Summary

Oregon's Prevailing Wage Rate Law provides minimum wages for construction workers employed on public works projects. The main purpose of Oregon's Prevailing Wage Rate Law is to protect local construction standards in the competitive low-bid process. The law creates a level playing field for all contractors by ensuring that public expenditures maintain and reflect local market standards for wages and benefits.

Oregon's Prevailing Wage Rate (PWR) Law keeps construction costs stable and supports local contractors.

- **Peer-Reviewed Regression Analysis Studies Confirm that PWR Law Has No Effect on Costs:** 83 percent of peer-reviewed studies conducted since 2000 find that prevailing wage laws have no effect on the cost of traditional public projects, including schools, highways, and public buildings. Unlike simplistic wage differential studies, these peer-reviewed studies use regression analysis to account for factors that can influence project costs, such as project size, project type, number of bidders, and the business cycle.
    - Labor Share of Construction Costs is Low: Labor costs are a low and historically declining share of total project costs– about 25 percent in Oregon. Peer-reviewed research confirms that, since labor costs represent a small portion of overall costs, when construction wages rise, contractors respond by utilizing more capital equipment and hiring skilled workers to replace their less-productive counterparts.
- **PWR Law Increases Bid Competition:** Four peer-reviewed studies since 2012 analyzing more than 2,000 bids on public projects find that prevailing wage has no effect on bid competition – and may in fact increase the number of bidders.

Our new analysis of more than 1,100 contractor bids on nearly 300 state highway projects in Oregon and Idaho (which lacks a PWR law) finds that prevailing wage is associated with 19 percent more bid competition.

Oregon's Prevailing Wage Rate Law delivers pathways into the middle class and boosts the economy.

PWR Law Boosts Wages & Leads to Middle-Class Incomes and Careers: Oregon's Prevailing Wage Rate Law increases blue-collar construction worker incomes by 8 percent, with larger effects on low-income (11 percent) and middle-class construction workers (9 percent).

- **Local Contractors and the Economy Benefit from PWR Law:** Oregon's Prevailing Wage Rate Law increases the chances that in-state contractors will be awarded public projects by 12 percent and improves their market share by 12 percent.
    - By protecting work for in-state contractors and upholding local construction standards of compensation and craftmanship, Oregon's Prevailing Wage Rate Law creates 5,400 jobs, improves the state economy by $752 million, and generates $35 million in state and local tax revenues every year.
- Prevailing wage expands private health insurance coverage for construction workers by 9 percent.

Oregon's Prevailing Wage Rate Law is an effective job skills advancement policy.

- Economic research finds that prevailing wage laws increase apprenticeship training, boost worker productivity, and reduce injury rates in construction.
- In 2019, Oregon had 12 registered apprentices per 100 construction and extraction workers while Idaho had fewer than 6 apprentices per 100 construction and extraction workers.

- 63 percent of all construction apprentices in Oregon are enrolled in joint labor-management programs – including the vast majority of women, and workers of color.
- Joint labor-management programs provide a viable, debt-free alternative to a bachelor's degree, require more hours of training, and lead to higher average wages.
- Construction journeyworkers from joint labor-management programs earn 16 percent more per hour than those from employer-only programs and 8 percent more than workers with bachelor's degrees in Oregon.
- There is no evidence that prevailing wage affects the racial composition of the construction workforce.

Oregon Should Consider Strengthening its PWR Law:

- Across the border, Washington state's stronger PWR law, which is based on collective bargaining agreements (CBAs) rather than surveys by region, results in a more predictable, stronger standard, with workers taking home higher wages, less likely to be in poverty, and more likely to be covered by private health insurance, and even stronger contributions to the state's economy.
    - Strengthening prevailing wage in Oregon would annually boost total construction worker incomes by an additional $100 million, extend health insurance coverage to 1,800 construction workers, lift 1,200 construction workers out of poverty, and improve state tax revenues by $10 million.

Oregon's Prevailing Wage Rate Law has positive impacts on the Oregon economy. Prevailing wage levels the playing field, boosts investment in apprenticeship training programs, improves productivity and worksite safety, and stabilizes construction costs. Oregon's Prevailing Wage Rate Law is a great deal for taxpayers.

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About the Organizations

Since its inception in 1977, the **Labor Education and Research Center** (LERC) at the University of Oregon has been dedicated to the presence of a strong, inclusive union movement as an integral element of a just and democratic society. By integrating education, research, and public service, LERC helps to ensure that workers have the skills and support that they need to participate meaningfully in their workplaces and communities. LERC faculty conduct applied research and consult in areas such as labor sector analysis, curriculum development, labor standards and employment policy, race and gender equity in the workplace, and worker health and safety.

The **Illinois Economic Policy Institute** (ILEPI) is a nonprofit research organization that promotes thoughtful economic growth for businesses and working families in Illinois and across the United States of America. Since its founding in 2013, ILEPI has become nationally recognized for its timely and candid analyses of state prevailing wage laws. ILEPI's prevailing wage research has been authored with academic professors from the University of Illinois at Urbana-Champaign, University of Utah, Colorado State University-Pueblo, University of Missouri-Kansas City, Michigan State University, Kent State University, and Bowling Green State University.

Introduction to Prevailing Wage in Oregon

Oregon's Prevailing Wage Rate Law supports skilled construction workers employed on public construction projects. The law establishes minimum wages for different types of skilled construction workers on taxpayer-funded projects, based on wages and benefits that are paid for similar work in the local area where public projects are to be completed. By preventing public bodies from awarding bids to contractors that pay less than the privately-established local market rate, Oregon's Prevailing Wage Rate Law ensures that workers can afford to live in the communities where they are building roads, bridges, paths, parks, schools, or other public projects.

The main purpose of Oregon's Prevailing Wage Rate Law is to protect local construction standards in the competitive bidding process. Public construction bidding is different from private-sector construction. Public bodies in Oregon are required to select the lowest bidder. In the low-bid model, contractors have a financial incentive to lower their bids however possible, including through cutthroat reductions in worker wages, benefits, safety standards, and apprenticeship training. Long-term investments in worker training, health care, and retirement security are often jettisoned by contractors in order to win bids on short-term projects. Additionally, large infusions of government spending into an area and a process that rewards the lowest bidder often attracts nonlocal contractors with lower-skilled and lower-wage workers, which can erode local labor standards. Oregon's Prevailing Wage Rate Law levels the playing field for contractors by taking labor costs out of the equation, incentivizing them to compete based on core competencies and efficiencies in construction rather than on undermining middle-class compensation standards.

Oregon is currently one of 28 states plus the District of Columbia that have prevailing wage rate laws (usually called "prevailing wage laws") on the books. Oregon enacted its state prevailing wage rate law over six decades ago in 1959 (**BOLI, 2018**). The state law is modeled after the federal Davis-Bacon Act, which was passed two decades earlier in 1931 and requires the payment of prevailing wages for work on public works projects that receive federal funding. Oregon's Prevailing Wage Rate Law has been amended several times to expand the definition of public works projects covered by the policy, require contractors and subcontractors to submit certified payroll records to public bodies, punish intentional violators of the law with a Class C felony, and make other adjustments. Following an unsuccessful attempt in 1994 to repeal Oregon's Prevailing Wage Rate Law, with 62 percent of Oregon voters rejecting repeal, the law was amended by the Legislative Assembly to include a declaration of its purposes (**Ballotpedia, 2020**). These include:

- "to ensure that contractors compete on the ability to perform work competently and efficiently while maintaining community-established compensation standards;
- to recognize that local participation in publicly-financed construction and family wage income and benefits are essential to the protection of community standards;
- to encourage training and education of workers to industry skills standards; and
- to encourage employers to use funds allocated for employee fringe benefits for the actual purchase of those benefits" (**BOLI, 2018**).

Today, any construction project completed or contracted for a public agency and funded in whole or in part by "directly used" or "indirectly used" funds of a public agency is covered by Oregon's Prevailing Wage Rate Law (**BOLI, 2018**). "Directly used" funds include tax revenue, money loaned by a public agency, and public property or assets that are used as payment for all or part of a

project. “Indirectly used” funds include arrangements where the public agency subsidizes the cost of construction that would normally be borne by the contractors, but do not include other indirect support like tax credits or tax abatements. In general, taxpayer-funded projects that cost $50,000 or less are also exempt from Oregon’s Prevailing Wage Rate Law. As examples, all state-funded and local government-funded construction of roads, bridges, schools, colleges, parks, and other public buildings are all covered by the policy, as long as they cost more than $50,000. The construction or installation of a solar energy project is also covered by the policy if it is on public property, regardless of the total project cost or whether the project uses any funds of a public agency (**BOLI, 2018**).

Prevailing wage rates consist of **both** hourly base wages and fringe benefits, including health and welfare plans, vacation plans, retirement plans, and apprenticeship training. In Oregon, BOLI recognizes 43 different occupational classifications or trades, ranging from carpenters and electricians to power equipment operators and sheet metal workers (**BOLI, 2020**). If the survey results do not provide enough information to determine the prevailing wage rates, then BOLI considers other information, such as Davis-Bacon prevailing wage rates determined by the U.S. Department of Labor.

Historically, the Oregon prevailing wage rate had mapped onto the wages collectively bargained by skilled trade workers and their signatory contractors. However, in 1995 and 1997, the state Legislature adopted several revisions to the Oregon law that were proposed by a contractor coalition, including the process for setting the prevailing wage rate. This revision requires that the Oregon Bureau of Labor and Industries (BOLI) conduct an annual voluntary confidential survey of construction contractors and subcontractors to determine state prevailing wage rates in 14 different regions of the state (**BOLI, 2018**). Many interview respondents we spoke with discussed how variable the survey method was, emphasizing that Oregon construction workers and contractors often work in different regions in the state, and they struggled to predict what the wage rates would be for projects in different areas. One journeyworker[1] shared, “It’s crazy really. I had one project out east and it was one rate and then that same year I started another project in the western part of the state and it was two totally different rates for basically the same work. And it’s hard to know who is going to actually reply to the survey so even if the contractors are being truthful, it ends up swinging and it’s hard to predict.”

Other states, including neighboring Washington state, set state prevailing wage rates based on the collective bargaining agreements (CBAs) between unions and employers for specific trades and occupations in each county. Where there are multiple CBAs in a county in Washington, the higher rate prevails and a survey of trades is only conducted for counties where there are no CBAs (**Washington L&I, 2015**). This process leads to less variability and greater predictability for workers and contractors than the survey methodology. The last section of this report details how the stronger prevailing wage rate law in Washington leads to better outcomes for earnings, access to health insurance, and impact on the broader economy.

This report, conducted by researchers at the University of Oregon and the Illinois Economic Policy Institute, examines the effects of Oregon’s Prevailing Wage Rate Law on bid competition on public construction projects, apprenticeship training in Oregon, and economic development outcomes– including construction worker incomes, construction worker health insurance coverage, and economic activity in Oregon. The report also includes a review of the economic research on the impacts of prevailing wage standards on the cost of public construction projects. The results

1 For this report, the authors conducted and analyzed phone interviews with Oregon construction workers. Names and other identifying information are omitted for purposes of confidentiality.

of this study indicate that Oregon's Prevailing Wage Rate Law keeps construction costs stable, is an effective job skills advancement policy, and provides pathways into the middle class for blue-collar construction workers. Accordingly, Oregon's Prevailing Wage Rate Law has positive effects on the state's economy.

Peer-Reviewed Research on the Effect of Prevailing Wage Laws on Construction Costs

The economic consensus is that prevailing wage laws have no impact on total construction costs (**Duncan & Ormiston, 2017**). Prevailing wage laws do not increase project costs for three main reasons.

1. First, labor costs are a low and historically declining share of total costs in the construction industry– approximately 18 percent in the United States and 25 percent in Oregon (**Census, 2017**).
2. Second, peer-reviewed research indicates that, when wages rise in construction, contractors respond by utilizing more capital equipment and by hiring skilled workers to replace their less-productive counterparts (**Balistreri et al., 2003**; **Blankenau & Cassou, 2011**).
3. Third, contractors have also been found to respond to higher wages by reducing expenditures on materials, fuels, and rental equipment and by accepting marginally lower profit margins (**Duncan & Lantsberg, 2015**). Since labor costs represent a small portion of overall costs, only minor changes are needed to offset any effect of prevailing wage laws.

There have been 18 studies on the impact of prevailing wage standards on the cost of school construction, highway maintenance, and municipal building projects that have been published in peer-reviewed academic journals since 2000 (Figure 1). Cumulatively, these peer-reviewed studies have analyzed more than 21,000 traditional public works projects. Peer review is the process of establishing credibility by submitting research to a group of anonymous, independent experts who critically evaluate methodologies and conclusions before being accepted for publication. By contrast, studies that have not undergone peer review can suffer from errors, methodological defects, and misleading or suspicious conclusions.

Of the 18 peer-reviewed studies on prevailing wage laws since 2000, 13 pertain to school construction costs, which is a key focus among economic researchers. Public school construction is more homogenous than other types of public works projects, which makes it easier to isolate the potential cost impact of prevailing wage laws. In addition to these 13 studies on school construction costs, three evaluate highway costs and two investigate public and municipal buildings. In total, 15 of these peer-reviewed studies (83 percent) find that ***prevailing wage laws have no effect on the total construction costs,*** including 11 out of the 13 peer-reviewed studies (85 percent) focused on the impact of prevailing wage laws on school construction costs (Figure 1).

The earliest peer-reviewed studies that used regression analyses to assess the effect of prevailing wage laws on school construction costs were authored by Professors Azari-Rad, Philips, and Prus. These economists examined more than 4,000 schools built across the United States and ***did not find any statistically significant cost difference between schools built in states with prevailing wage laws and those constructed in states without prevailing wage laws*** (**Azari-Rad et al., 2002**; **Azari-Rad et al., 2003**).

Five studies have taken advantage of the introduction of a prevailing wage policy in British Columbia, Canada, called the Skill Development and Fair Wage Policy, to compare school construction costs. ***After accounting for the business cycle, the number of bidders, and the project type, researchers found that school construction***

costs under the policy were not statistically different from costs of schools built prior to the introduction of prevailing wage (Bilginsoy & Philips, 2000). A second analysis included a control group of private school projects and found that the cost differential between public schools and private schools was unchanged after the introduction of prevailing wage (Duncan et al., 2014). The size differential, in terms of square feet per project expenditure, also did not change after the policy was in effect (Duncan et al., 2006). Additionally, the policy, which implemented new apprenticeship training standards, increased the average efficiency of public projects after 17 months, from 95 percent to nearly 100 percent (Duncan et al., 2009). This improvement in overall construction efficiency is consistent with stable total costs. A similar pattern was observed with respect to cost efficiency (Duncan et al., 2012). Taken together, these studies of prevailing wages in British Columbia provide a comprehensive analysis which concludes that ***prevailing wages do not alter labor or other input utilization in a way that significantly affects total project costs.***

In two studies conducted in 2013, Professor Atalah further tested the hypothesis that prevailing wages increase school construction costs. Based on an examination of more than 8,000 bids on nearly 1,500 school projects in Ohio, the studies compare bids of construction companies that contractually pay prevailing wage to those submitted by contractors paying lower rates. A comparison of average bid costs per square foot indicates that there is ***no statistically significant difference associated with the payment of prevailing wages*** (Atalah, 2013a). When analyzing bids submitted by different trades, the average bid cost per square foot was not higher for 15 of the 18 trades (83 percent) that paid prevailing wage rates (Atalah, 2013b).

The two most recent peer-reviewed studies on the impact of prevailing wage laws on school construction costs echo the earlier economic research. One 2020 study analyzing more than 100 school construction projects in Ohio found that prevailing wage standards do not have a statistically significant effect on building costs (Onsarigo et al., 2020). A second analysis of about 80 school construction projects in the Las Vegas area found that Nevada's prevailing wage law has no statistically significant effect on school construction costs (Duncan & Waddoups, 2020).

In addition to these studies that focus on school construction, three peer-reviewed studies have investigated the effect of prevailing wage laws on highway construction costs and two others have examined the impact on municipal and public buildings (Vitaliano, 2002; Duncan, 2015a; Duncan, 2015b; Kim et al., 2012; Kaboub & Kelsay, 2014). Four of these five studies (80 percent) conclude that prevailing wage laws have no impact on total construction costs. ***The one study that did find a cost effect had a methodological defect in that it did not analyze actual projects, but rather conducted hypothetical "wage differentials" for 25 arbitrary projects without accounting for other important factors that may also influence project costs*** (Duncan & Ormiston, 2017).

FIGURE 1: PEER-REVIEWED RESEARCH ON THE IMPACT OF PREVAILING WAGE LAWS ON TOTAL CONSTRUCTION COSTS SINCE 2000

Study	Authors	Year	Project Focus	Projects	Geography	Effect
1	Lameck Onsarigo; Kevin Duncan; Alan Atalah	2020	School construction	113	Ohio	No effect
2	Kevin Duncan; Jeffrey Waddoups	2020	School construction	77	Nevada	No effect
3	Kevin Duncan	2015	Highways	132	Colorado	No effect
4	Kevin Duncan	2015	Highways	91	Colorado	No effect
5	Kevin Duncan; Peter Philips; Mark Prus	2014	School construction	498	British Columbia (Canada)	No effect
6	Fadhel Kaboub; Michael Kelsay	2014	Public buildings	3,120	12 Midwest states*	No effect
7	Alan Atalah	2013	School construction	1,496	Ohio	No effect
8	Alan Atalah	2013	School construction	1,496	Ohio	No effect
9	Kevin Duncan; Peter Philips; Mark Prus	2012	School construction	723	British Columbia (Canada)	No effect
10	Jaewhan Kim; Chang Kuo-Liang; Peter Philips	2012	Municipal projects	141	California	No effect
11	Jeffrey Vincent; Paavo Monkkonen	2010	School construction	2,645	United States	13%
12	Kevin Duncan; Peter Philips; Mark Prus	2009	School construction	438	British Columbia (Canada)	No effect
13	Kevin Duncan; Peter Philips; Mark Prus	2006	School construction	528	British Columbia (Canada)	No effect
14	Hamid Azari-Rad; Peter Philips; Mark Prus	2003	School construction	4,653	United States	No effect
15	Hamid Azari-Rad; Peter Philips; Mark Prus	2002	School construction	4,974	United States	No effect
16	Donald Vitaliano	2002	Highways (spending)	50**	United States	8%
17	Edward Keller; William Hartman	2001	School construction	25***	Pennsylvania	2%
18	Cihan Bilginsoy; Peter Philips	2000	School construction	54	British Columbia (Canada)	No effect

*Projects were analyzed from the following 12-state region: Nebraska, South Dakota, North Dakota, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Illinois, Indiana, Michigan, and Ohio.

**The 50 observations are DOT expenditures for all 50 states, and do not account for the amount of new highway construction ordered, which is an important determinant of project costs.

***The analysis did not analyze *actual* projects, but rather conducted hypothetical "wage differentials" for 25 arbitrary projects. Wage differential studies are flawed compared to regression analyses (Duncan & Ormiston, 2017).

****Three additional studies analyzing more than 1,000 affordable housing projects have estimated that prevailing wage standards are associated with a 5 percent to 16 percent increase in total costs (Littlehale, 2017; Palm & Niemeir, 2017; Dunn et al., 2005), although recent non-peer-reviewed research finds no effect (Hinkel & Belman, 2019).

Source(s): Individual studies listed in table.

Finally, it is worth noting eight additional studies that utilize regression analyses but have not been subject to peer review (Figure 2). The eight studies observe more than 5,200 school, highway, and non-residential construction projects, primarily in the Midwest and the Mid-Atlantic region. All eight studies find that state prevailing wage laws have no statistically significant impact on total construction costs.

FIGURE 2: NON-PEER-REVIEWED RESEARCH ON THE IMPACT OF PREVAILING WAGE LAWS ON TOTAL CONSTRUCTION COSTS SINCE 2000

Study	Authors	Year	Project Focus	Projects	Geography	Effect
1	Frank Manzo IV; Kevin Duncan; Jill Gigstad; Nathaniel Goodell	2020	Highways	72	Wisconsin	No Effect
2	Michael Kelsay; Frank Manzo IV	2019	School Construction	107	West Virginia	No Effect
3	Frank Manzo IV; Kevin Duncan	2018	School Construction	640	Minnesota	No Effect
4	Michael Kelsay	2016	Non-residential Construction	1,325	Two Counties in Kansas	No Effect
5	Michael Kelsay	2016	Non-residential Construction	1,309	12 Midwest States	No Effect
6	Michael Kelsay	2015	School Construction	266	6 Mid-Atlantic States	No Effect
7	Peter Philips	2014	School Construction	391	Kentucky, Ohio, Michigan	No Effect
8	Ohio Legislative Service Commission*	2002	School Construction	1,126	Ohio	No Effect

*This report claimed that the school construction exemption from the state's prevailing wage law saved the 10.7 percent on costs. However, this was not statistically significant. In fact, study authors wrote that "[e]vidence was not available as to the portion of the estimated savings, if any, that could be directly and conclusively attributed to the prevailing wage exemption."

Source(s): Individual studies listed in table.

Research on the Effect of Prevailing Wage Laws on Bid Competition and Local Contractors

Many opponents of prevailing wage laws assert that they reduce bid competition, leading to higher costs on public projects. This claim is often made in the absence of empirical evidence (e.g., **Leef, 2010**). However, there have been four peer-reviewed studies since 2000 and two recent reports that empirically examine the effect of prevailing wage laws on the overall level of bid competition – an important determinant of construction costs. Together, the studies evaluate data on more than 9,400 bid proposals (Figure 3).

All four peer-reviewed studies conclude that prevailing wage standards do not reduce the number of bidders on public projects. An examination of nearly 600 bids on public works projects in five northern California cities found no evidence that prevailing wage policies affect the number of bidders (**Kim et al., 2012**). Another evaluation of about 500 bids on highway construction projects in Colorado found that the level of bid competition does not differ between federally-funded projects, which require the payment of prevailing wages and adherence to the Disadvantaged Business Enterprise policy, and state-funded projects, which are not subject to either of these policies (**Duncan, 2015a**). More recently, a 2020 study focused on nearly 700 bids on school construction projects in Ohio found that projects built with prevailing wages had more bidders (8.1 bids) than those without prevailing wages (6.9 bids). After accounting for project size, county, type of school, type of work, and year, this difference was not statistically significant. Nevertheless, the authors found that "the cost-reducing effect of increased bid competition is stronger on projects covered by the prevailing wage policy" (**Onsarigo et al., 2020**). Similarly, an analysis of almost 300 bids on school construction projects in the Las Vegas area found that bid competition decreased by 25 percent after Nevada weakened its prevailing wage law, an effect driven by union contractors exiting the market for other opportunities (**Duncan & Waddoups, 2020**).

FIGURE 3: ECONOMIC RESEARCH ON THE IMPACT OF PREVAILING WAGE LAWS ON CONTRACTOR BID COMPETITION SINCE 2000

Study	Authors	Year	Project Focus	Bids	Geography	Effect
1	Frank Manzo IV; Kevin Duncan; Jill Gigstad; Nathaniel Goodell	2020	Highways	4,890*	Wisconsin	+19%
2	Jeffrey Waddoups; Kevin Duncan	2020	School Construction	291	Nevada	+25%
3	Lameck Onsarigo; Kevin Duncan; Alan Atalah	2020	School Construction	669	Ohio	No Effect
4	Frank Manzo IV; Kevin Duncan	2018	Public Projects	2,062*	Indiana	No Effect
5	Kevin Duncan	2015	Highways	497	Colorado	No Effect
6	Jaewhan Kim; Chang Kuo-Liang; Peter Philips	2012	Municipal	565	California	No Effect
*These reports have not been peer-reviewed but did use regression analysis to account for various factors.						

Source(s): Individual studies listed in table.

Additionally, while a 2018 study on the effects of repeal of prevailing wage in Indiana and a 2020 study on the effects of repeal of prevailing wage in Wisconsin have not been peer-reviewed, the results found that prevailing wage standards are associated with an increase in bid competition – not a decrease. In an analysis of about 2,100 public projects in Indiana, researchers found that the average number of bidders per project was 3.0 bids prior to repeal and 2.9 bids after repeal (Manzo & Duncan, 2018a). The Wisconsin study, which included nearly 4,900 bids on Wisconsin Department of Transportation projects, revealed that the average number of bidders per project was 3.5 bids before repeal of prevailing wage and just 2.9 bids after repeal (Manzo et al., 2020). The results indicate that bid competition was 3 percent higher in Indiana and 19 percent higher in Wisconsin when the states had prevailing wage laws. All of these studies find that prevailing wage standards do not reduce bid competition and do not increase construction costs.

Finally, ***prevailing wage laws have been found to create a level playing field for construction contractors*** by ensuring that public expenditures reflect local market standards of compensation and craftsmanship. Competing on a level playing field, local contractors are awarded more taxpayer-funded projects in states with prevailing wage laws. Data from the ***Economic Census of Construction*** reveals that states with ***prevailing wage laws have 2 percent more of the total value of construction work completed by in-state contractors*** (Census, 2012). Impacts are even larger in certain areas. As examples, local contractors account for a 10 percent higher market share when prevailing wages are paid on public school projects in Minnesota and county-resident businesses account for 16 percent higher market share when prevailing wages are paid on library construction projects in Santa Clara County, California (Manzo & Duncan, 2018b; Duncan, 2011). By keeping tax dollars in the local economy, more labor income and consumer spending tends to remain in communities with prevailing wage standards.

The Impact of Prevailing Wage on Bid Competition and Local Contractors in Oregon

In this report, data from state highway construction projects in Oregon and Idaho are analyzed to determine whether Oregon's Prevailing Wage Rate Law limits bid competition. The analysis includes more than 1,100 unique bids on nearly 300 total projects awarded by the Oregon Department of Transportation (ODOT) and the Idaho Transportation Department (ITD) between August 2018 and August 2020. Researchers collected project data throughout 2020 from the respective bid opening results on each department's website (**ODOT, 2020; ITD, 2020a**). The full dataset includes information on the number of bids submitted, the number of bids from out-of-state contractors, the share of bids awarded to in-state and out-of-state contractors, the apparent contract amount, the location of the road construction project by county, and the month and year of the bid opening.

Before analyzing the project data, it is first worth mentioning differences between Oregon, which has a state prevailing wage law, and Idaho, which does not (Figure 4). According to 2018 data from the Highway Statistics Series published by the Office of Highway Policy Information at the U.S. Department of Transportation Federal Highway Administration, Oregon has more than twice the overall population as Idaho but just 41 percent more public road miles. The Oregon Department of Transportation manages 53 percent more road miles and 104 percent more bridges than the Idaho Transportation Department. In both states, the vast majority of state-run roads are in rural areas. Only 10 percent of state-run roads are in urban areas in Oregon versus 9 percent in Idaho (**FHWA, 2018**).

Oregon also receives much less support from the federal government to fund infrastructure investments on its state-run highways (Figure 4). According to the Federal Highway Administration data, federal funding accounts for just 21 percent of all revenue used on Oregon Department of Transportation roads but 40 percent of all revenue used on Idaho Transportation Department roads. With less assistance from the Federal Highway Administration, Oregon has had to levy a state excise rate of 36 cents per gallon on gasoline, which is 9 percent more than Idaho's current per-gallon tax of 33 cents (**API, 2020**).

FIGURE 4: ROAD METRICS FROM THE HIGHWAY STATISTICS SERIES, OREGON VS. IDAHO, 2018 DATA

Road Metrics (Year is 2018 Unless Otherwise Noted)	Oregon	Idaho	Oregon Difference
State Has Prevailing Wage Law	**Yes**	**No**	**--**
Total Population	4,190,713	1,754,208	+138.9%
Public Road Miles	79,266	56,347	+40.7%
State Road Miles	7,608	4,982	+52.7%
Urban Share of State Roads	9.6%	8.8%	+0.8%
Total State-Owned Bridges	2,737	1,344	+103.6%
Federal Share of Revenue Used for State-Run Highways	21.4%	40.0%	-18.6%
State Tax Per Gallon of Gasoline (July 2020)	$0.36	$0.33	+9.1%

Source(s): U.S. Department of Transportation Federal Highway Administration's 2018 **Highway Statistics Series** (**FHWA, 2018**).

Between August 2018 and August 2020, the Oregon Department of Transportation awarded 121 total road construction projects at a total value of $571 million while the Idaho Transportation Department awarded 159 projects at a total value of $729 million (Figure 5). Based on the apparent low bidder, the average cost per project was $4.7 million in Oregon and $4.6 million in Idaho, a 3 percent difference. In total, the Oregon highway projects received 4.7 bids per project while the Idaho highway projects received just 3.6 bids per project. Oregon projects thus received 30 percent more bid competition than Idaho projects.

Despite having more competition on state highway projects, Oregon had fewer bids from out-of-state contractors than Idaho (Figure 6). Between August 2018 and August 2020, 18 percent of the bids submitted on Oregon Department of Transportation projects were submitted by out-of-state contractors. By contrast, fully 28 percent of the bids on Idaho Transportation Department projects came from out-of-state contractors. This means that, ***without a prevailing wage law, Idaho had 10 percent more out-of-state firms entering the market to bid on road construction projects funded by Idaho taxpayers.***

FIGURE 5: SUMMARY STATISTICS OF STATE HIGHWAY PROJECT DATA, OREGON VS. IDAHO, AUGUST 2018 – AUGUST 2020

Summary Statistics of State Highway Project Data	Oregon	Idaho	Oregon Difference
Total State-Run Projects Awarded	121	159	-23.9%
Total Bids on State-Run Projects	567	571	-0.7%
Average Bids on State-Run Projects	4.7	3.6	+30.5%
Total Value of Construction Work	$571,438,514	$729,085,301	-21.6%
Average Cost Per Project (Apparent Low Bids)	$4,722,632	$4,585,442	+3.0%

Source(s): Authors' analysis of Oregon Department of Transportation's "Archived Projects: Project Documents and Info (**ODOT, 2020**) and Idaho Transportation Department "Bid Opening Results and Bid Abstracts" (**ITD, 2020a**).

In-state contractors also accounted for a higher share of the highway construction market in Oregon (Figure 6). Between August 2018 and August 2020, Oregon-based contractors won 83 percent of all the construction work awarded by the Oregon Department of Transportation and out-of-state firms were awarded the remaining 17 percent. Across the border in Idaho, in-state contractors were awarded just 71 percent of the state highway project value while out-of-state companies captured the remaining 29 percent. Thus, local contractors won 12 percent more project value in the state with prevailing wage standards than in the state without the policy.

FIGURE 6: BIDS AND MARKET SHARE DATA ON STATE HIGHWAY PROJECTS, OREGON VS. IDAHO, AUGUST 2018 – AUGUST 2020

Bidders and Market Share on State Highway Projects	Oregon	Idaho	Oregon Difference
Bidders			
Bids from In-State Contractors	463	409	--
Bids from Out-of-State Contractors	104	162	--
Out-of-State Share of Total Bids	18.3%	28.4%	-10.0%
Market Share			
Construction Value Awarded to In-State Contractors	$477,448,754	$519,726,993	--
Construction Value Awarded to Out-of-State Contractors	$94,989,760	$209,358,308	--
Share of Value Award to Out-of-State Contractors	**16.6%**	**28.7%**	**-12.1%**

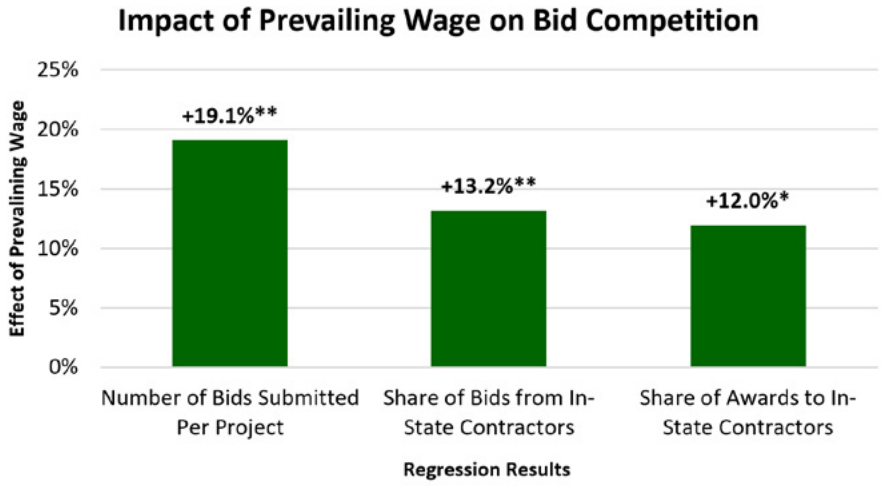
Source(s): Authors' analysis of Oregon Department of Transportation's "Archived Projects: Project Documents and Info (**ODOT, 2020**) and Idaho Transportation Department "Bid Opening Results and Bid Abstracts" (**ITD, 2020a**). *For both Oregon and Idaho, out-of-state contractors most commonly entered the market from Washington. Contractors from Washington were awarded 7 percent of the total market value in Oregon ($39.8 million) and 26 percent of the total market value in Idaho ($188.9 million).

While the summary statistics in Figure 5 and Figure 6 report "what is," it is important to note "how much" prevailing wage standards may or may not be responsible for these outcomes. **Regression analyses** are utilized to understand the impact of Oregon's Prevailing Wage Rate Law. This statistical technique allows researchers to account for other factors that may influence market outcomes, separating out the unique and independent effect of a prevailing wage

law. For example, the number of bids submitted on a public project may go up on larger projects, so researchers should weight the results by project size. Due to the seasonal nature of construction, the time of year in which the bid opening is held may also influence the number of bidders. Likewise, the location of the project could play a role. Regression analyses take these other factors into account.

After weighting by project size and accounting for month, year, and location of the project, prevailing wage standards are found to produce positive impacts on bid competition in Oregon (Figure 7). Oregon's Prevailing Wage Rate Law is statistically associated with 19 percent more bid competition on state highway construction projects, an increase of 0.7 bids per project compared with a baseline rate of 3.8 bids per project. In addition, after weighting by project size and accounting for the level of bid competition and other important factors, Oregon's Prevailing Wage Rate Law is statistically associated with a 13 percent increase in the share of bids submitted by in-state contractors – or, conversely, a 13 percent decrease in the share of bids coming from out-of-state contractors. Finally, after once again weighting by project size and accounting for the level of bid competition, the evidence suggests that ***Oregon's Prevailing Wage Rate Law increases the chances that an in-state contractor will be awarded a project by 12 percent.***[2]

FIGURE 7: REGRESSION RESULTS ON THE IMPACT OF PREVAILING WAGE ON BID COMPETITION AND LOCAL CONTRACTORS



Source(s): Authors' analysis of Oregon Department of Transportation's "Archived Projects: Project Documents and Info (**ODOT, 2020**) and Idaho Transportation Department "Bid Opening Results and Bid Abstracts" (**ITD, 2020a**). For full regression results, see Table A in the Technical Appendix. Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level.

2 For full regression results, see Table A in the Technical Appendix.

Oregon's Prevailing Wage Rate Law increases the chances that an in-state contractor will be awarded a project by 12 percent.

An important consideration is that most Idaho Transportation Department projects involve federal funds. Consequently, even though Idaho does not have a state prevailing wage law, the projects with federal funding require the payment of federal Davis-Bacon prevailing wages. An analysis of the ***Idaho Transportation Department Investment Program*** reveals that approximately 21 percent of all state highway projects in Idaho receive no federal funding for the construction phase (ITD, 2020b). Despite the fact that virtually 100 percent of highway construction projects in Oregon include prevailing wage standards compared with just 79 percent in Idaho, Oregon has more bidders per project than Idaho. ***With more bidders on highway construction projects in Oregon than Idaho, there is no evidence that Oregon's Prevailing Wage Rate Law limits bid competition. In fact, the data indicates that Oregon's Prevailing Wage Rate Law protects work for local contractors.***

Research on the Effect of Prevailing Wage Laws on Apprenticeship Training

Construction is the most volatile major industry in the United States. The construction industry is seasonal, with major projects built and repaired during peak months. The construction industry is also cyclical, with more activity during the upswing in the business cycle when market conditions are favorable. Finally, when workers complete projects, there are often periods of unemployment while they look for new jobs. This inherent instability gives employers less incentive to invest in skills training and incur the expenses associated with training because there is no guarantee that the trained worker will be retained. Moreover, from the worker's perspective, there is little incentive to incur the costs of training out-of-pocket due to the possibility of prolonged spells of unemployment. The result is a "market failure" in which long-term investments in worker training are not made at adequate levels.

A state prevailing wage rate law helps to correct this market failure by reflecting local market-based standards for wages, benefits, and training contributions in the communities where projects are being built, ensuring that the next generation of workers is trained and the industry can access a stable supply of skilled workers. Economic research shows that state prevailing wage laws increase apprenticeship training in the construction industry. Economist Cihan Bilginsoy has found that apprenticeship enrollments are 6 to 8 percent higher in states with prevailing wage and that apprentices complete their on-the-job and classroom training at a faster rate in these states (Bilginsoy, 2005). Another study found that the apprenticeship share of the construction workforce is 14 percent in states with prevailing wage laws compared to 8 percent in states without prevailing wage laws (Dickson Quesada et al., 2013). The result is that workers are more productive due to prevailing wage laws. Productivity per construction worker has been found to be 14 to 33 percent higher in states that have the wage policy (Philips, 2014).

Economic studies conducted after the repeal of prevailing wage laws have also shown a strong correlation with a decrease in worker training. After Utah repealed its law, apprenticeship training declined to historical lows (Azari-Rad et al., 2003). Registered apprenticeships fell by 38 percent in Kansas following repeal (Philips, 2014). In an analysis of nine states that repealed their prevailing wage laws from 1979 to 1988, researchers found that repeal was associated with a decrease in training by 40 percent and caused workplace injuries to rise by 15 percent (Philips et al., 1995). After West Virginia repealed its prevailing wage law in May 2016, the number of active apprentices fell by 28 percent, leading to a 26 percent increase in the on-the-job construction worker injury rate (Kelsay & Manzo, 2019). Additionally, recent peer-reviewed research has found that the repeal of a state prevailing wage law leads to a 12 to 13 percent increase in construction injury rates (Li et al., 2019).

Oregon's prevailing wage law is one reason why the state has more than twice as many registered apprentices, relative to the size of its construction and extraction workforce, than neighboring Idaho (Figure 8). In fiscal year 2019, Oregon had more than 10,400 active apprentices and about 87,300 workers in construction and extraction occupations. Accordingly, Oregon had 12 registered apprentices per 100 construction and extraction workers. By contrast, Idaho– which does not have a prevailing wage law– had fewer than 6 registered apprentices per 100 construction and extraction workers. A neighboring state with prevailing wage, Washington, had 11 registered apprentices per 100 construction and extraction workers.

Productivity per construction worker has been found to be 14 to 33 percent higher in states that have the wage policy.

FIGURE 8: NUMBER ACTIVE APPRENTICES PER 100 CONSTRUCTION AND EXTRACTION WORKERS, SELECTED STATES, 2019

Geography	Active Apprentices in FY2019	Construction and Extraction Workers in May 2019	Apprentices Per 100 Construction and Extraction Workers
Oregon	10,436	87,280	12.0
Washington	18,442	169,600	10.9
Idaho	2,411	42,890	5.6

Source(s): U.S. Department of Labor Education and Training Administration's "Data and Statistics" (**DOLETA, 2020**) and U.S. Department of Labor Bureau of Labor Statistics' "Occupation Employment Statistics: May 2019" (**BLS, 2019**).

In fact, Oregon has significantly more registered apprentices than more populous states that do not have prevailing wage laws (**DOLETA, 2020**). As examples, in fiscal year 2019, Oregon's 10,400 apprentices were more than Georgia (about 8,600 apprentices), Arizona (about 5,000 apprentices), and Alabama (about 4,500 apprentices). Prevailing wage laws promote investment in apprenticeship training programs, encourage skilled young workers to enter the trades, and promote a productive workforce that completes high-quality construction projects on time and on budget.

Oregon has more than 2 times as many registered apprentices, relative to the size of its construction and extraction workforce, than Idaho.

Apprenticeship Training in Oregon: Diversity, Hours, and Earnings

Apprenticeship programs in Oregon are largely focused on careers in the construction industry (Figure 9). For the 2018 calendar year, there were nearly 3,800 new construction apprentices enrolled, accounting for 87 percent of all new registered apprentices in the state. The apprentices were enrolled in 99 unique construction programs. The remaining 13 percent of apprentices were primarily in the manufacturing and utilities sectors.

Apprenticeship programs are sponsored either jointly by labor unions and employers that are signatories to collective bargaining agreements (joint labor-management programs) or unilaterally by employers. ***Joint labor-management programs*** are cooperatively administered with standards, trainee wages, and apprentice-to-worker ratios established in collective bargaining agreements. By contrast, ***employer-only programs*** are sponsored via voluntary contributions by a single employer or group of employers – usually through a trade association – who unilaterally determine program content, set entry requirements, and monitor trainee progress.

Joint labor-management apprenticeship programs encompass most of the new registered apprentices in Oregon. In 2018, joint labor-management programs enrolled about 2,400 new construction apprentices as compared with fewer than 1,400 for employer-only construction programs (Figure 9). ***Fully 63 percent of new registered***

63% of new registered apprentices in construction in Oregon were enrolled in joint labor-management apprenticeship programs in 2018.

apprentices in construction were enrolled in joint programs. In fact, joint labor-management programs in construction alone accounted for 55 percent of all newly registered apprentices in the state.

FIGURE 9: STATISTICS ON NEW REGISTERED APPRENTICES ENROLLED BY TYPE OF PROGRAM IN OREGON, 2018

Type of Registered Apprenticeship Program	2018 New Apprenticeships	Share of New Apprentices
Joint Labor-Management Programs in Construction	2,387	54.8%
Employer-Only Construction Programs	1,390	31.9%
All Other Non-Construction Programs*	577	13.3%
Total for All Registered Apprenticeship Programs	4,354	100.0%
Joint Labor-Management Share of Construction Apprenticeships		63.2%

Source: BOLI Apprenticeship Data, 2018

Joint labor-management programs train more than 6-in-10 registered apprentices in Oregon (Figure 10). This majority share of registered apprentices in joint labor-management programs has long been large and has only grown over the years, from 57 percent in 2004 to 62 percent in 2007 (Byrd, 2009). In 2018, joint labor-management programs enrolled 63 percent of all new registered apprentices in the construction trades. Further, joint labor-management programs train a larger variety of occupations, with higher graduation rates—especially for women and workers of color—as compared to employer-only programs (Byrd, 2009).

Interview respondents who had experience as apprentices in both joint labor-management and employer-only programs stressed that they felt that the joint labor-management programs had stronger standards of training, with implications for safety and health on the job. One apprentice shared that she first did the employer-only apprenticeship, "because it was easier to get into, but I ended up doing both of them because I felt like I needed more training because actually I was injured on the job in my first apprenticeship."

A journeyworker shared, "I went to the employer school first and then when I first went out on jobsites with heavy machinery I realized I wasn't prepared for the hazards. I ended up dropping out for various reasons, but when I came back I did the pre-apprenticeship and then I did the joint program and there was no question, I knew how to handle things. Don't get me wrong, it was still tough work, working through the night sometimes, but I knew much better what I needed to do. And you want to be sure that the folks running rollers down the road know exactly what to do, trust me."

Still, others argued that the employer-only programs covered occupational safety and health, but they felt that was the main focus, almost to the exclusion of other topics. A journeyworker stated, "It was almost like all they thought of was injuries, which is important of course, but there are so many skills we need to learn too."

Joint labor-management programs accounted for approximately 62 percent of new male apprentices in construction and 76 percent of new female apprentices in con-

struction. Joint labor-management programs registered 61 percent of new white apprentices, 59 percent of new Black or African American apprentices, 72 percent of new Latinx apprentices, 52 percent of new Asian apprentices, and 78 percent of all new Native American or Alaska Native apprentices (Figure 10).

FIGURE 10: DEMOGRAPHICS OF NEW CONSTRUCTION APPRENTICES IN OREGON, BY TYPE OF PROGRAM, 2018

Enrollment of Construction Apprentices, 2018	Joint Labor-Management Programs	Employer-Only Programs	Total for All Programs	Joint Share
Total (All Apprentices)	**2,387**	**1,390**	**3,777**	**63.2%**
Gender: Male	2,167	1,319	3,486	62.2%
Gender: Female	220	71	291	75.6%
Race: White	1,731	1,085	2,816	61.5%
Race: Black or African American	103	73	176	58.5%
Race: Latinx	446	174	620	71.9%

Source: BOLI Apprenticeship Data, 2018

Furthermore, ***joint labor-management construction programs in Oregon are more diverse than employer-only programs*** (Figure 11). The share of new registered apprentices who are women is 4 percent higher in joint construction programs and the share who are people of color is 6 percent higher. In particular, the Latinx share of new apprentices is 6 percent higher in joint construction programs and the Native American or Alaska Native share is 1 percent higher in joint construction programs (Figure 11). Looking specifically at registered apprentices in the ODOT/BOLI Highway Construction Workforce Development Program, apprentices have gotten increasingly diverse over time, with the proportion of women and workers of color increasing from 20 percent in 2005, to 24 percent in 2011, and to 31 percent in 2017 (**Wilkinson and Kelly, 2018**).

Still, there is much work to be done to make the trades truly accessible and welcoming for all workers. Researchers highlight that the trades have been and continue to be dominated by white men and that women and workers of color encounter 'inequality regimes' that may seem on the surface to be race and gender neutral, but in practice maintain inequalities (**Kelly et al., 2015**). On a survey of apprentices in the Highway Construction Workforce Development Program, the majority of women shared that they had experienced gender-based discrimination on jobsites and about a quarter of workers of colors shared that they had experienced race-based discrimination on jobsites (**Wilkinson and Kelly, 2018**).

FIGURE 11: DEMOGRAPHIC SHARES OF CONSTRUCTION APPRENTICES IN OREGON, BY TYPE OF PROGRAM, 2018

Diversity of Construction Apprentices, 2018	Share of Apprentices in Joint Labor-Management Programs	Share of Apprentices in Employer-Only Programs	Joint Difference
Gender: Male	90.8%	94.9%	-4.1%
Gender: Female	9.2%	5.1%	+4.1%
Race: White	72.5%	78.1%	-5.5%
Race: People of Color	27.5%	21.9%	+5.5%
Race: Black or African American	4.3%	5.3%	-0.9%
Race: Latinx	18.7%	12.5%	+6.2%
Race: Asian or Pacific Islander	1.8%	2.9%	-1.0%
Race: Native American or Alaska Native	2.6%	1.3%	+1.3%

Source: BOLI Apprenticeship Data, 2018

Apprenticeships Compared with University Training

Although joint labor-management apprenticeship programs in construction can take steps to improve the diversity of their apprenticeship classes, they generally fare better on racial and ethnic diversity than public universities in Oregon (Figure 12). The Black or African American share of new apprentices in joint construction programs (4 percent) is higher than the Black or African American share of non-international students enrolled at public universities (2 percent) and higher than the Black or African American share of the population (2 percent). The share of new apprentices who are Latinx in joint construction programs (19 percent) is also higher than both the share of students enrolled at public four-year universities (13 percent) and the Oregon population (13 percent). Additionally, the share of new apprentices who are Native American or Alaska Native in joint construction programs (3 percent) is higher than at public universities (1 percent) and higher than the Oregon population (2 percent). The only non-white racial or ethnic group that is underrepresented in Oregon's joint construction trades is Asians and Pacific Islanders. Overall, joint labor-management apprenticeship programs in construction are more diverse than employer-only construction programs and enroll a higher share of African Americans (4 percent) than public universities (2 percent) in Oregon (Figure 12).

FIGURE 12: RACIAL DIVERSITY OF JOINT CONSTRUCTION PROGRAMS, PUBLIC UNIVERSITIES, AND THE OREGON POPULATION

Racial or Ethnic Diversity Metrics, 2018	Joint Labor-Management Programs in Construction	Non-International Students at Public Universities	Overall Oregon Population
Race: White	72.5%	63.5%	75.1%
Race: Black or African American	4.3%	2.5%	2.2%
Race: Latinx	18.7%	13.2%	13.4%
Race: Asian or Pacific Islander	1.8%	7.8%	5.9%
Race: Native American or Alaska Native	2.6%	0.9%	1.8%

Sources: BOLI Apprenticeship Data, 2018, the Oregon Higher Education Coordinating Commission's "Oregon Public University Enrollment by Racial/Ethnic Group, Fall 2019 Headcount." (**Higher Education Coordinating Commission, 2019**), and the U.S. Census Bureau's "QuickFacts: Oregon" (**Census, 2019**).

Building high-quality infrastructure that is both safe and durable requires a skilled workforce. Accordingly, ***registered apprenticeship programs are very rigorous in Oregon, providing thousands of hours of classroom and on-the-job training to boost workers' skills.*** On average, registered apprentices enrolled in joint labor-management programs in construction are required to complete about 7,000 hours of on-the-job training (Figure 13). Some programs require even more. For example, an apprenticeship as an electrician at the NECA-IBEW Electrical Training Center requires 8,000 on-the-job hours of training. One apprentice who had graduated from an elite university shared, "I'm kind of weird actually. I have a B.A., but I was just working nothing jobs so I realized I wanted a union job and I could do the math and everything to get into an apprenticeship program, and already, as an apprentice I'm earning more. I loved college, but I wish I had thought about this before going into debt."

Joint labor-management apprenticeship programs in construction require more hours of on-the-job training than university-level education (Figure 13). Joint construction apprenticeship programs have an average term length of more than 7,000 hours of on-the-job training. By contrast, the typical 180-credit hour bachelor's degree at the University of Oregon requires a minimum of 5,400 contact hours (e.g., lectures and lab times) and preparation hours (e.g., homework and fieldwork) (**UOregon, 2020**).[3] Oregon's joint labor-management registered apprenticeship programs in construction thus require at least 30 percent more hours of training to graduate than four-year universities.[4]

3 According to another public university, Oregon State University, "[o]ne credit is generally given for three hours per week of work in and out of class. For example, each hour of class lecture is generally expected to require two hours of work out of class.' Thus, one quarter credit represents 30 hours of work" (**OSU, 2020**).

4 The term "at least" is used because the data only includes on-the-job training. Data on classroom instruction was not available for registered apprentices.

FIGURE 13: HOURS OF APPRENTICESHIP TRAINING (2018) VS. MINIMUM CREDITS REQUIRED AT PUBLIC UNIVERSITIES (2020)

Average On-the-Job Training Hours vs. Minimum Hours Requirements	Average Hours Needed
On-the-Job Hours of Training to Complete Joint Construction Program	7,014
180 Credit Hours to Graduate from the University of Oregon	5,400
Joint Construction Apprenticeship Program Difference	+29.9%

Sources: BOLI Apprenticeship Data, 2018, University of Oregon's "Bachelor's Degree" (**UOregon, 2020**), and Oregon State University's "Credits - Definition and Guidelines" (**OSU, 2020**).

For young Oregon residents, registered apprenticeships in construction offer viable post-secondary options that parallel bachelor's degrees in earnings potential, and graduates from joint-labor management programs fare better than their employer-only program counterparts (Figure 14). ***On average, experienced-level journeyworkers from joint labor-management programs earn about $37 per hour in base wages in Oregon. By contrast, journeyworkers from employer-only programs in construction only earn about $32 per hour.*** Journeyworkers from joint construction apprenticeship programs thus earn 16 percent higher hourly wages than their counterparts in employer-only programs.

FIGURE 14: AVERAGE HOURLY WAGES FOR OREGON WORKERS BY APPRENTICESHIP PROGRAM OR EDUCATION, 2018

Average Hourly Wage for Workers by Educational Attainment, Including Construction Apprenticeship Programs	Average Hourly Wage*
Journeyworkers from Joint Labor-Management Construction Programs	**$36.97**
Journeyworkers from Employer-Only Construction Programs	$31.88
Full-Time Workers with High School Degrees	$20.99
Full-Time Workers with Associate's Degrees	$25.48
Full-Time Workers with Bachelor's Degrees	$34.33
Full-Time Workers with Master's Degrees	$38.80
Full-Time Workers with Professional and Doctorate Degrees	$49.13

Sources: BOLI Apprenticeship Data, 2018 and 2015-2019 inflation-adjusted hourly wages by educational attainment for workers employed at least 30 hours per week from ***Current Population Survey Outgoing Rotation Group*** (CPS-ORG) data by the U.S. Census Bureau (**CEPR, 2020**). *Note that construction journeyworkers usually do not work a 40 hours per week for 52 weeks out of the year. Accordingly, while journeyworkers from joint construction programs earn slightly more ***per hour*** than their counterparts with bachelor's degrees, they may earn slightly less ***per year*** than full-time workers with bachelor's degrees.

The $37-per-hour average wage for construction journeyworkers who have completed joint labor-management apprenticeship training compares favorably to annual earnings for college-educated workers. Among comparable workers in Oregon who work at least 30 hours per week, the average wage is about $34 per hour for workers with bachelor's degrees and $25 per hour for workers with associate's degrees (**CEPR, 2020**). While those with advanced degrees earn more (i.e., average wages are $39 per hour for workers with master's degrees and $49 per hour for workers with professional or doctorate degrees), ***a typical construction worker who completes a joint labor-management program in Oregon earns 8 percent more than the average worker with a bachelor's degree and 45 percent more than the average worker with an associate's degree in the state—without any college debt*** (Figure 14).

Both joint labor-management apprenticeship programs and prevailing wage laws play important roles in reducing inequality in the construction industry. Not only are joint labor-management apprenticeship programs generally more diverse than employer-only programs, but workers who complete their apprenticeships, perform the same trade, and operate the same equipment in the same local market all earn the same wage, per their collective bargaining agreements or per the locally prevailing wage rate. Regardless of age, gender, sex, sexual orientation, racial identification, ethnic background, religious preference, or any other characteristic unique to an individual, all

able-bodied workers who have proven that they have mastered their crafts earn the exact same hourly income—unlike wage gaps and pay discrimination so prevalent in other industries.

Research on the Effect of Prevailing Wage Laws on Economic Outcomes

In addition to ensuring that the next generation of construction workers is trained, state prevailing wage laws foster good, middle-class careers for skilled construction workers. There is a significant disparity in the wages paid to blue-collar construction workers between states with prevailing wage laws and states without prevailing wage laws (Philips, 2014). One economic analysis found that **prevailing wage laws statistically increase blue-collar construction worker earnings by about 16 percent per year** (Manzo et al., 2016). With family-sustaining incomes, **prevailing wage laws reduce the number of construction workers living below poverty by 30 percent and reduce income inequality in the construction industry by as much as 45 percent** (Manzo et al., 2016; Manzo & Bruno, 2014). They also ensure that construction workers can afford to live in the communities where they build roads, schools, and other public infrastructure, increasing their homeownership rate by 2 percent and improving their housing wealth by 13 percent (Manzo et al., 2020).

Employer-only training average pay
$32/hour

Joint labor-management graduates average pay
$37/hour

Journeyworkers from joint construction apprenticeship programs earn 16 percent higher hourly wages than their counterparts in employer-only programs.

By improving apprenticeship training and safety, promoting a strong middle class, and keeping construction costs stable, prevailing wage laws have positive impacts on public budgets. Because they earn higher incomes, skilled construction workers in states with prevailing wage laws contribute more in tax revenues than their counterparts in states without the law. **Skilled construction workers contribute about 17 percent in income and property taxes in states with prevailing wage laws** (Philips & Blatter, 2017). In addition, skilled construction workers are statistically less likely to rely on government assistance programs, such as Supplemental Nutrition Assistance Program (SNAP) food stamps and the Earned Income Tax Credit (EITC) assistance (Manzo et al., 2016).

Economic research has also found that prevailing wage laws protect workers against exploitation– regardless of race or ethnicity. **Peer-reviewed studies have found no relationship between prevailing wage laws and the racial composition of the construction workforce** (Duncan & Ormiston, 2017). After accounting for individual factors such as age, gender, residence in a metropolitan area, marital status, educational attainment, and union coverage, there is no evidence that prevailing wage laws deter people of color from participating in the construction industry (Belman & Philips, 2005). Furthermore, there is no evidence that prevailing wage laws exclude people of color from training in registered apprenticeship programs (Bilginsoy, 2005; Bilginsoy, 2017). Recent research has found that **prevailing wage standards boost the homeownership rate of African American construction workers by 8 percent,** compared with a 3 percent increase for white construction workers, while another study found that state ***prevailing wage laws reduce racial income inequality in construction*** by between 7 and 53 percent (Manzo et al., 2020; Manzo et al., 2018).

States with prevailing wage laws can also learn lessons from states that have repealed their policies within the last decade. In Indiana, which repealed its prevailing wage law in 2015, the wages of skilled construction workers have fallen by 8 percent, bid competition decreased, and there was no impact on the average cost to build public school projects (Manzo & Duncan, 2018a). This prompted the Assistant Republican Leader of the Indiana House of Representatives to admit that **Indiana "got rid of prevailing wage and, so far, it hasn't saved a penny"** (Quinnell, 2017). After West Virginia repealed prevailing wage in 2016, wages fell by between 1 and 8 percent for construction trades workers, the number of apprentices fell by 28

percent, and the construction worker injury rate rose by 26 percent– all while having no statistical impact on inflation-adjusted school construction costs per square feet (**Kelsay & Manzo, 2019**). **Wisconsin's 2017 repeal decreased construction worker earnings by 6 percent but increased construction CEO incomes by 54 percent, contributing to greater inequality in the industry.** The share of state highway construction projects being awarded to out-of-state contractors also increased from 9 percent to 14 percent, an increase that was driven almost entirely by contractors from Iowa, Michigan, and Florida– three states without prevailing wage laws (**Manzo et al., 2020**). Finally, Kansas prohibited cities and counties from enacting prevailing wage standards in 2013, effectively repealing two local ordinances. Following this state-mandated prohibition, school construction projects became more expensive, increasing by $67 per square foot, demonstrating that repeal did not result in any cost savings (**Kelsay, 2016a**).

These outcomes could have been avoided by understanding the effects of earlier prevailing wage repeals between 1979 and 1988. In the nine states that repealed their laws during this period, repeal decreased skilled construction worker incomes by between 2 and 4 percent and reduced fringe benefits by as much as 16 percent (**Fenn et al., 2018**). These states experienced a 13 percent increase in construction injury rates and a 40 percent decrease in apprenticeship training (**Li et al., 2019**; **Philips et al., 1995**). Moreover, **people of color "became significantly under-represented in construction apprenticeship programs," falling from 19 percent of all registered apprentices pre-repeal to just 13 percent post-repeal** (**Philips et al., 1995**).

Repeal of a prevailing wage law has negative consequences for a state's economy. Construction worker earnings decrease, apprenticeship training declines, and out-of-state contractors enter the market and win more bids on public projects—without providing cost savings for taxpayers. By contrast, maintaining and strengthening a prevailing wage law has been found to promote a strong middle class, ensure that the construction workforce is highly skilled and more diverse, reduce the leakage of public construction investments and jobs from the local economy, and prevent skilled construction workers from relying on government assistance programs.

Effects of Prevailing Wage on Earnings, Social Outcomes, and the Economy in Oregon

Prevailing wage laws reduce racial income inequality in construction

This section compares labor market outcomes for construction workers in Oregon, Idaho, and Washington. Oregon's Prevailing Wage Rate Law is generally considered an "average" prevailing wage policy. In Oregon, the prevailing wage is determined through wage surveys and it applies only on projects costing more than $50,000 (except solar projects on public property). Washington, by contrast, has what is generally considered a "strong" prevailing wage law. In Washington, the prevailing wage is determined primarily by collective bargaining agreements (CBAs) and applies to all taxpayer-funded projects regardless of size, except for a small $25,000 contract threshold for public colleges and universities (**Washington L&I, 2020**; **WHD, 2020**). Idaho does not have a state prevailing wage law. However, Idaho had a prevailing wage law from 1911 until 1985, when it was repealed by the state legislature (**Philips et al., 1995**).

The data included in this report are from the *Current Population Survey*, a survey of a randomized, representative sample of households sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS) at the U.S. Department of Labor. The *Current Population Survey* is considered the "gold standard" in labor market statistics, and is utilized by the BLS to report monthly data on the unemployment

Prevailing wage standards boost the homeownership rate of African American construction workers by 8 percent.

rate. This report uses data from 2011 through 2019 from the *Current Population Survey Outgoing Rotation Groups* (CPS-ORG) to assess the impacts of prevailing wage on construction wages, construction wage inequality, construction employment, and hours worked by construction workers. The report also uses 2011 through 2019 data from the *Annual Social Economic Supplement* to the March *Current Population Survey* (CPS-ASEC) to evaluate the effects of prevailing wage on private health insurance coverage, poverty rates, and the income and payroll tax contributions of construction workers. Blue-collar construction workers are defined as all workers employed in "construction and extraction occupations," such as construction laborers, operating engineers, electricians, carpenters, plumbers, pipefitters, and painters.

Personal economic outcomes are very different for blue-collar construction workers in Oregon and Washington compared with those in Idaho (Figure 15). After adjusting for inflation, the average hourly earnings for blue-collar construction workers was about $26 per hour in Oregon, $28 per hour in Washington, and just $23 per hour in Idaho.[5] Compared with construction workers in Idaho, the average construction worker in Oregon earned 15 percent more per hour and the average construction worker in Washington earned 22 percent more per hour. This is partially due to higher union membership rates for construction workers in Oregon (24 percent) and Washington (32 percent) than Idaho (10 percent). Consequently, blue-collar construction workers were less likely to earn under $15 per hour in Oregon and Washington. After adjusting for inflation, 15 percent of Oregon's construction workers earned less than $15 per hour from 2011 through 2019 and just 13 percent of Washington's construction workers did. By contrast, 21 percent of Idaho's construction workers earned less than $15 per hour. Construction workers in Oregon and Washington both had an average workweek of about 40 hours per week while their counterparts in Idaho averaged 41 hours worked each week.

5 Note that these averages include journeyworkers, apprentices, and those with no training and include both union members and nonunion workers.

FIGURE 15: CPS-ORG INFORMATION ON CONSTRUCTION WORKERS IN OREGON, WASHINGTON, AND IDAHO, 2011-2019

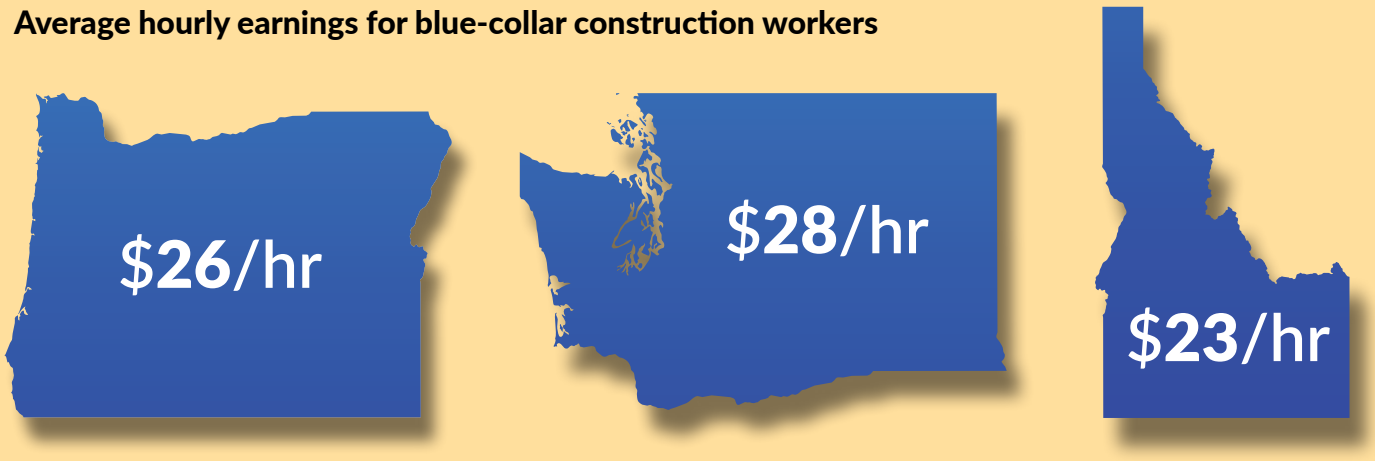
Summary Statistics	Oregon	Washington	Idaho
Prevailing Wage Rate (PWR) Law Status	**Average PWR Law**	**Strong PWR Law**	**No PWR Law**
Employed construction worker observations	965	1,362	1,205
Weighted annual construction workers	77,035	158,538	41,864
Income, Health Care, and Poverty			
Union membership rate	23.7%	32.0%	10.0%
Average hourly wage (inflation-adjusted)	$26.03	$27.66	$22.58
Earns less than $15 per hour	15.4%	13.0%	20.7%
Usual hours worked per week	39.6	39.6	40.7
Demographics			
White, non-Latinx	74.4%	71.6%	77.7%
People of color (non-white)	25.6%	28.4%	22.3%
Women	4.3%	2.9%	2.7%
High school degree or less	80.8%	78.2%	80.7%
College degree	19.2%	21.8%	19.3%

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group (CPS-ORG) data by the U.S. Census Bureau from 2011 through 2019 (**CEPR, 2020**).

Figure 15 also reports important demographic data on construction workers in Oregon, Washington, and Idaho. For example, the construction workforce has more racial diversity and gender diversity in the two states with prevailing wage laws. Workers of color comprise 26 percent of construction workers in Oregon, 28 percent in Washington, and 22 percent in Idaho.

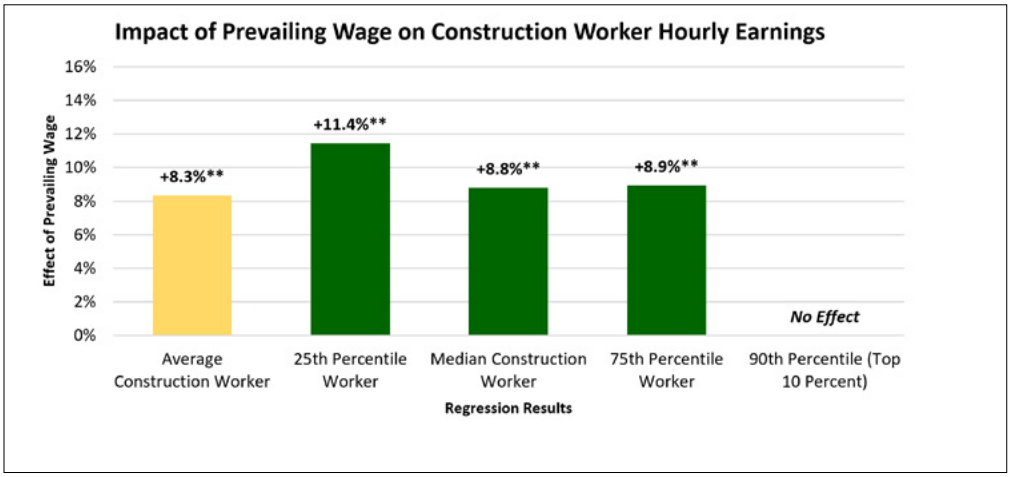
Women account for just 4 percent of the construction workforce in Oregon and a slightly smaller share in both Washington (3 percent) and Idaho (3 percent). Several interview respondents lauded the efforts of programs that specifically target and support women in the trades, such as Oregon Tradeswomen, while noting that there is still much more work to be done on gender equity in the trades. Other respondents also highlighted the role of financial and non-financial supportive services in ensuring all apprentices—and particularly women and workers of color— could continue working in the trades. These supportive services include fuel assistance, lodging and per diem for jobs more than 60 miles from home, work tools and clothing, personal protective equipment (PPE), childcare subsidies, counseling, and mentoring (**Wilkinson and Kelly, 2018**). In all three states, about one-in-five construction workers report that they have an associate's, bachelor's, or advanced college degree while the remaining four-in-five have only on high school diploma or less (Figure 15).

Average hourly earnings for blue-collar construction workers



While the summary statistics of Figure 15 report "what is," the remainder of this section investigates "how much" prevailing wage standards may or may not be responsible for these outcomes. Regression analyses, a statistical technique that allows researchers to account for other factors that may influence labor market outcomes, are utilized to separate out the unique and independent effect of a prevailing wage law. The analyses all account for age, gender identification, racial or ethnic background, citizenship status, immigration status, veteran status, marital status, urban status, educational attainment, and industry of employment. The analyses that use CPS-ORG data control for union membership status, usual hours worked, sector of employment, and the month during which the construction workers were surveyed to take the construction season into account. Finally, the regressions on the inflation-adjusted wages of construction workers also include Regional Price Parities (RPP) provided by the Bureau of Economic Analysis (BEA) at the U.S. Department of Commerce to account for the higher cost-of-living in Washington and Oregon as compared with Idaho.[6] In regression analyses, a statistically significant result is an indication that the relationship may be causal.

FIGURE 16: REGRESSION RESULTS ON THE IMPACT OF PREVAILING WAGE ON CONSTRUCTION WORKER EARNINGS AND INEQUALITY



Source(s): Authors' analysis of Current Population Survey Outgoing Rotation Group (CPS-ORG) data by the U.S. Census Bureau from 2011 through 2019 (**CEPR, 2020**), including the U.S. Department of Commerce Bureau of Economic Analysis' "Regional Price Parities" (**BEA, 2019**). For full regression results, see Table B in the Technical Appendix. Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level.

A strong or average prevailing wage law produces positive impacts on construction worker wages (Figure 16). After accounting for other important factors, including union membership, age, gender, race, education, and cost-of-living, strong or average prevailing wage laws increase blue-collar construction worker hourly earnings by 8 percent on average. This result is statistically significant at the 95-percent level of confidence. However, prevailing wage laws have larger impacts on low-income and middle-class construction workers.[7] Prevailing wage laws statistically increase hourly earnings by between 9 percent and 11 percent for construction workers between the 25th percentile and the 75th percentile of the wage distribution, including a 9

6 For example, in 2018, Washington had a Regional Price Parity (RPP) value of 105, indicating that the cost-of-living in Washington was about 5 percent higher than the national average. Oregon's cost-of-living was 1 percent lower (RPP= 99) while Idaho's was 7 percent lower (RPP= 93) (**BEA, 2019**).

7 A unique analytical tool, called a quantile regression, permits evaluation of the impact of prevailing wage standards across the wage distribution.

percent boost to hourly earnings for the median construction worker. At the same time, prevailing wage has no statistical effect on the top 10 percent of construction workers (Figure 16).[8] Though not shown in Figure 16, a separate analysis shows that Washington's strong prevailing wage law is associated with 2 percent higher hourly earnings than Oregon's average prevailing wage policy.[9]

The data also show that prevailing wage laws have no statistical effect on labor force outcomes or the racial composition of the construction workforce (Figure 17). After accounting for other important factors such as age, gender, urban status, and education, a strong or average prevailing wage law reduces that chances that any given person in the labor force will be a construction worker by less than 1 percentage point, but the effect is not statistically significant at the 95-percent level of confidence. Among employed construction workers, prevailing wage laws have no impact on usual hours worked per week. Furthermore, **there is no evidence that the either Oregon's or Washington's prevailing wage law excludes people of color from participating in the construction trades.** After accounting for other important factors, people of color are no less likely to be in construction occupations and construction workers of color do not work fewer hours than their white (non-Latinx) counterparts.

FIGURE 17: REGRESSION RESULTS ON THE IMPACT OF PREVAILING WAGE ON CONSTRUCTION WORKER EMPLOYMENT AND HOURS

Regression Results	Prevailing Wage Effect	Z-Score	Significant?
Probability of being in construction: total labor force	-0.7%	-1.85	No
Probability of being in construction: people of color	-0.2%	-1.09	No
Weekly hours worked: all construction workers	-3.4%	-1.61	No
Weekly hours worked: all construction workers of color	-2.9%	-0.20	No

Source(s): Authors' analysis of *Current Population Survey Outgoing Rotation Group* (CPS-ORG) data by the U.S. Census Bureau from 2011 through 2019 (**CEPR, 2020**). For full regression results, see Table C in the Technical Appendix. Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level.

Prevailing wage laws expand health care coverage for construction workers and reduce poverty among construction workers (Figure 18). Prevailing wage laws increase the probability that a blue-collar construction worker is covered by a private health insurance plan by 9 percent, a result that is significant at the 95-percent level of confidence. Prevailing wage laws also shrink the chances that he, she, or they will fall below the official poverty line by about 33 percent, but this result is only significant at the 90-percent level of confidence. Interview respondents stressed that wages and benefits were central to their decision to pursue a career in the highway construction trades. One apprentice shared, "I had been working office jobs, temping really, which was easier in terms of being inside and out of the elements, but I needed health in-

8 Union membership produces similar results. Union membership statistically increases hourly earnings by between 25 percent and 32 percent for construction workers between the 25th percentile and 75th percentile but has smaller effects for construction workers in the top 10 percent. For more, see Table B in the Technical Appendix.

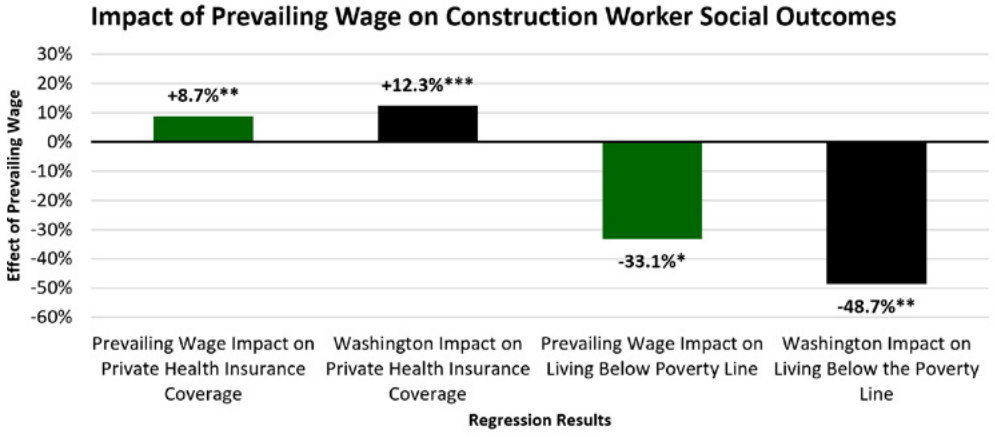
9 For more, see Table F in the Technical Appendix.

surance and I had to think about taking care of my kid so I wanted to be sure to have the union benefits and get above the wage floor I'd been at for so many years."

A closer inspection at the data, however, reveals that the *strength* of a prevailing wage law matters. While the data suggest that Oregon's Prevailing Wage Rate Law improves private health insurance coverage and combats poverty, the results are not statistically significant relative to Idaho. On the other hand, Washington's strong prevailing wage policy increases private health insurance coverage by 12 percent and decreases poverty by 49 percent among blue-collar construction workers.

Similar results occur when evaluating the effect of prevailing wage laws on tax revenues (Figure 19). After accounting for other important factors, prevailing wage laws statistically increase the combined amount of federal income taxes and Federal Insurance Contributions Act (FICA) payroll taxes paid by blue-collar construction workers by 23 percent on average. This finding is caused by three factors. First, workers earn more in states with prevailing wage laws. Second, the federal income tax code is "progressive," with higher earners paying more in taxes than low-income workers. And third, states with prevailing wage laws have fewer construction workers below poverty, resulting in less reliance on the Earned Income Tax Credit (EITC) program that provides subsidies to low-income workers. Once again, however, the strength of a prevailing wage law matters. There is suggestive evidence that Oregon's construction workers contribute more in federal income and payroll taxes than Idaho's, but the results are not statistically significant. Washington's construction workers, on the other hand, statistically contribute 29 percent more in federal taxes than their counterparts across the border in Idaho.

FIGURE 18: REGRESSION RESULTS ON THE IMPACT OF PREVAILING WAGE ON CONSTRUCTION WORKER HEALTH INSURANCE AND POVERTY



Source(s): Authors' analysis of Current Population Survey Annual Social and Economic Supplement (CPS-ASEC) March data by the U.S. Census Bureau from 2011 through 2019 (**Flood et al., 2020**). For full regression results, see Table D in the Technical Appendix. Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level.

FIGURE 19: REGRESSION ON THE IMPACT OF PREVAILING WAGE ON CONSTRUCTION WORKER FEDERAL INCOME AND PAYROLL TAXES

Regression Results	Prevailing Wage Effect	t-value	Significant?
Strong or average prevailing wage law	+23.1%	3.23	Yes
Oregon's average prevailing wage law	+12.8%	1.47	No
Washington's strong prevailing wage law	+32.0%	3.72	Yes

Source(s): Authors' analysis of ***Current Population Survey Annual Social and Economic Supplement*** (CPS-ASEC) March data by the U.S. Census Bureau from 2011 through 2019 (**Flood et al., 2020**). For full regression results, see Table E in the Technical Appendix. Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level.

Figures 20 and 21 aggregate the findings to forecast economic impacts if Oregon were to make significant changes to its Prevailing Wage Rate Law. Figure 20 provides estimates if Oregon were to fully repeal prevailing wage, a policy change that was rejected by voters in 1994 (**BOLI, 2018**). In contrast, Figure 21 provides estimates if Oregon were to strengthen its prevailing wage law, such as by eliminating the contract threshold, expanding coverage to other types of projects, or tying prevailing wage rates directly to collective bargaining rates. Figures 20 and 21 offer only "static" assessments and assume that nothing else would be different in the alternative scenarios. They are also based on annual averages between 2011 and 2019.[10]

The data reveal that Oregon's Prevailing Wage Rate Law boosts construction worker incomes, expands private health insurance coverage for construction workers, and improves state tax revenues (Figure 20). If Oregon repealed its law, the average hourly wages of construction workers would fall by 8 percent, or about $2 per hour. Repeal would have no statistical effect, however, on construction employment or hours worked. As a result, total construction worker labor income would decrease by about $343 million annually. In addition, an estimated 4,300 fewer construction workers would lose private health insurance, a 9 percent drop in coverage. Applying the average impact of prevailing wage laws on tax revenues to the average state income tax contributions from construction workers in Oregon implies that repeal of prevailing wage would reduce total state income tax revenues from construction workers in Oregon by about $40 million per year.[11] Taken together, these effects demonstrate that repeal of prevailing wage would result in an across-the-board pay cut for middle-class construction workers and less revenue for state government.

Conversely, voters and elected officials in Oregon could consider strengthening the Prevailing Wage Rate Law (Figure 21). On average, Washington's strong prevailing wage law is associated with 2 percent higher hourly earnings for blue-collar construction workers relative to Oregon's policy.[12] Moreover, Washington's prevailing wage policy is more robustly linked with greater health insurance coverage and fewer construction workers living below the official poverty line. Accordingly, the data indicate that strengthening Oregon's Prevailing Wage Rate Law would increase total construction worker labor income by about $100 million annually, extend private health insurance coverage to about 1,800 construction workers, and lift another 1,200 construction workers above the poverty line. By boosting worker earnings and broadening access into the middle class, strengthening prevailing wage would be expected to improve state government revenues by $10 million per year from extra state income tax revenues contributed by higher-paid construction workers.

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10 The 2011 through 2019 period was a time of economic expansion in Oregon. For example, in 2011, Oregon had an unemployment rate of about 9 percent and had about 68,300 workers in construction and extraction occupations. By 2011, Oregon's unemployment rate was about 3 percent and there were nearly 82,600 workers in construction and extraction occupations (**CEPR, 2020**). This analysis takes the nine-year average instead of the 2019 average with the intent to provide conservative estimates. However, with the recession caused by the novel coronavirus disease (COVID-19) pandemic, the estimates may be well suited for economic conditions in 2021.

11 Only a comparison of federal income and FICA taxes can be made between these three states because, while Oregon and Idaho have progressive state income taxes (Oregon's tax brackets range from 5.0 percent to 9.9 percent and Idaho's range from 1.13 percent to 6.93 percent), Washington does not levy a state income tax (**Loughead, 2020**).

12 For more, see Table F in the Technical Appendix.

FIGURE 20: ESTIMATED ECONOMIC AND SOCIAL IMPACT IF OREGON WERE TO REPEAL PREVAILING WAGE, 2021

What If Oregon Repealed Prevailing Wage?	2011-2019 Annual Estimate	Effect of Repealing	New Value Due to Repealing	Net Estimated Change
Average hourly wages of construction workers	$26.03	-8.3%	$23.87	-$2.16
Total annual construction worker income	$4,129.2 million	-8.3%	$3,786.4 million	-$342.7 million
Construction workers with private health insurance	49,071	-8.7%	44,797	-4,275
Construction workers living below poverty	7,858	Not significant	7,858	No change
State income tax contributions (after credits)	$2,264	-23.1%	$1,740	-$524
Total state income taxes from construction workers	$174.4 million	-23.1%	$134.0 million	-$40.3 million

Source(s): Authors' analysis of Current Population Survey Outgoing Rotation Group (CPS-ORG) data by the U.S. Census Bureau from 2011 through 2019 (**CEPR, 2020**) and Current Population Survey Annual Social and Economic Supplement (CPS-ASEC) March data by the U.S. Census Bureau from 2011 through 2019 (**Flood et al., 2020**).

FIGURE 21: ESTIMATED ECONOMIC AND SOCIAL IMPACT IF OREGON WERE TO STRENGTHEN PREVAILING WAGE, 2021

What If Oregon Strengthened Prevailing Wage?	2011-2019 Annual Estimate	Effect of Strengthening	New Value due to Strengthening	Net Estimated Change
Average hourly wages of construction workers	$26.03	+2.4%	$26.66	+$0.63
Total annual construction worker income	$4,129.2 million	+2.4%	$4,228.9 million	+$99.7 million
Construction workers with private health insurance	49,071	+3.6%	50,840	+1,769
Construction workers living below poverty	7,858	-15.6%	6,635	-1,222
State income tax contributions (after credits)	$2,264	+5.7%	$2,393	+$130
Total state income taxes from construction workers	$174.4 million	+5.7%	$184.4 million	+$10.0 million

Source(s): Authors' analysis of *Current Population Survey Outgoing Rotation Group* (CPS-ORG) data by the U.S. Census Bureau from 2011 through 2019 (**CEPR, 2020**) and *Current Population Survey Annual Social and Economic Supplement* (CPS-ASEC) March data by the U.S. Census Bureau from 2011 through 2019 (**Flood et al., 2020**).

These projections can be incorporated into an economic impact analysis using IMPLAN. IMPLAN is an input-output economic modeling software that inputs U.S. Census Bureau data, accounts for the interrelationship between households and businesses, and follows dollars as they cycle throughout the economy (**IMPLAN, 2020**). IMPLAN is considered the "gold standard" in economic impact analysis (**Vowels, 2012**). In this analysis, the estimates – which are reported in constant 2021 dollars – are based on the multiplier effect, or ripple effect, associated with the retention of construction incomes and spending in Oregon's economy.

The amount of work completed by local contractors depends on the presence of a prevailing wage law, the size of a state's construction industry, and the skills of a state's construction workforce. Oregon has an average prevailing

wage law and is located along the Pacific Ocean, a geographical trait that limits competition. As a result, Oregon's Prevailing Wage Rate Law increases the share of taxpayer-funded construction work awarded to in-state contractors by 12 percent (see Figure 7). If the state did not have a prevailing wage law, Oregon contractors would be expected to face increased competition from out-of-state companies for two reasons. First, inadequate prevailing wage standards open state-funded construction to deleterious competition from fly-by-night contractors from states with low wages. Second, the absence of prevailing wage standards may result in less work for in-state contractors participating in joint labor-management apprenticeship programs, which are responsible for the preponderance of worker training in construction. This reduces training resources and harms the recruitment of technologically-proficient workers with high skill levels.

According to the *Economic Census of Construction*, approximately $4.3 billion in construction value is completed on projects owned by the federal government, by the state government, or by local governments in Oregon (**Census, 2017**). Using this data, 12 percent of construction work is equal to about $519 million in construction work. In the absence of prevailing wage standards, this $519 million in construction work would be completed by out-of-state or foreign contractors. However, a large portion of these construction expenditures would remain in the state regardless of whether local businesses or out-of-state contractors perform the work, including the costs of supplies, materials, power, fuel, land, and other items (which combined represent 46 percent of total construction costs in Oregon). The net effect is $240 million in retained construction work (Figure 22).

FIGURE 22: INPUTS INTO ECONOMIC IMPACT ANALYSIS MODEL ON OREGON'S PREVAILING WAGE RATE LAW, 2021

Oregon Construction Metrics	Direct Effect
Construction value on government-owned projects	$4,329.1 million
Impact of prevailing wage on in-state contractor share	+12.0%
construction work retained in-state due to prevailing wage	$519.5 million
Less supplies, materials, power, fuel, land, and other items percent of total	46.2%
Net effect of retained construction work in Oregon	$239.8 million
Plus the impact of prevailing wage on blue-collar construction worker earnings	$342.7 million
Total impact of protected construction work and construction worker income	**$582.5 million**

Source(s): Authors' analysis of the U.S. Census Bureau's 2017 *Economic Census of Construction* (**Census, 2017**), Oregon Department of Transportation's "Archived Projects: Project Documents and Info (**ODOT, 2020**) and Idaho Transportation Department "Bid Opening Results and Bid Abstracts" (**ITD, 2020a**).

Economic impact results are reported in Figure 23. Impacts include $343 million in construction worker income and $240 million in protected construction work on net, or a total input of $583 million. The economic impact of $583 million in protected construction business and construction worker spending results in an overall increase in economic activity in Oregon of approximately $752 million. The corresponding employment increase is about 5,400 jobs. Specifically, Oregon's Prevailing Wage Rate Law saves or creates about 2,100 direct construction jobs and supports more than 3,300 additional jobs through in-state construction worker spending in sectors such as retail, service, and restaurants. The increase in economic activity is also associated with an approximate $35 million increase in tax revenues for state and local governments. These are statewide impacts that are experienced each year. Oregon's Prevailing Wage Rate Law performs an important economic development function by protecting and retaining construction spending in the state, which circulates throughout the economy and stimulates sectors that are unrelated to the construction industry (Figure 23).

FIGURE 23: ECONOMIC IMPACT OF CONSTRUCTION WORK SUPPORTED BY OREGON'S PREVAILING WAGE RATE LAW, 2021

Category	Direct Effect	Total Impact
Economic Activity	+$239.8 million	+$752.1 million
Jobs	+2,079 jobs	+5,402 jobs
State and Local Tax Revenues	+$9.0 million	+$35.2 million

Source(s): Authors' analysis of *Current Population Survey Outgoing Rotation Group* (CPS-ORG) data by the U.S. Census Bureau from 2011 through 2019 (**CEPR, 2020**), *Current Population Survey Annual Social and Economic Supplement* (CPS-ASEC) March data by the U.S. Census Bureau from 2011 through 2019 (**Flood et al., 2020**), U.S. Census Bureau's 2017 *Economic Census of Construction* (**Census, 2017**), Oregon Department of Transportation's "Archived Projects: Project Documents and Info (**ODOT, 2020**) and Idaho Transportation Department "Bid Opening Results and Bid Abstracts" (**ITD, 2020a**) using IMPLAN data for Oregon (**IMPLAN, 2020**).

Conclusion

Oregon's Prevailing Wage Rate Law keeps construction costs stable. The preponderance of peer-reviewed studies conducted since 2000 (83 percent) finds that prevailing wage laws have no effect on the cost of traditional public works projects, such as schools, highways, and public buildings. Additionally, the law supports local businesses in Oregon. An analysis of more than 1,100 bids on nearly 300 state highway projects reveals that Oregon's Prevailing Wage Rate Law boosts competition by 19 percent and increases the share of construction work awarded to in-state contractors by 12 percent.

Prevailing wage promotes a skilled, middle-class construction workforce that completes high-quality public construction projects on time and on budget. Joint labor-management programs train 63 percent of all registered apprentices in Oregon, require at least 30 percent more hours of training to graduate than four-year bachelor's degrees, and generally have better racial diversity and gender diversity than employer-only programs. By increasing apprenticeship training in these and other programs, prevailing wage attracts talented young workers into the construction trades and fosters self-sufficient construction workers.

The Prevailing Wage Rate Law produces positive impacts on the broader Oregon economy. By upholding local construction standards, prevailing wage supports work for local contractors and ensures that construction workers can afford to live in the communities where they build roads, bridges, paths, parks, schools, and public buildings. Prevailing wage increases earnings, expands private health insurance coverage, and reduces poverty. In total, prevailing wage increases employment in Oregon by 5,400 jobs and boosts the economy by $752 million while generating $35 million in state and local tax revenues.

Voters and elected officials in Oregon could consider strengthening the Prevailing Wage Rate Law. Across the border, Washington has a strong prevailing wage law that utilizes collective bargaining agreement (CBA) wage rates, resulting in more predictable and consistent standards. In Washington, prevailing wage produces higher hourly earnings for blue-collar construction workers, ensures that more construction workers have private health insurance coverage, and results in fewer construction workers living below the official poverty line as compared to Oregon. Construction workers in Washington also contribute slightly more to the tax base in Washington than construction workers in Oregon and significantly more than their counterparts in Idaho, which does not have a prevailing wage law.

Prevailing wage is a great value for Oregon taxpayers. By leveling the playing field for local contractors and reflecting local market standards of compensation and craftmanship, prevailing wage strengthens the economy. By boosting investment in apprenticeship training programs, prevailing wage improves productivity and worksite safety. Finally, by stabilizing construction costs and using skilled, self-sufficient construction workers, prevailing wage delivers public construction projects that are built right, on time, and on budget.

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Technical Appendix

TABLE A: IMPACT OF PREVAILING WAGE LAWS ON THE NUMBER OF BIDDERS, IN-STATE SHARE OF BIDDERS, AND PROBABILITY OF AN IN-STATE CONTRACTOR WIN IN OREGON AND IDAHO, ROBUST OLS AND PROBIT REGRESSIONS

Robust OLS and Quantile Regressions Effect on Construction Worker Wages	Number of Bids		In-State Share of Bidders		Probit: In-State Winner	
	Effect†	Error‡	Effect†	Error‡	Effect†	Error‡
Oregon: Prevailing wage law	**+0.720****	**(0.306)**	**+0.132****	**(0.054)**	**+0.120***	**(0.015)**
Competition: Number of bids			**-0.045*****	**(0.011)**	**-0.057*****	**(0.069)**
Year: 2019	-0.760**	(0.383)	+0.055	(0.053)	-0.167*	(0.088)
Year: 2020	-0.477	(0.501)	+0.048	(0.073)	-0.244**	(0.110)
Month: January	+1.186**	(0.595)	-0.113	(0.182)	+0.063	(0.167)
Month: February	+0.288	(0.617)	+0.132	(0.097)	+0.602***	(0.138)
Month: March	+0.257	(0.632)	+0.100	(0.102)	+0.255*	(0.133)
Month: April	+0.331	(0.435)	+0.222**	(0.094)	+0.350***	(0.132)
Month: June	+0.884**	(0.418)	-0.207	(0.145)	+0.447***	(0.154)
Month: July	+2.576***	(0.848)	-0.126	(0.142)	+0.402***	(0.154)
Month: August	+0.210	(0.541)	+0.086	(0.102)	+0.363***	(0.134)
Month: September	+0.122	(0.525)	+0.177*	(0.101)	+0.263*	(0.138)
Month: October	+0.343	(0.455)	+0.095	(0.126)	+0.125	(0.143)
Month: November	-0.305	(0.540)	+0.116	(0.102)	+0.256*	(0.155)
Month: December	+0.674	(0.843)	-0.096	(0.106)	+0.127	(0.139)
Location: Ada County, Idaho	-0.433	(0.501)	+0.217***	(0.082)		
Location: Kootenai County, Idaho	+0.890	(0.601)	-0.431***	(0.060)		
Constant term	+3.767***	(0.521)	+0.748***	(0.105)	+0.764***	(0.035)
Total project proposals	280		280		280	
Weighted by the size of the project	Yes		Yes		Yes	
R^2	0.185		0.467		0.218	

Source(s): Authors' analysis of Oregon Department of Transportation's "Archived Projects: Project Documents and Info (**ODOT, 2020**) and Idaho Transportation Department "Bid Opening Results and Bid Abstracts" (**ITD, 2020a**). Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level. The first, "Number of Bids," model is a robust OLS regression on the average number of bids submitted per state highway project proposal, and 0.7 net bids divided by the constant term of 3.8 bids equals 19.1 percent. The second, "In-State Share of Bidders," model is a robust OLS regression on the average share of bids submitted by in-state contractors on state highway project proposals. The third, "Probit: In-State Winner," model is a probabilistic probit regression on the probability of an in-state contractor winning a bid on state highway project proposal, with average marginal effects. Average marginal effects are ascertained by using margins, dydx in STATA. †"Effect" indicates the coefficient. ‡"Error" indicates the standard error.

TABLE B: IMPACT OF PREVAILING WAGE LAWS ON INFLATION-ADJUSTED HOURLY WAGE AMONG CONSTRUCTION AND EXTRACTION WORKERS IN OREGON, WASHINGTON, AND IDAHO, WITH TWO EXAMPLE QUANTILE (PERCENTILE) REGRESSIONS, 2011-2019

Robust OLS and Quantile Regressions Effect on Construction Worker Wages	Natural Log: Real Wage		Natural Log: 25th Percentile		Natural Log: Median	
	Effect†	Error‡	Effect†	Error‡	Effect†	Error‡
Prevailing wage law	**+0.083****	**(0.039)**	**+0.114*****	**(0.043)**	**+0.088****	**(0.041)**
Union membership	+0.252***	(0.024)	+0.252***	(0.031)	+0.297***	(0.029)
Work: Usual hours worked per week	+0.005**	(0.002)	+0.007***	(0.001)	+0.008***	(0.001)
Demographics: Age	+0.031***	(0.004)	+0.037***	(0.004)	+0.048***	(0.004)
Demographics: Age^2	-0.000***	(0.000)	-0.000***	(0.000)	-0.000***	(0.000)
Gender identification: Female	-0.175***	(0.057)	-0.146	(0.099)	-0.106*	(0.059)
Racial or ethnic background: White	+0.095***	(0.029)	+0.074***	(0.027)	+0.088***	(0.032)
Demographics: Citizen	+0.092*	(0.048)	+0.124***	(0.037)	+0.073	(0.053)
Demographics: Foreign-born	-0.080*	(0.043)	-0.085**	(0.035)	-0.124**	(0.049)
Demographics: Military veteran	-0.017	(0.034)	+0.032	(0.044)	-0.004	(0.034)
Demographics: Married	+0.059***	(0.022)	+0.082***	(0.022)	+0.085***	(0.024)
Urban status: City center	-0.017	(0.030)	-0.027	(0.034)	+0.021	(0.036)
Urban status: Suburb	+0.055**	(0.025)	+0.033	(0.030)	+0.064**	(0.027)
Urban status: Rural area	-0.011	(0.031)	-0.056*	(0.032)	-0.016	(0.036)
Education: Less than high school	-0.148***	(0.028)	-0.164***	(0.031)	-0.155***	(0.029)
Education: Associate's degree	+0.054*	(0.042)	+0.073**	(0.037)	+0.072**	(0.032)
Education: Bachelor's degree or more	+0.044	(0.025)	+0.014	(0.027)	-0.027	(0.054)
Industry: Construction	+0.047*	(0.038)	+0.065***	(0.025)	+0.035	(0.028)
Sector: Employed by public sector	-0.046	(0.038)	-0.099	(0.066)	-0.068	(0.047)
Month: February	-0.053	(0.052)	-0.017*	(0.058)	-0.088*	(0.045)
Month: March	-0.017	(0.048)	+0.054	(0.057)	-0.032	(0.047)
Month: April	-0.012	(0.054)	+0.019	(0.048)	-0.026	(0.044)
Month: May	-0.099**	(0.047)	-0.023	(0.047)	-0.156***	(0.044)
Month: June	-0.006	(0.047)	+0.001	(0.057)	-0.039	(0.055)
Month: July	-0.058	(0.045)	-0.014	(0.058)	-0.039	(0.041)
Month: August	-0.006	(0.051)	+0.021	(0.065)	+0.012	(0.048)
Month: September	-0.076*	(0.045)	-0.031	(0.042)	-0.067	(0.041)
Month: October	-0.050	(0.046)	-0.017	(0.051)	-0.046	(0.041)
Month: November	-0.012	(0.043)	+0.057	(0.051)	-0.011	(0.043)
Month: December	-0.079*	(0.046)	-0.051	(0.064)	-0.060*	(0.058)
Year (ordinal) trend	+0.012***	(0.004)	+0.014***	(0.004)	+0.011**	(0.004)
Regional price parities	Yes	Yes	Yes	Yes	Yes	Yes
Constant term	+1.204***	(0.361)	+1.315***	(0.374)	+0.786**	(0.386)
Total observations	2,357		2,357		2,357	
Weighted to match population	Yes		Yes		Yes	
R^2	0.286		0.179		0.206	

Source(s): Authors' analysis of the 2011-2019 Current Population Survey Outgoing Rotation Groups (CPS-ORG) from the U.S. Census Bureau (**CEPR, 2020**). Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level. The first, "Natural Log: Real Wage," model is a robust OLS regression on the natural logarithm of inflation-adjusted hourly earnings, which effectively converts outputs into percent terms. The second, "Natural Log: 25th Percentile," model is a quantile OLS regression at the 25th percentile of the wage distribution. The third, "Natural Log: Median," model is a quantile OLS regression at the 25th percentile of the wage distribution. †"Effect" indicates the coefficient. ‡"Error" indicates the standard error.

TABLE C: IMPACT OF PREVAILING WAGE LAWS ON EMPLOYMENT IN CONSTRUCTION AND EXTRACTION OCCUPATIONS AND ON USUAL HOURS WORKED PER WEEK BY CONSTRUCTION AND EXTRACTION WORKERS IN OREGON, WASHINGTON, AND IDAHO, 2011-2019

Probit and Robust OLS Regressions Effect on Construction Employment Levels	Probit: In Labor Force		Natural Log: Hours Worked	
	Effect†	Error‡	Effect†	Error‡
Prevailing wage law	-0.007*	(0.004)	-0.034	(0.021)
Interaction: Prevailing wage x white	+0.004	(0.004)	+0.005	(0.026)
Union membership			+0.030**	(0.014)
Demographics: Age	+0.003***	(0.000)	+0.011***	(0.004)
Demographics: Age^2	-0.000***	(0.000)	-0.000***	(0.000)
Gender identification: Female	-0.115***	(0.003)	-0.040	(0.036)
Racial or ethnic background: White	+0.008**	(0.004)	-0.004	(0.022)
Demographics: Citizen	-0.012***	(0.004)	+0.081***	(0.028)
Demographics: Foreign-born	-0.001	(0.004)	+0.040**	(0.018)
Demographics: Military veteran	-0.002	(0.003)	-0.014	(0.031)
Demographics: Married	-0.001	(0.001)	+0.039***	(0.015)
Urban status: City center	-0.011***	(0.002)	-0.001	(0.019)
Urban status: Suburb	+0.001	(0.002)	-0.022	(0.019)
Urban status: Rural area	-0.008***	(0.003)	+0.031*	(0.018)
Education: Less than high school	+0.013***	(0.003)	+0.015	(0.020)
Education: Associate's degree	-0.011***	(0.003)	+0.023	(0.015)
Education: Bachelor's degree or more	-0.075***	(0.003)	+0.012	(0.026)
Month: February	+0.005	(0.004)	+0.052	(0.033)
Month: March	-0.002	(0.004)	+0.010	(0.044)
Month: April	-0.000	(0.004)	-0.065	(0.065)
Month: May	+0.003	(0.004)	+0.057*	(0.029)
Month: June	-0.001	(0.004)	+0.055*	(0.029)
Month: July	+0.002	(0.004)	+0.056*	(0.033)
Month: August	-0.001	(0.004)	+0.063**	(0.028)
Month: September	+0.008**	(0.004)	+0.074**	(0.030)
Month: October	+0.004	(0.004)	+0.077***	(0.028)
Month: November	+0.005	(0.004)	+0.035	(0.032)
Month: December	+0.004	(0.004)	+0.029	(0.032)
Year (ordinal) trend	+0.000	(0.004)	+0.010***	(0.003)
Constant term	0.049***	(0.001)	3.276***	(0.100)
Total observations	80,178		2,359	
Weighted to match population	Yes		Yes	
R^2	0.185		0.044	

Source(s): Authors' analysis of the 2011-2019 ***Current Population Survey Outgoing Rotation Groups*** (CPS-ORG) from the U.S. Census Bureau (**CEPR, 2020**). Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level. The first, "Probit: In Labor Force," model is a probabilistic probit regression on the probability of being in a construction and extraction occupation conditional on being in the labor force, with average marginal effects. Average marginal effects are ascertained by using ***margins, dydx*** in STATA. The second, "Natural Log: Hours Worked," model is a robust OLS regression on the natural logarithm of usual hours worked per week by construction and extraction workers, which effectively converts outputs into percent terms. †"Effect" indicates the coefficient. ‡"Error" indicates the standard error.

TABLE D: IMPACT OF PREVAILING WAGE LAWS ON THE PROBABILITY OF HAVING PRIVATE HEALTH INSURANCE AND THE PROBABILITY OF LIVING IN POVERTY AMONG CONSTRUCTION AND EXTRACTION WORKERS IN OREGON, WASHINGTON, AND IDAHO, 2011-2019

Probit Regressions Effect on Construction Social Outcomes	Likelihood of Private Health Insurance – 1		Likelihood of Private Health Insurance – 2		Likelihood of Being Below Poverty – 1		Likelihood of Being Below Poverty – 2	
	Effect†	Error‡	Effect†	Error‡	Effect†	Error‡	Effect†	Error‡
Prevailing wage law	**+0.059****	**(0.027)**			**-0.025***	**(0.014)**		
Washington (strong prevailing wage law)			**+0.083*****	**(0.032)**			**-0.037*****	**(0.016)**
Oregon (average prevailing wage law)			**+0.018**	**(0.030)**			**-0.009**	**(0.016)**
Employment: Full-time	+0.048	(0.030)	+0.045	(0.030)	-0.060***	(0.015)	-0.058***	(0.015)
Gender identification: Female	-0.021	(0.080)	-0.024	(0.080)	+0.047	(0.039)	+0.049	(0.039)
Racial or ethnic background: White	+0.056	(0.041)	+0.061	(0.041)	-0.019	(0.021)	-0.020	(0.021)
Demographics: Citizen	+0.053	(0.060)	+0.046	(0.060)	-0.110***	(0.035)	-0.107***	(0.035)
Demographics: Foreign-born	-0.163***	(0.054)	-0.169***	(0.055)	-0.068*	(0.037)	-0.065*	(0.037)
Demographics: Military veteran	-0.090**	(0.051)	-0.092*	(0.050)	-0.033	(0.034)	-0.032	(0.034)
Demographics: Married	+0.099***	(0.028)	+0.101***	(0.028)	-0.022	(0.014)	-0.023*	(0.014)
Education: Less than high school	-0.075*	(0.039)	-0.071*	(0.039)	+0.066***	(0.019)	+0.063***	(0.019)
Education: Associate's degree	+0.086**	(0.043)	+0.080*	(0.043)	-0.057**	(0.025)	-0.055**	(0.025)
Education: Bachelor's degree or more	+0.008	(0.052)	+0.007	(0.052)	+0.026	(0.030)	+0.026	(0.030)
Urban status: City center	+0.012	(0.049)	+0.009	(0.049)	-0.006	(0.024)	-0.004	(0.024)
Urban status: Suburb	+0.075*	(0.042)	+0.072*	(0.042)	-0.033*	(0.020)	-0.031	(0.020)
Urban status: Urban status unknown	+0.024	(0.044)	+0.021	(0.044)	-0.010	(0.021)	-0.009	(0.021)
Industry: Construction	-0.130***	(0.040)	-0.125***	(0.040)	+0.056**	(0.022)	+0.057**	(0.022)
Year (ordinal) term	+0.010**	(0.005)	+0.011**	(0.005)	-0.003	(0.003)	-0.003	(0.003)
Constant term	+0.677***	(0.014)	+0.677***	(0.014)	+0.077***	(0.007)	+0.077***	(0.007)
Total observations	1,605		1,605		1,605		1,605	
Weighted to match population	Yes		Yes		Yes		Yes	
R^2	0.095		0.098		0.133		0.138	

Source(s): Authors' analysis of 2011-2019 *Current Population Survey Annual Social and Economic Supplement* (CPS-ASEC) March data by the U.S. Census Bureau from 2011 through 2019 (**Flood et al., 2020**). Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level. All models are probit regressions with average marginal effects. Average marginal effects are ascertained by using ***margins, dydx*** in STATA. †"Effect" indicates the coefficient. ‡"Error" indicates the standard error.

TABLE E: IMPACT OF PREVAILING WAGE LAWS ON COMBINED FEDERAL INCOME AND FICA TAX CONTRIBUTIONS AMONG CONSTRUCTION AND EXTRACTION WORKERS IN OREGON, WASHINGTON, AND IDAHO, 2011-2019

Robust OLS Regressions Effect on Construction Tax Contributions	Natural Log: Federal Income and FICA Taxes – 1		Natural Log: Federal Income and FICA Taxes – 2	
	Effect†	Error‡	Effect†	Error‡
Prevailing wage law	**+0.231*** **	**(0.072)**		
Washington (strong prevailing wage law)			**+0.289*** **	**(0.078)**
Oregon (average prevailing wage law)			**+0.128**	**(0.087)**
Employment: Full-time	+0.324***	(0.085)	+0.320***	(0.085)
Gender identification: Female	-0.048	(0.265)	-0.051	(0.267)
Racial or ethnic background: White	-0.049	(0.128)	-0.036	(0.127)
Demographics: Citizen	+0.330**	(0.138)	+0.311**	(0.138)
Demographics: Foreign-born	-0.014	(0.137)	-0.026	(0.137)
Demographics: Military veteran	+0.078	(0.097)	+0.075	(0.096)
Demographics: Married	+0.125*	(0.073)	+0.128*	(0.073)
Education: Less than high school	-0.373***	(0.128)	-0.334***	(0.126)
Education: Associate's degree	+0.368***	(0.082)	+0.351***	(0.082)
Education: Bachelor's degree or more	-0.023	(0.159)	-0.023	(0.159)
Urban status: City center	-0.007	(0.122)	-0.012	(0.123)
Urban status: Suburb	+0.129	(0.101)	+0.123	(0.102)
Urban status: Urban status unknown	-0.016	(0.105)	-0.024	(0.107)
Industry: Construction	-0.146	(0.092)	-0.134	(0.093)
Year (ordinal) term	+0.019	(0.013)	+0.020	(0.013)
Constant term	+8.078***	(0.205)	+8.059***	(0.204)
Total observations	1,417		1,417	
Weighted to match population	Yes		Yes	
R^2	0.087		0.091	

Source(s): Authors' analysis of 2011-2019 Current Population Survey Annual Social and Economic Supplement (CPS-ASEC) March data by the U.S. Census Bureau from 2011 through 2019 (**Flood et al., 2020**). Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level. All models are robust OLS regressions on the natural logarithm of combined federal income taxes (after credits) and federal FICA (payroll) taxes paid by construction and extraction workers. †"Effect" indicates the coefficient. ‡"Error" indicates the standard error.

TABLE F: IMPACT OF PREVAILING WAGE REPEAL ON INFLATION-ADJUSTED HOURLY WAGE AMONG CONSTRUCTION AND EXTRACTION WORKERS IN OREGON, WASHINGTON, AND IDAHO, AND BY STRENGTH WITHOUT COST-OF-LIVING, 2011-2019

Robust OLS Regression Effect on Construction Worker Wages	Natural Log: Real Wage		Natural Log: State Strength	
	Effect†	Error‡	Effect†	Error‡
Prevailing wage law	**+0.083*** **	**(0.039)**		
Washington (strong prevailing wage law)			**+0.131*** **	**(0.022)**
Oregon (average prevailing wage law)			**+0.106*** **	**(0.023)**
Union membership	+0.252***	(0.024)	+0.252***	(0.024)
Work: Usual hours worked per week	+0.005**	(0.002)	+0.005*	(0.002)
Demographics: Age	+0.031***	(0.004)	+0.041***	(0.004)
Demographics: Age^2	-0.000***	(0.000)	-0.000***	(0.000)
Gender identification: Female	-0.175***	(0.057)	-0.175***	(0.057)
Racial or ethnic background: White	+0.095***	(0.029)	+0.095***	(0.029)
Demographics: Citizen	+0.092*	(0.048)	+0.092*	(0.048)
Demographics: Foreign-born	-0.080*	(0.043)	-0.080*	(0.043)
Demographics: Military veteran	-0.017	(0.034)	-0.017	(0.034)
Demographics: Married	+0.059***	(0.022)	+0.059***	(0.022)
Urban status: City center	-0.017	(0.030)	-0.017	(0.030)
Urban status: Suburb	+0.055**	(0.025)	+0.055**	(0.025)
Urban status: Rural area	-0.011	(0.031)	-0.011	(0.031)
Education: Less than high school	-0.148***	(0.028)	-0.148***	(0.032)
Education: Associate's degree	+0.054*	(0.042)	+0.054*	(0.028)
Education: Bachelor's degree or more	+0.044	(0.025)	+0.044	(0.042)
Industry: Construction	+0.047*	(0.038)	+0.047*	(0.025)
Sector: Employed by public sector	-0.046	(0.038)	-0.046	(0.038)
Month: February	-0.053	(0.052)	-0.053	(0.052)
Month: March	-0.017	(0.048)	-0.017	(0.048)
Month: April	-0.012	(0.054)	-0.012	(0.054)
Month: May	-0.099**	(0.047)	-0.099**	(0.047)
Month: June	-0.006	(0.047)	-0.006	(0.047)
Month: July	-0.058	(0.045)	-0.058	(0.045)
Month: August	-0.006	(0.051)	-0.006	(0.051)
Month: September	-0.076*	(0.045)	-0.076*	(0.045)
Month: October	-0.050	(0.046)	-0.050	(0.046)
Month: November	-0.012	(0.043)	-0.012	(0.043)
Month: December	-0.079*	(0.046)	-0.079*	(0.046)
Year (Ordinal) Trend	+0.012***	(0.004)	+0.012***	(0.004)
Regional price parities	Yes	Yes	No	No
Constant term	+1.204***	(0.361)	+1.577***	(0.147)
Total observations	2,357		2,357	
Weighted to match population	Yes		Yes	
R^2	0.286		0.286	

Source(s): Authors' analysis of the 2011-2019 Current Population Survey Outgoing Rotation Groups (CPS-ORG) from the U.S. Census Bureau (CEPR, 2020). Three asterisks (***) indicate significance at the 99-percent confidence level. Two asterisks (**) indicate significance at the 95-percent confidence level. One asterisk (*) indicates significance at the 90-percent confidence level. The first, "Natural Log: Real Wage," model is a robust OLS regression on the natural logarithm of inflation-adjusted hourly earnings, which effectively converts outputs into percent terms. The second, "Natural Log: State Strength," model is a robust OLS regression on the natural logarithm of inflation-adjusted hourly earnings, but does not include "regional price parities." †"Effect" indicates the coefficient. ‡"Error" indicates the standard error.