

NOT RELEASED FOR CONSTRUCTION

PROJECT #: 121246
DRAWN BY: Author
CHECKED BY: Checker

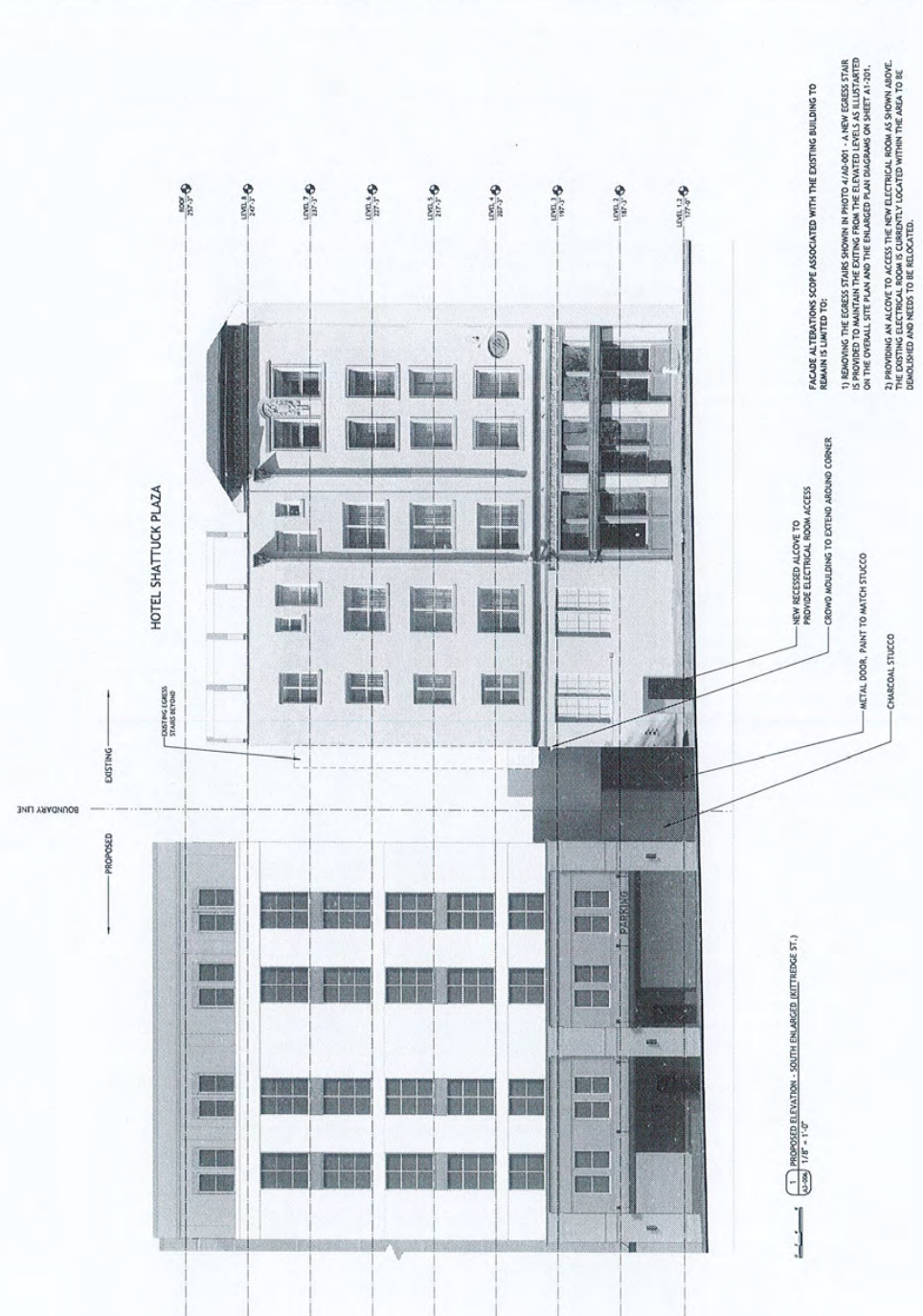
NILES BOLTON ASSOCIATES
3045 Peachtree Rd. N.W.
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T 404 385 7600
www.nibolton.com

APPLICANT:
BILL SCHRADER
T 925 638 8782

NO.	DESCRIPTION	DATE
1	ISSUE FOR PERMIT	12/15/12
2	ISSUE FOR PERMIT	12/15/12
3	ISSUE FOR PERMIT	12/15/12
4	ISSUE FOR PERMIT	12/15/12
5	ISSUE FOR PERMIT	12/15/12
6	ISSUE FOR PERMIT	12/15/12
7	ISSUE FOR PERMIT	12/15/12
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17	ISSUE FOR PERMIT	12/15/12
18	ISSUE FOR PERMIT	12/15/12
19	ISSUE FOR PERMIT	12/15/12
20	ISSUE FOR PERMIT	12/15/12

CENT LIVING BERKELEY, LLC
BERKELEY PLAZA
2065 KITTRIDGE ST
BERKELEY, CA 94704

SHEET TITLE:
ELEVATION - SOUTH ENLARGED (KITTRIDGE ST.)
SHEET NUMBER:
A3-006



FAÇADE ALTERATIONS SCOPE ASSOCIATED WITH THE EXISTING BUILDING TO REMAIN IS LIMITED TO:
1) REMOVING THE EGRESS STAIRS SHOWN IN PHOTO 2-06-001 - A NEW EGRESS STAIR IS PROVIDED TO MAINTAIN THE EXITING FROM THE ELEVATED LEVELS AS ILLUSTRATED ON THE ORIGINAL SITE PLAN AND THE ENLARGED PLAN DIAGRAM ON SHEET A1-001.
2) PROVIDING AN ALCOVE TO ACCESS THE NEW ELECTRICAL ROOM AS SHOWN ABOVE. THE ELECTRICAL ROOM IS TO BE LOCATED WITHIN THE ADA TO BE DEMOLISHED AND NEEDS TO BE RELOCATED.

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Keynotes Legend

Key Note	Keynote Description
E1	EXISTING BUILDING
E2	EXISTING BUILDING WITH COLORED FILT. HIGH
E3	EXISTING BUILDING WITH COLORED FILT. HIGH
E4	EXISTING BUILDING WITH COLORED FILT. HIGH
E5	EXISTING BUILDING WITH COLORED FILT. HIGH
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E99	EXISTING BUILDING WITH COLORED FILT. HIGH
E100	EXISTING BUILDING WITH COLORED FILT. HIGH

PROJECT #: 121246
 DRAWN BY: TP
 CHECKED BY: AM

NILES BOLTON ASSOCIATES
 2060 Peachtree Rd., N.W.
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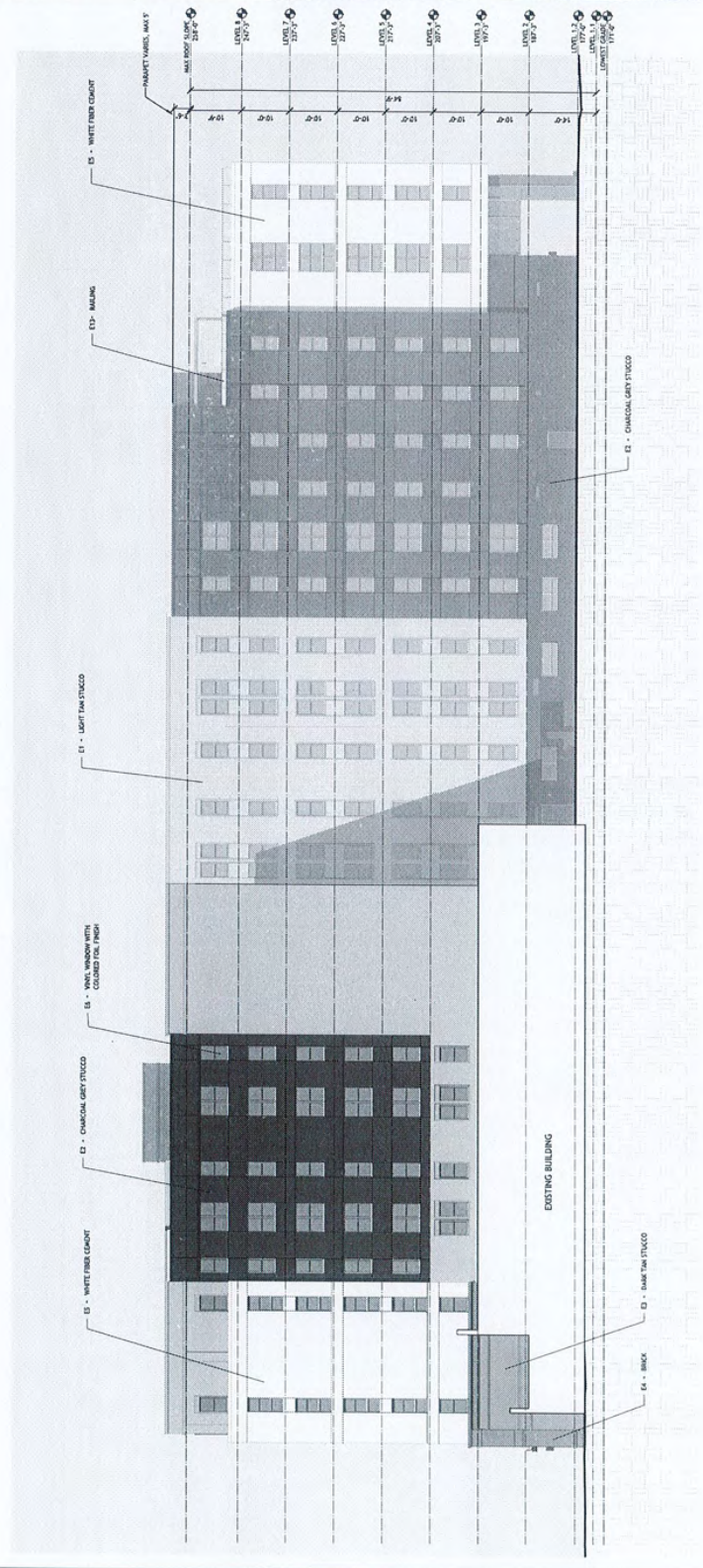
APPLICANT:
BILL SCHRAUBER
 T 925 638 8782

BERKELEY PLAZA
 2065 KITTREDGE ST
 BERKELEY, CA 94704

CENT LIVING BERKELEY, LLC

SHEET TITLE:
ELEVATION- EAST
 (HIDDEN)

SHEET NUMBER:
A3-005



1" = 1'-0"
 1. PRESENTATION ELEVATION- EAST (HIDDEN)

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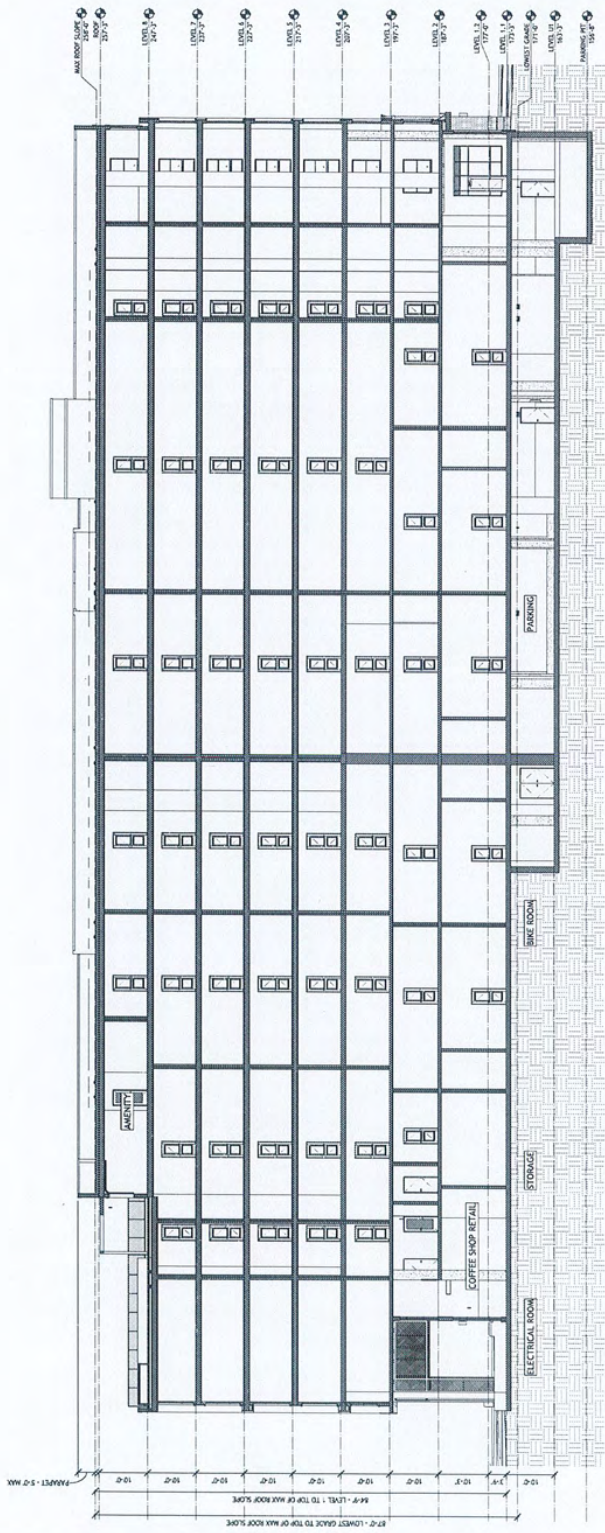
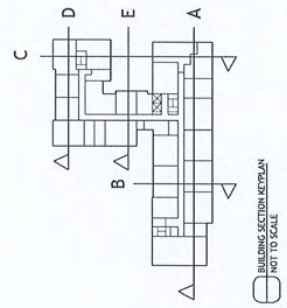
SHEET TITLE:
BUILDING SECTION
SHEET NUMBER:
A3-101

BERKELEY PLAZA
2065 KITTRIDGE ST
BERKELEY, CA 94704
CENT LIVING BERKELEY, LLC

PROJECT #: 121246
DRAWN BY: TF
CHECKED BY: AM
NILES BOLTON ASSOCIATES
2065 Piedmont Rd., N.W.
Atlanta, GA 30305
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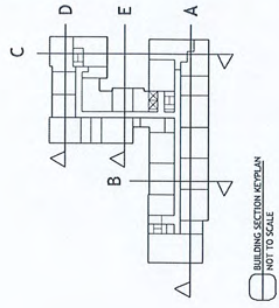
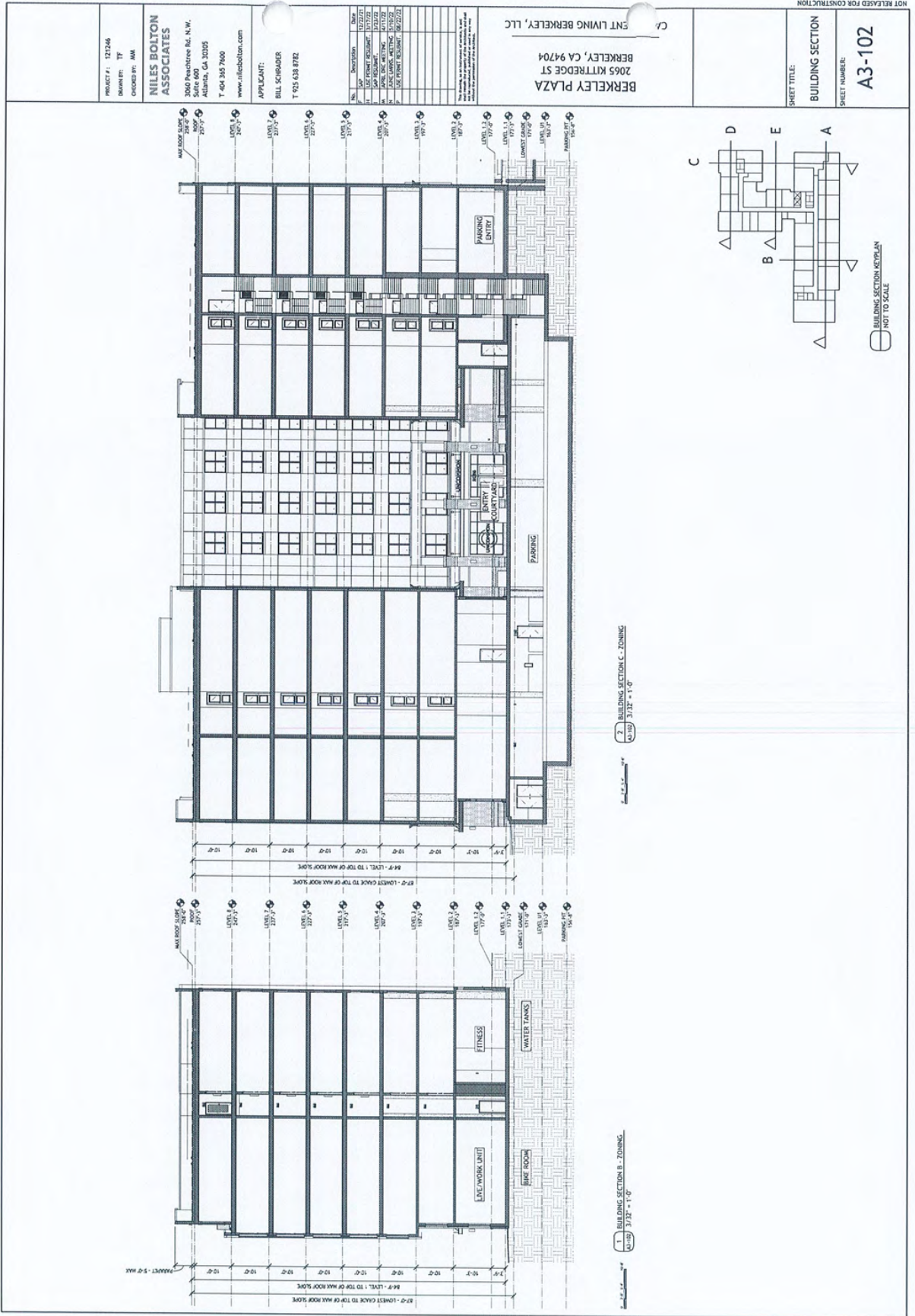
APPLICANT:
BILL SCHMIDT
T-925 438 8702

NO.	DESCRIPTION	DATE
1	USE PERMIT RECORD# 12/02/12	
2	USE PERMIT RECORD# 12/17/12	
3	USE PERMIT RECORD# 12/17/12	
4	USE PERMIT RECORD# 12/17/12	
5	USE PERMIT RECORD# 12/17/12	
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9	USE PERMIT RECORD# 12/17/12	
10	USE PERMIT RECORD# 12/17/12	



BUILDING SECTION A - TYPING
1/10/12 3/22/12 - 1/12

NOT RELEASED FOR CONSTRUCTION



2 BUILDING SECTION C - ZONING
12.12.11 3/12" = 1'-0"

1 BUILDING SECTION B - ZONING
12.12.11 3/12" = 1'-0"

NOT RELEASED FOR CONSTRUCTION

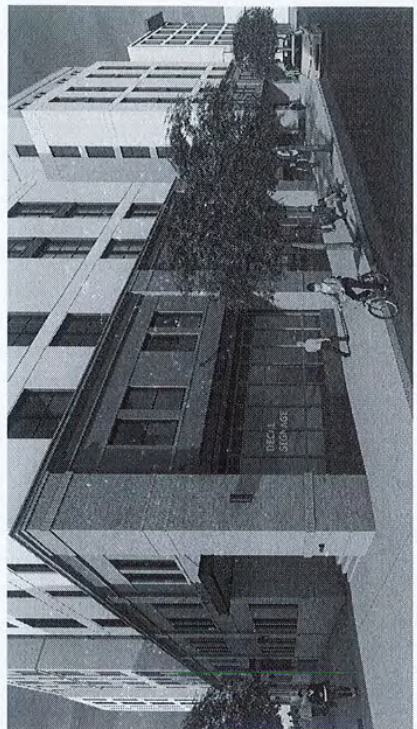
SHEET TITLE:
PERSPECTIVES
SHEET NUMBER:
A3-203

CA VENTURES
BERKELEY PLAZA
2065 KITTRIDGE ST
BERKELEY, CA 94704

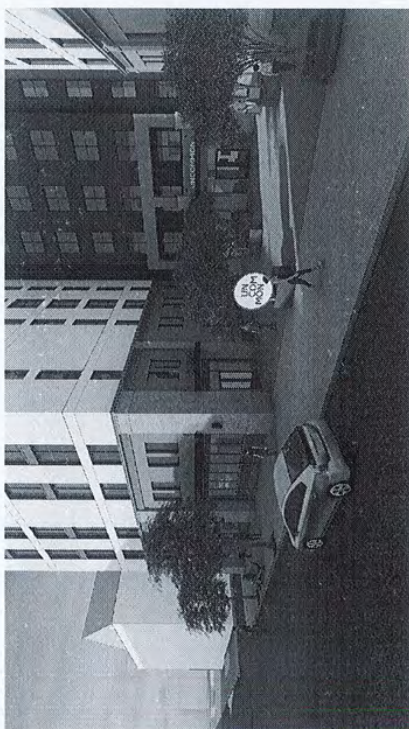
PROJECT #: 121246
DRAWN BY: TF, PK
CHECKED BY: AM
NILES BOLTON ASSOCIATES
3040 Peachtree Rd., N.W.
Suite 600
Atlanta, GA 30305
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APPLICANT:
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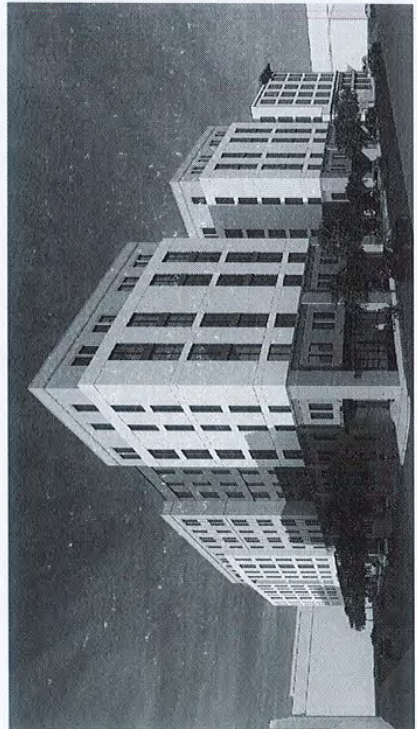
NO.	DESCRIPTION	DATE
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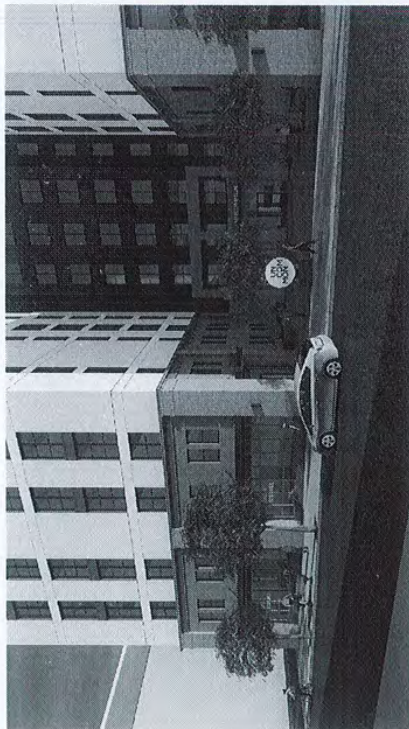
3 PERSPECTIVE - KITTRIDGE ST RETAIL SPACE
A-203 NOT TO SCALE



4 PERSPECTIVE - PERSPECTIVE - KITTRIDGE ST PLAZA AND RETAIL
A-203 NOT TO SCALE



3 PERSPECTIVE - KITTRIDGE ST AND HAROLD WAY CORNER
A-203 NOT TO SCALE



3 PERSPECTIVE - PERSPECTIVE - KITTRIDGE ST PLAZA AND RETAIL
A-203 NOT TO SCALE

NOT RELEASED FOR CONSTRUCTION

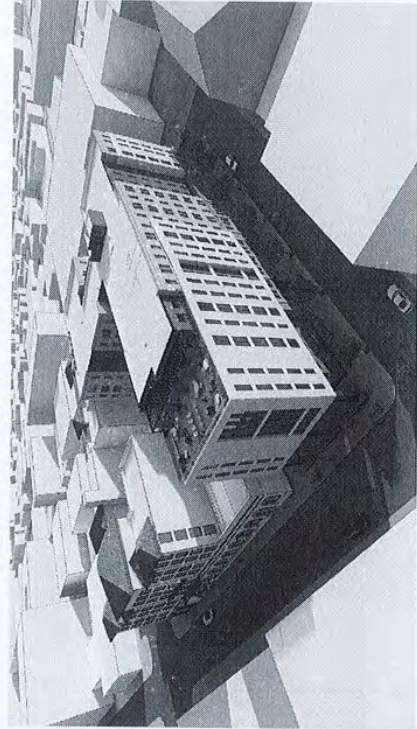
PROJECT #: 121246
 DRAWN BY: TP, BK
 CHECKED BY: AM
NILES BOLTON ASSOCIATES
 2066 Peachtree Rd., N.W.,
 Atlanta, GA 30305
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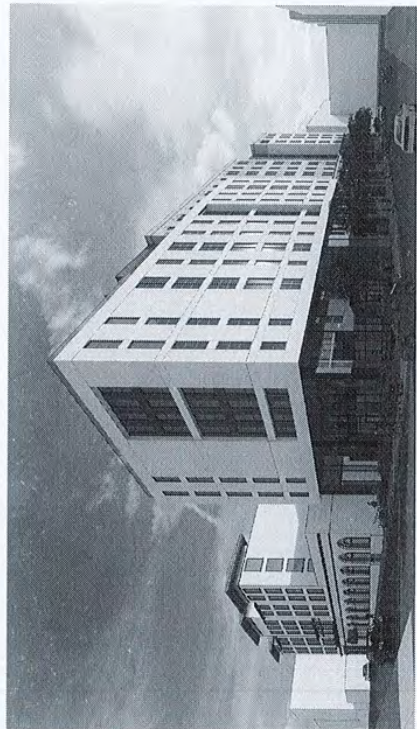
No.	Description	Date
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20	ISSUE FOR PERMITS	10/17/12

BERKELEY PLAZA
 2065 KITTREDGE ST
 BERKELEY, CA 94704
CA VENTURES

SHEET TITLE:
PERSPECTIVES
 SHEET NUMBER:
A3-202



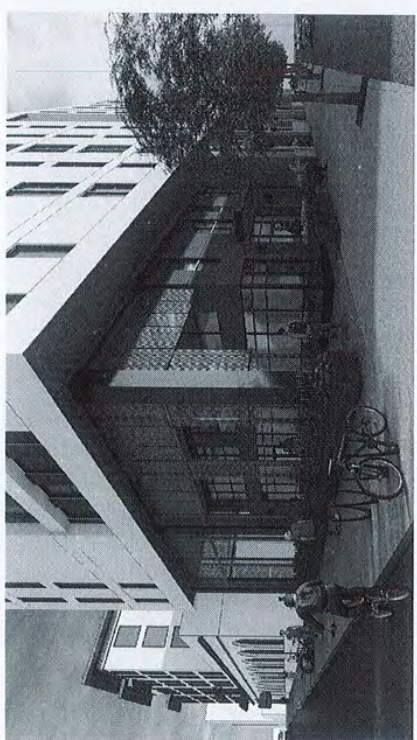
2 PERSPECTIVE - NORTH WEST CORNER AERIAL
 (A-202) NOT TO SCALE



4 PERSPECTIVE - ALLSTON WAY AND HAROLD WAY CORNER
 (A-202) NOT TO SCALE



1 PERSPECTIVE - HAROLD WAY LIFE/WORK UNIT ENTRIES
 (A-202) NOT TO SCALE



3 PERSPECTIVE - ALLSTON WAY AND HAROLD WAY RETAIL ENTRY
 (A-202) NOT TO SCALE

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CHECKED BY: AM
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2565 Piedmonte Rd., N.W.
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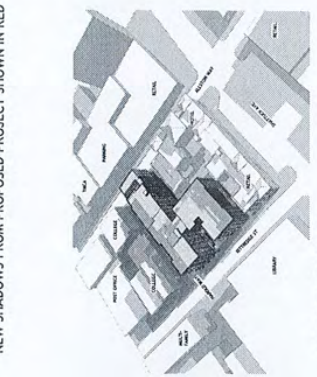
APPLICANT:
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T 925 638 8702

NO.	DESCRIPTION	DATE
1	PRELIMINARY	12/15/11
2	REVISED	03/20/12
3	REVISED	11/22/12
4	REVISED	04/11/12
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20	REVISED	04/11/12

BERKELEY PLAZA
2065 KITTRIDGE ST
BERKELEY, CA 94704
CA VENTURES

SHEET TITLE:
SHADOW STUDIES -
JUNE 21
SHEET NUMBER:
A3-301

NEW SHADOWS FROM PROPOSED PROJECT SHOWN IN RED



ANGLE VIEW PROPOSED



ANGLE VIEW EXISTING



TOP VIEW PROPOSED

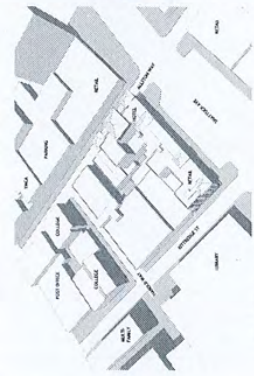


TOP VIEW EXISTING

JUNE 21 NOON



ANGLE VIEW PROPOSED



ANGLE VIEW EXISTING

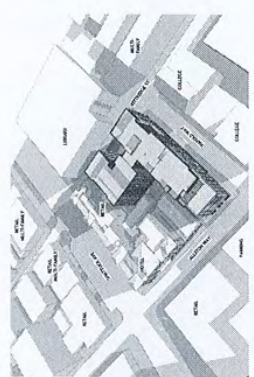


TOP VIEW PROPOSED

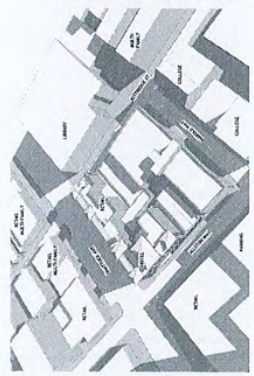


TOP VIEW EXISTING

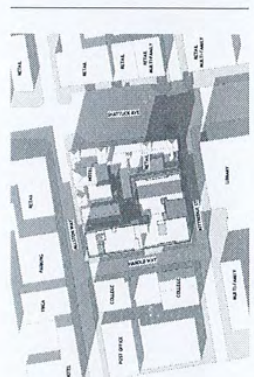
JUNE 21 EVENING
2 HOURS BEFORE SUNSET - 6:34 PM



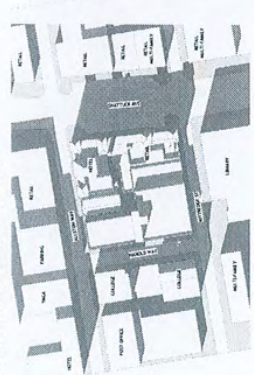
ANGLE VIEW PROPOSED



ANGLE VIEW EXISTING



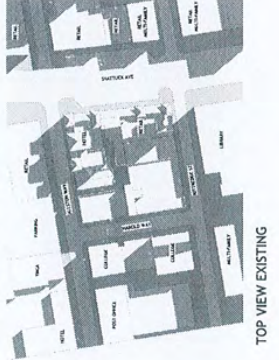
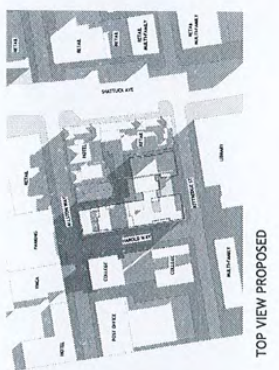
TOP VIEW PROPOSED



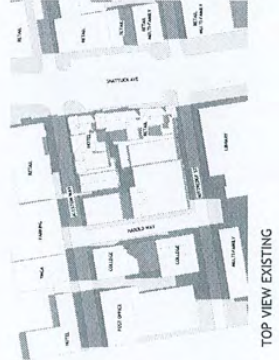
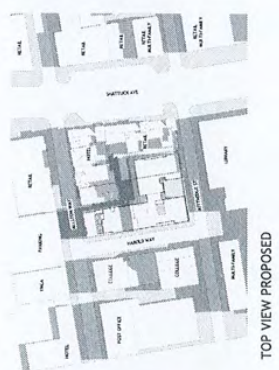
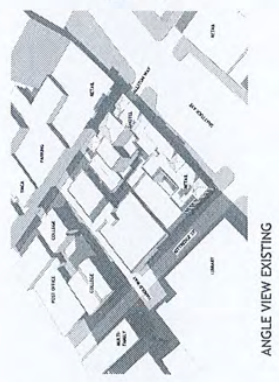
TOP VIEW EXISTING

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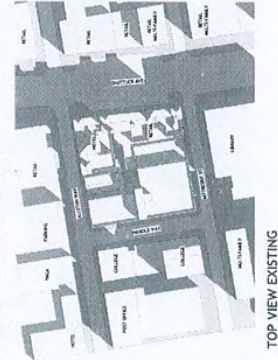
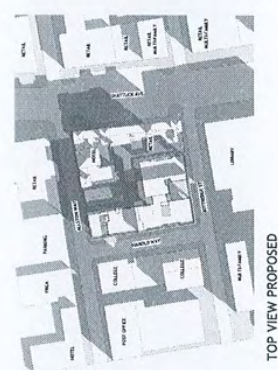
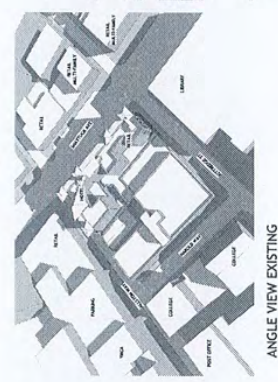
PROJECT #: 132546 DRAWN BY: TF CHECKED BY: AM	NILES BOLTON ASSOCIATES 2000 Peachtree Rd. N.W. Atlanta, GA 30305 T 404 363 7000 www.nilesbolton.com	APPLICANT: BILL SCHRAUER T 925 638 8782	<table border="1"> <tr><th>No.</th><th>Description</th><th>Date</th></tr> <tr><td>1</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>2</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>3</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>4</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>5</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>6</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>7</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>8</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>9</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>10</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>11</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>12</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>13</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>14</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>15</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>16</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>17</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>18</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>19</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> <tr><td>20</td><td>ISSUE FOR PERMIT</td><td>12/21/17</td></tr> </table>	No.	Description	Date	1	ISSUE FOR PERMIT	12/21/17	2	ISSUE FOR PERMIT	12/21/17	3	ISSUE FOR PERMIT	12/21/17	4	ISSUE FOR PERMIT	12/21/17	5	ISSUE FOR PERMIT	12/21/17	6	ISSUE FOR PERMIT	12/21/17	7	ISSUE FOR PERMIT	12/21/17	8	ISSUE FOR PERMIT	12/21/17	9	ISSUE FOR PERMIT	12/21/17	10	ISSUE FOR PERMIT	12/21/17	11	ISSUE FOR PERMIT	12/21/17	12	ISSUE FOR PERMIT	12/21/17	13	ISSUE FOR PERMIT	12/21/17	14	ISSUE FOR PERMIT	12/21/17	15	ISSUE FOR PERMIT	12/21/17	16	ISSUE FOR PERMIT	12/21/17	17	ISSUE FOR PERMIT	12/21/17	18	ISSUE FOR PERMIT	12/21/17	19	ISSUE FOR PERMIT	12/21/17	20	ISSUE FOR PERMIT	12/21/17	CA VENTURES BERKELEY PLAZA 2065 KITTREDGE ST BERKELEY, CA 94704	SHEET TITLE: SHADOW STUDIES -DEC 21 SHEET NUMBER: A3-302
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DECEMBER 21 MORNING
2 HOURS AFTER SUNRISE - 9:21 AM



DECEMBER 21 NOON

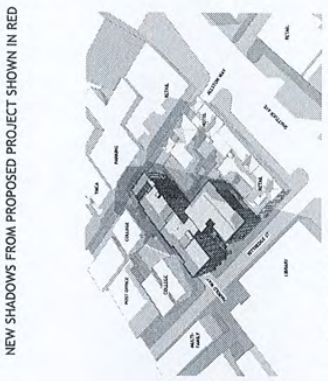


DECEMBER 21 EVENING
2 HOURS BEFORE SUNSET - 2:53 PM

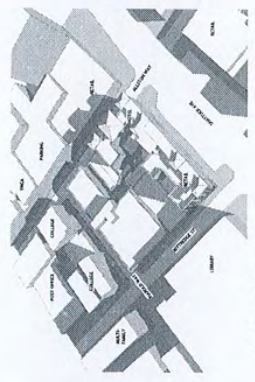
NOT RELEASED FOR CONSTRUCTION

<p>PROJECT #: 121246 DRAWN BY: TF CHECKED BY: AM</p> <p>NILES BOLTON ASSOCIATES 2505 Peachtree Rd. N.W. Suite 600 Atlanta, GA 30305 T-404 345 7400 www.nilesbolton.com</p>	<p>APPLICANT: BILL SCHUBNER T-925 638 8782</p>	<table border="1"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DATE PLOTTED (EXISTING)</td> <td>12/10/12</td> </tr> <tr> <td>2</td> <td>DATE PLOTTED (PROPOSED)</td> <td>12/10/12</td> </tr> <tr> <td>3</td> <td>DATE REVISION</td> <td>12/10/12</td> </tr> <tr> <td>4</td> <td>DATE REVISION</td> <td>12/10/12</td> </tr> <tr> <td>5</td> <td>DATE REVISION</td> <td>12/10/12</td> </tr> <tr> <td>6</td> <td>DATE REVISION</td> <td>12/10/12</td> </tr> <tr> <td>7</td> <td>DATE REVISION</td> <td>12/10/12</td> </tr> <tr> <td>8</td> <td>DATE REVISION</td> <td>12/10/12</td> </tr> <tr> <td>9</td> <td>DATE REVISION</td> <td>12/10/12</td> </tr> <tr> <td>10</td> <td>DATE REVISION</td> <td>12/10/12</td> </tr> </tbody> </table> <p>The drawings are the property of NILES BOLTON ASSOCIATES, INC. and shall remain the property of NILES BOLTON ASSOCIATES, INC. If they are to be used for any other project, the user must obtain the written permission of NILES BOLTON ASSOCIATES, INC.</p>	NO.	DESCRIPTION	DATE	1	DATE PLOTTED (EXISTING)	12/10/12	2	DATE PLOTTED (PROPOSED)	12/10/12	3	DATE REVISION	12/10/12	4	DATE REVISION	12/10/12	5	DATE REVISION	12/10/12	6	DATE REVISION	12/10/12	7	DATE REVISION	12/10/12	8	DATE REVISION	12/10/12	9	DATE REVISION	12/10/12	10	DATE REVISION	12/10/12	<p>BERKELEY PLAZA 2065 KITTRIDGE ST BERKELEY, CA 94704 CA VENTURES</p>	<p>SHEET TITLE: SHADOW STUDIES -DEC 10</p> <p>SHEET NUMBER: A3-303</p>
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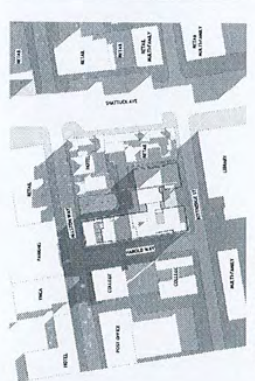
NEW SHADOWS FROM PROPOSED PROJECT SHOWN IN RED



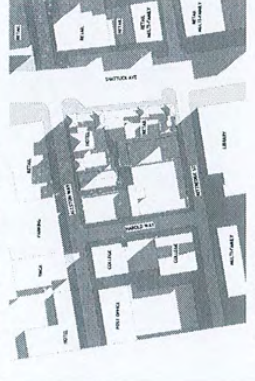
ANGLE VIEW PROPOSED



ANGLE VIEW EXISTING



TOP VIEW PROPOSED



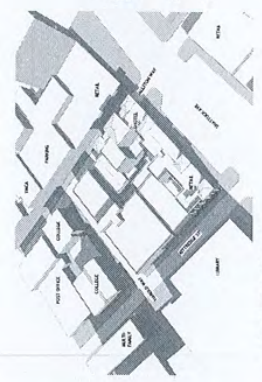
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DECEMBER 10 MORNING
 2 HOURS AFTER SUNRISE - 9:14 AM

DECEMBER 10 NOON



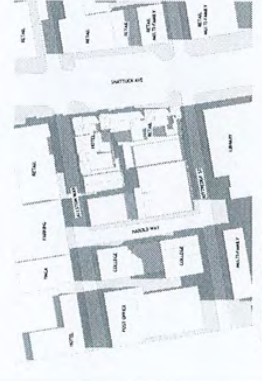
ANGLE VIEW PROPOSED



ANGLE VIEW EXISTING

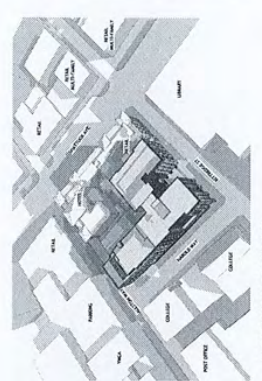


TOP VIEW PROPOSED

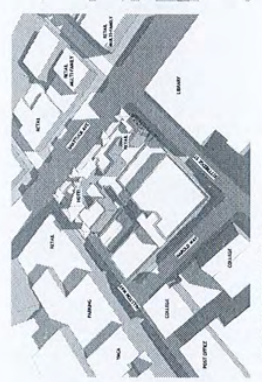


TOP VIEW EXISTING

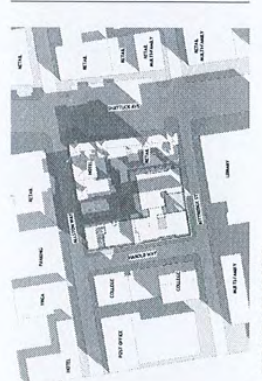
DECEMBER 10 EVENING
 2 HOURS BEFORE SUNSET - 2:49 PM



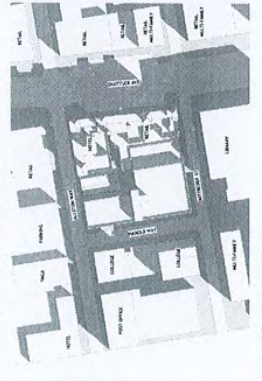
ANGLE VIEW PROPOSED



ANGLE VIEW EXISTING



TOP VIEW PROPOSED



TOP VIEW EXISTING

NOT RELEASED FOR CONSTRUCTION

PROJECT #: 121246
DRAWN BY: TF, BK
CHECKED BY: MM

MILES BOLTON ASSOCIATES
3060 Peachtree Rd. N.W.
Suite 600
Atlanta, GA 30305
T 404 385 7600
www.milesbolton.com

APPLICANT:
BILL SCHRAEDER
T 925 438 8782

NO.	DESCRIPTION	DATE
1	ISSUE FOR PERMIT	12/15/11
2	ISSUE FOR PERMIT - REVISION	12/15/11
3	ISSUE FOR PERMIT - REVISION	12/15/11
4	ISSUE FOR PERMIT - REVISION	12/15/11
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14	ISSUE FOR PERMIT - REVISION	12/15/11
15	ISSUE FOR PERMIT - REVISION	12/15/11

CA VENTURES
BERKELEY PLAZA
2065 KITTRIDGE ST
BERKELEY, CA 94704

SHEET TITLE:
STREET STRIP ELEVATIONS
SHEET NUMBER:
A3-304



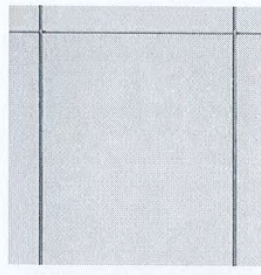
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MATERIAL BOARDS
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A3-305

BERKELEY PLAZA
2065 KITTRIDGE ST
BERKELEY, CA 94704
CA VENTURES

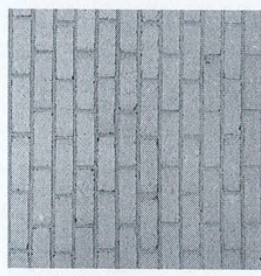
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DRAWN BY: TF, BK
CHECKED BY: AM
NILES BOLTON
ASSOCIATES
3265 Peachtree Rd., N.W.
Suite 600
Atlanta, GA 30305
T: 404.363.7400
www.nilesbolton.com

APPLICANT:
BILL SCHAUER
T: 925.638.8782

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	12/22/11
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3	REVISED	01/10/12
4	REVISED	01/10/12
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20	REVISED	01/10/12



E5 - WHITE FIBER CEMENT



E4 - BRICK



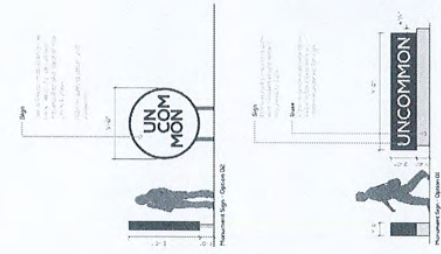
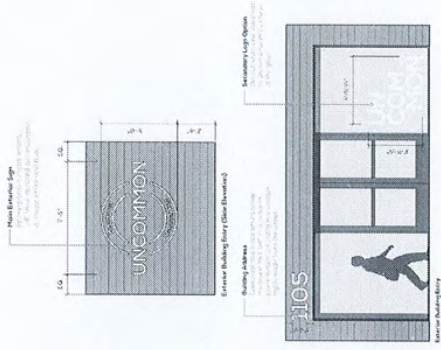
E3 - DARK TAN STUCCO



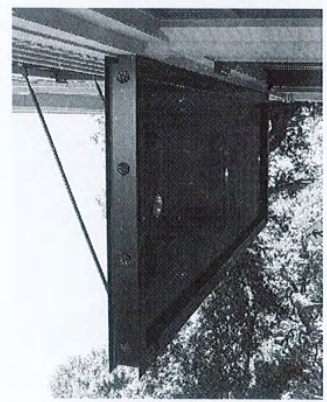
E2 - CHARCOAL GREY STUCCO



E1 - TAN STUCCO



E8 - EXTERIOR WALL SCIONCE

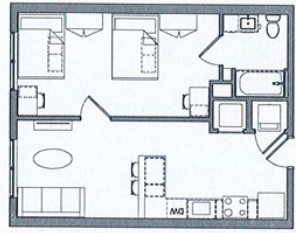


E7 - ALUMINUM CANOPY

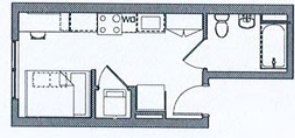
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2/20 NOT TO SCALE

NOT RELEASED FOR CONSTRUCTION

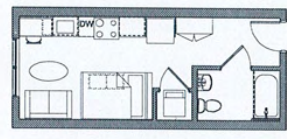
<p>PROJECT #: 121246 DRAWN BY: TF CHECKED BY: AM</p> <p>NILES BOLTON ASSOCIATES 2555 Piedimonte Rd., N.W. Suite 600 Atlanta, GA 30325 T: 404 363 7600 www.nilesbolton.com</p> <p>APPLICANT: BILL SCHRAEDER T: 925 638 8782</p>	<p>CA VENTURES</p> <p>BERKELEY PLAZA 2065 KITTRIDGE ST BERKELEY, CA 94704</p>	<p>SHEET TITLE: SAMPLE UNITS</p> <p>SHEET NUMBER: A5-001</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ISSUE PERMIT</td> <td>10/25/11</td> </tr> <tr> <td>2</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>3</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>4</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>5</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>6</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>7</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>8</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>9</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>10</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>11</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>12</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>13</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>14</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>15</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>16</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>17</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>18</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>19</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> <tr> <td>20</td> <td>ISSUE PERMIT EXHAUST</td> <td>12/22/11</td> </tr> </tbody> </table> <p><small>This Sample Unit is intended for use as a guide only. It is not intended to be used as a final design. The final design shall be based on the actual conditions of the site and the requirements of the local authorities. The final design shall be submitted to the local authorities for review and approval.</small></p>	No.	Description	Date	1	ISSUE PERMIT	10/25/11	2	ISSUE PERMIT EXHAUST	12/22/11	3	ISSUE PERMIT EXHAUST	12/22/11	4	ISSUE PERMIT EXHAUST	12/22/11	5	ISSUE PERMIT EXHAUST	12/22/11	6	ISSUE PERMIT EXHAUST	12/22/11	7	ISSUE PERMIT EXHAUST	12/22/11	8	ISSUE PERMIT EXHAUST	12/22/11	9	ISSUE PERMIT EXHAUST	12/22/11	10	ISSUE PERMIT EXHAUST	12/22/11	11	ISSUE PERMIT EXHAUST	12/22/11	12	ISSUE PERMIT EXHAUST	12/22/11	13	ISSUE PERMIT EXHAUST	12/22/11	14	ISSUE PERMIT EXHAUST	12/22/11	15	ISSUE PERMIT EXHAUST	12/22/11	16	ISSUE PERMIT EXHAUST	12/22/11	17	ISSUE PERMIT EXHAUST	12/22/11	18	ISSUE PERMIT EXHAUST	12/22/11	19	ISSUE PERMIT EXHAUST	12/22/11	20	ISSUE PERMIT EXHAUST	12/22/11
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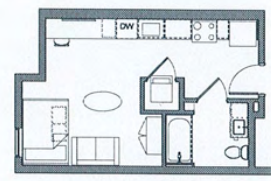
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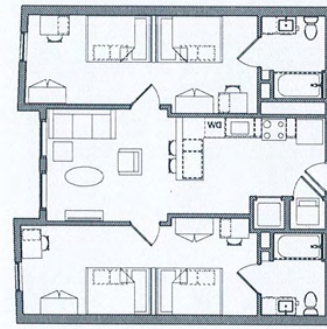
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SCALE: 3/16" = 1'-0"



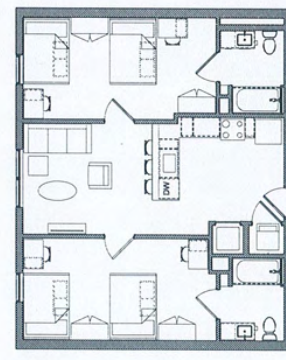
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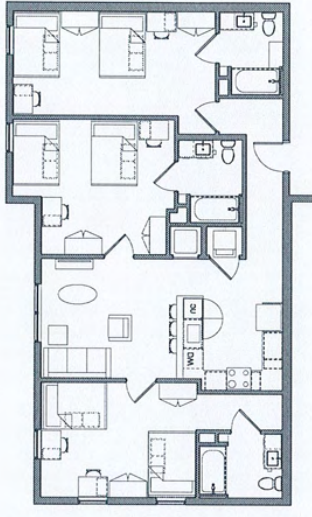
2 SAMPLE UNIT - S2
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6 SAMPLE UNIT - B3
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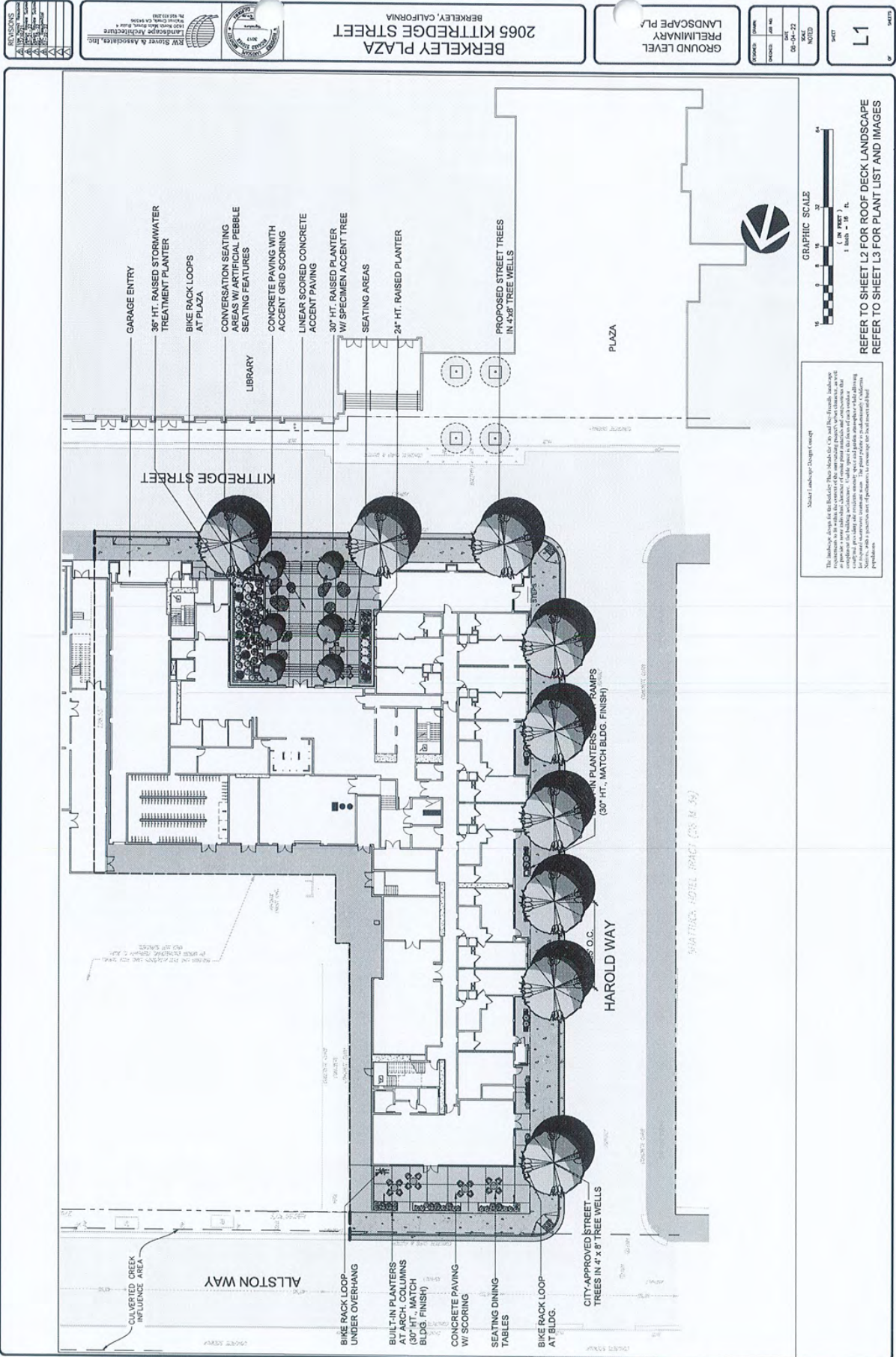


1 SAMPLE UNIT - B1
SCALE: 3/16" = 1'-0"



7 SAMPLE UNIT - C1
SCALE: 3/16" = 1'-0"

SCALE: 3/16" = 1'-0"





CITY OF BERKELEY (HTTPS://WWW.BERKELEYCA.GOV)



Housing Authority (<https://bha.berkeleyca.gov/>)

Public Library (<https://www.berkeleypubliclibrary.org/>)

Rent Board (<https://rentboard.berkeleyca.gov/>)

School District (<https://www.berkeleyschools.net/>)

(/) > Community & Recreation (/community-recreation) >

Community Services (/community-recreation/community-services) >

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First Source

First Source

The City of Berkeley encourages contractors working on publicly funded construction projects to hire Berkeley residents.

The First Source program promotes the hiring of Berkeley jobseekers on publicly funded construction projects, in addition to non-construction jobs that are created after construction is complete.

FIRST SOURCE FOR CONTACTORS AND DEVELOPERS

Contractors and developers who work with the City on construction projects should follow the steps below to comply with the First Source agreement:

- After being awarded the contract with the City, contact the First Source office to obtain a First Source Agreement along with construction job order forms.
- Complete a [Job Order Form \(https://berkeleyca.gov/sites/default/files/2022-02/First-Source-Job-Order-Form.pdf\)](https://berkeleyca.gov/sites/default/files/2022-02/First-Source-Job-Order-Form.pdf) and submit to [Rules4work@cityofberkeley.info \(mailto:Rules4work@cityofberkeley.info\)](mailto:Rules4work@cityofberkeley.info).
- City staff will refer potential applicants and/or work with local employment and training programs to ensure that local residents have the opportunity to apply for jobs on your project.
- You have the flexibility to hire Berkeley residents through your union hall or other outreach methods that work best for your company.

FIRST SOURCE FOR JOBSEEKERS

Berkeley residents looking for a job can sign up with a local employment and training program to be notified when opportunities arise.

- Sign up at a local employment program, such as [North Cities Career Center](https://bas.berkeleyschools.net/onestop/) (<https://bas.berkeleyschools.net/onestop/>).
- First Source staff will notify local programs when construction jobs are available due to signed First Source Agreements.
- Local programs will work directly with employers for non-construction jobs that result from the First Source Agreements.

RELATED DOCUMENTS

 **FIRST SOURCE JOB ORDER FORM** (494.51 KB)

IN THIS SECTION

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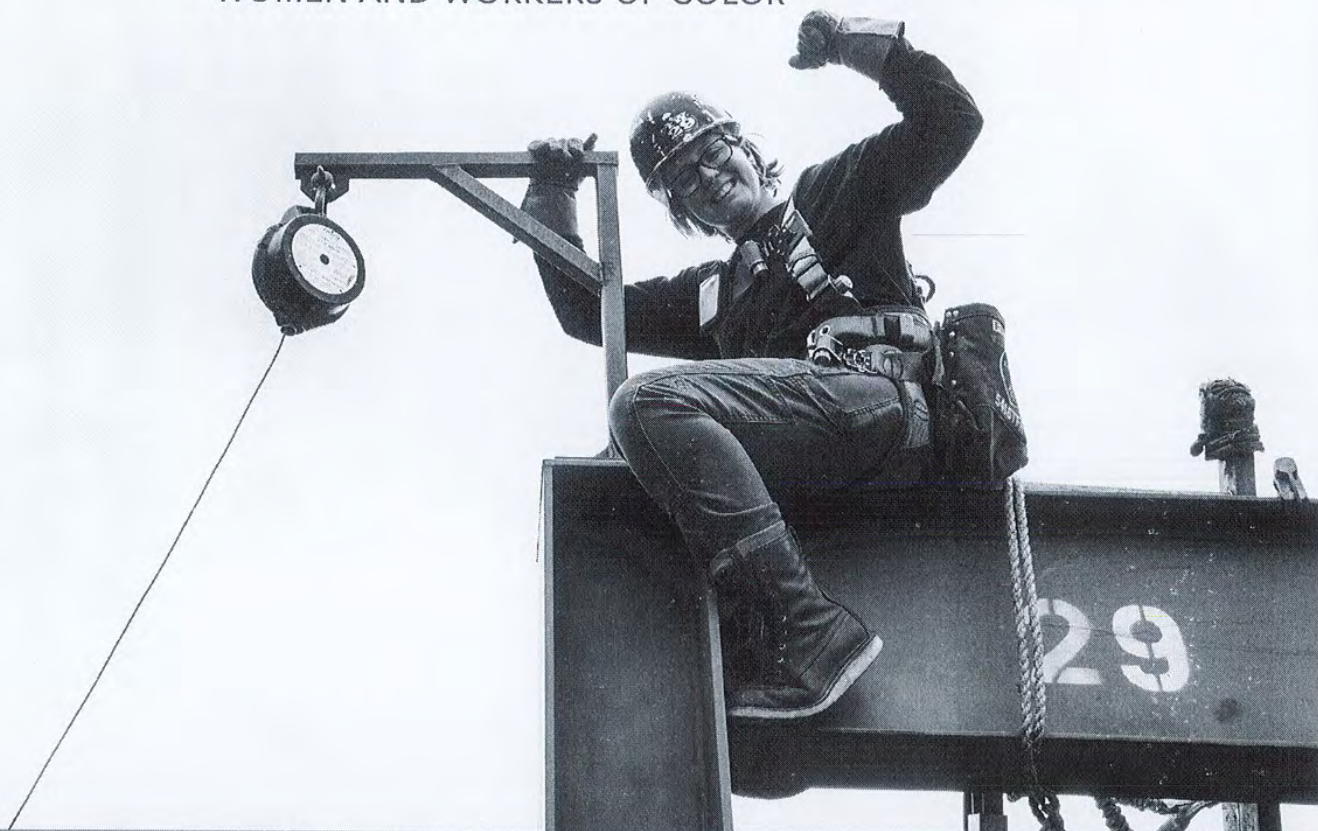
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CONSTRUCTING A DIVERSE WORKFORCE:

EXAMINING UNION AND NON-UNION CONSTRUCTION
APPRENTICESHIP PROGRAMS AND THEIR OUTCOMES FOR
WOMEN AND WORKERS OF COLOR



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EXECUTIVE SUMMARY

The construction industry serves as one of the most important sources of family-wage jobs in Oregon and across the country. Construction employment has been growing since 2010, and the Oregon Employment Department projects that the industry will add nearly 11,900 new jobs between 2019-2029, making construction the third fastest growing industry in the state.

Construction apprenticeships have long provided workers with valuable on-the-job and classroom training, high wages, and clear career pathways. Research suggests that apprenticeship programs also help reduce social inequalities. Because apprentices do not require the same financial investment as community or four-year colleges, they are more likely to attract low-income individuals and promote upward socio-economic mobility. Moreover, apprenticeship programs offer strong pathways to earning a steady income without attending college: workers without a college degree typically earn less than \$40,000 a year, while the mean wage for Oregon workers in construction and extraction occupations was \$59,010 in 2020. However, construction has historically been one of the most gender segregated industries in the United States, with particularly low representation of women of color. In 2020, women made up just 10.9 percent of the construction workforce.

The boom in construction jobs has created labor market gaps in some areas, as more construction workers reach retirement, and new jobs need to be filled. Given this opportune time to recruit apprentices, stakeholders in the greater Portland area, including public agencies, unions, and community-based organizations, have partnered with the Portland Metropolitan Service District (Metro) to form the Construction Career Pathways Project (C2P2) Public Owner Workgroup in order to improve recruitment and retention of women and Black, Indigenous, and people of color (BIPOC) in construction apprenticeships.

As more workers join construction apprenticeship programs, and as firms in the industry make targeted attempts to recruit and retain women and workers of color, we conducted this research in order to assess the state of construction apprenticeships in Oregon, including a comparison of apprenticeship outcomes for historically marginalized workers, in both union and non-union programs.

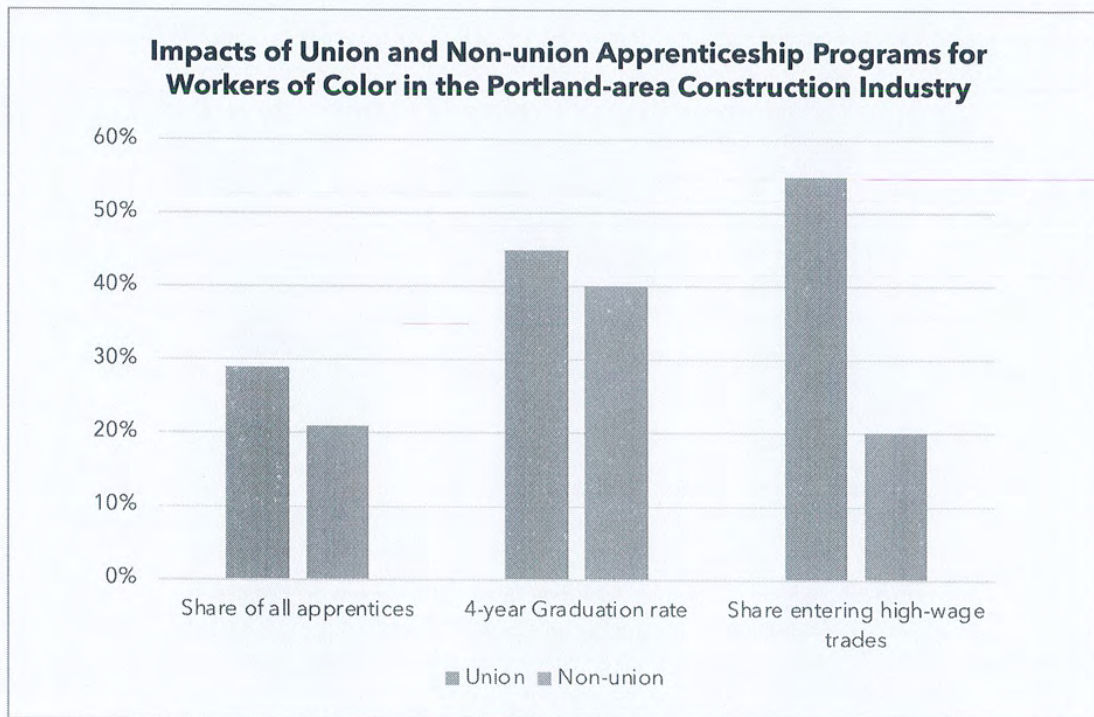
Drawing upon data from the Oregon Bureau of Labor and Industries (BOLI), this report analyzes outcomes for 17,964 people who were enrolled in apprenticeship programs in the greater Portland area between 2011-2020. This report includes aggregated and disaggregated data to examine enrollment, graduation, separation, and wage rates across various gender categories and racial/ethnic groups, including comparisons between union and non-union programs.

In measuring progress towards more equitable employment practices, these findings show that union apprenticeship programs provide significantly better outcomes overall for women and BIPOC compared to non-union programs, suggesting that an investment in union apprenticeship programs would support the construction industry's stated goal of making positive strides towards greater equity and inclusion.

KEY FINDINGS

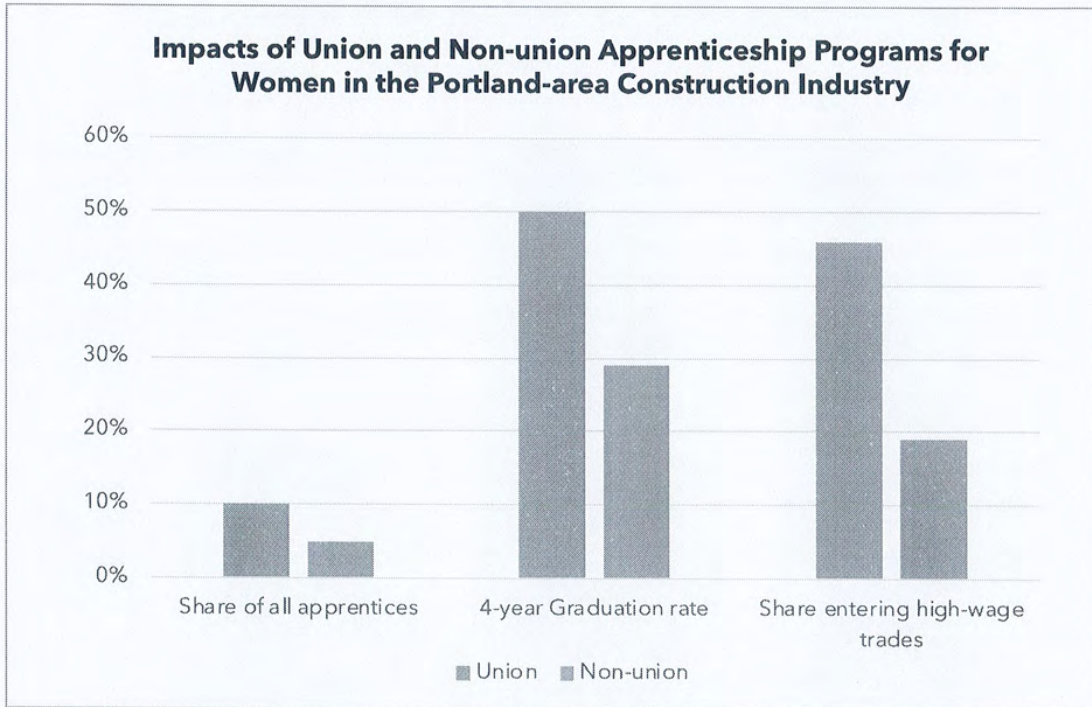
ENROLLMENT

- Construction apprenticeship enrollment in the greater Portland area more than doubled between 2011 and 2019, with 2,647 new enrollments in 2019, up from 1,206 new apprentices enrolling in 2011. Between 2011-2020, the majority of construction apprentices (72%) were enrolled in union programs.



- Union programs have greater apprenticeship diversity, in terms of gender and race, compared to non-union programs.
- In union programs, 64% of apprentices are white men, 26% are men of color, 7% are white women, 2.5% are women of color, and less than 1% are white non-binary people

- More women and BIPOC have enrolled in apprenticeship programs in the last decade. In 2020, 11% of all newly enrolled apprentices were women, a 57% increase from 2011. In 2020, 31% of newly enrolled apprentices were BIPOC, a 55% increase from to 2011.
- Union programs continued to recruit a higher proportion of women and BIPOC apprentices compared to non-union programs between 2011 and 2020.
 - In non-union programs, 75% of apprentices are white men, 20% are men of color, 4% are white women, 1.5% are women of color.



GRADUATION

- Fifty-three percent of apprentices who enrolled in programs between 2011-2015 graduated.
- In trades represented by both union and non-union programs, unions graduate a significantly higher proportion of apprentices. Unions had a graduation rate of 58% while non-union programs had a graduation rate of 36%.
- Men graduated at higher rates than women, and white apprentices at higher rates than BIPOC. Forty-five percent of women who registered between 2011 and 2015 completed their programs by 2020, compared with 53% of men in the same cohort. A smaller proportion of apprentices of color (44%) graduated compared to white apprentices (55%).

- Women and BIPOC are significantly more likely to finish their programs when enrolled in a union apprenticeship compared to a non-union apprenticeship. Of the 416 women enrolled in union programs between 2011 and 2015, 50% completed, compared to only 29% of the 108 women enrolled in non-union programs. People of color also had higher rates of completion in union program (45%) compared to non-union programs during the same period (40%).
- Black apprentices experienced the lowest graduation rates of all racial/ethnic groups (30%). However, a substantially higher proportion of Black apprentices in union programs graduated (33%) compared to non-union programs (23%).

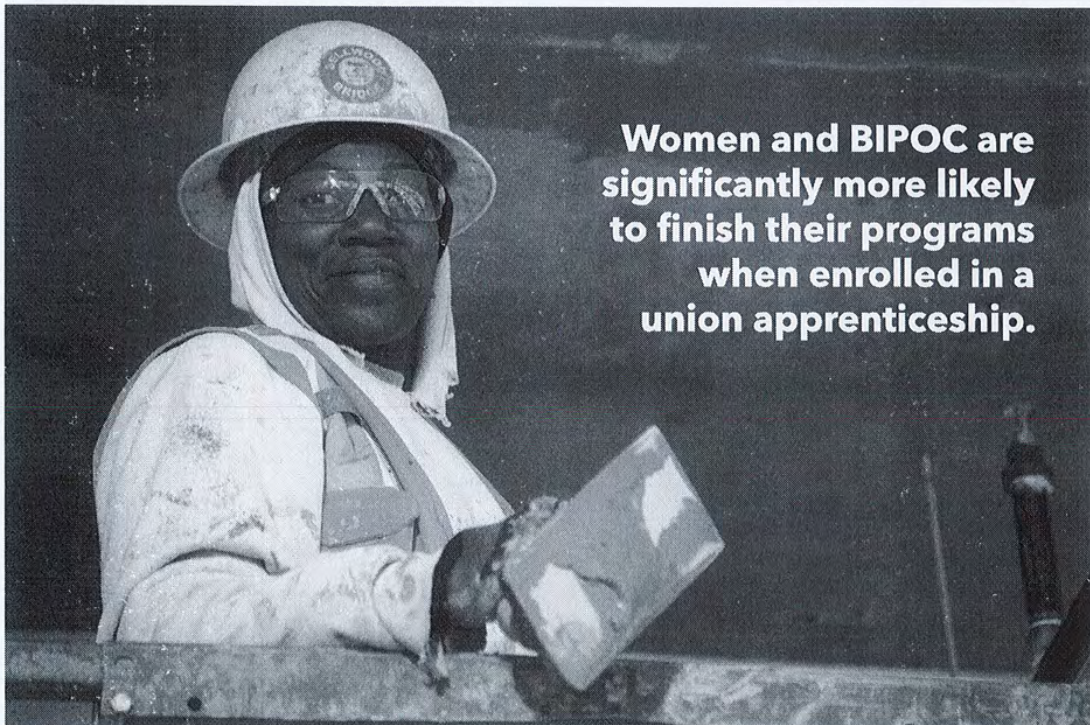


Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

SEPARATION

- Separated workers include both those who were involuntarily terminated and those who voluntarily ended their apprenticeship. Overall, there were comparable proportions of workers who separated (38%) from union and non-union programs.
- On average, workers of color separated at higher rates than white workers, 44% compared to 35%, and women separated at higher rates than men, 41% compared to 37%. White women have lower separation rate than both men of color and women of color, with women of color having the highest separation rates of any group.

- Forty-seven percent of people of color enrolled in non-union apprenticeship programs separated, versus 43% in union programs.¹
- A significantly higher proportion of women separated from non-union programs (51%) than from union programs (38%).

A greater proportion of BIPOC workers separated during their probationary period (a time in which an apprentice can be terminated without cause) than did white apprentices. Four percent of Indigenous workers, 2.5% of Asian-American workers, 4% of Black workers, and 4% of Latinx workers separated during their probationary period, compared with less than 2% of all white apprentices. As a group, workers of color made up 40% of all those separated during their probationary period, despite accounting for only 26% of all apprentices.

Women and workers of color are more than twice as likely to enter a high-wage trade if they go through a union- as opposed to non-union apprenticeship program.

WAGES

- White men still dominate the ranks of apprentices in the highest-paid trades. But apprenticeship programs are serving to improve both racial and gender wage inequalities - particularly union apprenticeship programs.²
- Forty-six percent of all women in union apprenticeship programs are entering trades with an average hourly wage of \$40 or higher, compared to 19% of all women in non-union programs.
- Similarly, 55% of BIPOC in union programs are enrolled in trades with an average hourly wage of \$40 or higher, versus just 20% of BIPOC in non-union programs.

INTRODUCTION

After being hit particularly hard by the 2008 housing crisis, the Oregon construction industry has been growing steadily since 2010. The Oregon Employment Department is projecting an addition of nearly 11,900 new jobs in construction over the next decade, making construction the third fastest growing industry.³ In 2018 there were 51,000 total jobs in construction in Oregon, with an expected increase of 18.6% by 2026.

Construction is the third fastest growing industry in Oregon.

The federal government is planning multi-billion-dollar investments in infrastructure such as bridges, public school buildings, and roads, along with public services. President Biden writes that "it has never been more important for us to invest in strengthening our infrastructure and competitiveness, and in creating the good-paying, union jobs of the future."⁴

At the same time that infrastructure investment is booming, the construction industry is also experiencing a sharp rise in the demand for labor.⁵ Many construction workers, about 17% of the workforce, are nearing retirement age, creating an urgent need for replacement workers.⁶ Apprenticeship programs have long been a successful way to recruit and train skilled workers in the construction industry, and they provide a steady stream of workers destined to become highly-skilled experts in their trade. Construction apprenticeships typically last between two and five years, depending on trade requirements. Requirements in each trade are informed by minimum standards set by the Oregon Apprenticeship and Training Council (OSATC). Though standards differ by apprenticeship program, all apprentices are required to complete a specific number of on-the-job training hours as well as a specific number of hours of classroom training. State-registered apprenticeships provide workers with paid on-the-job training, mentorship by a journey-level worker and worksite experience, as well as classroom instruction.⁷

Workers often enter apprenticeship programs because they provide opportunities to earn relatively high wages and pursue a clear career pathway.⁸ Construction wages for public projects are determined by Oregon's Prevailing Wage Rate law, ensuring "public expenditures maintain and reflect local market standards for wages in benefits."⁹ Construction apprenticeships offer a critical pathway to well-paid jobs for workers without a college degree. For example, while workers without a college degree typically earn less than \$40,000 a year,¹⁰ the annual mean wage for Oregon workers in construction and extraction occupations in 2020 in Oregon was \$59,010.¹¹ Because apprentices do not require the same financial investment as community or four-year colleges, they are particularly valuable for low-income individuals seeking a path to upward mobility.¹²

Addressing Inequities in Construction Apprenticeships

The construction industry has historically been dominated by white male workers, with particularly low representation for women of color.¹³ While recent decades have seen an increase in the number of both women and workers of color in the industry, there is still much to be done to insure truly equal access. In 2020, for instance, women made up just 10.9 percent of the construction industry, the lowest of any major industry.¹⁴

Women may remain underrepresented in construction for several reasons: there is still a common perception that construction jobs are “men’s work,” women may not have had experience developing the technical skills needed for construction trades; and women tend to lack networks of workers in construction who could provide a pathway into the industry.¹⁵

Apprenticeship programs can provide an important entry point for women into construction jobs, with union-contractor joint programs being an especially effective pathway.¹⁶ Still, while construction apprenticeships may offer a pipeline to construction jobs for women and workers of color, recruitment and retention in apprenticeships remains an issue, especially as women and BIPOC in construction apprenticeships face workplace discrimination and harassment, often a result of formal recruitment and employment practices as well as more informal jobsite culture. For example, despite the requirement of on-the-job training, programs do not have an obligation to guarantee job placement, because the availability of hours depends on contractors having work for apprentices to take on. Most companies employing apprentices rely on an out-of-work list, where workers are called to work based on how long they have been out of work, providing little opportunities for employers to discriminate against women



or BIPOC. However, white men have often been able to avoid the out-of-work list altogether by developing strong relationships with employers, staying at the same company and moving from project to project, even during apprenticeship.¹⁷

Ultimately, developing strong relationships and networks is crucial to gaining the hours needed to progress through the program. Scholars have shown that the “good old boys’ club” culture in construction can be a barrier to succeeding in an apprenticeship program, as developing relationships with potential employers and experiences interacting with colleagues are shaped by gender and racial/ethnic identity.¹⁸ In other words, inequality in construction apprenticeships is reproduced by formal and informal policies and processes that reinforce racist and sexist practices, hindering the ability of women and BIPOC to succeed in these industries.¹⁹ In this context, union membership can help eliminate some of these barriers, and have a substantial positive impact on BIPOC and women’s likelihood of graduating from apprenticeship programs and receiving quality training.²⁰

To address gendered and racialized barriers to entry and success in construction apprenticeships, Metro convened the Construction Career Pathways Project (C2P2) Public Owner Workgroup (Workgroup) in 2018. The goal of C2P2 is “to develop a regional approach to construction workforce equity for the Greater Portland metropolitan area.”²¹ The Workgroup includes 16 agencies including the City of Beaverton, Multnomah County, Oregon Department of Transportation, TriMet, Portland State University, and more. Some of the strategies this group suggests include setting clear workforce diversity goals, project thresholds, workforce agreements, and worksite anti-harassment policies, for both journey-level workers and apprentices.

Construction employers, both union and non-union apprenticeship programs, and government agencies have all made significant investments in recruiting and training apprentices. This investment is lost when apprentices drop out prematurely. As more and more workers join apprenticeship programs, as funding for construction projects continues to increase, and as organizations like the Oregon Tradeswomen and C2P2 make targeted attempts to recruit and retain women and BIPOC, up-to-date research is needed to assess the state of construction apprenticeships in Oregon. Specifically, there is a pressing need to identify gaps present in retention strategies in order to retain a more diverse population of apprentices.

DATA AND METHODOLOGY

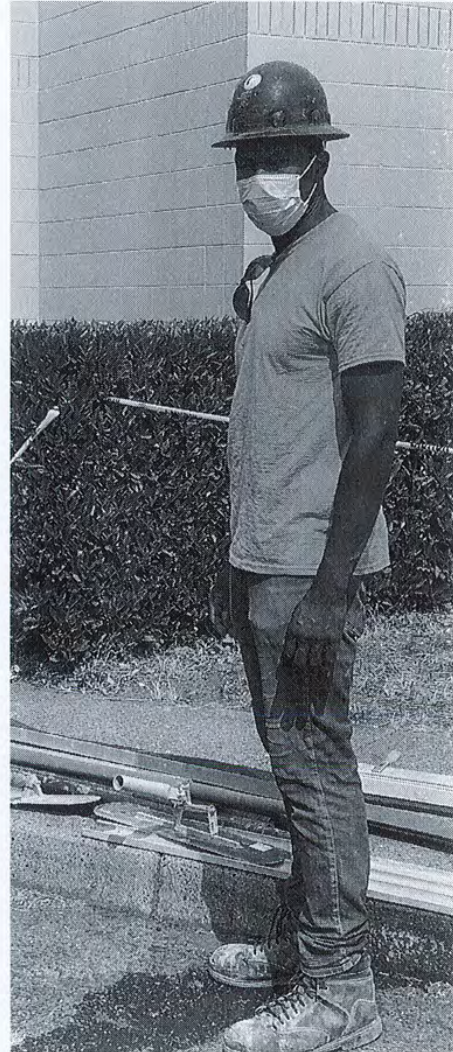
This study builds on Byrd’s (2004, 2009) statewide analyses of Oregon construction apprentices. That research demonstrated that union programs enrolled and graduated a larger number and greater proportion of women and workers of color compared to non-union programs, though these groups still faced barriers as compared to their white male counterparts. This report updates much of Byrd’s earlier research, as well as extending this work by analyzing new data on separation and industry-specific wage rates.

The data used in this report come from the Apprenticeship and Training Division of the Bureau of Labor and Industries (BOLI) spanning the period 2011-2020. These data include information on all apprentices enrolled in programs active in the Portland, Oregon tri-county area and therefore slightly differs from previous statewide studies.²² These data contain detailed demographic information on ap-

prentices, including their race, gender, and veteran status. While this report primarily compares the experiences of white workers and workers of color, the BOLI data include rich demographic information which we draw on where possible. Disaggregated data include the following racial/ethnic groups: American Indian (which we identify as Indigenous), Asian-American, Black/African American (which we identify as Black), Hispanic (which we identify as Latinx), Native Hawaiian, and Pacific Islander. Throughout the report, we've also grouped Black, Indigenous, and people of color using the acronym BIPOC. In cases where there is not disaggregated data included for specific racial/ethnic groups, this is largely due to the presence of a small number of observations in the relevant subgroup. Still, some disaggregated data on gender and race is provided in this report where statistically meaningful, in order to analyze and compare the experiences of women of color, men of color, white women, and white men.

While Oregon recognizes "mixed" union and non-union apprenticeship programs, all programs in the present study were exclusively union or non-union.²³

Much of the analysis conducted below is based on descriptive statistics, though there is also some regression analysis. Regressions are a statistical tool for identifying relationships between dependent and independent variables, while controlling for other independent variables. For example, a regression can show the impact race has on the likelihood of apprenticeship graduation, controlling for other factors such as gender or age. In using regression analysis, variables are able to be held constant, which means we were able to test what the relationship between two variables of interest is, largely independent of the influence of other variables. It is important to note the small numbers of women and BIPOC in specific apprenticeship programs, which limits the ability to conduct further robust regression analysis.



Data and Definitions

This report analyzes workers in the greater Portland metro area who completed an apprenticeship program, who were currently active at the time of this study, who have separated, and who had been suspended at some point in their tenure as an apprentice between 2011 and 2020.

Apprentices are categorized as terminated when a Joint Apprenticeship and Training Committee has determined a reason for termination, such as failure to submit records, failure to complete related classroom instruction, or failure to communicate with the committee. Apprentices who have voluntarily withdrawn their apprenticeship are also considered terminated. There are not disaggregated data available from BOLI on workers who voluntarily or involuntarily terminated their apprenticeship agreements. For this reason, we use the term separated to more accurately reflect the experience of workers who BOLI categorizes as terminated.

Workers who were categorized as suspended at the time of the data collection likely returned to work after the suspension period. Workers are typically categorized as suspended when they are on leave so it's important to note the non-punitive status of this categorization.

This report excluded deceased people (n=33) and apprentices who transferred to another apprenticeship program (n=1,045).

This study examines construction apprenticeship programs certified by BOLI. A list of these programs can be found in Appendix I. The list includes programs in existence between 2011 and 2020, some of which have since been dissolved or merged with other programs.

FINDINGS AND ANALYSIS

CURRENT ENROLLMENT

Enrollment in construction apprenticeships in Oregon has increased dramatically since the early 2000s. In 2007 there were 5,558 apprentices enrolled in construction trades in the state of Oregon, up from 4,497 in 2004.²⁴ As apprenticeship enrollment is correlated with the unemployment rate, apprenticeship enrollment dipped in the Great Recession, but has risen steadily since 2012,²⁵ with totals now exceeding 6,544 workers actively enrolled in apprenticeship programs in the greater Portland area alone in 2020.

The number of new registrants enrolling in construction apprenticeship programs each year is rising. New construction apprenticeship enrollment more than doubled between 2011 and 2019 in the greater Portland area, from 1,206 new apprentice enrollments to 2,647, respectively. This increase mirrors national trends, where the number of apprentices newly registered each year grew by 128% between 2009 and 2019.

This report focuses on apprentices in programs that serve the greater Portland area.²⁶ In total, we analyzed conditions for 17,964 workers enrolled in apprenticeship programs active in this geographic area between 2011 and 2020 (see Table 1).²⁷

Table 1: Apprenticeship Status between 2011-2020

Union	Currently Active	Completed	Suspended	Separated	Total
Non-union	1,827	1,279	29	1,899	5,034
Union	4,717	3,278	78	4,857	12,930
Total	6,544	4,557	107	6,756	17,964

Union programs in the greater Portland area make up the majority of all construction trades apprenticeships. In 2020, there were only 15 non-union apprenticeship programs compared to 36 union programs in the greater Portland area. In this data, 72% of apprentices were enrolled in union programs and 28% were enrolled in non-union programs. Thus, even though unions accounted for only 21.9% of all construction workers in Oregon as of 2019, they provided more than two-thirds of the state’s apprenticeships.

Apprentice Diversity

Appendix II provides data on the status of men and women, BIPOC, and white apprentices who enrolled in union and non-union programs in 2011-2020. Of 17,964 apprentices enrolled in programs between 2011-2020, 74% were white while 26% were Black, Indigenous, and people of color (BIPOC). Indigenous apprentices made up 3% of all apprentices, Asian-American apprentices 2%, Black and

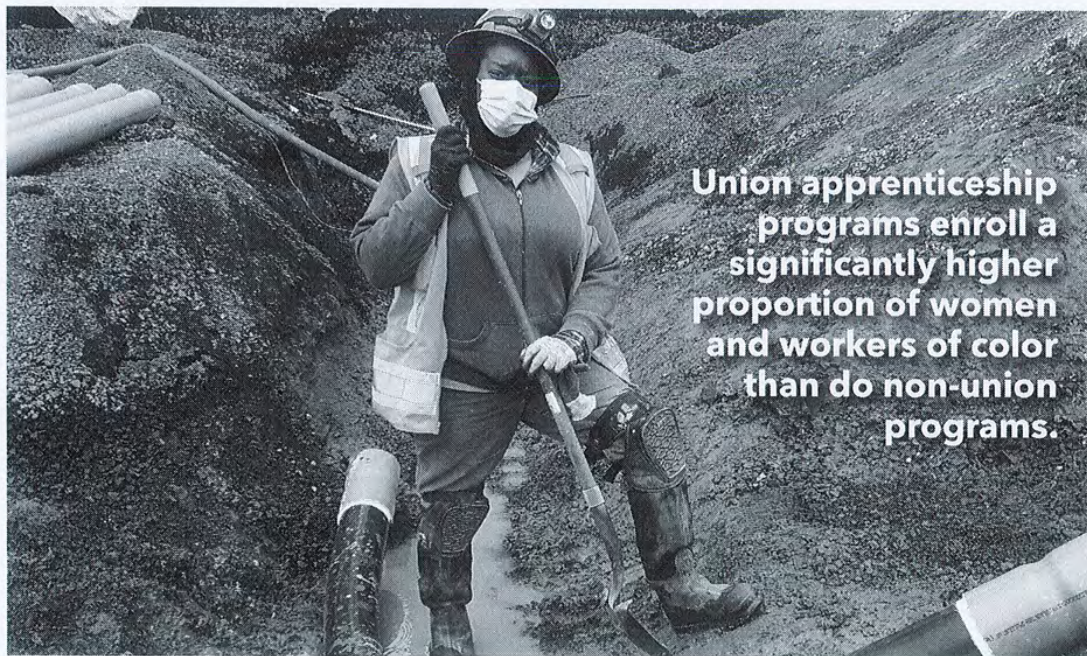
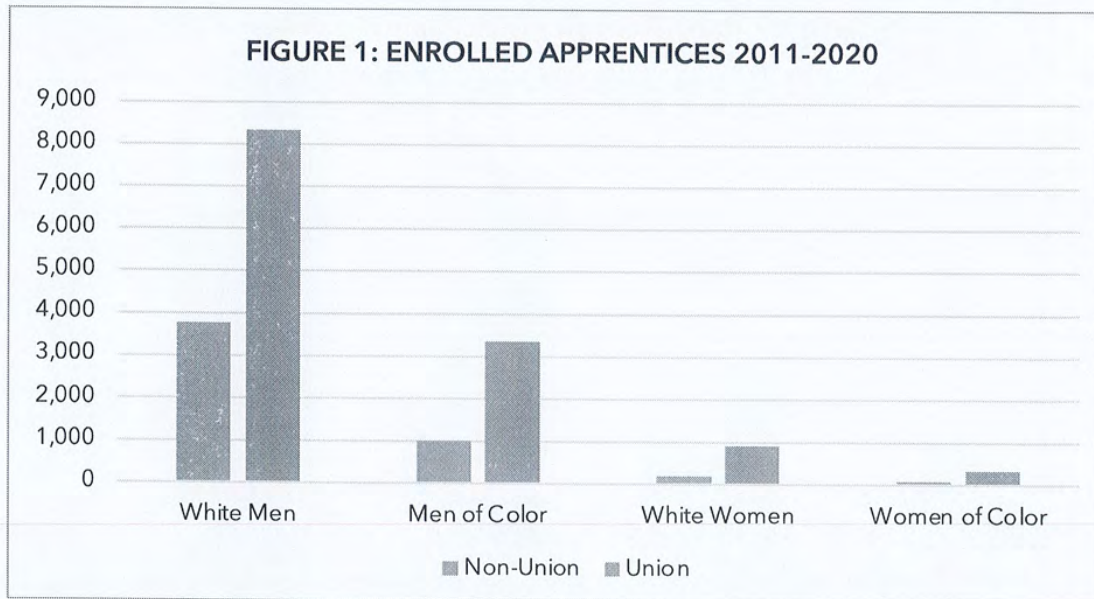


Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

African American apprentices 6%, Latinx apprentices 15%, and Native Hawaiian and Pacific Islander apprentices made up less than 1%. The racial/ethnic makeup of construction apprentices in Portland is fairly comparable to the makeup of the racial/ethnic population in Portland, where Blacks/African Americans make up 5.8%, American Indians 0.8%, Asians 8.2%, Native Hawaiian and Pacific Islanders, 0.6%, Hispanic or Latino 9.7%, and white alone (not Hispanic or Latino) 70.6%. Ultimately, Latinx and white apprentices are particularly overrepresented, while Asians are quite underrepresented.



While there are significantly more women enrolled in union than non-union apprenticeship programs, women remain greatly underrepresented in the industry as a whole: despite making up 57.3% of people aged 16 and older in the labor force in Oregon, women made up only 8% of construction apprentices in the greater Portland area.²⁸

White men made up the largest proportion of apprentices in the data, at 67%, while white women made up 6% of all apprentices enrolled between 2011-2020. Men of color were the second most represented group, at 24%, while women of color were the least represented group, at 2% of the apprentices in the data.

The racial composition of apprentices by gender is equivalent, where 1,114 (74%) of the female apprentices are white and 12,093 (74%) of the male apprentices are white, while 398 (26%) of female apprentices are BIPOC and 4,357 (26%) of male apprentices are BIPOC. Figure 1 illustrates the race and gender composition of apprentices in the greater Portland area between 2011-2020.

Union programs are more diverse compared to non-union programs. As shown in Table 2, while white men made up 75% of apprentices in non-union programs, they made up 64% of union programs. Women were better represented across all racial categories in union programs, with white women

making up 4% of non-union programs compared to 7% of union programs, and women of color making up 1% of non-union programs compared to 3% of union programs.

Table 2: Apprentices in union and non-union programs between 2011-2020 by gender and race/ethnicity

Sex and Racial/Ethnic Group	Non-Union	% of Non-Union	Union	% of Union	Total	% of Grand Total
White Men	3,755	75%	8,338	64%	12,093	67%
Men of Color	1,006	20%	3,351	26%	4,357	24%
White Women	199	4%	915	7%	1,114	6%
Women of Color	74	1%	324	3%	398	2%
White Non-binary	0	0%	2	0%	2	0%
Non-binary People of Color	0	0%	0	0%	0	0%
Total	5,034	100%	12,930	100%	17,964	100%

Currently Enrolled Apprentices

Of the 17,964 apprentices in the data, there were 6,544 active apprentices, namely apprentices who were currently enrolled- but had not yet completed- an apprenticeship program. The demographic characteristics of actively enrolled apprentices mirrored those of all apprentices in the data.

Examining only apprentices who were actively enrolled as of June 2020, white workers made up 74% of active apprentices, Latinx apprentices made up 16% of active apprentices, Black workers 4%, Asian-American and Indigenous workers each made up 3% of active apprentices, and Native Hawaiian and Pacific Islander apprentices made up less than 1% of all apprentices. Overall, Black, Indigenous, and people of color (BIPOC) made up approximately 26% of all actively enrolled apprentices.

As shown in Figures 2 and 3, for both union and non-union programs, white men were the most represented group. 4,424 (68%) white men were actively enrolled between 2011-2020 in both union and non-union programs. Among actively enrolled apprentices, men of color were the next most represented group (24%) followed by white women (6%) and women of color (2%).

White men made up a larger proportion of active enrollments overall in non-union programs (76%) compared to union programs (64%). In other words, women and BIPOC had higher enrollment rates in union programs compared to non-union programs.

Suspended Apprentices

Very few apprentices in the data were suspended (107 or <1%). Between 2011-2020, less than 1% of women of color, men of color, and white men were suspended, while 1.6% of white women were suspended. Overall, women made up 21% of all suspended apprentices, despite making up only 8%

FIGURE 2: APPRENTICE DIVERSITY IN NON-UNION PROGRAMS FOR ACTIVELY ENROLLED

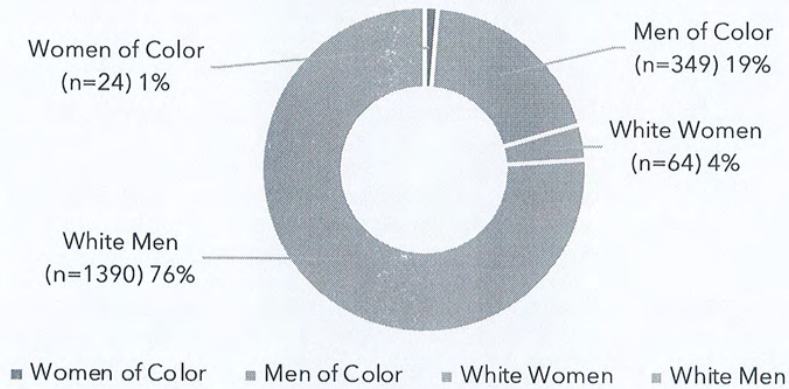
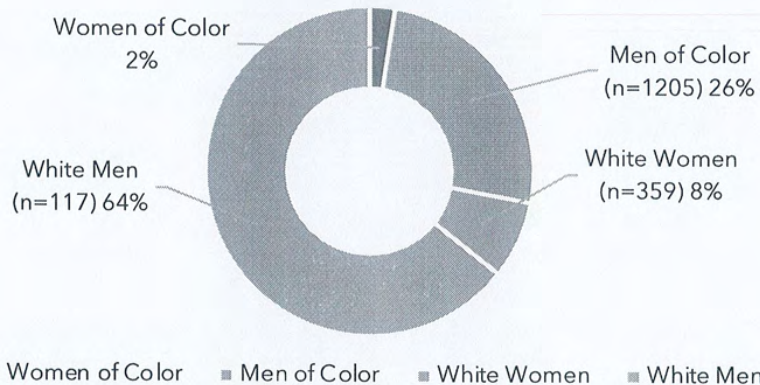


FIGURE 3: APPRENTICE DIVERSITY IN UNION PROGRAMS FOR ACTIVELY ENROLLED



of all apprentices. BIPOC also made up a high percentage of suspended apprentices (31%), despite making up 26% of all apprentices. Higher rates of suspension among women may be reflective of the barriers to success that are well-documented by researchers, such as issues with workplace harassment or finding childcare.²⁹

OCCUPATIONAL DISTRIBUTION

The number of apprentices in each of the 45 different trades in our data varied widely (see Appendix I for list of trades). Twenty-seven percent of the trades in our data trained 50 or less apprentices, 36%

trained between 51 and 200 apprentices, 14% trained between 201-500 apprentices, 11% trained between 501-1,000, and 11% trained over 1,000 apprentices.

For actively enrolled apprentices, inside electrician trades had the largest enrollment of both non-union and union programs, with enrollment at 731 (11%) in non-union programs and 841 (13%) in union programs. For non-union programs, inside electricians make up 40% of all apprentices, while inside electricians make up only 18% of all union programs, owing to the wider range of trades that have union apprenticeship programs. Looking at all apprentices during the period 2011-2020 (which includes active, completed, separated, and suspended apprentices) those in union programs were most commonly enrolled as carpenters (19%).

GRADUATION RATES

Graduation rates, or an apprentice's ability to complete a program, are a strong indicator of the training an apprentice has received and the participating employers' commitment to training workers.

In this report, graduation rates refer to the percentage of apprentices who started their training between 2011-2015 and completed their training sometime between 2011 and 2020. We chose the 2011-2015 cohort because many programs take about 4 years to complete, so we did not want to include cohorts of people that may not have graduated yet because they are still within the average period required to complete their program.³⁰

Overall, 3,594 of 6,830 (53%) apprentices who enrolled between 2011-2015 graduated. Graduation rates in 2015 were lower than in 2011, at 49% and 57%, respectively.



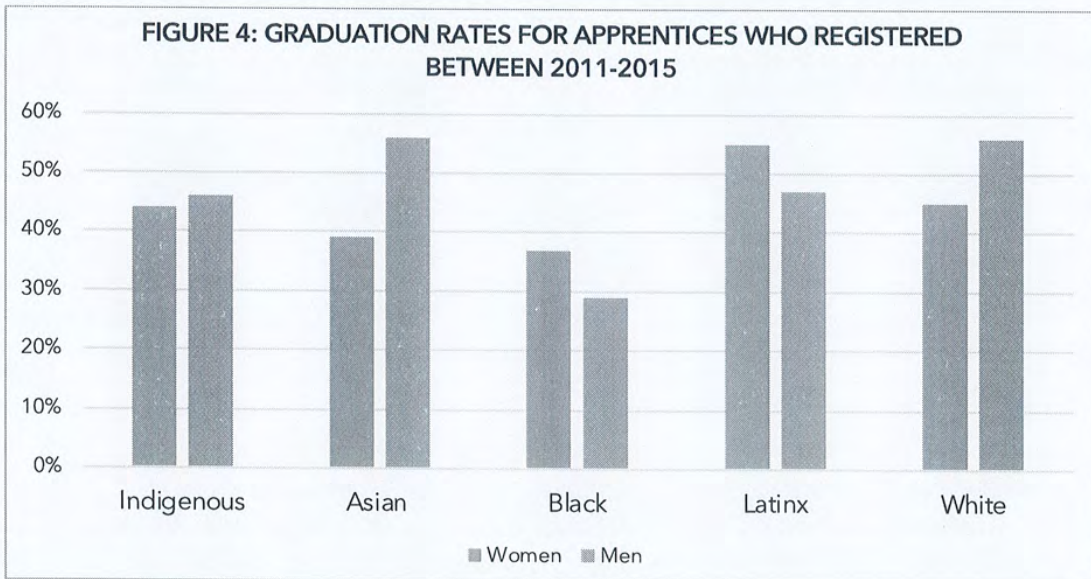
Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

Men graduated at higher rates than women across union and non-union programs. Two-hundred thirty-eight (45%) of the women who registered between 2011 and 2015 completed their programs, compared to 3,356 (53%) of men in the 2011-2015 cohort who graduated at some point between 2011 and 2020. A greater proportion of white apprentices (55%) graduated compared to BIPOC (44%). Of women who graduated, an equal proportion were white and BIPOC. A substantially higher proportion of white men in the same cohort graduated compared to men of color, at 56% and 44% respectively. Black men and Black women experienced the lowest graduation rates of any group, at 29% and 37%, respectively (see Figure 6).

It is also important to be cautious when interpreting some of these results because of the small numbers of observations in particular subgroups. While there were more than 100 men in every racial/ethnic group in the cohort of registrants between 2011-2015, and nearly 400 white women in the cohort, there were less than 50 women of color across every racial/ethnic group (25 Indigenous women compared to 196 men, 18 American Asian women compared to 134 men, 38 Black women compared to 320 men, and 47 Latinx women compared to 770 men). While Black apprentices experienced the lowest graduation rates of all racial/ethnic groups (30%), a substantially higher proportion of Black apprentices in union programs graduated (33%) compared to non-union programs (23%).

Of the 416 women enrolled in union programs 50% completed, compared to only 29% of the 108 women enrolled in non-union programs. People of color also had higher rates of completion in union program (45%) compared to non-union programs (40%).

Importantly, graduation rates may vary from trade to trade, with licensed trades in particular taking longer to complete.³¹ For example, apprentices may take longer to graduate if they have not been able to receive the number of hours necessary to complete the program. With this in mind, it's particularly useful to compare graduation rates between men and women, and white workers and workers of color



Women and people of color enrolled in union programs had higher graduation rates compared to those enrolled in non-union programs.

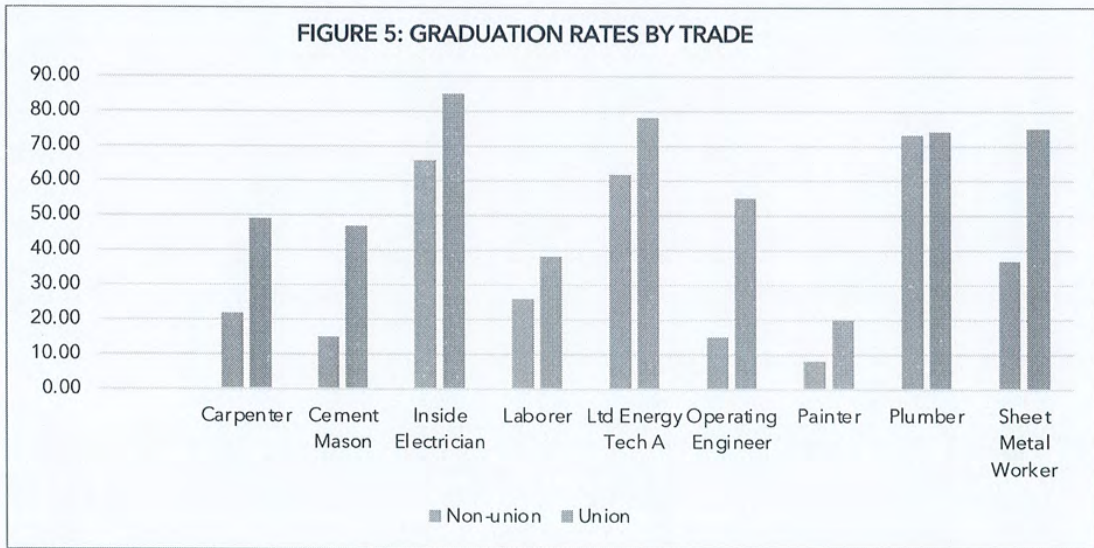
within trades rather than across all trades. In order to compare differences in graduation rates between union and non-union programs, we analyzed the nine parallel trades in the data: Carpenters, Cement Masons, Inside Electricians, Energy Technicians, Operating Engineers, Painters, Plumbers, and Sheet Metal Workers.

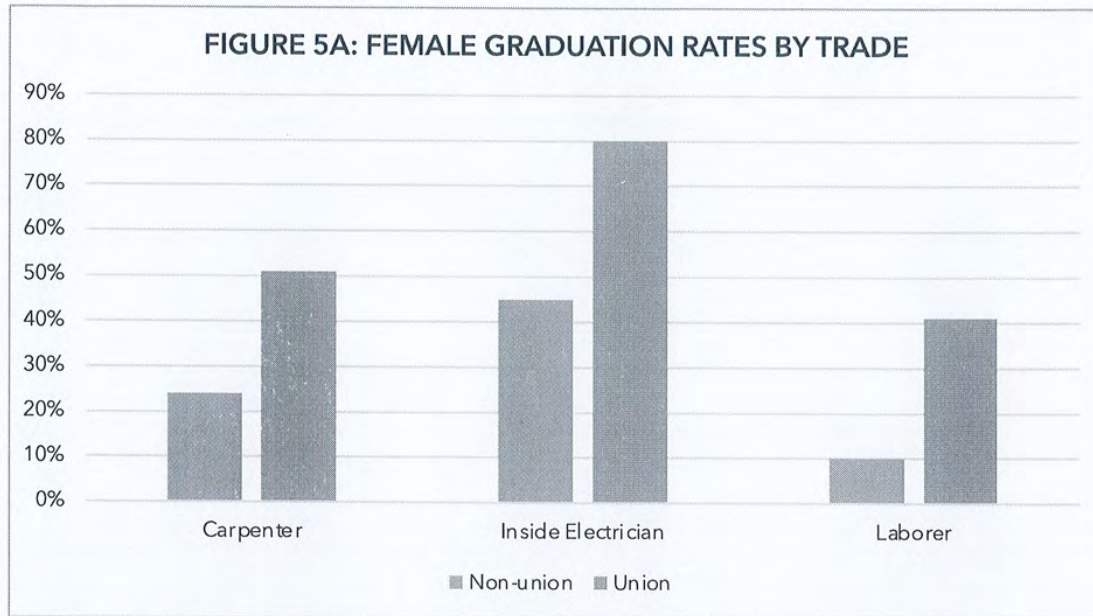
Across these trades, union programs graduate a higher proportion of apprentices than non-union programs (see Figure 5). Unions had a graduation rate of 58% while non-union programs had a graduation rate of 36%

As shown in Figure 5A, union programs graduate a higher proportion of women than non-union programs do in all trades where there are comparable programs. For these comparisons, we have limited ourselves to programs which had 20 or more apprentices enrolled from each gender and racial/ethnic group.

Similarly, as shown in Figure 5B, union programs tend to graduate a much higher proportion of their apprentices of color than non-union programs. Figures 5, 5A, and 5B show the percent of workers who were registered between 2011-2015 and who graduated between 2011-2020 among parallel union and non-union programs.

These figures show that gender and racial/ethnic disparities in graduation rates are largely the result of disparities in graduation between union and non-union programs. As the data show, being enrolled in a union program results in much higher graduation rates especially for women and BIPOC.



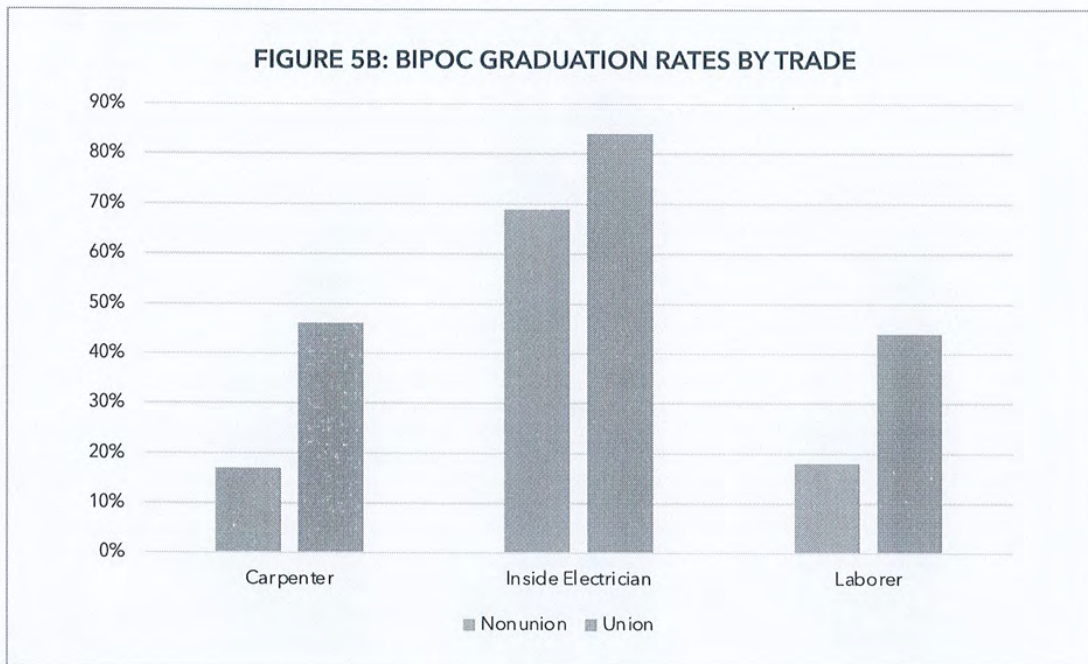


We also ran logistic regressions to determine the average likelihood of graduation by racial/ethnic group and gender. Because graduation rates can vary from trade to trade, running a logistic regression that holds trade constant can be a helpful measure to assess gender and racial/ethnic equity.

Based on the data, on average, women apprentices were 16% less likely to complete an apprenticeship as compared to men, holding trade constant.³² Results show that, on average, being a person of color as compared to a white apprentice is associated with an approximately 35% lower chance of completing an apprenticeship, holding trade constant.³³ Black workers faced the highest barriers to completing an apprenticeship program. Black apprentices were 55% less likely to complete an apprenticeship as compared to white apprentices, holding trade constant.³⁴

However, these industry-wide data mask dramatic differences between union and non-union apprenticeship programs. Holding trade constant, BIPOC workers in a union program had a 20% greater likelihood of completing their program compared to workers of color in non-unionized apprenticeships.³⁵ Even more substantially, women in unions experienced a 70% greater likelihood, on average, of completing their program compared to women who were in non-unionized apprenticeships.

These findings highlight the persistent barriers for women and workers of color, particularly for Black workers, to complete apprenticeship programs, and require industry-wide changes. In many cases, the inability to complete a program results from structural inequalities. For example, arranging childcare may keep parents, especially mothers, from being able to find the hours necessary to move through the program. Research shows that for women in particular, a lack of meaningful tasks and sexism experienced at the worksite slows down progress and leaves women with lower quality training compared to men, making it more difficult to advance through the program.³⁶ Other inequities experienced by women and workers of color can be working fewer hours, not being part of core crews (the contrac-



tor’s permanent workforce), and on-the-job harassment. In general, apprentices may also experience difficulty completing their programs as a result of financial hardships associated with regular periods of unemployment in the construction industry.³⁷

These results show that institutions like unions play an important role in mitigating labor market inequalities. The stark race and gender differences in graduation rates in non-union apprenticeship programs show that institutions such as unions reduce gender and race discrimination.

Time to Completion

Of apprentices who completed their programs, 44% were enrolled for 3 years or less. The average time to graduate for apprentices who enrolled between 2011 and 2015 was 3.8 years.

Overall, women took slightly longer to graduate compared with men; the average tenure for women who enrolled between 2011-2015 and completed their programs was 3.9 years compared to 3.8 years for men. The time to completion was comparable for white and BIPOC apprentices, at 3.8 years. Taking a closer look at one highly enrolled-in trade, Carpenters, important racial disparities in time to completion emerge between non-union and union apprenticeship programs.

According to the Associated General Contractors Oregon-Columbia Chapter, it typically takes apprentices about four years to become a journey-level carpenter.³⁸ For workers who enrolled between 2011-2015, apprentices in union programs completed in an average of 3.2 years, while non-union apprentices completed in an average of 4 years.

Unions play an important role in reducing gender and race discrimination. Without institutions like unions, the persistent barriers faced by women and workers of color will continue to shape labor market outcomes.

Carpenter apprenticeships also had particularly high enrollment. In non-union Carpenter apprenticeship programs, men graduated within an average of 4.03 years while women graduated more slightly more quickly, in an average of 3.8 years. Again, we must be cautious when drawing conclusions because of the small number of apprentices in specific subgroups. White workers typically graduated in 3.78 years, while workers of color typically graduated in 4.46 years in non-union programs. Though there were only three Black workers enrolled in non-union Carpenter programs, they each took five years before graduating, a year longer than average. Of all apprentices enrolled in non-union Carpenter apprenticeship programs, those who took 3 years or less were all white, while those who took five years, or more were all BIPOC.

In union Carpenter apprenticeship programs, where average completion time in the data is 3.21 years, men graduated after an average of 3.16 years, compared to 3.64 years for women. White apprentices completed the program after an average of 3.29 years, compared to 3.03 years for workers of color in union Carpenter apprenticeship programs.



Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

SEPARATION RATES

While graduation rates offer an important lens for analyzing gender and racial equity in construction apprenticeship programs, separation rates can also highlight many of the barriers women and workers of color encounter in this industry. Separation can happen voluntarily, when apprentices leave the program, or involuntarily, when they have their apprenticeship contract terminated.

Apprentices may voluntarily leave the program for a number of reasons, the most common being financial challenges, lack of consistent work, harassment and discrimination, lack of mentorship and training, difficulty of work, and cost and time away from home resulting from travel to worksites.³⁹ Separated white women in particular amass fewer training hours than their white male counterparts, which may, at least in part, explain women's dropout rates.⁴⁰

Between 2011-2020, 6,756 (38%) apprentices who had enrolled in programs in the greater Portland area had terminated contracts. The data shows that apprentices who separated from their program make up an equal proportion of non-union programs compared to union programs, at approximately 38%.

Apprentices of color separated more frequently than white apprentices. While workers of color comprise 26% of the apprentices in the data, they made up 31% of all separations. In comparison, white apprentices were 74% of the total and 69% of the separations. Women were 9% of all separations and 8% of total apprentices.

Of all women, 41% separated from their apprenticeships, compared to 37% of men. An even greater proportion of BIPOC separated apprentices (44%) compared to white apprentices (35%).



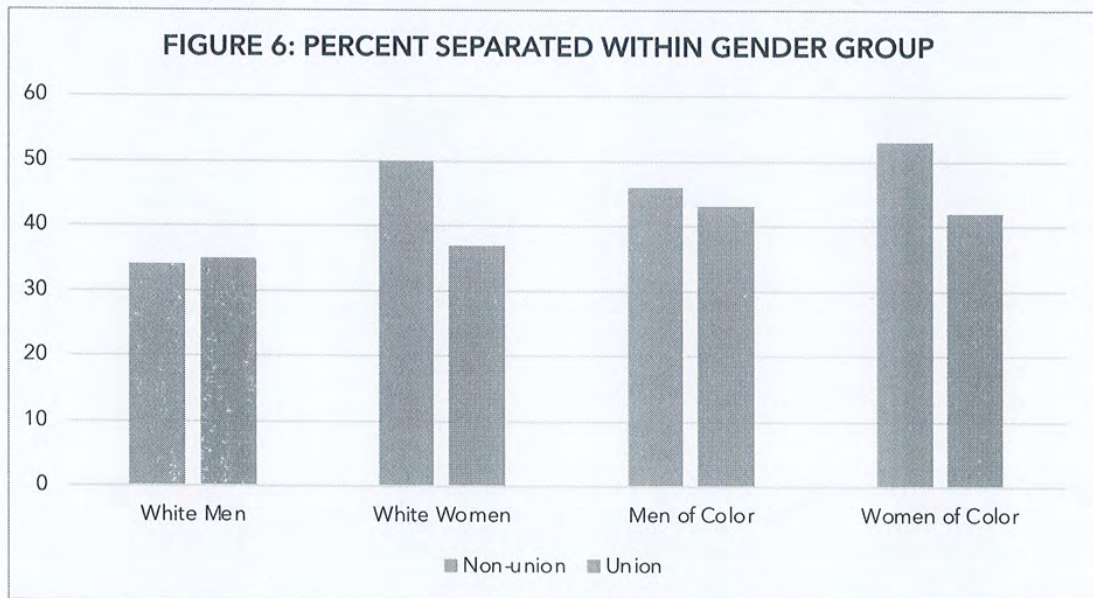
Photo: Oregon State Building and Construction Trades Council (OSBCTC)

When examining the difference between union and non-union programs, clear gender and racial/ethnic disparities are apparent. A smaller proportion of women separated in union programs (38%) compared to non-union programs (51%). Similarly, a smaller proportion of people of color separated in union programs (43%) than non-union programs (47%).

As shown in Figure 6, smaller proportions of women of color, men of color, and especially white women separated in union programs compared to non-union programs. Compared to all racial/ethnic groups, Black apprentices in both union and non-union programs experienced the highest proportion of separations, though the proportion was slightly higher in non-union programs. Higher proportions of Indigenous and Latinx workers separated across union and non-union programs, compared to white workers, as well.

With the exception of Indigenous apprentices, non-union programs had higher rates of separation among workers of color enrolled in their programs than in union programs. Again, we ran logistic regressions to determine the average likelihood of separation by racial/ethnic group and gender.⁴¹ BIPOC apprentices were approximately 41% more likely to separate as compared to white apprentices, holding trade constant. Black apprentices faced particular barriers as evidenced by separation rates. Separations were 159% more likely for black apprentices compared to white apprentices, holding trade constant. This may reflect the fact that 17 of 23 trades that had above-average separation rates also had above-average concentrations of BIPOC apprentices.

Apprentices of color had a higher likelihood of separation than their white counterparts within non-union programs compared to union programs. Within union programs, BIPOC apprentices were 37% more likely to separate than white apprentices. In comparison, in non-union programs, BIPOC apprentices were 56% more likely to experience a separation than white apprentices.⁴²



Separations during Probationary Period

Separations most commonly occur during the first year or two of an apprenticeship program (approximately 76% of all separations—see Table 3).

Table 3: Percent of apprentices separated within years of tenure

# Years Enrolled	# Separated	% of all Separations
0	2,077	31%
1	3,070	45%
2	982	15%
3	418	6%
4	156	2%
5	36	1%
6	15	0%
7	2	0%
Total	6,756	100%

Probationary periods are those in which apprentices can be terminated for any reason. The length of such periods varies from program to program, though probationary periods are most commonly the first year of employment or 25 percent of the length of the program. After the probationary period, apprentices are no longer at-will employees, and can only be terminated as a result of "good cause."⁴³ However, the problems that lead to lower graduation rates for women and workers of color - including the burden of managing family responsibilities during a period of erratic work hours, high commuting costs and the increased difficulty of forming relationships with employers that result in steady work - may cause more women and workers of color to voluntarily quit their apprenticeships within the first year, which would also contribute to a higher probationary period termination rate.

BIPOC apprentices had a higher rate of separation during their probationary period than did white workers. Despite making up only 26% of all apprentices, workers of color accounted for 39% of all workers who separated during their probationary period. While less than 2% of all white apprentices were terminated during their probationary period, 4% of Indigenous workers, 2.5% of Asian-American workers, 4% of Black workers, and 4% of Latinx workers separated during their probationary period. Women accounted for 11% of all separations during the probationary period, despite making up only 8% of all apprentices. Men, on the other hand, were slightly underrepresented among workers who separated during the probationary period: men accounted for 92% of all apprentices, but just 89% of all apprentices who separated during their probationary period.

Table 4 provides data on apprentices terminated during the probationary period by gender and race/ethnicity.

Table 4: Apprentices Separated in Probationary Period by Gender and Race/Ethnicity

Gender and Racial/Ethnic Group	Number	% of Total	Separations during PP	% Separated during PP	Separations after PP	% Separated after PP
<i>Men</i>	16,450	92%	425	89%	5,717	91%
Indigenous	522	3%	21	4%	193	3%
Asian-American	393	2%	11	2%	115	2%
Black/African American	876	5%	37	8%	481	8%
Latino	2,557	14%	99	21%	953	15%
Native Hawaiian	4	0%	0	0%	0	0%
Pacific Islander	5	0%	0	0%	0	0%
White	12,093	67%	257	54%	3,975	63%
<i>Women</i>	1,512	8%	55	11%	559	9%
Indigenous	85	0%	5	1%	34	1%
Asian-American	39	0%	0	0%	14	0%
Black/African American	119	1%	6	1%	61	1%
Latino	155	1%	8	2%	47	1%
White	1,114	6%	36	8%	403	6%
<i>Non-Binary</i>	2	0%	0	0%	0	0%
White	2	0%	0	0%	0	0%
Total	17,964	100%	480	100%	6,276	100%

These data do not provide information on the reason for separations. Separations may have been the result of an employer decision or could be the result of workers voluntarily leaving the field. Despite common perceptions that apprenticeship success is a result of hard work, it's important to remember that barriers such as lack of pre-existing trade-specific knowledge or skills; difficulty developing relationships with other apprentices, journey-level workers, or supervisors; lack of mentorship; and the challenge of acquiring sufficient hours have been particularly acute for women and people of color. This may provide some insights into the higher separation rates for women and BIPOC.⁴⁴

WAGES

Compared to many other jobs, construction trades and apprenticeship programs offer strong pathways into well-paying, middle-class careers. During an apprenticeship program, apprentices' wage rates are set as a percentage of journey-level wages, with that percentage increasing according to the number of hours completed in the apprenticeship program. Pay also varies according to trade, and within trades as a result of being in a union or non-union program.

Below is an examination of wage differentiation between union/non-union programs and by gender and race/ethnicity. Wages refer to the starting wage for a journey-level worker (the wage the worker will make once completing the apprenticeship program).⁴⁵

Once apprentices reached journey-level status, wages ranged from \$21 per hour to \$56 per hour, with an average of \$38 per hour. The most common wage was \$40.32 per hour. Comparing only trades where there were union and non-union equivalents, unions paid at journey-level status an average of \$37 per hour, while non-union apprenticeships paid a journey-level status worker an average of \$31 per hour.



Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

After running a linear regression that held status, tenure, union, and license constant, data showed that BIPOC workers are enrolled in apprenticeship programs that are associated with a \$1.60 per hour lower average wage than white workers.⁴⁶ Black workers are enrolled in apprenticeship programs that are associated with a \$2.47 per hour lower average wage than white workers.⁴⁷ Latinx workers are enrolled in apprenticeship programs that are associated with a \$1.83 per hour lower average wage than white workers.⁴⁸

Thirty-one percent of non-union apprentices are enrolled in programs with an average hourly wage of \$40 per hour or higher, compared to 60% of all union apprenticeship programs.

46% of all women in union apprenticeship programs are enrolled in trades with an average hourly wage of \$40 or higher, compared to 19% of all women in non-union programs.

Similarly, while only 20% of BIPOC workers in non-union programs are enrolled in trades with an average hourly wage of \$40 or higher, 55% of BIPOC in union programs are enrolled in trades with an average hourly wage of \$40 or higher.

Women in union apprenticeships were almost 2.5 times more likely to make at least \$40 per hour compared to women in non-union appren-

ticeships. BIPOC union apprentices were nearly three times more likely to make at least \$40 an hour compared to their non-union counterparts.

While only 20% of BIPOC in non-union programs are enrolled in trades with an average hourly wage of \$40 or higher, 55% of BIPOC in union programs are enrolled in such high-wage trades.

The data also show that in union programs women and workers of color were distributed more or less evenly across apprenticeship programs, whereas in non-union programs, more women of color were concentrated in programs leading to lower-wage occupations.

CONCLUSION AND RECOMMENDATIONS

This report analyzed data from the Oregon Bureau of Labor and Industries on construction apprenticeship enrollment, graduation, separation, and wage rates for apprentices in the greater Portland area. Comparing differences in union and non-union programs, and differences in completion rates across gender and racial/ethnic lines, the data show that union apprenticeship programs enroll a more diverse population of apprentices, and produce better outcomes for women, Black, Indigenous and people of color than do non-union apprenticeship programs. However, both the union and non-union sides of the construction industry must continue to bolster efforts to recruit and retain historically underrepresented workers.

Researchers in Oregon have proposed a number of recommendations to improve the recruitment and retention of women, Black, Indigenous, and people of color in construction apprenticeships.⁴⁹ These include:

- **Recruitment**
 - Assess current recruitment practices, including outreach strategies, makeup of the recruiting team, gendered language, and statements of commitment to diversity included in job postings, and the success rates of women and applicants of color.
- **Mentorship**
 - Establish mentorship programs in each apprenticeship program, ensuring mentors are trained for that role and that each woman and/or apprentice of color is paired with a trained mentor. Designate an ombudsperson specifically to mediate issues of equity, discrimination, or harassment and provide assistance and support to women and BIPOC.
- **Equitable Access to Work Hours**
 - Limit the amount of time apprentices spend on projects that require long hours, are far from

home, do not provide opportunities for skill-building, or entail schedules that conflict with family responsibilities.

- Develop project thresholds that require contractors to distribute a minimum number of hours to women and BIPOC apprentices. The Construction Career Pathways Project suggests the following thresholds:
 - A minimum of 20% of total work hours in each apprenticeable trade shall be performed by state registered apprentices.
 - A minimum of 14% of total work hours shall be performed by women and women-identified persons - both journey and apprentice-level workers.
 - A minimum of 25% total work hours shall be performed by persons of color - both journey and apprentice level workers.
- Establish flexible work hours
- **Establish Anti-Harassment Workplace Policies and Practices**
 - Incorporate anti-harassment training into apprenticeship training programs.
- **Support Outside of Work**
 - Provide financial support for gas, travel and childcare.
 - Develop a hardship fund
 - Provide pregnancy and maternity leave.
 - Provide childcare during courses, or classes that accommodate schedules of single parents.

While quantitative data can provide important information about trade and industry-level inequities, continued research is needed on the factors that reproduce these disparities - including the quality of training, on-the-job bias and discrimination, opportunities for networking and relationship building, task assignments, and access to childcare.

As unions continue to be leaders in the recruitment and retention of women and Black, Indigenous, and people of color, state officials should look to union apprenticeship programs for opportunities to improve gender and racial equity in construction work.

About the Author

Larissa Petrucci, Ph.D. is a Postdoctoral Research Associate in the School of Labor and Employment Relations at the University of Illinois-Urbana Champaign, and former Research Assistant at the University of Oregon's Labor Education and Research Center. She has published research on irregular scheduling, fair work week legislation, online charter school costs and performance, women and non-binary people's collective responses to workplace inequity, and the intersections of gendered care work and environmental disaster. Current research focuses on issues of job quality, gig work, and in-home family childcare providers.



About LERC

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.⁵⁰

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Appendix I: Construction Apprenticeship Programs in the Greater Portland Area, 2011-2020

Non-union Programs	Union-Programs
Bricklayer/Masonry	Bricklayer
Carpenter	Carpenter
Cement Mason	Caulker
Environmental Control System Servicer/Installer	Cement Mason
Inside Electrician	Drywall Finisher
Laborer	Elevator Mechanic
Limited Energy Technician Class A	Exterior Interior Specialist
Limited Energy Technician Class B	Finisher
Operating Engineer	Firestop Containment
Painter	Floor Coverer
Plumber	Glazier
Sheet Metal Worker	Heat/Frost Insulator
Sign Maker-Erector	Heavy Duty Repairer
Sprinkler Fitter	Industrial Maintenance Mechanic
Tile Trades Finisher	Inside Electrician
Tile Trades Setter	Ironworker
	Laborer
	Limited Energy Technician Class A
	Limited Energy Technician PDX
	Limited Residential Electrician
	Marble Setter
	Millwright
	Operating Engineer
	Painter
	Pile Driver
	Plasterer
	Plumber
	Roofer
	Scaffold Erector
	Sheet Metal Worker
	Sheet Metal Worker Systems Technician
	Steamfitter HVAC/R
	Steamfitter/LEB
	Technical Engineer
	Terrazzo Worker
	Tilesetter
	Traffic Painter

ENDNOTES

- 1 With the exception of Indigenous apprentices. While the number of Indigenous apprentices were too small to do robust regression analyses, we wanted to be sure to highlight that the data reflects that this group of workers appears to face particular barriers in both union and non-union programs.
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 - 8 According to Build Oregon, the average yearly wage in construction across Oregon is about \$58,000 <http://www.build-oregon.com/careers>
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 - 17 Kelly, M, L. Wilkinson, M. Pisciotta, and L.S. Williams. 2015. When working hard is not enough for women and racial/ethnic minority apprentices in highway trades. Sociological Forum 30(3), 415-438
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- 24 Byrd, B. 2009. Ibid.
- 25 Based on Larry Williams' analysis for BOLI of Bureau of Labor Statistics unemployment rates and BOLI apprenticeship enrollment figures 1998-2020.
- 26 This includes the majority of programs statewide, and therefore is an underestimate of statewide enrollment figures.
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- 28 "The Economic Status of Women in Oregon." 2018. <https://statusofwomendata.org/wp-content/themes/witsfull/factsheets/economics/factsheet-oregon.pdf>. There is not currently data on the number of non-binary people in the greater Portland area.
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- 31 Byrd, B. 2009. Ibid.
- 32 This was statistically significant with a $p < 0.001$
- 33 This was statistically significant with a $p < 0.001$
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- 41 The calculation of statistical likelihood yields a different number than simply comparing the difference between overall separation rates for different groups of apprentices, partly because the statistical measure controls for differences in each specific trade.
- 42 These results were statistically significant with a $P > 0.000$
- 43 Termination for good cause may include, but is not limited to, failure to report to work, nonattendance at related training, failure to submit work progress reports and lack of response to committee citations as stated in the 2019 Oregon Statutes Chapter 660: Apprenticeships and Training; Workforce Development https://www.oregonlegislature.gov/bills_laws/ors/ors660.html
- 44 Kelly, M, L. et al. 2015. Ibid.
- 45 I want to acknowledge that there may be many reasons (which are outside the scope of this report) why women and workers of color enter different trades and apprenticeship programs.

46 We ran several regression models with different control variables and found similar strong results. Here we include a control for license, as licensed trades are associated with higher average wages.

47 This was statistically significant with a $P > 0.000$

48 This was statistically significant with a $P > 0.000$

49 <https://www.oregonmetro.gov/sites/default/files/2019/11/04/construction-career-pathways-regional-framework-20190901.pdf>

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50 <https://lerc.uoregon.edu/>

CONSTRUCTION APPRENTICESHIP PROGRAMS

CAREER TRAINING FOR CALIFORNIA'S RECOVERY



EXECUTIVE SUMMARY

The current economic downturn has caused vast unemployment in California's construction industry. In the year ending in June 2009, the state lost almost a fifth (18.6%) of its construction jobs, the greatest percentage among all major industries.¹ Getting workers back on the job is crucial to getting the California economy back on its feet.

Yet, increased employment is not enough for an equitable recovery. The construction industry's historically good jobs have been depleted by the squeeze on the middle-class over the past 30 years. And the industry is shifting to a green economy, with a focus on new skills, in response to climate change and high energy costs. As the economy revives, new construction jobs must include middle-class career paths and training in skills for the green economy.

As this report demonstrates, building trades apprenticeship programs provide the best model to keep the construction industry on the high road and provide high-quality jobs, to the benefit of the industry, the workers and the greater community.

¹ California Employment Development Department, Labor Market Division. 2009. California Employment Highlights for July 2009. Current Employment Statistics (CES) Program.

KEY FINDINGS

- Construction work has two faces. It can provide stable, middle-class careers or temporary, hazardous, dead-end jobs.
- Apprenticeship programs strengthen communities by providing career paths and consistent health insurance for people from disadvantaged backgrounds. They also benefit the building industry by reducing workplace injuries, reducing turnover and providing a motivated and well-trained workforce.
- Most apprenticeship programs in California (82%) are joint labor-management programs established through collective bargaining. Those programs produce almost all (92%) of the state's apprenticeship graduates.
- The joint labor-management programs are more successful than unilateral management programs at removing barriers to graduation and therefore have much higher completion rates.
- Local policies are needed that encourage and support successful apprenticeship programs. These include local hiring requirements, resources for support services, and using the public contracting process to set and enforce standards.
- With a proven record of success in producing a skilled workforce, apprenticeship programs provide the best means to train workers in the skills needed for the new green economy.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

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CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY



ECONOMIC TRENDS

An historical look at the middle-class shows that as worker productivity increases, wages also increase. Between 1947 and 1979, worker productivity and income doubled together. Since the 1980s, however, incomes have grown only a quarter as much as worker productivity. Since 2000, middle-class families have experienced a nearly 4% decline in real income while productivity has increased 18.5%.²

The disconnect between wages and productivity means that the benefits of increased productivity have not been shared equally. In fact, half of overall economic growth from 1993 to 2007 went to the top 1% of incomes. In the boom times of 2000-2007, the top 1% of incomes captured two-thirds of the economic growth.³

Besides family-supporting wages, a good, middle-class job encompasses employer-provided health insurance, pensions, paid vacation and holidays, sick leave and family leave, a safe and healthy workplace, some degree of employment security and opportunities for advancement.⁴ The history of "good jobs" over the last three business cycles (1980s, 1990s, and first half of 2000s) shows a sharp deterioration in the provision of benefits.⁵ For the years 1979-2006, the share of jobs with employer-provided health insurance declined 5.3% and those with employer-provided pensions declined 6.4%.⁶

Rebuilding the middle class will require reconnecting worker productivity with compensation through the creation and support of good jobs.

Shifting to the Green Economy

The new, green economy is changing the face of construction, with new types of jobs using new technologies and innovations on current practices. Solar panel installation or energy efficiency auditing are examples of new green jobs that build on skills that trained and qualified construction workers have had for years.

Definition: Green jobs

Jobs with family-supporting wages and benefits, in fields that contribute significantly to preserving or enhancing environmental quality.⁷

² Middle Class Task Force (MCTF). The Vice President of the United States. 2009. *The American Recovery and Reinvestment Act: Helping Middle Class Families*.

³ Saez, Emmanuel. 2009. Striking it Richer: The Evolution of Top Incomes in the United States. Updated version of an article which appeared in *Pathways Magazine*. Stanford Center for the Study of Poverty and Inequality, Winter 2008, 6-7.

⁴ Definition taken from Schmitt, John. 2007. *The Good, the Bad, and the Ugly: Job Quality in the United States over the Three Most Recent Business Cycles*. Center on Economic and Policy Research (CEPR) and Sarah White and Jason Walsh. 2008. *Greener Pathways: Jobs and Workforce Development in the Clean Energy Economy*. Center on Wisconsin Strategy (COWS), The Workforce Alliance and The Apollo Alliance.

⁵ Schmitt, John. 2007. *The Good, the Bad, and the Ugly: Job Quality in the United States over the Three Most Recent Business Cycles*. Center on Economic and Policy Research (CEPR).

⁶ Schmitt, op cit.

⁷ White, Sarah and Jason Walsh. 2008. *Greener Pathways: Jobs and Workforce Development in the Clean Energy Economy*. Center on Wisconsin Strategy (COWS), The Workforce Alliance and The Apollo Alliance.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

THE CONSTRUCTION INDUSTRY HAS THE HIGHEST CONCENTRATION OF CONTINGENT WORKERS...AND THE LOWEST RATE OF EMPLOYER-PROVIDED HEALTH COVERAGE AMONG CALIFORNIA'S NON-FARM INDUSTRIES.

THE TRUTH ABOUT CONSTRUCTION

The construction industry in California has two faces: the first is a high-road industry with family-sustaining wages, healthcare and pension benefits, safe working conditions, career stability and opportunity for advancement. The other is a low-road industry with low pay, no benefits, dangerous conditions and frequent periods of unemployment.

According to a study by the Construction Industry Institute, both contractors and workers report the same issues with recruitment and retention: unsafe job sites, insufficient wages and benefits, impermanency of employment, poor working conditions and poor treatment of employees.⁸

Construction is Hazardous

In 2007, the construction industry nationally accounted for 20% of workplace deaths and 10% of all workplace injuries and illnesses.⁹ California, Texas and Florida account for more than 25% of all non-fatal construction injuries and illnesses resulting in lost work days nationally.¹⁰

The total cost of death and injury in the U.S. construction industry is estimated at nearly \$13 billion (in 2002 dollars).¹¹ On average, when a construction worker dies, the overall loss is estimated to be \$4 million and a non-fatal injury that results in lost workdays costs approximately \$42,000.¹²

Construction Jobs are Low-Wage, Temporary and Lack Benefits

In 2005, more than 120,000 construction workers in California were in occupations that paid less than \$30,000 per year based on the weekly wage.¹³ In addition, many construction workers are not employed year-round, resulting in a much lower actual annual income.

Typically on construction projects, a worker's skill set may be needed only during certain phases, resulting in lay-offs, unemployment and loss of benefits. The construction industry has the highest concentration of contingent workers – defined as workers who do not have an implicit or explicit contract for on-going employment – of any non-farm industry in California.¹⁴ Contingent workers are twice as likely as permanent workers to report household or family income less than \$27,000 a year and are much less likely to have employment-based healthcare or pensions.¹⁵ The lower a worker's educational attainment, the higher the incidence of contingent work.

In 2005, at the height of the building boom, the construction industry had the lowest rate of employer-provided health coverage among California's non-farm industries – only 35%.¹⁶ The construction industry accounted for 15% of the state's chronically uninsured, with only 7.3% of the workforce.¹⁷ More than a quarter (27%) of construction workers were uninsured for the entire year while more than 40% were uninsured at least part of the year.¹⁸

⁸ Construction Industry Institute. 2000. *Attracting and Maintaining a Skilled Workforce*. Research Summary 135-1.

⁹ Occupational Injuries and Illnesses: Industry Data and Census of Fatal Occupational Injuries, 2007. Source: Bureau of Labor Statistics.

¹⁰ Samuel W. Meyer and Stephen M. Pegula. 2004. *Injuries, Illnesses, and Fatalities in Construction, 2004*. <http://www.bls.gov/opub/cwc/print/sh20060619ar01p1.htm>

¹¹ CWPR- The Center for Construction Research and Training. 2007. *The Construction Chart Book*, 4th ed. Sect. 48. <http://www.cpwpr.com/pdfs/CB%204th%20Edition/Fourth%20Edition%20Construction%20Chart%20Book%20final.pdf>

¹² CWPR, op cit.

¹³ Weekly wages and monthly employment for Construction Industry in 2005. Source: California Employment Development Department, Labor Market Information Division. Quarterly Census of Employment and Wages (QCEW).

¹⁴ California Employment Education Department. 2006. *Contingent Workers Bolster California Work Force*. <http://www.labormarketinfo.edd.ca.gov/article.asp?ARTICLEID=626>

¹⁵ Contingent and Alternative Employment Arrangements, February 2005. Source: U.S. Bureau of Labor Statistics. <http://www.bls.gov/news.release/history/conemp.txt>

¹⁶ BLS, op cit.

¹⁷ Center on Policy Initiatives (CPI). 2009. *Construction: Working Without a Healthcare Net*. http://www.onlinecpi.org/downloads/ConstructionReport_webversion.pdf

¹⁸ CPI, op cit.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY**REGISTERED APPRENTICESHIP: THE BASICS**

Apprenticeship is a combination of on-the-job training and related instruction in which workers learn the practical and theoretical aspects of a highly skilled occupation.¹⁹ The apprentice works side-by-side with a journeyworker to attain demonstrable competency in the craft.²⁰ Apprenticeships are time-intensive and require high standards of performance.

Oversight of registered programs is provided directly by the U.S. Department of Labor for 25 states and through state-approved agencies in the other 25 states.²¹

How Apprenticeship Differs From Other Training

The strict legislative regulation over apprenticeship programs creates a unique immersion training system and sets it apart from others, such as paid internships. The apprentice and the program sponsor sign an apprenticeship agreement, which contains

the terms and conditions of the employment and training of the apprentice.²² Included in the agreement is the graduated wage scale to be paid to the apprentice throughout the program, the required hours and skills learned in on-the-job training and related technical instruction and performance standards.²³

A registered apprenticeship program must meet government-mandated standards of quality and quantity of instruction.²⁴ Further, the sponsor must provide adequate and safe equipment and facilities, and safety training for apprentices on the job and in related instruction. Most apprenticeship programs require 3-5 years of training with between 2,000 and 8,000 hours of on-the-job training and 144 hours of related technical instruction.²⁵ Advancement depends on the apprentice's work record and progress in related instruction.²⁶

An apprenticeship graduate has completed a specified minimum number of on-the-job training hours and related technical instruction hours, and has demonstrated competency in the skills and knowledge necessary for work at the highest standards.²⁷ Each program evaluates apprentices regularly, usually every 6 or 12 months, with both on-the-job performance assessments and written exams. Wage increases and continuation in the program depend on successful demonstration of competency.²⁸

Definitions**Competency:**

The attainment of manual, mechanical or technical skills and knowledge, as specified by an occupational standard and demonstrated by an appropriate written and hands-on proficiency measurement.

Journeyworker:

A worker who has attained a level of skill, abilities and competencies recognized within an industry as having mastered the skills and competencies required for the occupation.

On-the-Job Training (OJT):

An outline of the work processes in which the apprentice will receive supervised work experience and training on the job, and the allocation of the approximate time to be spent in each major process.

Related Technical Instruction (RTI):

An organized and systematic form of instruction designed to provide the apprentice with knowledge of the theoretical and technical subjects related to his/her trade.

Source: Code of Federal Regulations, 29 CFR 29 "Labor Standards for the Registration of Apprenticeship Programs."

Apprentices emerge from the programs proficient in safety and environmental laws and regulations, first aid and CPR, mathematics,

drafting, blueprint reading and other sciences connected with the trade.²⁹ Often included is training in diversity, sexual harassment, personal development, environmental remediation and jobsite management.³⁰

¹⁹ U.S. Department of Labor. *Apprenticeship*. <http://www.dol.gov/dol/topic/training/apprenticeship.htm>

²⁰ California Apprenticeship Coordinators Association. *Apprenticeship: Pathways to Success*. <http://www.calapprenticeship.org/>

²¹ Lerman, Robert, Lauren Eyster and Kate Chambers. 2009. *The Benefits and Challenges of Registered Apprenticeship: The Sponsors' Perspective*. The Urban Institute on Labor, Human Services and Population. http://www.urban.org/UploadedPDF/411907_registered_apprenticeship.pdf

²² 29 CFR 29 "Labor Standards for the Registration of Apprenticeship Programs." Code of Federal Regulations.

²³ 29 CFR 29, op cit.

²⁴ 29 CFR 29, op cit.

²⁵ U.S. Department of Labor. *Apprenticeship FAQs*. <http://www.doleta.gov/OA/faqs.cfm>

²⁶ California Apprenticeship Coordinators Association. *Apprenticeship: Pathways to Success*. <http://www.calapprenticeship.org/>

²⁷ U.S. Department of Labor, Employment and Training Administration. *At-a-glance: Three Approaches to Apprenticeship Completion*. http://www.doleta.gov/OA/pdf/Three_Approaches_Apprenticeship_Program_Completion.pdf

²⁸ U.S. Department of Labor, Employment and Training Administration. *At-a-glance: Three Approaches to Apprenticeship Completion*. http://www.doleta.gov/OA/pdf/Three_Approaches_Apprenticeship_Program_Completion.pdf

²⁹ California Department of Industrial Relations, Division of Apprenticeship Standards. *Minimum Industry Training Criteria*. <http://www.dir.ca.gov/DAS/mitc.htm>

³⁰ California Department of Industrial Relations, Division of Apprenticeship Standards, op cit.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

TABLE 1:
Apprenticeship Program Requirements for Selected Crafts

Top 10 crafts sorted by total number of apprentices graduated from programs

Craft	Years	On-the-job hours	Classroom hours/year
Carpentry	4	4,800	144
Electrician, Residential	3	4,800	160
Commercial/Industrial	5	8,000	160
Plumbing	4	7,200	200
Operating Engineer	4	6,000	144
Sheetmetal	4	6,500	160
Laborer	2	3,000	216
Painting & Decoration	3.5	7,000	114
Roofers	3.5	4,000	144
Plumbing	4	7,200	200
Air conditioning & refrigeration	5	7,500	216
Carpet, Linoleum & Soft Tile	4	6,400	160

Source: California Department of Industrial Relations, Division of Apprenticeship Standards. Minimum Industry Training Criteria. <http://www.dir.ca.gov/DAS/mitc.htm>

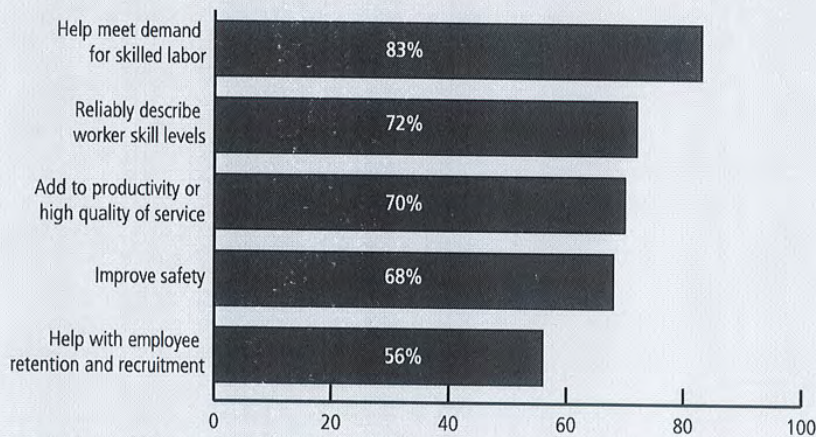
THE VALUE OF APPRENTICESHIPS

Apprenticeship programs benefit the entire community by providing good wages, health insurance and career stability for disadvantaged community residents. The stringent training also helps ensure high quality public works projects and cost containment by decreasing turnover, workplace accidents and lost productivity.

The Value for Industry

Apprenticeship programs provide skilled workers trained to employer specifications, and lead to reduced turnover, improved

FIGURE 1: PROGRAM SPONSORS REPORT THAT APPRENTICESHIPS:



Source: Lerman, Robert, Lauren Eyster and Kate Chambers. 2009. *The Benefits and Challenges of Registered Apprenticeship: The Sponsors' Perspective*. The Urban Institute on Labor, Human Services and Population.

on-the-job safety and higher quality results, according to a study commissioned by the U.S. Department of Labor.³¹

The value of apprenticeship training is extolled by the Construction Users Roundtable (CURT), comprised of some of the largest companies in the U.S., including Boeing, Procter & Gamble, General Electric, and the U.S. Army Corps of Engineers. CURT recommends that end users or owners require the contractors working for them to commit to training programs as a prequalification for doing business.³²

³¹ Lerman, Robert, Lauren Eyster and Kate Chambers. 2009. *The Benefits and Challenges of Registered Apprenticeship: The Sponsors' Perspective*. The Urban Institute on Labor, Human Services and Population. http://www.urban.org/UploadedPDF/411907_registered_apprenticeship.pdf

³² Construction Users Roundtable. 2004. *Confronting the Skilled Workforce Challenge*. White Paper 401.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

APPRENTICESHIPS LEAD TO CAREERS WITH HIGHER AVERAGE WAGES AND PROMOTE JOB STABILITY THROUGH SKILL CERTIFICATION AND PORTABILITY

The Value for Workers

Most apprenticeship programs provide good jobs from the beginning, with fair wages, family healthcare benefits, a pension plan, paid sick days, a safe work environment and employment stability. Program completion secures these advantages for an entire career.

Wages and Career Stability

Apprenticeships lead to careers with higher average wages and promote job stability through skill certification and portability. Apprentice wages start out as a percentage of the journeyworker hourly rate, significantly higher than minimum wage, and increase regularly as competency is demonstrated.³³

As Table 2 demonstrates, apprentices in San Diego County begin at a basic hourly rate equal to more than \$28,000 per year. Program graduates make a basic hourly wage equating to nearly \$60,000 annually.

Moreover, a certificate of completion signifies attainment of nationally and globally recognized skills.³⁴ With the portability of credentials a worker can move between projects and employers with a documented set of skills on their resume, thereby facilitating the hiring process and ensuring the correct pay rate commensurate with skill level.

Many apprenticeship programs have formal agreements with 2- and 4-year colleges and universities which offer credits for the education received.³⁵ A worker can use accumulated credits to pursue a college degree later in life, facilitating transition to another career, if desired.

TABLE 2:

Apprenticeship Basic Hourly Wage Increase Schedule, San Diego County, California, Q1 2009*
Wage increases dependent upon successful completion of training segments

Years in Program	Part of year (1/2)	Carpenter, Commercial	Electrician, Inside Wireman	Plumber, Pipefitter, Steamfitter
		Wage level per 600 on-the-job training hours	Wage level per 800 on-the-job training hours	Wage level per 1,600 on-the-job training hours
1	1st	\$14.54	\$14.54	\$16.65
	2nd	\$16.15	\$15.99	
2	1st	\$19.38	\$17.45	\$19.97
	2nd	\$21.00	\$18.90	
3	1st	\$22.61	\$20.36	\$23.30
	2nd	\$24.23	\$21.81	
4	1st	\$25.84	\$23.99	\$26.63
	2nd	\$29.07	\$25.45	
5	1st	—	\$28.35	\$29.96
	2nd	—	\$29.81	

*Source: California Department of Industrial Relations, Division of Apprenticeship Standards, Public Works Apprentice Wage Sheets. <http://www.dir.ca.gov/DAS/PWAppWage/PWAppWageList.asp>

³³ California Department of Industrial Relations data for end of 2008. *Apprentice wage determinations* <http://www.dir.ca.gov/DAS/PWAppWage/wage/08237400pdf?VarWageld=08237400> and *Prevailing Wage determinations* <http://www.dir.ca.gov/dlsr/PWD/Determinations%5CSanDiego%5CSD-023-102-4.pdf>

³⁴ U.S. Department of Labor. *Registered Apprenticeship: A Solution to the Skills Shortage*. http://www.doleta.gov/atels_bat/pdf/fsfront.pdf

³⁵ California Department of Industrial Relations, Department of Apprenticeship Standards. *Educators home page*. <http://www.dir.ca.gov/das/educators.htm>

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

PAYING PREVAILING WAGE STRENGTHENS FAMILIES

California and many other states require that contractors pay Prevailing Wage on public projects, but cities can selectively opt out. For example, the City of San Diego requires prevailing wage only on projects worth more than \$10 million, and the City of Vista recently voted to abandon prevailing wage completely.³⁸ Prevailing wage requirements invest in communities by providing good wages and benefits, and protect taxpayers from the hidden costs of supporting the uninsured and the working poor.³⁹

In California, the Department of Industrial Relations reviews the wages and compensation paid to workers in the local area and sets the local prevailing wage at the level most commonly paid to workers in each classification.⁴⁰ Prevailing wage is also required for apprentices.⁴¹

As Table 3 illustrates, prevailing wage creates middle-class jobs by determining the amount of employer contributions to worker benefit funds, including health insurance, pension, holidays and vacation, and training.

Prevailing wage requirements:

- Do **not** increase cost, because workers who earn more are more productive. Also, workers are safer, lowering worker's compensation costs.⁴²
- Increase rates of health coverage and self-sufficient retirement through pensions.⁴³
- Improve worker safety by encouraging better training and use and retention of experienced workers.⁴⁴
- Encourage minority participation in apprenticeship programs, creating pathways out of poverty for local workers.⁴⁵ States with prevailing wage laws have nearly 20% more minorities in construction apprenticeships than states that do not require prevailing wage.⁴⁶

Definition:

Prevailing Wage

Contractors bidding on construction built with public subsidy must compensate all workers on the project equally, based on their occupational classification.³⁶ Federal prevailing wage was created in 1931 by the Davis-Bacon Act, "specifically to protect communities and workers from the economic disruption caused by competition arising from non-local contractors coming into an area and obtaining federal construction contracts by underbidding local wage levels."³⁷

Healthcare and Pension Benefits

Many apprenticeship programs give workers access to health coverage and pension benefits, and when the program sponsor is part of a multiemployer trust, workers have benefits portability between jobs.⁴⁷ Without that structure, the frequent job changes in construction can result in loss of health insurance and pensions, which generally are accessed through employers in the United States.

Multiemployer plans are created through collective bargaining. With this structure, 83% of unionized construction workers had job-based health coverage compared to only 48% in the nonunion sector of the industry in 2005.⁴⁸ Unionized workers are also 23% to 54% more likely to be in employer-provided pension plans.⁴⁹

³⁶ California State Labor Code, Div. 2, Part 7, Chp. 1, Sec. 1771.

³⁷ U.S. Department of Labor. 2002. *Prevailing Wage Resource Book, 11/2002*. <http://www.wdol.gov/docs/WRB2002.pdf>

³⁸ Tenbroeck, Craig. Vista: Unions seek to overturn prevailing wage ruling. *North County Times*. June 30, 2009. and City of San Diego Council Resolution R-298185. A Resolution rescinding Resolution No. R-251555; and authorizing the advertisement of certain public works municipal affair projects as subject to state prevailing wage requirements. Adopted July 14, 2003.

³⁹ Fiscal Policy Institute. 2006. *The Economic Development Benefits of Prevailing Wage*. <http://www.fiscalpolicy.org/FPI%20Prevailing%20Wage%20Brief%20May%202006.pdf>

⁴⁰ California State Labor Code, Div. 2, Part 7, Chp. 1, Sec. 1773.

⁴¹ California State Labor Code, op cit., Sect. 1777.5(b).

⁴² Mahalia, Nooshin., 2008. *Prevailing Wages and Government Contracting Costs: A Review of the Research*. Economic Policy Institute (EPI), Briefing Paper 215. <http://www.epi.org/publications/entry/bp215/>

⁴³ Petersen, Jeffery S. 2000. Health Care and Pension Benefits for Construction Workers: The Role of Prevailing Wage Laws. *Industrial Relations*. Vol. 39, No. 2.

⁴⁴ National Alliance for Fair Contracting (NAFC). 2003. *In Defense of Prevailing Wage Laws: Studies and Reports by The Experts*.

http://www.lecet.org/Clearinghouse_Public/LECET/NAFC/in_defense_of_prevailing_wage_laws.pdf

⁴⁵ NAFC, op cit.

⁴⁶ Phillips, Peter Ph.D. 1999. *Kentucky's Prevailing Wage Law: It's History, Purpose and Effect*. University of Utah.

⁴⁷ Phillips, op cit.

⁴⁸ CWPR- The Center for Construction Research and Training. 2007. *The Construction Chart Book*. 4th ed. Sect. 26. <http://www.cprw.com/pdfs/CB%204th%20Edition/Fourth%20Edition%20Construction%20Chart%20Book%20final.pdf>

⁴⁹ Mishel, Lawrence and Matthew Walters. 2003. *How unions help all workers*. Economic Policy Institute (EPI). Briefing paper #143. http://www.epi.org/publications/entry/briefingpapers_bp143/

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

Table 3
Prevailing Wage: Hourly Wage & Employer Contributions for Selected San Diego County Apprentices
Year Two of Program

	Basic Hourly Wage	Employer Contributions					Total Hourly Wages
		Health & Welfare	Pension	Vacation/Holiday	Training	Other	
Carpenter	\$21.00	\$3.95	\$2.91	\$3.30	\$0.42	- 0 -	\$31.58
Electrician, Inside Wireman	\$18.90	\$5.12	\$2.83	- 0 -	\$0.56	\$0.16	\$27.57
Plumber/Pipefitter/Steamfitter	\$19.97	\$6.02	\$0.31	\$1.79	\$0.32	\$0.39	\$28.80
Operating Engineer	\$28.55	\$7.95	\$5.05	\$2.82	\$0.56	\$0.17	\$45.19
Sheet Metal	\$19.33	\$3.42	\$2.63	- 0 -	\$0.68	\$0.46	\$26.52
Laborer	\$19.01	\$4.26	\$0.39	\$2.62	\$0.64	\$0.30	\$27.22
Painter	\$14.21	\$4.60	\$0.15	\$0.30	\$0.34	\$0.67	\$20.27
Roofer	\$16.02	\$4.76	\$1.62	- 0 -	\$0.10	\$0.20	\$22.70
Heating, Ventilation & Air Conditioning**	\$19.62	\$6.38	\$1.13	- 0 -	\$0.70	\$0.25	\$28.08
Carpet	\$20.01	\$6.00	\$0.94	\$0.23	\$0.45	\$0.15	\$27.78

*Source: California Department of Industrial Relations, Division of Apprenticeship Standards, Public Works Apprentice Wage Sheets, Q1 2009
<http://www.dir.ca.gov/DAS/PWAppWage/PWAppWageList.asp>

**Los Angeles and Orange counties

A SURVEY OF 8,000 CONSTRUCTION LABORERS IN WASHINGTON FOUND THAT HEALTH AND SAFETY TRAINING DECREASED THE LIKELIHOOD OF WORKERS' COMPENSATION CLAIMS BY 12%.

Worker Safety

Safety training is highly effective in preventing workplace accidents and injuries, which saves money. A survey of 8,000 construction laborers in Washington found that health and safety training decreased the likelihood of workers' compensation claims by 12%. Among workers ages 16-24, there were 42% fewer claims.⁵²

Apprenticeships in the building trades provide certified and coordinated instruction in building and earthquake codes, environmental laws and safety, including hazardous materials handling and remediation.⁵³ Minimum apprenticeship training for all crafts must include safety instruction provided on-the-job and in the classroom.⁵⁴ In California, most crafts require first aid, CPR, tools and materials safety.⁵⁵

Definition:

Multiemployer trust

A benefits plan that covers the workers of two or more unrelated companies in accordance with a collective bargaining agreement.⁵⁰ In industries where seasonal or irregular employment and high labor mobility are common, like construction, few workers would qualify under a single company's plan due to eligibility requirements.⁵¹

⁵⁰ Employment Benefit Research Institute (EBRI). 2009. *Fundamentals of Employee Benefit Programs*. 6th ed. <http://www.ebri.org/publications/books/index.cfm?fa=fundamentals>
⁵¹ EBRI, op cit.

⁵² Xiuwen Dong, Pamela Entzel, Yuring Men, Risanna Chowdury, and Scott Schneider. 2004. Effects of Safety and Health Training on Work-related Injury Among Construction Laborers. *Journal of Occupational & Environmental Medicine*. 46(12), pp. 1222-1228.

⁵³ California Department of Industrial Relations, Department of Apprenticeship Standards. *Minimum Industry Training Criteria*. <http://www.dir.ca.gov/das/mitc.htm>

⁵⁴ 29 CFR 29 "Labor Standards for the Registration of Apprenticeship Programs." Code of Federal Regulations.

⁵⁵ California Department of Industrial Relations, Department of Apprenticeship Standards. *Minimum Industry Training Criteria*. <http://www.dir.ca.gov/das/mitc.htm>

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

APPRENTICESHIPS SUCCEED BECAUSE LABOR AND MANAGEMENT WORK TOGETHER

Due to the resources required to adequately train workers, the structure of sponsorship plays an important role in the success of the program. Apprenticeship programs can be sponsored by a single employer, a group of employers or a group of employers in cooperation with labor. Sponsors plan the training, review apprentice progress, maintain the records of appropriate progress and pay for the program.⁵⁶ The total cost can be \$40,000 to \$200,000 per apprentice, depending on the trade and length of apprenticeship.

The sponsor must have the ability to hire and train apprentices in a real work environment. If the sponsors don't provide steady work, the apprentices have fewer opportunities to earn wages and thereby remain in the program.

The Vast Majority of California's Apprenticeship Programs are Joint Labor-Management

**Table 4:
Advantages of joint labor-management apprenticeship programs**

California State Certified Apprentice Programs	Number of Programs		Number of Graduates (Individuals) 2002 - 2007	
	Joint Labor-Mgmt	Unilateral Mgmt	Joint Labor-Mgmt	Unilateral Mgmt
Asbestos Workers	2	none	186	none
Boilermakers	1	none	62	none
Bricklayer	3	2	110	16
Carpentry	25	3	4,449	337
Carpet, Linoleum & Soft Tile	2	1	330	2
Cement Masons	3	none	520	none
Drywall / Lather	9	2	1,904	none
Electrical & Electronic	29	9	4,362	1,110
Elevator	2	none	617	none
Engineer	4	3	2,026	13
Glazier & Glass Workers	6	none	437	none
Heating, Ventilation & Air Conditioning	8	2	532	246
Iron & Steel Workers	8	none	2,116	none
Laborers	8	2	1,540	56
Lineman	1	2	324	37
Millwright	2	none	185	none
Painting & Decorating	5	4	1,033	66
Plasterers	4	none	294	none
Plumbing	29	6	2,769	306
Roofers	7	2	618	115
Sheet Metal	9	2	1,654	114
Surveyor	2	none	482	none
Tile Layer/Setter	8	none	976	none
Total	177	40	27,526	2,418
Percentage	82%	18%	92%	8%

Source: California Department of Industrial Relations, Division of Apprenticeship Standards dataset. April 2009.

Joint labor-management (joint) programs sponsor the majority of apprenticeship programs offered in California and graduate the vast majority of apprentices. The sponsorship structure, meaning whether the sponsor is joint or unilateral management, is a key component to the strength of a program. Cooperation and a shared commitment to training unite employers and workers to create the success of joint programs.

In California, 217 registered programs train apprentices in 23 trades. Joint labor-management programs provide 82% of those programs and offer training in all trades. In 10 trades, only joint programs are offered.

Definitions:

Sponsor

Any person, association, committee, or organization operating an apprenticeship program and in whose name the program is (or is to be) registered or approved.

Joint labor-management (joint)

Composed of an equal number of representatives of the employer(s) and of the employees represented by a bona fide collective bargaining agent(s)

Unilateral

An apprenticeship program sponsor without a bona fide collective bargaining agent.

Source: Code of Federal Regulations, 29 CFR 29 "Labor Standards for the Registration of Apprenticeship Programs."

⁵⁶ 29 CFR 29 "Labor Standards for the Registration of Apprenticeship Programs." Code of Federal Regulations.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

Joint Programs Have More Graduates and Higher Completion Rates

Ninety-two percent (92%) of California's nearly 30,000 apprenticeship graduates in 2002-2007 were from joint labor-management programs (Figure 2). Since program completion is what secures middle-class career wages and benefits, the ability of apprentices to succeed is vital.

Completion rates in joint programs are higher because they are more established and better funded, according a Government Accountability Office report.⁵⁷ Joint apprenticeship training trusts are funded through collective bargaining, meaning that member workers agree to have a small part of their paycheck deposited by the employer into the trust.

Definition:

Completion rate

The percentage of an apprenticeship cohort who receive a certificate of apprenticeship completion within one year of the projected completion date.

Joint labor-management programs use a multi-employer structure, with several signatory contractors, to keep apprentices fully employed

to fulfill their on-the-job training hours. Joint programs generally take responsibility for placing apprentices with employers, rather than requiring the apprentices to look for work and experience intermittent unemployment. Through local chapter affiliation and portability agreements, apprentices in joint programs keep their benefits and are more likely to find work in other areas with another local.⁵⁸

Ninety-five percent (95%) of women and 92% of people of color graduating from apprenticeship programs are in joint labor-management programs (Figure 3 and Figure 4).⁵⁹

Joint labor-management sponsored apprenticeship programs have a significantly higher completion rate (49%) than unilateral programs (33%) across the board. In many of the largest trades, the joint program completion rates are 20-30% higher than unilateral programs (Figure 5, Page 12).⁶⁰

BARRIERS TO PROGRAM COMPLETION

Program sponsorship has two main challenges: failure to complete the program and the loss of a trained worker to another employer, or "poaching."⁶¹ These problems increase the cost of training and threaten continuation of the programs.

Dropouts

Apprenticeship programs are rigorous. It is full-time, physically

FIGURE 2: TOTAL GRADUATION

California Construction Apprenticeship Programs Individual Completions by All Persons 2002-2007

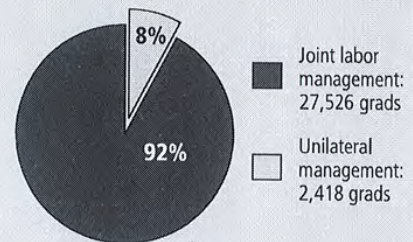


FIGURE 3: WOMEN GRADUATES

Apprenticeship Program Completions by Women in California, 2003-2008 (Individuals)

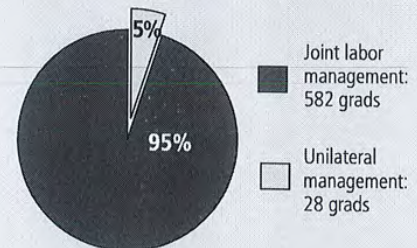
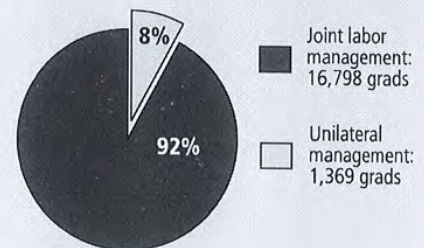


FIGURE 4: MINORITY GRADUATES

Apprenticeship Program Completions by Minorities in California, 2003-2008 (Individuals)



Source for above figures: California Department of Industrial Relations, Division of Apprenticeship Standards dataset. April 2009.

⁵⁷ Government Accountability Office (GAO). 2005. *Registered Apprenticeship Programs: Labor Can Better Use Data to Target Oversight*. Report to Congressional Requesters. <http://www.gao.gov/new.items/d05886.pdf>

⁵⁸ GAO, op cit.

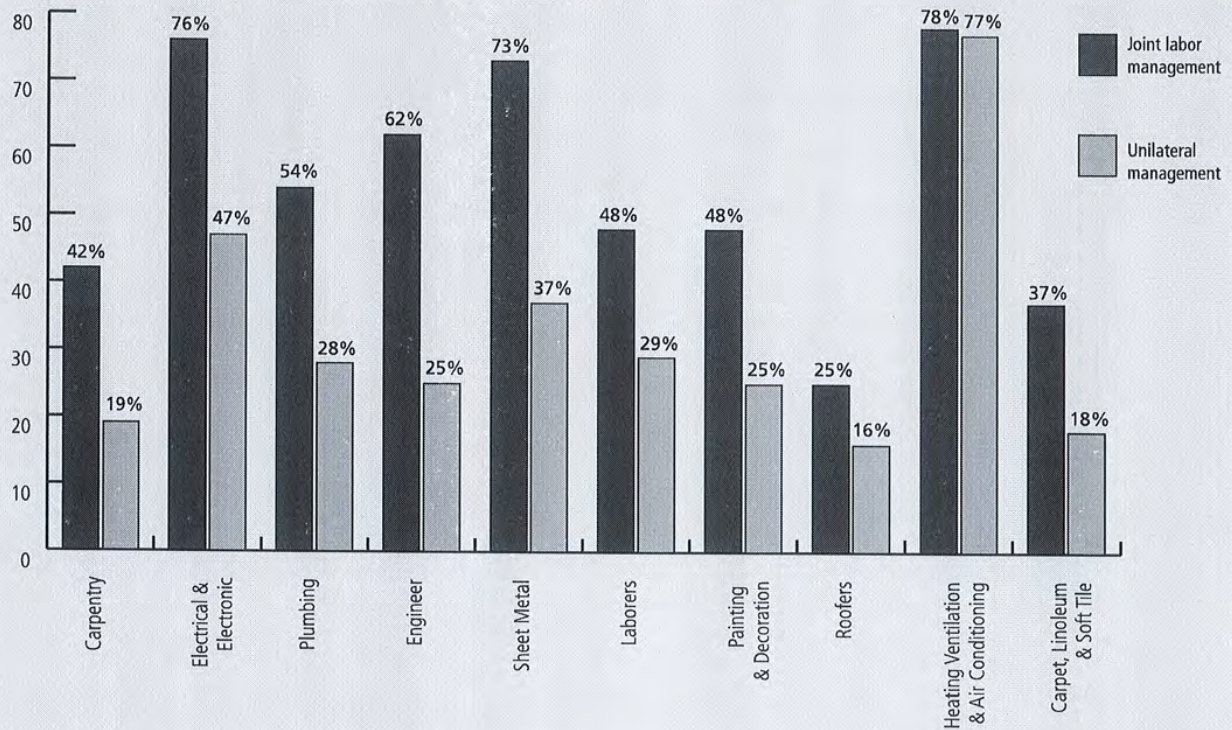
⁵⁹ Apprenticeship dataset received from the California Department of Industrial Relations, Division of Apprenticeship Standards, April 2009.

⁶⁰ Apprenticeship dataset, op cit.

⁶¹ Lerman, Robert, Lauren Eyster and Kate Chambers. 2009. *The Benefits and Challenges of Registered Apprenticeship: The Sponsors' Perspective*. The Urban Institute on Labor, Human Services and Population. http://www.urban.org/UploadedPDF/411907_registered_apprenticeship.pdf

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

FIGURE 5: CALIFORNIA CONSTRUCTION APPRENTICESHIP PROGRAMS COMPLETION RATE BY CRAFT, 2002-2007
Top 10 crafts by number of graduates. Completion rate weighted average



Source: California Department of Industrial Relations, Division of Apprenticeship Standards dataset, April 09

Methodology: Most data used in this report come from the California Department of Industrial Relations, Division of Apprenticeship Standards. One dataset listed individual program completions by sponsor for gender and ethnicity and was received at the end of March 2009. The other dataset listed program completions by sponsor for all persons and was received mid-April 2009. Weighted averages were created by multiplying total intake of apprentices for each sponsor for 2002-2007 by average completion rate after the 1st year. The results for each sponsored program within each trade were added together. This total was then divided by total average annual intake rate to find the weighted average for each trade by type of sponsor.

demanding work, with classroom instruction and studying after work or on weekends. It can be difficult to juggle time commitments or manage the stress of constant training challenges and evaluations. An apprentice needs both personal commitment and a support system to be successful. This is even more critical if the apprentice comes from an at-risk background.

Social service or support programs within the community can help apprentices succeed by providing needed additional services, such as substance abuse or mental health counseling, childcare, or small loans for reliable transportation. Using assessments and case management to assist apprentices in identifying personal barriers to success and then connecting them to support services can address many of the reasons for dropping out.⁶²

The most commonly cited reasons for non-completion of a program were:⁶³

- 36% – personal reasons (family needs, mental health or substance abuse problems, physical illness or legal issues).
- 32% – performance problems on the job or in the classroom.
- 30% – gained craft certificate or took another job before completion.

⁶² The Apollo Alliance, et al. 2008. *Green-Collar Jobs in America's Cities: Building Pathways Out of Poverty and Careers in the Clean Energy Economy*. <http://apolloalliance.org/downloads/greencollarjobs.pdf>

⁶³ Lerman, Robert, Lauren Eyster and Kate Chambers. 2009. *The Benefits and Challenges of Registered Apprenticeship: The Sponsors' Perspective*. The Urban Institute on Labor, Human Services and Population, http://www.urban.org/UploadedPDF/411907_registered_apprenticeship.pdf

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

WORKER STORY: Iron Woman

"I was working in retail and was tired of it. I wanted a career and something that would keep me outside, healthy and happy," says 28-year old ironworker Mariko Preston. "I began training in ironworking in New Orleans but was looking to get out. Katrina helped with that."

Following Hurricane Katrina, Preston was evacuated by the American Red Cross to San Diego. She approached the staff at Ironworkers Local 229, she remembers. "They said OK. Show us what you got."

Five years later, Preston is a journey-level iron worker with comprehensive welding certifications and on-the-job experience in welding for infrastructure like highways, bridges and dams and for skyscrapers.

A 5'3" African-American woman, Preston says, "I work smarter, not harder. Being a woman in the trades, it's hard enough, especially as an ironworker, to go out on the job and think you are going to get paid as much as the next guy. When I'm in the union, I know that they have to treat me fairly, and we are all going to get paid the same."

And Preston credits her joint labor-management apprenticeship with teaching her more in a few years than she ever would have learned as a nonunion worker.



Poaching

The loss of a trained worker to another employer, known as "poaching," can lead to underinvestment in an employer's workforce.⁶⁴ In order to maximize profits in the short-term, some contractors may choose to hire others' apprentices or journeyworkers rather than make the long-term investment to sponsor their own training programs.⁶⁵

The focus on selecting the lowest bidder for construction projects can exacerbate "poaching." When bidding, contractors may cut training costs to reduce total overhead as much as possible and win the work. This fierce pressure to contain labor costs and undercut the competition encourages employers to poach workers from other contractors rather than incur the costs of training.⁶⁶

Joint labor-management programs report less concern with dropouts and "poaching."⁶⁷ Steady work, higher wages and health insurance may resolve many of the personal reasons for dropping out of a program. A steady paycheck at a family-sustaining level may allow workers to pay for childcare or other assistance, while health insurance provides treatment for physical illness, substance abuse or mental health issues.

Joint programs pool their training costs and resources, creating a "fair playing field" among union contractors, thereby negating the disincentive to provide training and the incentive to poach.⁶⁸

⁶⁴ Organization for Economic Co-operation and Development (OECD). 1994. *The OECD Jobs Study: Facts, Analysis, Strategies*. <http://www.oecd.org/dataoecd/42/51/1941679.pdf>

⁶⁵ Kotler, Fred. 2009. *Project Labor Agreements in New York State: In the Public Interest*. Cornell University Industrial and Labor Relations School, Cornell University.

⁶⁶ Kotler, op cit.

⁶⁷ Lerman, Robert, Lauren Eyster and Kate Chambers. 2009. *The Benefits and Challenges of Registered Apprenticeship: The Sponsors' Perspective*. The Urban Institute on Labor, Human Services and Population. http://www.urban.org/UploadedPDF/411907_registered_apprenticeship.pdf

⁶⁸ Kotler, Fred. 2009. *Project Labor Agreements in New York State: In the Public Interest*. Cornell University Industrial and Labor Relations School, Cornell University.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

NECESSARY POLICIES TO SUPPORT APPRENTICESHIP PROGRAMS

The success of apprenticeship programs in creating middle-class careers depends on supportive public policies. Effective policy options include funding the programs and support services, requiring contractors to pay prevailing wage and hire apprentices on more projects, and enacting responsible contracting standards.

Definition:

Responsible contracting policies

Prohibit public contracting with employers who violate workplace, tax or other laws. They can also provide a mechanism to favor employers who provide good jobs – good wages and benefits, a safe workplace – and comply with workforce standards.⁶⁹

Career Ladders - Pathways out of Poverty

A career ladder or pathway out of poverty is a succession of training and support systems that prepare workers for a series of jobs with increasing skill requirements and compensation, providing a bridge from unemployment or dead-end jobs into middle-class careers.⁷⁰ Career ladders focus on community members who traditionally face multiple

barriers to employment – low-income, people of color, women, unemployed, homeless, ex-offender, returning veterans or those lacking a high school diploma or GED.

A comprehensive career pathway links job seekers, employers, community organizations, educational institutions and the workforce development system, creating “wrap-around” services.⁷¹ Apprenticeship is a key step.

Recruitment and Case Management

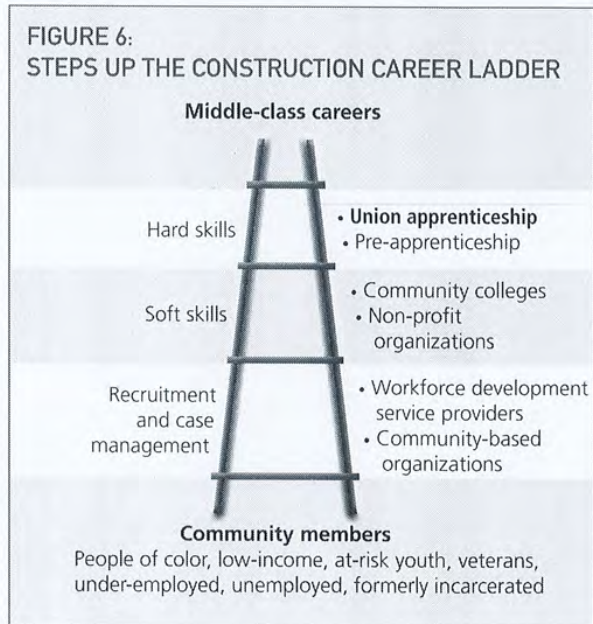
Community-based organizations and workforce development providers help connect community members with career pathway programs. They provide skills assessments, identify participant needs and coordinate support services. Some community members need case management assistance along the entire pathway out of poverty. Case management assistance is often necessary for ex-offenders or youth, those with a history of substance abuse, or to help low-income people remain qualified for assistance until they become stably employed.⁷²

Soft Skills

Nonprofit organizations and community colleges provide soft skills, including job hunting skills, workplace etiquette, communication skills, conflict management, as well as assistance with obtaining a driver's license or GED.⁷³

Hard Skills

Nonprofit organizations, labor unions and employers provide the actual on-the-job skills training for careers through pre-apprenticeship and apprenticeship programs.⁷⁴



Adapted from The Apollo Alliance, et al. 2008. *Green-Collar Jobs in America's Cities: Building Pathways Out of Poverty and Careers in the Clean Energy Economy.*

⁶⁹ Sonn, Paul K. and Tsedeye Gebreselassie. 2009. The Road to Responsible Contracting: Lessons from States and Cities for Ensuring That Federal Contracting Delivers Good Jobs and Quality Services. National Employment Law Project (NELP). http://nelp.3cdn.net/fd1c66786fb98867e7_1dm6brs8l.pdf

⁷⁰ Mitnik, Pablo and Matthew Zeidenberg. 2007. *From Bad to Good Jobs? An Analysis of the Prospects for Career Ladders in the Service Industries.* Center on Wisconsin Strategy (COWS). http://www.cows.org/about_publications_detail.asp?id=399, and The Apollo Alliance, et al. 2008. *Green-Collar Jobs in America's Cities: Building Pathways Out of Poverty and Careers in the Clean Energy Economy.* <http://apolloalliance.org/downloads/greencollarjobs.pdf>

⁷¹ The Apollo Alliance, et al. 2008. *Green-Collar Jobs in America's Cities: Building Pathways Out of Poverty and Careers in the Clean Energy Economy.* <http://apolloalliance.org/downloads/greencollarjobs.pdf>

⁷² The Apollo Alliance, et al, op cit.

⁷³ The Apollo Alliance, et al, op cit.

⁷⁴ The Apollo Alliance, et al, op cit.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

Careers

Graduates of apprenticeship programs become journeyworkers. With increasing experience and continuing education, many later become foremen, supervisors or contractors.

Definition:

Pre-apprenticeship

A program that provides contextualized training in the basic skills used in the building trades and prepares students for entrance into an apprenticeship program. Many programs train on smaller and less complex construction projects, such as a model structure on the program site, or in residential weatherization of community homes.

None of this is cheap. Providing the diverse services necessary for moving an at-risk community member to self-sufficiency requires resources. Some funds come from government programs and others through nonprofit or charitable organizations.

Regardless, programs like these need both policy and financial support, especially in today's economy.

Local Hire Requirements

On-the-job training is the main component of the apprenticeship system. Each apprentice must stay fully employed to complete their program on time. Therefore, a shortage of jobs limits the availability of apprenticeships for community residents.

Local hire policies provide local jobs and also incentivize the creation of career ladders by moving community members into apprenticeship programs and into middle-class careers. Local hire policies require that a certain number of journeyworkers and apprentices who are residents of the local area to be employed on development projects. Many local hire policies also require a set participation rate by "at-risk" residents or living in poverty. Local hire is a concrete mechanism to ensure that the investment of public funds into the community helps low-income residents.⁷⁵

A successful example of local hire policies in action, the City of Los Angeles implemented local hire after an audit of the 1996 City Hall renovation project showed that less than 2% of project work hours were performed by local residents.⁷⁹ The City's Department of Public Works now requires that 30-40% of project hours be performed by City residents. Because of that policy, \$41.5 million has been reinvested in the City through the estimated wages and benefits paid to 2,600 local residents and 2,300 apprentices employed on nine Public Works projects.⁸⁰

CASE STUDY: Los Angeles Unified School District "We Build"

Since 1999, the Los Angeles Unified School District (LAUSD) has strived to use local district residents to perform at least 50% of total hours worked on bond projects. The local-hire policies cover over \$27.1 billion dollars of bond funds, the largest school construction project in the nation. Through diligent, innovative administration and community partnerships, 33% or 19,509 local residents have been employed on LAUSD projects, as of March 2009.⁷⁵

Due to the size and scope of the bond projects, LAUSD has created an internal department to facilitate local hire and community partnerships, called We Build. We Build connects community members with pre-apprenticeship training through both the LAUSD Division of Adult and Career Education Training Centers and the nonprofit Century Community Training Program. Completion of the pre-apprenticeship program places workers in a competitive position to enter union apprenticeship programs and be employed by contractors working on bond construction projects.⁷⁶

The Century Community Training Program is one example of an organization providing "wrap around" services. Trainees receive hands-on experience building on-site model structures where they learn the basics of several trades, including concrete pouring, residential plumbing and electrical systems, reinforcing iron setup and basic framing. Daily physical agility and endurance-building exercises help prepare trainees for the physical demands of construction. Classroom instruction includes shop math, written test-taking, blueprint reading and OSHA 10-hour safety certification. Trainees also receive case management services and job placement assistance, with 85% of graduates entering union apprenticeship programs.⁷⁷

⁷⁵ Los Angeles Unified School District. *We Build*. <http://www.laschools.org/contractor/webuild/> and "We Build" Program Update & UCLA Labor Center Study Summary. Facilities Committee Report. March 5, 2009. Received from We Build program upon request.

⁷⁶ Los Angeles Unified School District. *We Build*. <http://www.laschools.org/contractor/webuild/>

⁷⁷ Information from the Century Community Training Program website. <http://www.centurycommunitytraining.org/>

⁷⁸ Kathleen Mulligan-Hansel, PhD. 2008. *Making Development Work for Local Residents: Local Hire Programs and Implementation Strategies that Serve Low-Income Communities*. Partnership for Working Families. <http://www.communitybenefits.org/downloads/Making%20Development%20Work%20for%20Local%20Residents.pdf>

⁷⁹ City of Los Angeles Bureau of Contract Administration, Project labor agreement documents posted online. http://bca.lacity.org/index.cfm?nxt_body=local_hiring.cfm

⁸⁰ Manny Perez, 2009. *Local Hire in the City of Los Angeles*. City of Los Angeles, Department of Public Works, Bureau of Contract Administration. Presentation to the San Diego Unified School Board, January 2009.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

Good Jobs in the Green Economy

The green economy is large and growing rapidly. According to the American Solar Energy Society, renewable energy and energy efficiency generated \$970 billion in revenues and 8.5 million jobs in 2006.⁸¹ By 2030, ASES estimates that 1 in 4 U.S. workers will have jobs involving renewable energy or energy efficiency.⁸²

With that much of our economy at stake, policy decisions are needed today to ensure high-road, middle-class careers for the future. Increasing numbers of state and local governments and agencies are addressing climate change through requiring buildings to be certified "green" and to increase use of renewable energy. The City of Los Angeles, for example, does both. All new buildings over 50,000 square feet must be LEED certified, City buildings over 7,500 square feet must be retrofitted to LEED Silver standards and the Los Angeles Department of Water and Power has an aggressive solar incentive program.⁸³

Achieving maximum energy efficiency requires a "whole-building" approach and correct construction and installation.⁸⁴ Industry analysts recommend certification of contractors as a means to ensuring proper installation.⁸⁵

Apprenticeship training already incorporates green skills and provides the workforce certified in these skills. Together with a strong foundation in skills of the trades, apprenticeship graduates already are well prepared for most green economy jobs.

For example, solar electric systems require electrical training and licensing, and solar water systems require training in plumbing.⁸⁶ Apprentices in the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry (UA) learn how to be green plumbers.⁸⁷ In the 32-hour, LEED-approved course, apprentices receive training in water conservation technologies such as gray, recycled and wastewater treatment; solar hot water systems; reducing the energy consumption of heating and cooling appliances, and performing energy and water audits.

Weatherization Pre-Apprenticeships

For the last 32 years, the Department of Energy Weatherization Assistance Program (WAP) has helped low-income families permanently reduce their energy bills by making their homes more energy efficient.⁸⁸ Basic construction skills are used to address comprehensive energy usage, water consumption and related health and safety improvements. Weatherization workers seal leaks, replace or repair windows, add insulation and repair duct work, upgrade heating and ventilation appliances, and install water-saving devices, among other tasks.⁸⁹

Since weatherization uses the same basic skills as many of the construction crafts, it is a perfect fit for pre-apprenticeship programs. Community-based organizations and the Laborer's International Union of North America (LIUNA) are creating programs to train community members in weatherization as a pathway into apprenticeships and out of poverty.⁹⁰ Moreover, the American Recovery and Reinvestment Act (ARRA) includes commitments to weatherizing 1 million homes and requires payment of federal prevailing wage to workers.⁹¹ Combining ARRA funds for the WAP program with pre-apprenticeship programs will provide good jobs at an early stage of the pathway out of poverty.



The Green Training Trailer is a mobile classroom that travels nationwide teaching union apprentices the latest in green technologies in the plumbing, heating and mechanical trades.

Definition:

Leadership in Energy and Environmental Design (LEED):

A green building certification system providing third-party verification that a building or community was designed and built using strategies aimed at improving performance and stewardship of resources and sensitivity to their impacts.⁹²

⁸¹ Bedzec, Roger. 2007. *Renewable Energy and Energy Efficiency: Economic Drivers for the 21st Century*. American Solar Energy Society (ASES). <http://www.ases.org/images/stories/ASES-JobsReport-Final.pdf>

⁸² Bedzec, op cit.

⁸³ City of Los Angeles, *EnvironmentLA. New Green Building Program*. <http://www.lacity.org/lead/environmentla/greenbuilding/newgreenbuilding.htm> and City of Los Angeles. *Green Retrofit and Workforce Program Ordinance*. Administrative Code, Div. 7, Chp. 3, Art. 5.

⁸⁴ U.S. Department of Energy, Energy Efficiency and Renewable Energy. *Building Technologies Program. Commercial Buildings*. http://www1.eere.energy.gov/buildings/commercial/whole_building_approach.html and U.S. and Green Building Council. *LEED Rating Systems*. <http://www.usgbc.org/displaypage.aspx?CMSPageID=222>

⁸⁵ Choi Granade, Hannah, et al. 2009. *Unlocking Energy Efficiency in the U.S. Economy*. McKinsey and Company. http://www.mckinsey.com/client-service/electricpower/naturalgas/US_energy_efficiency/

⁸⁶ Op Cit. and Pollin, Robert, Heidi Garrett-Peltier, James Heintz and Helen Scharber. 2008. *Green Recovery: A Program to Create Good Jobs and Start Rebuilding a Low-Carbon Economy*. Center for American Progress (CAP) and Political Economy Research Institute (PERI). http://www.americanprogress.org/issues/2008/09/pdf/green_recovery.pdf

⁸⁷ GreenPlumbers, USA. *Green Plumbers Course Information*. <http://www.greenplumbersusa.com/training-accreditation/course-information/#climatecare>

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

WORKER STORY: From Apprentice to Contractor

Electrical contractor Andre Johnson credits his apprenticeship training as the most valuable factor in his growing business success. "In the apprenticeship, I learned about all aspects of the electrical trade – from residential to commercial, from tenant improvements to motor controls."

Johnson, 38, spent time in San Diego during his service in the Air Force during the first Gulf War, and knew this was where he wanted to plant roots. He later returned to San Diego to raise his family and work in the electrical industry.

Johnson began his electrical apprenticeship with IBEW in 1995. After completing the program, he worked as a journey-level electrician and then progressed to foreman with San Diego-based Robinson Electric. Gaining experience and business acumen along the way, he then started Johnson Electric in the summer of 2006.

Johnson now employs local electricians and apprentices, and provides health care and retirement benefits, proving that a small business can provide family-sustaining careers and succeed.

"It is important to employ apprentices and make sure they are mentored and supported and learn all the aspects of the trade, so they can take their careers in whatever direction they want to go," Johnson said.

"It is not easy to start your company, but I did it," he said. "Now, young apprentices see me, and see that they could own a company one day, too."



SUMMARY

Completion of apprenticeship programs creates household self-sufficiency rather than a reliance on taxpayer-supported services. Construction workers are also consumers and taxpayers, so their wages and benefits are reinvested in the community as bills and mortgages are paid, local shops are patronized and workers have the time and health to participate in church, schools and other civic associations. Creating more local jobs for apprentices is the key to a strong local community. Rebuilding the economy means creating and supporting high-road, good jobs through policies that train and reward workers for their productivity.

RECOMMENDATIONS

1. State and federal "related technical instruction" funding for apprenticeship programs should increase, and funding should be provided for pre-apprenticeship and support services programs.
2. Projects receiving government subsidy should employ apprentices from registered programs at the highest allowed ratio for all trades.
3. Projects receiving government subsidy should utilize local hire policies that target low-income and/or disadvantaged workers through quality state-certified apprenticeship programs with a proven history of graduating apprentices.
4. Public contracting should give preference to responsible contractors and apprenticeship programs that provide health-care and pension benefits and OSHA safety training certifications.
5. Public contracting should utilize policies that reduce reliance on public assistance and that provide economic benefits to the community.

⁸⁸ U.S. Department of Energy, Energy Efficiency and Renewable Energy. *Weatherization Assistance Program*. <http://apps1.eere.energy.gov/weatherization/>

⁸⁹ U.S. Department of Energy, Energy Efficiency and Renewable Energy. *Weatherization Assistance Program Technical Assistance Center. Core Competencies Document*. <http://www.waptac.org/sp.asp?id=1818>

⁹⁰ Laborer's International Union of North America. *LIUNA Builds America*. <http://www.liunabuildsamerica.org/weatherize> and *MAAC Project. Green Career Opportunities*. <http://www.maacproject.org/Weatherization%20Trainee%20Program>

⁹¹ Recovery.gov. *The Act*. <http://www.recovery.gov/?q=content/act> and U.S. Department of Energy, Energy Efficiency and Renewable Energy. *Weatherization Assistance Program*. <http://apps1.eere.energy.gov/weatherization/>

⁹² U.S. Green Building Council. *Intro – What LEED Is*. <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

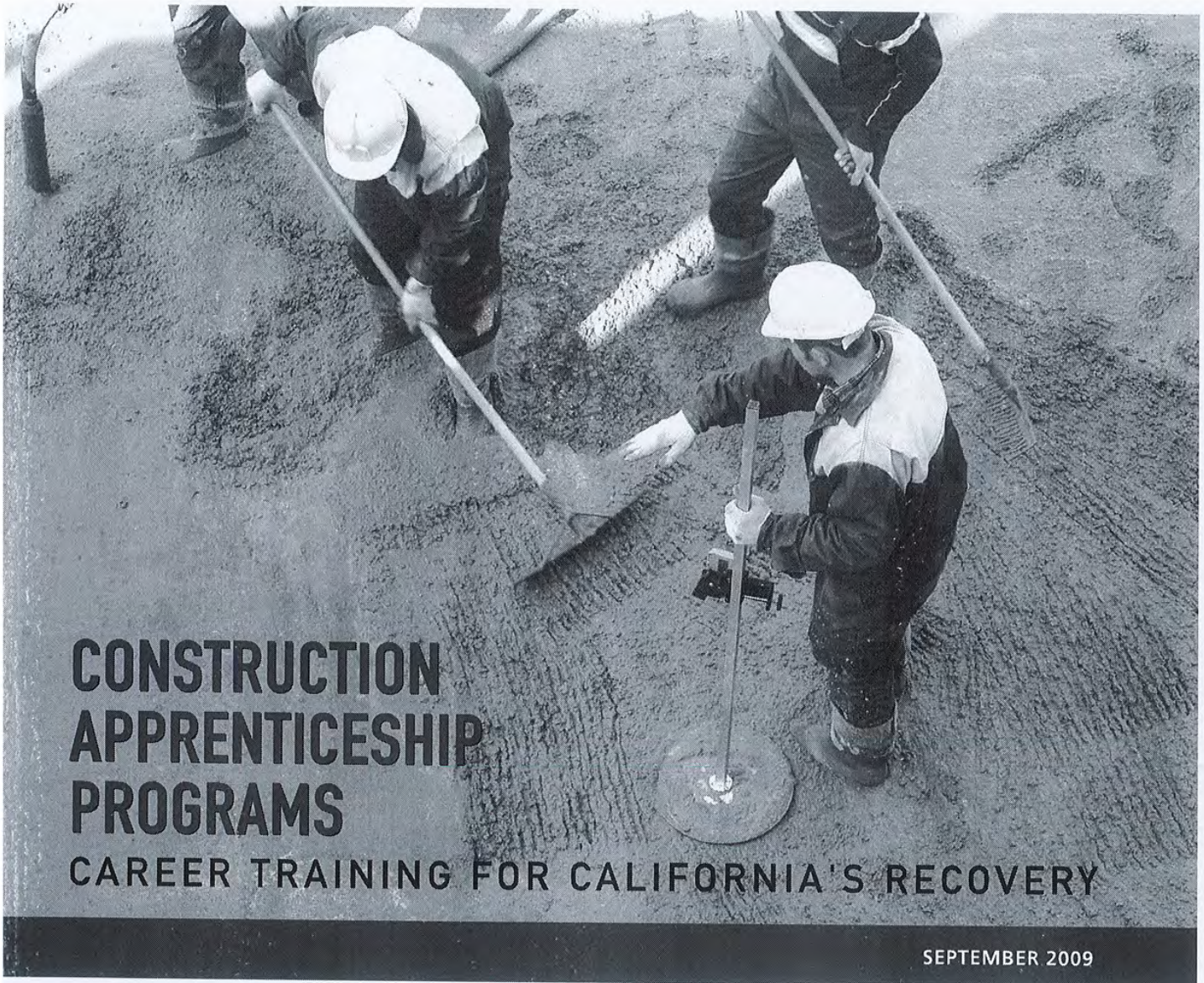
APPENDIX: WORK DESCRIPTIONS AND ENROLLMENT REQUIREMENTS FOR SOUTHERN CALIFORNIA JOINT LABOR-MANAGEMENT APPRENTICESHIP PROGRAM OCCUPATIONS

TRADE	DESCRIPTION OF WORK	REQUIREMENTS
Allied Workers	Applying thermal insulation to pipes, ducts, boilers, vessels, etc., throughout the commercial and industrial industries.	Min. 18 yrs. old, H.S. diploma or GED, certified copy of birth certificate, CA ID, & SS card. Must pass math, English, & physical.
Boilermakers	Build & repair boilers, tanks, pipelines & refineries	Min. 18 yrs old, H.S. diploma or GED. Drug test.
Bricklayers/ Stonemasons	Build with masonry materials, bricks, blocks, stone, & marble.	Min. 18 yrs. old, CA ID & SS card. Drug test.
Carpenters	Erect wood framework in buildings, build forms for concrete, CA erect partitions, studs, joists, & rafters.	Min. 17 yrs. old w/ parental consent, good physical condition, & mechanical aptitude necessary. Also, CA ID & SS card. Drug test.
Carpenter - Acoustic Installer	Installs a variety of factory produced systems & construction material in commercial buildings & public structures.	Same as for Carpenter listed above. Drug test.
Cement Mason	Finishes concrete surfaces of floors, walls, streets, driveways, sidewalks, curbs, & gutters & sets forms & screens for all of the above. Assists in preparation & grading for pouring & removal of old concrete. Operates troweling machines & grinders.	Min. 18 yrs. old, H.S. diploma or GED, good physical condition, CA ID, & SS card. Drug test.
Drywall Finisher	Prepares drywall surfaces for painting. Individual must sand, prepare, tape, & do touch-up using hand applied operations or machine applied systems.	Min. 17 yrs. old w/ parental consent, CA ID, & SS card. Must have good physical condition & no fear of heights. Drug test.
Drywall Lather	Erects wood or metal framing, fastens metal studs, metal lath, & drywall with tie wires, screws, nails, clips, & staples. Work is mostly indoors & in high places.	Same as for Finisher above and needs to have good mechanical aptitude. Drug test.
Electrical	Apprentices perform all aspects of electrical/telecommunication wire tasks in commercial, industrial, & residential construction.	Min. 18 yrs. old, H.S. diploma or GED, CA ID, SS card, & good physical condition. Must show proof of successful completion of 1 yr. of H.S. algebra or 1 semester college algebra & provide sealed transcripts. Must have reliable transportation. Math & aptitude exam given and drug test.
Elevator Constructors	Install & maintain elevators.	Min. 18 yrs. Old. H.S. diploma or GED. Aptitude test & personal interview.
Floor Covering	Apprentices learn to prepare sub-flooring & install new, resilient flooring & carpet installation.	Min. 18 yrs. old, CA ID, SS card & good physical condition. Drug test.
Glazing	Requires the use of hand tools, electric drills, electric metal saws, & glass polishing equipment. Also requires blueprint reading, layout work, handling, cutting, & processing glass of all sizes. Work is at various heights on ladders & scaffolds.	Min. 18 yrs. old, H.S. diploma or GED, Calif. ID, SS card, & good physical condition. Applicants should not have blood clotting issues. Drug test.
Ironworker	Apprentices are employed in four related segments of the trade: Structural Ironworker, Reinforcing Ironworker, Ornamental Ironworker, or Riggers & Machine Movers.	Min. 18 yrs. old, H.S. diploma or GED, CA. ID, SS card, & good physical condition. Must have own reliable transportation. Drug test.
Laborers	Support service for concrete, asphalt, landscape, pipelines, masonry & mining.	Min. standard evaluation & good physical condition. Drug test.

CONSTRUCTION APPRENTICESHIP PROGRAMS: CAREER TRAINING FOR CALIFORNIA'S RECOVERY

TRADE	DESCRIPTION OF WORK	REQUIREMENTS
Landscape & Irrigation Fitters	Apprentices acquire proficiency in layout, installation, and testing of irrigation systems. Also requires use of hand tools, power tools, and construction equipment related to the trade.	Min. 18 yrs. old, H.S. diploma or GED and good physical condition. Drug test.
Millwright:	Apprentices install & perform maintenance on machinery in factories & on precision work in nuclear power plants.	Min. 18 yrs. old, good physical condition, and mechanical aptitude necessary. Drug test and physical exam.
Operating Engineer:	Apprentices are heavy equipment operators & mechanics for major projects using rock, gravel, sand, or dredging operations.	Min. 18 yrs. old, H.S. diploma or GED, and strong physical condition. Must pass 3 part test: verbal, mechanical & math skills. Drug test.
Painter	Apprentices prepare surfaces & apply paint working on floors, walls, ceilings, & equipment in & outside of buildings. Paint is usually applied via brushes, spray guns, or rollers.	Min. 17 yrs. old w/ parental consent, and good physical condition. Transportation required. Drug test.
Pile Driver	Apprentices work in the early states of construction by driving metal, concrete, or wood pilings into the earth for base foundation.	Min. 17 yrs. old w/ parental consent, good physical condition, and mechanical aptitude necessary. Drug test.
Plasterer	Apprentices gain knowledge, skills, & techniques required for the plastering industry. Skills include: applications of scratch & brown coats, finish coats, as well as maintenance & operation of equipment, machine applied plaster & acoustic materials.	Min. 17 yrs. old w/ parental consent, functional reading writing, and math skills required. Also, must not have fear of heights or hard physical labor. Drug test.
Plaster Tender	Tending plasterers in all aspects of interior & exterior plaster, fireproofing & EIFS applications, scaffold building, pump & mixer operation of forklifts & other mechanical equipment.	Min. 18 yrs. Must have a CA drivers license, SS card & reliable transportation. Physical agility, oral interview & drug test.
Plumber & Pipefitter	Apprentices learn all aspects of plumbing and pipefitting for commercial, industrial, and residential construction.	Min. 18 yrs. old, H.S. diploma or GED w/ sealed transcripts, valid photo ID, and birth certificate. Must pass aptitude test at community college & drug test.
Roofers	Installation of all types of roofing including slate, tile, & composition. Also includes waterproofing.	Min. 18 yrs. old, valid photo ID, ss card, and ability to lift 100 lbs. Functional reading, writing, and math skills needed. Drug test.
Sheet metal	Apprentices lay out, cut, form, fabricate, assemble, & install sheet metal items. This trade works from blueprints, lays out the work, cuts and forms the metal, then welds, bolts, rivets, and solders as required.	Min. 18 yrs. old, H.S. diploma or GED, and good physical condition. Must pass community college math test & drug test.
Surveyor	Surveyors use advanced math to determine the proper location of property lines and various field & construction survey work. Measure elevations & distances for preparation of maps showing land surfaces, boundaries, & legal descriptions of property.	Min. 18 yrs. old, H.S. diploma or GED, strong algebra and geometry skills, and good physical condition. Must pass algebra & geometry test & drug test.
Teamster	Driving rock trucks, water trucks, flatbeds, semi tractor trailer & dump trucks.	Min. 18 yrs. for warehouse/commerical vehicle. Min. 20 yrs. for a class A or B license driving position. Drug test.
Tile Setters	Preparation and installation of tile.	Min. 18 yrs.

Source: San Diego Building & Construction Trades Council.2008. Apprenticeship Matrix. <http://www.sdbctc.org/Apprenticeship.html>



CONSTRUCTION APPRENTICESHIP PROGRAMS

CAREER TRAINING FOR CALIFORNIA'S RECOVERY

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PREVAILING WAGES AND GOVERNMENT CONTRACTING COSTS

A review of the research

BY NOOSHIN MAHALIA

Executive summary

For over a hundred years, many state and local governments have required that companies that want to contract for public works must pay their workers a wage that reflects wages commonly received in the area. The federal government adopted its own prevailing wage requirement with the Davis-Bacon Act of 1931. At the heart of these laws is the conviction that government, as a major buyer in the construction sector, should not act to drive down wages. Indeed, the civic-minded reformers who initially pushed for prevailing wage laws believed that the government ought to use its buying power to enhance the welfare of workers and their families.

Critics of prevailing wage laws argue that they inflate government contract costs. But a growing body of economic studies finds that prevailing wage regulations do not increase government contracting costs. Some of these studies use a cross-sectional approach, which compares costs of contracts subject to a prevailing wage with costs of contracts that are not during a common time period, and others use a time-series approach, which examine whether contract costs have changed with the adoption or repeal of a prevailing wage requirement. These studies also show that prevailing wage laws provide social benefits from higher wages

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and better workplace safety, increase government revenues, and elevate worker skills in the construction industry.

The issue, however, remains contentious. The current research counters the findings of a set of (mostly earlier) studies that relied on hypothetical models. The model works like this: the authors calculate a wage increase attributable to the prevailing wage regulation and then, assuming that the entire wage increase is passed through to the government in higher contract costs, calculate the higher contract costs. The wage increase calculation in these studies is typically flawed, but the most notable problem is the unquestioned assumption that higher wages lead to higher contract costs. Obviously, a study that presumes, without examination, that higher wages lead to higher contract costs tells us little about whether that is in fact the case. There are many reasons why higher wages do not necessarily lead to higher contract costs, and the findings of current research suggest that other factors erase much or all of the hypothetical additional costs the earlier models assume.

Although a few recent studies have adopted this “wage differential approach,” most modern literature has favored econometric approaches to compare situations where prevailing wages are applied and where they are not. These studies, more sophisticated in analytical terms, have found no statistical relationship between prevailing wage laws and contract costs, with only two exceptions. The first exception was a national study by Fraundorf et al. (1984) of construction costs in rural areas. The authors found sizable cost differences between government contracts that were subject to federal prevailing wage rules and private contracts that were not. As the first of the econometric studies, Fraundorf continues to be among the most commonly cited in the literature. But subsequent studies discovered that the authors left out a key variable—differences between public and private building design specifications—that would have controlled for the difference in public versus private construction costs. Once these differences are accounted for, later studies do not replicate the Fraundorf conclusion and find no impact of prevailing wages on contract costs.

The second exception in the modern econometric literature is a study of low-income housing construction in California. The study found that affordable housing

construction projects subject to prevailing wage laws were substantially more expensive for the government than projects that were not. Because this study is relatively new, scholars have not yet explored the reasons why the findings contradict the rest of the econometric literature. If labor-intensiveness, skill, and material-saving technologies are sufficiently different in the construction of subsidized housing than in the construction of public buildings or highways, then it is possible that prevailing wage regulations would affect this sector differently. However, the study’s findings seem implausible, since the cost estimates of the preferred model exceed possible savings in labor costs. Because scholars have not yet replicated the study, it is unclear if the findings relate to idiosyncrasies in the data and methodology, or to the peculiarities of subsidized housing construction.

With these exceptions, the modern econometric literature finds no cost impact on public construction associated with the implementation of prevailing wage regulations. The literature suggests a number of possible reasons for the absence of a link between prevailing wage laws and overall contract costs.

- Prevailing wage regulations do not, in all cases, increase wages. Public contractors may pay at prevailing wage rates without the regulation.
- Average labor costs, including benefits and payroll taxes, are roughly one-quarter of construction costs. Thus, even if a prevailing wage regulation raised wages by 10%, the impact on contract costs would be less than 2.5%. Thus, even if there is an increase in contract costs it is likely to be small—to the point of being undetectable.
- Improved productivity can offset higher wages. Better-skilled workers attracted by the higher wage might complete the job in less time, or firms looking to reduce their higher labor costs might utilize labor-saving technologies.
- Higher wage costs might be offset through “factor substitution,” i.e., the substitution of more expensive labor with, say, less-expensive materials. As a practical matter, this point assumes that workers are roughly of the same skill level. But it shows that worker wages

are only one of the avenues contractors can use to win project bids.

- Contractors might absorb the higher wage costs and pay for them out of their profits rather than pass them on to the government.

Some recent studies have expanded the analysis of prevailing wage regulations to determine whether they have indirect costs or benefits for the economy and society. These studies have found that prevailing wage laws can enhance state tax revenues, industry income, and non-wage benefits for workers; lower future maintenance and repair costs; reduce occupational injuries and fatalities; and increase the pool of skilled construction workers—to the benefit of both the public and the construction industry.

At this point in the evolution of the literature on the effect of prevailing wage regulations on government contract costs, the weight of the evidence is strongly on the side that there is no adverse impact. Almost all of the studies that have found otherwise use hypothetical models that fail to empirically address the question at hand. Moreover, the studies that have incorporated the full benefits of higher wages in public construction suggest that there are, in fact, substantial, calculable, positive benefits of prevailing wage laws.

Introduction

Prevailing wage laws require that contractors on public works projects pay their workers at least the locally prevailing wages and fringe benefits paid on similar projects in the area. Kansas was the first state to adopt a prevailing wage law, in 1891, as part of a broad-based effort by the Republican legislature to confront the social costs of 10-12 hour workdays, child labor, and downward wage pressure (Phillips 1998). New York followed suit in 1894, Oklahoma in 1909, Idaho in 1911, Massachusetts in 1914, and New Jersey in 1923. The first and most significant of the federal laws establishing the prevailing wage rule was the 1931 Davis-Bacon Act,¹ which requires payment of wages “prevailing” in a local area to workers on federally financed construction projects worth at least \$2,000.² Davis-Bacon gained bipartisan support during the Great Depression, when unscrupulous contractors

won bids based on low pay for workers (Gujarati 1967) and then delivered shoddy workmanship. It is named for its two Republican co-sponsors and was signed by President Herbert Hoover.

Under Davis-Bacon, the prevailing rate is the rate paid to at least 50% of workers in a construction occupation for a local area. If there is no single rate for at least 50% of workers in that occupation, then the prevailing wage is the average rate paid in the area for that occupation. States, counties, and cities have adopted their own prevailing wage legislation, and policies vary widely. Prevailing wages in states and localities might be set as the local union wage rate, the average wage for construction occupations in the area, or a combination of the two.

Thirty-two states and the District of Columbia currently have prevailing wage laws. Nine states had laws but repealed them, starting with Florida (1979) and Alabama (1980) (Kelsay et al. 2004; Philips et al. 1995).³ Repeals have relied on arguments that prevailing wage rates increase costs on public construction contracts (Phillips 1998), and assertions that repeal will save 15-25% on construction costs are commonly echoed in the news media. These claims, however, do not stand up to serious examination of the relationship between prevailing wage laws and government contract costs.

A growing body of economic analysis finds that prevailing wage regulations do not inflate the costs of government construction contracts. A simple premise underlies the hypothesis that prevailing wages raise costs: the laws result in higher wage costs for contractors, and contractors pass these costs on to the government. Although this seems like a plausible outcome, there are many reasons why the costs to the government might be the same regardless of the wage differences. For example:

- Contractors might pay the wages required under prevailing wage laws even if the law does not require it.
- Labor costs are not the dominant costs in government construction contracts. Even including benefits and payroll taxes, labor costs are roughly 20-30% of construction contracts, according to the Census of Construction (Phillips 1998).⁴ Thus, for example, if labor costs are 25% of total costs and prevailing wage rules

raise wages by 10%, the impact on contract costs would be no more than 2.5%. Thus, even if there is an increase in contract costs, it is likely to be small—to the point of being undetectable in some instances and/or by some studies.

- Higher wages might be offset by a rise in productivity. Prevailing wages can attract better-skilled, more productive workers, or firms may rely on higher managerial productivity or invest in labor-saving technologies to offset higher labor costs (Philips 1996).
- Higher wage costs might also be offset through “factor substitution,” i.e., substituting more expensive labor with, say, cheaper materials.⁵
- Contractors not subject to prevailing wage laws might retain the money they save in wages as higher profits rather than passing the savings on to the government. Alternatively, contractors paying prevailing wages might absorb the higher wage costs, paying for them out of their profits rather than passing them on.⁶

As with any economic analysis examining the impact of a policy on an economic outcome, the challenge is to isolate the impact of the policy from all of the other factors that might influence the outcome. Take, for example, a study that compares the costs of two sets of construction contracts, one set subject to prevailing wage rules and one set not. The difference in the costs of these contracts is influenced by many factors other than the prevailing wage. If, for example, more of the contracts subject to the prevailing wage happen to be for taller buildings, or are completed during a building boom when construction costs are higher, or use more expensive building materials, those contracts might be more expensive for reasons unrelated to prevailing wage regulations. The studies described below take a variety of approaches to this challenge—ranging from ignoring it to using sophisticated econometric techniques to control for the differences. As scholars have engaged in this work over the years they have learned from their predecessors and refined their techniques for identifying the factors that influence contract costs and improving ways to account for them.

The approaches researchers have taken to study this question fall into three main categories:

- **The wage differential approach.** Compare wage levels in contracts subject to prevailing wage laws with wage levels in contracts not subject to the laws, and assume that all additional wage costs are passed through to the government by contractors.⁷
- **Cross-sectional analysis.** Compare contracts subject to the prevailing wage and contracts not subject to the prevailing wage in the same time period. Typically these studies compare the costs of government contracts in states and other jurisdictions with prevailing wage laws with contracts in places without prevailing wage laws. Some studies, however, compare public and private contracts. In addition, in some jurisdictions, some public contracts are subject to prevailing wage laws and some aren't. For example, a local school construction contract might be subject to prevailing wage requirements if the state funds over half the cost but not subject to the requirement if the state pays less than half. Some studies have used these situations to compare the costs of public contracts within the same jurisdiction.
- **Time series analysis.** Compare government contract costs in time periods with a prevailing wage requirement and costs in time periods without one.

The wage differential approach to evaluating the impact of prevailing wage laws

The wage differential approach consists essentially of two steps. First, researchers examine the relationship between prevailing wage regulation and wage rates. Are wages higher on contracts subject to prevailing wage rules? Second, the higher wages that are calculated are then presumed to be passed through to the government in higher contract costs.

In 1979 the General Accounting Office (today the Government Accountability Office, or GAO) used the wage differential approach in studying a sample of 30 federal projects subject to Davis-Bacon, estimated to value about \$25.9 million (GAO 1979). The GAO concluded that,

due to incorrect procedures used by the Department of Labor, wages paid were actually higher than prevailing wage levels in 12 of the projects. Wages on the other 18 projects were lower than the prevailing rate. For the 12 projects set at higher rates, wages were about 36.8% above the prevailing wage rate.⁸ The higher prevailing wage rate was presumed to have been passed through in higher contract costs, driving up total construction costs by an average of 3.4% and raising federal construction costs by \$228 million to \$513 million annually.

The Mackinac Center for Public Policy (Vedder 1999) employed a wage differential approach to calculate costs of prevailing wages on Michigan government construction. The author used a sample of wages paid in the Detroit area suburbs to calculate a 40% difference between market and prevailing rates, a premium that would, hypothetically, drive up construction costs in Michigan by 10%.⁹ Applying this 10% to state construction costs and non-construction capital outlays resulted in an estimate of \$275 million in additional costs due to state prevailing wages.

Keller and Hartman (2001) attributed a 17% wage difference between public and private construction contracts to the state prevailing wage law. The authors compared a mean hourly rate of \$17 for school construction projects that paid prevailing wages and \$14.13 for private sector projects.¹⁰ The authors calculated a 2.25% increase in construction costs by applying the wage and benefit differences to the sample of total project costs, and then used simple accounting to conclude that prevailing wages cost the state an additional \$66.8 million over a six-year period.

A study by the Beacon Hill Institute found that the Department of Labor's Wage and Hour Division (WHD) incorrectly set hourly wages too high for nine major construction occupations. The authors compared average wages paid under the Davis-Bacon Act with wages for those occupations reported in the Bureau of Labor Statistics Occupational Employment Survey. The WHD set hourly wages an average of \$4.43, or 22%, above BLS average wages.¹¹ If these wage differences were applied to federal construction, government costs would increase by 9.9%. The authors estimate these differences to raise government construction costs by \$8.6 billion per year (Glassman et al. 2008).¹²

The Center for Government Research (CGR) estimated that prevailing wage laws increase total construction contract costs by 36% in New York State's metropolitan regions.¹³ CGR arrived at this estimate by comparing prevailing wage rates with the market rates of construction occupations. Prevailing wage data collected from the Department of Labor were compared with median wages of construction occupations in seven metropolitan areas in New York and outside the state.¹⁴ The authors then compared labor costs to total construction using a prototype project, or an imaginary model of average construction costs, and applied the markup rates to total construction costs.¹⁵ They concluded that prevailing wages raise total costs of a typical construction project in the New York metropolitan areas by about 36% (CGR 2008).

Wage differential studies are prone to two primary areas of criticism. The first is the way in which some of them calculate the additional wages resulting from prevailing wage regulations. The GAO and Beacon Hill studies' results are based on contracts in which, the authors assert, prevailing wages were miscalculated. But miscalculation of wages under prevailing wage laws is an implementation problem that does not reflect the merits of the laws themselves. Further, with regard to the GAO study, the Department of Labor and other critics argued in congressional testimony that the GAO's methodology was fraught with poor scholarship. Why did the agency exclude the 18 projects for which prevailing wages were set too low? The inclusion of these projects might have offered an entirely different picture of the net impact of the Davis-Bacon law. GAO also acknowledged that its sample of projects was too small for its calculations to have statistical validity. Mackinac (Vedder 1999) assumed that a wage differential in the Detroit suburbs would be the same in the rest of the state, but did not test this assumption.

The second and more fundamental criticism of these studies is how they allocate the higher wages they estimate to contract costs. These studies assume, rather than empirically examine, the relationship between higher wages and construction costs. In contrast to the other methodological approaches discussed in this review, the wage differential studies do not rely on natural experiments to compare costs of contracts subject to and not subject to

prevailing wage regulations. As a result, they are unable to control for other factors that influence construction costs. As outlined above, there are several reasons why higher wages might not be passed through and, thus, assuming that they are is not a safe assumption. The flawed assumptions of the wage differential approach, and the inability to control for other cost influences, limit its ability to determine with much validity whether prevailing wage laws raise government contracting costs.

Cross-sectional analysis

The existence of prevailing wage laws in some jurisdictions but not others and the fact that in some jurisdictions some public contracts are subject to the regulations but others are not create an opportunity for a natural experiment to study the impact of prevailing wage legislation on government construction costs. The cross-sectional approach used in the studies described here use econometric techniques to compare costs of construction when it is subject to prevailing wage rules with the costs when it is not. This method reduces the need to control for time effects and seasonality concerns within the construction industry, although it is necessary to control for regional differences.

In the first econometric cross-sectional study of prevailing wage laws and government construction costs, Fraundorf et al. (1984) collected a sample of construction data from rural counties across the country.¹⁶ They employed a multivariate regression model to compare costs of public construction contracts subject to federal prevailing wage regulation with costs of private construction contracts that were not. The model included controls for a range of factors: regional variation, project size, and building type. The results showed that public construction was an average of 26.1% more expensive than private construction. The authors acknowledged that this estimate seemed high. It was unlikely that prevailing wage laws would generate such a dramatic increase in contract costs, since labor costs at the time averaged 30% of total construction costs. However, they were unable to explain the discrepancy.

Prus (1996) replicated the Fraundorf model but was better able to isolate the effects of prevailing wages from other influences on construction costs. Rather than compare

federal projects with private construction, he compared costs of public and private projects in states where prevailing wage laws existed and places where they did not. He found that, even in non-prevailing wage states, government construction was 32% more expensive than private. This finding suggested that the earlier Fraundorf study had measured price differences between public and private construction attributable to causes other than prevailing wages. Controlling for construction cost differences between states, Prus did not find a statistically significant difference in construction costs in states with prevailing wage laws and those without.

In a study of construction costs in the Intermountain and Southwest regions, Phillips (1996) compared construction cost data in five states with prevailing wage laws with four states without prevailing wage laws.¹⁷ He found that costs were lower in the states with prevailing wage laws than in the states in the sample without them. The author attributed this finding to higher productivity among workers in states with prevailing wage laws.

Phillips (1998) conducted a study of school construction costs in the Great Plains states. New school construction data by school type showed that costs were not statistically different in states with prevailing wage laws than in states without them.

Prus (1999) examined both public and private school construction across the mid-Atlantic states with and without prevailing wage laws and across counties in Maryland with and without the laws. The study found that public schools cost more than private, irrespective of prevailing wage laws. In addition to this distinction, Prus identified region, the distinction between new and renovated buildings, building type, building material, and building size as important predictors of construction cost differences, but he found no evidence of an impact of prevailing wage laws.

Azari-Rad et al. (2002; 2003) used a national sample of school construction data to test whether public schools built under prevailing wages cost more than public schools that were not. The studies found that building type, project size, seasonal start times, and whether the school was a private or public building had a significant impact on contract costs. Azari-Rad et al. (2002) found that high schools cost 4.6% more than elementary and

middle schools. Azari-Rad et al. (2003) noted that public contract costs were 15.5% higher than private contracts in its sample of new school construction between 1991 and 1999. But controlling for construction costs among states, this study found that construction costs were not statistically different in states with or without prevailing wage regulations.

After Fraundorf, only one cross-sectional study has found prevailing wage regulations to be associated with higher government contract costs. A study by Dunn et al. (2005) concluded that prevailing wage rates in California raised public costs of low-income residential projects anywhere between 9% and 37%.¹⁸ In California, some public housing construction is exempt from the prevailing wage statute, so the researchers were able to compare construction costs between projects that were subject to prevailing wage regulation and projects that were not. The researchers used two different models. One model reported prevailing wages leading to an increase in contract costs of 9-11%. The results of the researchers' preferred model, which used voter data, salary data, and union information as instrumental variables across the California region, found that prevailing wage laws raised construction contract costs by as much as 19-37%.

Phillips (2006) found that states with prevailing wage laws had higher productivity, with about 13% to 15% more value-added per worker. The 31 states with prevailing wage laws had higher rates of construction training programs, and trainees were more likely to complete their programs compared to states without prevailing wage laws. This study suggested that productivity was a key reason why other studies could not find higher contract costs from prevailing wage laws.

The weight of the evidence from the cross-sectional studies is that prevailing wage regulations do not impact construction costs. All but two studies found that prevailing wages do not raise costs of government construction and, of those two, the findings from Fraundorf were not replicated when the model was improved, most notably by controlling for differences between public and private construction (other than prevailing wages). Researchers have speculated that the factors causing higher public costs include different building design specifications (Fraundorf 1984; Prus 1996); Azari-Rad

et al. (2002) suggested higher public costs might arise from spikes in demand created by government decisions to develop multiple projects. These spikes, referred to as "cost storms," were an example of government's power to affect market conditions in the construction industry through large capital investments.

Dunn et al. (2005) is the only study other than Fraundorf to employ modern econometric techniques that show cost effects of prevailing wage laws. Why this one study contradicts the general econometric literature is not yet known.¹⁹ It is possible that low-income subsidized housing construction might require less skill, lower costs of materials, and a larger share of labor in total cost compared to overall government construction. Labor-intensiveness, skill, and material-saving technologies involved in affordable housing construction might be sufficiently different from those used in other public building and road construction that the operation of prevailing wage regulations works differently in this sector. If this is the case, then prevailing wage regulations might operate differently in the affordable housing sector, which is a small share of government construction relative to construction on highways, schools, and infrastructure. However, the biggest weakness of the study is that a 19-37% difference in prevailing wage and non-prevailing wage contracts is implausible. Assuming that labor comprises a 25% share of total construction costs, a savings of that magnitude would seem highly unlikely. The Dunn study's unique findings might also be due to idiosyncrasies in the data used or methodology employed that may emerge as scholars attempt to replicate this result.

If these results are replicated, then the Dunn study may raise questions about prevailing wages in subsidized housing construction. However, it does not represent the rest of the current literature, which has shown that prevailing wage laws have no effect on contract costs.

Time series analysis

Another approach is to compare construction costs before and after the passage or repeal of a prevailing wage law. These studies generally account for time trends in the construction industry.

Thieblot (1986) used the opportunity of President Nixon's suspension of the Davis-Bacon Act in March

1971 to conduct such a before-and-after comparison. He examined federal construction projects that were re-bid during the 34-day suspension and compared the new bids to those originally submitted. Thieblot initially estimated the re-bids to have resulted in savings on federal construction costs of less than 1% but, once controls for inflation were factored in, the differences in the re-bids suggested a savings of 4.74%. Thieblot acknowledged the possibility of biased results because full disclosures of the original bids were made publicly available before the re-bid process; thus, bidders may just as likely have been responding to what they saw in their competitors' bids as to the rescission of the prevailing wage rule.²⁰ It was unclear if Thieblot's analysis measured the contractors' ability to use information to their advantage, or if the experiment captured the effects of the suspension of the Davis-Bacon Act.²¹ In effect, this study could not overcome the problem of controlling for the knowledge bidders had about their competitors' prior bids on the outcome of contract costs.

In a study of new school construction in British Columbia, researchers looked at six years of contract costs before and after the adoption of a prevailing wage law in 1992. Bilginsoy and Philips (2000) found that, without introducing any controls, prevailing wages correlated with 16% higher construction costs. Once the authors controlled for the business cycle, type of building, the number and size of the contractors, regional differences, and time trends, they found no statistically significant increase in construction costs. This indicated that the cost differences were explained by numerous factors other than the prevailing wage legislation.

Phillips (2001a) used a sample of 391 new school construction projects for a pooled cross-sectional time series approach to examine cost effects of prevailing wages in Kentucky, Michigan, and Ohio.²² He noted that urban schools cost 10.5% more than rural schools in the three-state region and that breaking ground in the fall added 10% to the total cost compared to projects started in the spring; such a (perhaps unexpected) finding highlights the importance of proper controls in these analyses. The study found no statistically significant increase in construction costs associated with prevailing wage laws.

In summary, with the exception of the 1986 Thieblot study, which faced a critical methodological challenge,

time-series studies generally find that prevailing wage laws do not increase construction costs.

Do prevailing wage laws have societal costs or benefits?

Recent case studies of prevailing wage legislation have analyzed not just costs to government, but also the wider costs or benefits to society. Some of these studies have shown that prevailing wage laws protect a state's economy, and that claims of government savings from the repeal of the legislation would pale in comparison to losses in revenues and income. These studies demonstrate implicit threats to the overall state economy, since income losses could lead to reduced consumer spending. Other studies show that prevailing wage laws discourage unscrupulous contractors who compete by hiring low-skilled labor, cheating on payroll taxes, or risking safety concerns at construction sites.

Belman and Voos (1995) concluded that the losses in income and state revenues from repeal of Wisconsin's prevailing wage law would far outweigh potential cost savings from lower wages. The study found that the proposed repeal resulted in \$123 million of income loss in construction and a net fiscal loss to the government of \$6.8 million after accounting for decreased contract costs and declines in tax revenue. Kelsay et al. (2004) calculated potential economic losses of between \$318 million and \$384 million with the repeal of the prevailing wage law in Missouri. This estimate included \$294 million to \$356 million in lost income, \$5.7 million to \$6.9 million in lost sales taxes, and \$17 million to \$21 million in lost income taxes. The authors calculated these figures based on low- to high-range annual earnings losses of \$1,010 and \$1,218 per construction worker.

Prevailing wage laws have been shown to have generally positive effects on the construction industry by expanding the pool of construction workers trained through apprenticeship programs. Studies have shown that apprenticeship training programs are fewer in states without prevailing wage laws. In Utah, state apprenticeships plummeted 40% following the 1981 repeal of prevailing wage laws (Phillips et al. 1995). In Kansas, apprenticeships dropped 38% after the 1987 repeal. As part of the Kansas study, Phillips (1998) conducted a cross-state examination

of construction apprenticeships in prevailing wage and non-prevailing wage states. Apprentices were in decline nationwide, but the number of apprenticeships in states with prevailing wages declined 27%, compared to 53% in non-prevailing wage states.

Researchers have also examined occupational injuries and prevailing wage legislation. One study showed that construction-related fatality rates were 25% lower among workers in states with prevailing wage laws. Fatality rates were even lower in states where prevailing wages were strongly enforced (Philips 2006). Azari-Rad et al. (2005) found that, between 1976 and 1999, states with prevailing wage laws experienced lower injury rates.²³ This was consistent with the hypothesis that injury rates are lower in states regulated by prevailing wage laws because the regulation encourages training and retention of experienced workers.

Prevailing wage laws have also been shown to protect the bottom line of a state's construction budget. In the decade following the 1981 repeal of prevailing wages in Utah, cost overruns tripled, and Phillips et al. (1995) attributed the trend in part to a rise in change orders

reflecting a shift to a low-skilled workforce and lower productivity. Data limitations have hindered further study of the question of cost overruns; most studies of contract costs use data from F.W. Dodge on the accepted bid prices,²⁴ but these data do not capture change orders associated with cost-overruns (Azari-Rad et al. 2002).

The absence of prevailing-wage-certified payrolls also appears to attract bidders who are tempted to evade their obligations to make payments for worker's compensation, Social Security, and unemployment insurance (Philips 2006).

Conclusion

An overwhelming preponderance of the literature shows that prevailing wage regulations have no effect one way or the other on the cost to government of contracted public works projects. And as studies of the question become more and more sophisticated, this finding becomes stronger, and is reinforced with evidence that prevailing wage laws also help to reduce occupational injuries and fatalities, increase the pool of skilled construction workers, and actually enhance state tax revenues.

Endnotes

1. The two other major federal laws are the Walsh-Healey Government Contracts Act of 1936, which covered employers that manufacture or supply materials to the federal government, and the Service Contract Act of 1965, which affects suppliers of personal and business services.
2. Congress extended the definition of "prevailing wage" in 1964 to include fringe benefits.
3. The others are Arizona, Colorado, Idaho, Kansas, Louisiana, New Hampshire, and Utah. Oklahoma's law was invalidated by the courts in 1995.
4. Note that the total cost of construction contracts in this calculation excludes land acquisition, architectural design, or management fees.
5. Factor substitution assumes a homogenous labor pool, or similar skill sets among workers.
6. Belman and Voos cite an unpublished 1990 study for the Arizona District Council of Carpenters. The authors of the report found that, of the \$271,000 to \$350,000 saved in wages and benefits, only \$100,000 was passed on to the contracting agency.
7. Armand Thieblot discussed the wage differential approach in the book, *Prevailing Wage Legislation: The Davis-Bacon Act, State "Little Davis-Bacon Acts," the Walsh Healey Act and the Service Contract Act*, University of Pennsylvania, Wharton School, 1986, p. 94.
8. Wage levels on the 12 projects ranged from 5% to 123% higher than the prevailing rate.
9. Labor costs were assumed to be about 25% of total construction.
10. Benefits under prevailing wages paid \$6.28 compared to \$4.67 in the private sector.
11. Wages were weighted according to the number of workers in the occupation and by metropolitan area.
12. This calculation assumes that labor comprises 50% of total construction costs. This determination was made following conversations with construction contractors. The authors do not state whether this estimate excludes profits or other items for contractors.
13. Prepared for the New York Economic Development Council.
14. Median wages were provided by the Bureau of Labor Statistics Occupational Employment Survey.
15. The authors state that productivity, cost of materials, and the labor share of construction costs would remain constant for purposes of the analysis.
16. The authors collected construction cost data from in-person interviews with contractors across the country, and selected a representative sample of 215 private and public nonresidential construction projects started in 1977 and 1978.
17. The states included in the study were New Mexico, Utah, Texas, Oklahoma, Wyoming, Nevada, Arizona, Colorado, and Idaho.
18. This range included results from variations on two different econometric models. The ordinary least squares model included two variations of the dependent variable, one with a restricted definition of construction costs that included only site preparation and building construction, and one that included all costs, such as site preparation, architect and design fees, and engineering management fees. These same dependent variables were tested in the instrumental variables model.
19. The authors have not yet made their data available.
20. As Thieblot wrote: "A disclaimer to this estimate is necessary, however, because the bid-rebid process was not pure. In addition to the time difference problem, all of the original bids were disclosed before rebids were made, which points to the high probability that some gamesmanship was at work in the process, independent of the prevailing wage rate elimination" (p. 105). Steve Allen (1983) noted Thieblot's results were not an accurate measure of federal contract cost savings (pp. 716-7).
21. Steve Allen (1983) noted Thieblot's results were not an accurate measure of federal contract cost savings (pp.716-17).
22. All three states had prevailing wage laws for school construction during some portions of the 1991-2000 study period.
23. Injury data were obtained from the Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses, 1976-99.
24. F.W. Dodge bid price data exclude management costs, architectural fees, and land acquisition.

Annotated bibliography

Allen, Steve. 1983. "Much Ado About Davis-Bacon: A Critical Review and New Evidence." *Journal of Law and Economics*. Vol. 26, No. 3, pp. 707-36.

Allen argues the Wage and Hour Division's wage determinations under the Davis-Bacon Act could affect construction costs, although the costs associated with errors in wage determinations may be lower than previously reported. Enforcement of prevailing wage laws could also affect total costs. Total construction costs would also be affected by factor substitution, although it's difficult to know the precise pattern as wages change.

Azari-Rad, Hamid, Peter Philips, and Mark Prus. 2002. "Making Hay When It Rains: The Effect Prevailing Wage Regulations, Scale Economies, Seasonal, Cyclical and Local Business Patterns Have on School Construction Costs." *Journal of Education Finance*. Vol. 23, pp. 997-1012.

In response to anecdotal evidence that school construction costs grew more rapidly than costs in the overall construction market, the authors examine the role of prevailing wage laws and inflationary pressures in school construction. In the model, dummy variables were used to identify public and private schools and the presence of prevailing wage laws. The results showed no significant cost differences in school construction projects related to prevailing wage laws. However, the decision by school districts to build numbers of schools at once creates "cost storms," overwhelming the local construction market by stimulating demand. The implications show that construction costs are strongly related to school district decisions on the size of the school, since economies of scale exist, but at some point the benefits will be offset by the market-crowding conditions associated with the demand for a large-scale project. Other findings showed significant cost effects for the business cycle and economies of scale. For example, the economies of scale statistic showed a 91% increase in cost every time the size of the school doubles.

Azari-Rad, Hamid, Peter Philips, and Mark Prus. 2003. "State Prevailing Wage Laws and School Construction Costs." *Industrial Relations*. Vol. 42, No. 3, pp. 445-47.

This 50-state study of school construction from 1991 to 1999 shows that prevailing wage laws have no signifi-

cant effect on school construction costs. The models included controls for business cycle, building size, school type, the season in which the project broke ground, and public vs. private funding. Controlling for other effects on construction costs, there was no statistically significant increase associated with prevailing wage regulations. The findings showed economies of scale, and that doubling the size of a school raised costs by 93%. New high schools were 5-8% more expensive, possibly because of the increased complexity of science labs, language centers, and recreational specifications. Public schools cost 15.5% more than private schools, independent of prevailing wage regulations. The results counter claims that taxpayers could build additional schools at less cost by repealing prevailing wage laws.

Azari-Rad, Hamid, Peter Philips, and Mark Prus. 2005. *The Economics of Prevailing Wage Laws*. Burlington, Vt.: Ashgate Publishers.

This book presents empirical evidence on the effects of prevailing wage laws on government costs and examines whether the laws have broader social costs or benefits. Experts on prevailing wages in the construction industry contributed chapters on construction costs, retention of a skilled workforce, occupational safety in the construction industry, pensions and benefits, and the impact of the repeal of prevailing wage laws on demand for public assistance.

Belman, Dale, and Paula Voos. 1995. *Prevailing Wage Laws in Construction: The Costs of Repeal to Wisconsin*. Milwaukee: Institute for Wisconsin's Future.

Belman and Voos found that the direct costs of repealing prevailing wage regulations outweighed the presumed savings in Wisconsin. The state would be faced with a net revenue loss of \$6.8 million annually. The calculation includes a loss of \$11.6 million in sales and income tax revenues and a full transfer to the state of the presumed savings of \$4.8 million. The authors question whether the savings would fully transfer to the government, however, citing evidence that contractors would pocket more than two-thirds of the savings. The authors note that net effects

didn't include projected costs to society and harm to the construction industry, such as reduced productivity, the transition to a low-skilled workforce, a rise in occupational injuries, and cutbacks in consumer spending. An estimated 100,000 construction workers and their families would also be expected to lose about \$123 million in income across the state.

Bilginsoy, Cihan, and Peter Philips. 2000. "Prevailing Wage Regulations and School Construction Costs: Evidence From British Columbia." *Journal of Education Finance*. Vol. 24, pp. 415-32.

Bilginsoy and Philips conducted a six-year analysis of the British Columbia prevailing wage law, established March 30, 1992. Half of the sample of 54 new public school construction projects commenced before the law went into effect, and half began afterward. When all controls were excluded from the model, prevailing wages appeared to raise construction costs by 16%. However, the results show no statistically significant increase in costs once business cycle, type of building, the number and size of the contractors, regional dummy variables, and time trends are factored in.

Center for Government Research. 2008. *Prevailing Wage in New York State: The Impact on Project Cost and Competitiveness*. Prepared for the New York State Economic Development Council. Rochester, N.Y.: Center for Government Research.

The Center for Government Research (CGR) estimated that prevailing wage laws raised construction costs by 36% in New York's metro regions. However, the study did not empirically test whether the increase was related to prevailing wage regulations. CGR assumes that the wage differences fully transfer in government costs. The model compared prevailing wage rates with the market rates of construction occupations in several metropolitan areas in New York and several others across the country. The study then compared labor costs to total construction costs using a prototype project, or a model created to mimic typical construction costs. It then applied the markup rates to total construction costs. The calculation assumed that productivity, material costs, and the labor share of construction remained constant.

Department of Fiscal Services. 1989. *Maryland's Prevailing Wage Law: A Study of Costs and Effects*. Annapolis, Md.: Department of Fiscal Services.

Maryland's prevailing wage laws were estimated to raise costs of state building construction 5-15% in metropolitan areas. At the time, public school construction projects were subject to state prevailing wage laws if the state funded at least 75% of the costs. The sample included 20 new and renovated school construction projects in 1987 and 1988, 14 of which were built under prevailing wage laws. Using a multiple regression model, DFS estimated prevailing wages increased costs by \$11 per square foot, or about 15%. But this first statewide study of prevailing wage laws and construction costs in Maryland was later found to have methodological problems regarding a small sample size and the lack of controls for new and renovated projects (see Prus 1999).

Dunn, Sarah, John Quigley, and Larry Rosenthal. 2005. "The Effects of Prevailing Wage Requirements on the Cost of Low-Income Housing." *Industrial & Labor Relations Review*. Vol. 59, No. 1, pp. 141-57.

In a study of prevailing wage laws and construction costs in the low-income housing sector, the authors used econometric approaches to measure the effect of prevailing wage laws on final project costs across California. The sample of 205 subsidized housing projects undertaken from 1997 to 2002 included a control group of 30 projects that were not subject to prevailing wage laws. Construction data were collected on projects approved and completed over a five-year period through May 1, 2002. Prevailing wage rates were paid on 175 of the 205 new public housing projects, although there was no attempt made to specify whether projects paid federal, state, or local prevailing wages. In California, some public housing construction was exempt from the statute, so prevailing wages were not paid on 30 of the projects. In the model preferred by the authors, instrumental variables (IV) were used to control for endogenous factors that affected prevailing wage laws across regions. The information for this variable was extracted from voter registration information, union membership, homeownership, age, and income data. The authors reasoned that political influences and economic conditions were likely to affect

whether a region adopted prevailing wage legislation. The IV model showed that prevailing wage laws raised costs of low-income residential projects 19-37%. The ordinary least squares model showed that prevailing wages raised contract costs 9-11%. The conclusion reports the range of results, rather than a confidence interval on the preferred model.

Fraundorf, Martha, and Mason Farell. 1984. "The Effect of Davis-Bacon Act on Construction in Rural Areas." *Review of Economics and Statistics*. Vol. 142, No. 6.

In the first econometric study of prevailing wages and federal construction costs, the authors used construction data they had collected in 1977 and 1978 from in-person interviews with contractors working on 215 new non-residential buildings in rural areas across the country. About half (113) of the projects were federally funded and built under the Davis-Bacon Act, and the remainder (102) were private construction projects. The results showed that public projects—all of which were subject to the Davis-Bacon Act—were generally 26.1% more expensive than private construction. At the time, labor costs (including wages, benefits, and payroll taxes) comprised no more than 30% of total costs. The authors acknowledged that the estimate of 26.1% was high. Subsequent research (Prus 1996) determined that the authors had inadvertently excluded a key variable controlling for public versus private projects. Consequently, they had captured the differences between public and private costs, but were not able to isolate the effects of prevailing wage laws.

General Accounting Office. 1979. *The Davis-Bacon Act Should Be Repealed*. Washington, D.C.: GAO.

This study has been widely cited as evidence against prevailing wage laws, despite later criticisms over its methodology. The GAO argued that the Davis-Bacon Act should be repealed because it was inefficient and unnecessary and raised federal government costs by several hundred million dollars a year. In a sample of surveys collected on 30 federal projects, wages paid were higher than the prevailing rates in 12 of the projects, and lower in others. The GAO targeted the projects with higher wage rates to show a 3.4% increase in total construction costs, which would raise federal construction costs by \$228 million to \$513 million

annually. The study based its findings on simple accounting to show hypothetical savings from the repeal of the Davis-Bacon Act, but it was not able to establish a causal link between prevailing wage laws and government costs. The GAO acknowledged that the sample size was insufficient to calculate construction costs with any statistical validity. However, it stated that the random nature of the sample was representative of federal construction.

Glassman, Sarah, Michael Head, David Tuerck, and Pal Backman. 2008. *The Federal Davis-Bacon Act: The Prevailing Mismeasure of Wages*. Boston, Mass.: Beacon Hill Institute for Public Policy Research, Suffolk University.

This paper argues that the Davis-Bacon Act should be repealed on grounds that the wage determinations set by the Department of Labor (DOL) do not reflect the true wage prevailing in a local area. Prevailing wage rates set by the DOL were on average 13% higher than market rates, i.e., the average wages reported for construction occupations by the Bureau of Labor Statistics Occupational Employment Survey. This difference was then applied to the federal budget to estimate a 9.91% cost increase, or \$8.6 billion annually. The authors attributed the wage differences to unrepresentative surveys and measurements that resulted in an upward bias in wage estimates.

Gujarati, D.N. 1967. "The Economics of the Davis-Bacon Act." *Journal of Business*. Vol. 40, No. 3, pp. 303-16.

Gujarati's examination of prevailing wages across metropolitan and non-metropolitan counties found that prevailing wages are often set as the union wage for occupations in the construction industry. The author based this finding on 372 wage determinations from 300 counties from 1960 to 1961. The implication of the findings was that the Davis-Bacon Act inflates total contract costs because it favors union contractors who pay higher wages to workers. This study does not reflect the current decision-making process at the Department of Labor, nor does it reflect the present composition of unions in the construction industry.

Keller, Edward, and William Hartman. 2001. "Prevailing Wage Rates: Effects on School Construction Costs, Levels of Taxation and State Reimbursements." *Journal of Education Finance*. Vol. 27, pp. 713-28.

The authors showed that prevailing wage rates were an average of 17% higher in the public sector compared to wages in the private sector in Pennsylvania, and suggested that higher wages would result in sizeable cost burdens to the state. The average wage difference of \$2.87, and the difference in benefits of \$1.62, or 21.5% combined, would result in a total cost increase of \$75 million in school construction. The study uses a sample of school construction projects from 1992 to 1997 in which school districts covered 89% of the cost and the state covered the rest. This study examines the differences between wages paid on public and private construction contracts. It does not empirically observe how these costs would be passed through, but it assumes that lower wage costs would mean lower government costs.

Kelsay, Michael, Randall Wray, and Kelly Pinkham, 2004. *The Adverse Economic Impact From the Repeal of the Prevailing Wage Law in Missouri*. Working Paper, Department of Economics, University of Missouri.

An input-output analysis using RIMS II multipliers estimated total economic losses of between \$318 million and \$384 million annually from proposed repeals of prevailing wage laws. The breakdown included \$294-356 million in lost income, \$5.7-6.9 million in lost sales tax collections, and \$17.7-21.4 million in lost income taxes. The low and high numbers were based on estimated annual income losses of \$1,010-\$1,218 per construction worker. Additionally, the authors calculated societal impacts of better pay and benefit packages for workers under prevailing wage laws. The impacts for states without prevailing wage laws include the entry of smaller, less-experienced construction firms into the construction market; higher rates of employee turnover raised the risk that firms might hire unskilled workers more prone to injuries.

Kersey, Paul. 2007. *The Effects of Michigan's Prevailing Wage Law*. Midland, Mich.: Mackinac Center for Public Policy.

This report updates the previous Mackinac study but did not address the various criticisms over methodology.

The author takes the BLS median and adjusted wages for construction occupations and estimates that 10% of Michigan's construction funding could have been saved if the state's prevailing wage law were repealed.

Kessler, Daniel, and Lawrence Katz. 2001. "Prevailing Wage Laws and Construction Markets." *Industrial and Labor Review*. Vol. 54, No. 2, pp. 259-74.

The authors examine the time trends of the repeal of state prevailing wage laws on union and race characteristics in construction labor markets. Kessler and Katz use Census and Current Population Survey data and a fixed-effects econometric approach to analyze wages and unionization rates over time. The model compares relative wages for blue-collar construction and non-construction workers in repeal and non-repeal states over a 24-year period. The overall effect of prevailing wage laws on construction labor costs is small (2-4%), although this varies widely across groups. This calculation was based on a 10% estimated decline in union worker incomes. Because union members account for one-quarter of all construction workers, the total impact on labor costs was 2-4%. The results suggest the repeal of prevailing wage laws negatively affects union and white workers, while it may benefit black construction workers. This study is limited to an analysis of wages and does not include total construction costs in the empirical model.

Philips, Peter, Garth Magnum, Norm Waitzman, and Anne Yeagle. 1995. "Losing Ground: Lessons From the Repeal of Nine Little Davis-Bacon Acts." Working Paper, Department of Economics, University of Utah.

The repeal of prevailing wage laws was found to reduce worker earnings, cut worker training programs, increase occupational injuries, and increase cost overruns. These findings were based on an examination of the effects of prevailing wage laws in nine states that had repealed the legislation, nine other states that never had the legislation, and 32 states with prevailing wage laws. In the nine states that had repealed prevailing wage laws, worker earnings declined \$1,477 a year, a drop that would result in substantial losses in income and sales tax revenues to the state. Controlling for downward trends in construction training, state employment rates, and regional differences in training

availability, states that repealed prevailing wage laws reduced construction training by 40%. In the case of Utah, declines in training produced a substantial shift to low-skilled workers, declining productivity, and a tripling in cost overruns compared to the previous decade. Occupational injuries rose 15% in states that had repealed the legislation. Worker injuries were responsible for lost workdays and higher government costs for worker's compensation.

Philips, Peter. 1996. Square Foot Construction Costs for Newly Constructed State and Local Schools, Offices, and Warehouses in Nine Southwestern and Intermountain States: 1992-1994. Prepared for the Legislative Education Study Committee of the New Mexico State Legislature.

This study demonstrated that square foot construction could be less expensive in prevailing wage states compared to states without prevailing wage laws. The study took a cross-section of government construction projects across the Intermountain and Southwestern states, five of which had prevailing wage laws and four of which did not. The states were New Mexico, Utah, Texas, Oklahoma, Wyoming, Nevada, Arizona, Colorado, and Idaho. The data were disaggregated based on building type: offices, warehouses, elementary schools, middle schools, and high schools. Once the data were disaggregated by building type, the average square foot construction costs were shown to be \$6 less in the sample of states with prevailing wages laws. The results show that productivity may have played a major role in construction cost outcomes and that it can offset potential wage increases. Philips noted a 1979 BLS study of aggregated school construction costs that showed total labor costs were the same in the South and Northeast, although hourly wages were 50% higher in the Northeast. Productivity could explain why a higher hourly wage on school construction in the Northeast did not result in higher total labor costs. However, total labor costs were the same in the South and Northeast, despite the hourly wage differences.

Philips, Peter. 1998. Kansas and Prevailing Wage Legislation. Report prepared for the Kansas Senate Labor Relations Committee.

In this case study, school construction costs, worker wages, and other societal costs were examined before and

after the 1987 repeal of prevailing wage laws in Kansas and compared with other Great Plains states. Philips used statistical methods to compare mean and median costs of new schools in Kansas and surrounding states from July 1991 to June 1997. Of 365 new elementary schools in the Great Plains states with prevailing wage laws, construction costs were not statistically different from zero controlling for other cost factors. Average construction earnings fell faster in Kansas and other surrounding states without prevailing wage laws after the 1987 repeal. After the repeal, real worker earnings fell 11% in Kansas and in surrounding states without prevailing wage laws, compared to a 2% decline in states with prevailing wage laws. The loss of earnings would have resulted in lost tax revenues to the state.

Collective bargaining in construction declined after the state's repeal, and this decline affected worker training, pay and benefits, occupational injuries, and lost time from work. Apprenticeship training programs declined in Kansas and surrounding states without prevailing wage laws from 1973 to 1990. In Kansas, apprenticeships slid 38%, from an annual average of 861 in the 1970s to an average of 530 in the first four years after the law was repealed. In the sample of states with prevailing wage laws, apprenticeships declined an average of 27% during the period, compared to a decline of 53% in states without prevailing wages.

Occupational injuries rose 19% in Kansas after the repeal of prevailing wage laws, or from 11 to 13 injuries per 100 construction workers. Philips compared the number of injury cases per worker from 1976 to 1991 using the Bureau of Labor Statistics industry survey of occupational injury and illness. Total injuries rose 26%, from 11 to 14 per 100 construction workers, and serious injuries rose 14%, from 4.7 to 5.3 injuries per 100 construction workers in states without prevailing wage laws. Annual average employer contributions toward pensions and health insurance in Kansas fell 17% after the repeal of prevailing wage laws, according to data obtained from the U.S. Department of Labor for the years 1982-86 and 1987-92. Philips attributes this drop to the shift away from collective bargaining following the repeal in Kansas.

Philips, Peter. 1999. Kentucky's Prevailing Wage Law: Its History, Purpose, and Effect. Working Paper, Economics Department, University of Utah.

Prevailing wage laws in Kentucky provided a unique sample because some projects were exempt from the law until it was reinstated in 1996. Kentucky did not repeal its law, but it exempted school construction from the statute. In 1982, schools and some city projects were exempt from the 1940 prevailing wage statute. It also exempted city, county, and regional governments from construction projects paid for with less than 50% of state funds. In 1996, it expanded its law to include public schools and most local and county construction projects. The study was in response to charges that prevailing wages discriminate against minority workers and arguments that the legislation reduced the number of entry-level jobs. Philips used statistical methods to analyze the relationship between prevailing wage laws and the racial composition of the construction industry. The results showed no measurable relationship between unemployment rates by race in construction and state prevailing wage laws.

Philips, Peter. 2001a. A Comparison of Public School Construction Costs in Three Midwestern States That Have Changed Their Prevailing Wage Laws in the 1990s: Kentucky, Ohio, and Michigan. Working Paper, Economics Department, University of Utah.

This study takes advantage of a natural experiment with the judicial suspension of the prevailing wage law in Michigan (1995-97), the adoption of prevailing wages for school construction in Kentucky (1996), and the repeal of prevailing wages for school construction in Ohio (1997). About half of the 391 new schools in the sample were built under prevailing wage legislation in those three states from 1991 to 2000. The study accounted for the problem of building costs climbing faster than inflation during the 1990s, and included controls for rising construction costs for new public schools in all three states from 1991 to 2000. The results showed that prevailing wage regulations did not raise construction costs with any statistical significance.

Other findings showed that urban schools cost 10.5% more than rural schools, controlling for other factors such as building size. Ohio schools cost 12.6% less than schools in Michigan; Kentucky schools cost 14.6% less. The decision over when to break ground was shown to affect total

cost: projects started in the fall added 10% to total costs compared to projects that broke ground in the spring.

Philips, Peter. 2001b. Four Biases and a Funeral: Dr. Vedder's Faulty Experiment Linking Michigan's Prevailing Wage Law to Construction Employment. Economics Department, University of Utah.

Examining a study by the Mackinac Center for Public Policy, Philips discovered that the data and structure of the methodology led to internal and external validity problems. Four primary biases were produced by the Mackinac research design, including the fact that results did not hold in other states. The biases were listed as the selection of 30-month-long time periods, a seasonal adjustment that did not reflect construction industry patterns, employment adjustments based on unseasonably warm weather on the end points of the data, and the inability to replicate the results in other states. Mackinac's hypothesis that employment increases after the repeal of prevailing wage laws and declines after their adoption was upheld in the case of Michigan, but Philips attributes this to pure luck. Contrary to Mackinac's findings, looking beyond Michigan employment actually declined in states that repealed prevailing wages. It also declined in Oklahoma, where the law was judicially annulled, and in Ohio, where school construction was exempt from prevailing wages. The states that repealed prevailing wage laws were Louisiana, Kansas, Colorado, New Hampshire, and Idaho. In Kentucky, where the law was applied to schools in July 1996, employment increased.

Philips, Peter. 2006. Construction: The Effect of Prevailing Wage Regulations on the Construction Industry in Iowa. Working Paper, Economics Department, University of Utah.

Productivity was found to play a major role in explaining why less expensive labor does not always result in lower government construction costs in the absence of prevailing wage laws. Using 2002 Census of Construction data, Philips compared average annual incomes of construction workers and the value-added per construction worker by state. Workers in states with prevailing wage laws earned more income, but they also had higher productivity. In prevailing wage states, construction workers earned an average of 15% more in wages and about 25% more in

Social Security, unemployment insurance, and worker's compensation. States with prevailing wage laws showed 13-15% more value-added per worker compared to states without the legislation. The result showed that prevailing wage laws raised productivity, possibly by inducing better management of projects, higher training standards, and more capital investment.

Prevailing wage laws also promoted collective bargaining activities that encouraged apprenticeship programs necessary to improve workmanship and expand the pool of skilled workers. On the other hand, states without prevailing wage laws faced higher costs of maintenance and repair and had transitioned to a low-wage, low-skill workforce. Non-prevailing wage states created an environment where contractors would cut corners on safety, training, and payroll regulations in an attempt to offer lower bids. In Iowa, an estimated 2,500 workers were misclassified as independent subcontractors in order to save on payrolls. The misclassification of workers deprives the state of worker compensation and unemployment insurance payments, and allows the contractor to dodge health insurance, pension, and Social Security contributions.

Prus, Mark. 1996. *The Effect of State Prevailing Wage Laws on Total Construction Costs*. Working Paper, Southern University of New York, Cortland.

Prus replicated the Fraundorf model and discovered that the study did not control for cost differences between public and private construction. Prus used multivariate analysis to compare construction costs in states with prevailing wage laws, rather than compare federal-level construction projects that were subject to the Davis-Bacon Act with private construction contracts. The data were obtained on offices, hospitals, schools, garages, and warehouses. Controls were included for building material, building type, and building height, and a dummy variable was used to mark new or renovated construction. The results showed that public construction was 32% more expensive than private construction in states without prevailing wage laws. Controlling for differences between public and private construction, there were no statistically significant cost effects related to prevailing wage laws. This study demonstrated that the Fraundorf study had captured the cost difference of public-private

construction rather than the effects of prevailing wages. Prus attributes the cost differences to government specifications and building design.

Prus, Mark. 1999. *Prevailing Wage Laws and School Construction Costs: An Analysis of Public School Construction in Maryland and the Mid-Atlantic States*. Prepared for the Prince George's County Council, Maryland.

Most of the schools built during the 1990s in Maryland were not subject to the state's prevailing wage laws, in effect since 1969. While the legislation covered most state-funded public school construction in the 1980s, changes in the formula and allocation of prevailing wage determinations in 1989 excluded most school construction from the prevailing wage requirements. The statute required the payment of prevailing wages for public construction projects that received 50% or more funding from the state, and for public school construction that received at least 75% from the state. The law was later changed to reduce the threshold for school construction to at least 50% funding from the state. In Maryland, Allegany County and Baltimore City had enacted prevailing wage laws for school construction and public works. The presence of prevailing wage laws in some places in Maryland and the region, but not others, allowed Prus to empirically examine the effects on government construction costs.

First, Prus replicated the methodology of a Maryland Department of Fiscal Services study and discovered that the authors had excluded controls to differentiate between new and renovated projects (see Department of Fiscal Services 1989). If this control were included, then the results did not show statistically significant increases in costs. The DFS model had overestimated costs because it included site preparation in the definition of cost and did not control for regional differences. The author noted that the most expensive school in the sample was built without prevailing wages.

In a separate experiment, Prus examined contract costs of schools built in Maryland with and without prevailing wage laws. The results showed no statistically significant effect on costs. The model included controls for building materials, types of school, a marker for new or renovated project, a marker for public or private school, and the

height of the building. Public schools were 40.6% more expensive than private schools regardless of prevailing wages, and economies of scale were evident. High schools were 33% more expensive than elementary schools. The results also show a doubling in the building size would raise costs by 68%.

A cross-state experiment compared square foot construction costs in Maryland and other mid-Atlantic states. Although construction costs appeared to be higher in prevailing wage states based on descriptive data, a linear regression model showed that the differences were related to regional factors. Prus concludes these considerable cost differences exist because school construction in the South was less expensive than in the northern states of the mid-Atlantic region. In addition to regional differences, building type and specifications also impacted total construction costs. Schools in the sample of prevailing wage states appeared to be 25% more expensive, until the data were disaggregated by school type. Elementary schools were cheaper while middle and high schools were more expensive in prevailing wage states. Costs of construction of public schools in states without prevailing wage laws were 11.3% higher per square foot than costs for private schools. Prus compared square foot construction costs by school type in prevailing wage and non-prevailing wage states. Using linear regression, he compared construction costs controlling for building type, size, and private vs. public schools. Controlling for other factors, prevailing wage laws were shown to have no statistically significant effect on costs.

Thieblot, Armand. 1986. *The Davis-Bacon Act, State "Little Davis-Bacon" Acts, the Walsh-Healey Act, and the Service Contract Act*. Philadelphia: Wharton School, University of Pennsylvania.

Thieblot conducted a time-series analysis of contract costs before and after President Nixon's temporary suspension of the Davis-Bacon Act. The author examined new bids submitted by contractors during the 34-day suspension in February and March 1971. The construction contracts that were re-bid were not yet awarded. The re-bids were estimated to save less than 1%, or about \$240 million a year on all federal construction contracts, compared to bids that were originally submitted. The in-

flation-adjusted estimate showed a 4.74%, or about \$1.1 billion, difference in the original and new bids. Thieblot acknowledged that results might be biased because full disclosures of the bids were given before the re-bid process and he was unable to control for contractors altering their bids in an attempt to game the system: "A disclaimer to this estimate is necessary, however, because the bid-rebid process was not pure. In addition to the time difference problem, all of the original bids were disclosed before rebids were made, which points to the high probability that some gamesmanship was at work in the process, independent of the prevailing wage rate elimination." It was unclear if Thieblot's analysis measured the contractors' ability to use information to their advantage, or if the experiment captured the effects of the suspension of the Davis-Bacon Act.

Vedder, Richard. 1999. *Michigan's Prevailing Wage Law and Its Effect on Government Spending and Construction Employment*. Midland, Mich.: Mackinac Center for Public Policy.

This study assumes prevailing wage laws impose additional costs on the state and lower construction employment in Michigan. The study's methodology relied on simple descriptive statistics and was criticized for numerous shortcomings. The results showed construction jobs grew by 11,000, or 13%, after the prevailing wage law was repealed, but critics cited methodological issues to refute this claim (see Philips 2001b). Using a series of hypothetical calculations and a finding that showed prevailing wage rates were 10% higher in the Detroit area, the study also estimated that prevailing wage laws raised construction costs by \$275 million: "If labor costs were 25 percent of the total value of a construction contract, and if average labor costs per hour were increased 40 percent by prevailing wage laws, this would drive up total construction by 10 percent.... Assuming a 10-percent differential... the state of Michigan could have saved about \$251 million by eliminating prevailing wage provisions." The study did not provide evidence that the wage difference in the Detroit area was representative of the rest of the state. It also did not provide any empirical support to show differences in wage rates would be passed through as government costs. Rather, it allocated wage differences to government costs without controlling for any other factors.

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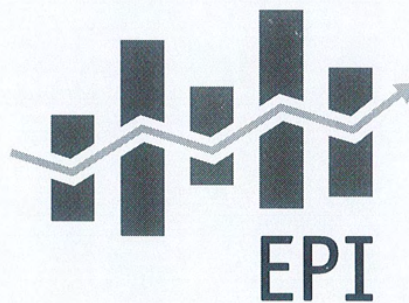
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Making Development Work for Local Residents

*Local Hire Programs and Implementation Strategies that Serve
Low-Income Communities*

Kathleen Mulligan-Hansel, PhD
The Partnership for Working Families



Executive Summary
July 2008

THE  **PARTNERSHIP**
for Working Families

*Below, left: Boston youth register for apprenticeships as part of Our Schools, Our Futures
Below, right: Community residents rally for good jobs and local hiring at Denver's Cherokee-Gates redevelopment.
Cover: East Palo Alto's Local Hire Ordinance helps local residents get construction work on redevelopment projects.*



Acknowledgements

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Making Development Work for Local Residents

Local Hire Programs and Implementation Strategies That Serve Low-Income Communities

Kathleen Mulligan-Hansel, PhD

The Partnership for Working Families

MAKING DEVELOPMENT WORK FOR LOCAL RESIDENTS



Local hire programs can help residents of low-income neighborhoods get access to jobs created by redevelopment. Permanent jobs employers include retail outlets, service providers, and hotels, like the one that employees these workers.

EXECUTIVE SUMMARY

Over the past decade, the community benefits movement has emerged as a powerful mechanism for challenging the political and economic realities that undermine urban communities. Community benefits campaigns strive to build new political relationships among unlikely allies, uniting labor, community, environmental and faith-based groups behind broad-based agendas focused on economic development that prioritizes high-quality jobs, creates new career paths for low-income workers, marshals resources for environmental cleanup and sustainability, and avails residents of access to more affordable housing options.

In many cities where community benefits coalitions work, research has shown that, too often, new development fails to generate high quality jobs and career paths for residents of the poorest parts of the city. Local hire requirements are a critical component of the community benefits agenda because they create concrete mechanisms for ensuring that investment of public funds in economic development will direct resources into low-income neighborhoods. The point is not only to hire local residents, but to use local hire requirements to target opportunities to low-income residents and people of color who might otherwise not benefit from new development. Local hiring programs are on the strongest legal footing, and are likely to produce the most meaningful outcomes, when they are rooted in efforts to reduce poverty rather than merely to hire city residents.

Community benefits coalitions tend to stress the importance of bundling local hire requirements with job quality standards, affording low-income residents easier access to higher quality jobs that offer better wages and benefits packages than might historically have been available to them.

Community benefits coalitions have developed significant expertise in the organizing, research and policy analysis needed to negotiate strong agreements, but thus far they have advocated for local hire programs with little concrete data on whether or how they operate effectively. This report reviews nine efforts to develop and implement local hire programs, and provides an overview of what makes these programs work. The nature of the cases varies considerably, and they include programs with years of implementation experience as well as brand new programs; programs that cover hundreds of jobs and programs that cover dozens of jobs; and programs created through community benefits agreements (CBAs), ordinances, and project labor agreements (PLAs), as well as other innovative policy vehicles.

2 | MAKING DEVELOPMENT WORK FOR LOCAL RESIDENTS



Local residents, like this young women, got jobs at the new Four Seasons Hotel through East Palo Alto's first source hiring program.

The research concludes that these local hire programs have developed effective mechanisms for helping low-income local residents find jobs at new development sites and have created job opportunities with existing employers that had previously been unavailable to many low-income workers. The best local hire programs create *first source referral systems* to coordinate worker recruitment and screening, liaise with developers and employers, refer workers and support them as they navigate the hiring process, and link workers with support services that can help them stay on the job. Strong policy language sets the stage for success by clearly articulating the responsibilities of all stakeholders: developers, employers, contractors and the first source referral system. Implementing a good program requires staffing both to create and maintain the first source referral system – which is effectively a service-provision role – and to monitor outcomes and maintain the political will required to address challenges that can arise.

Effective first source programs must be tailored to the realities of the industry sectors in which they aim to develop employment opportunities. Policy architects and implementation teams have tended to address the hiring challenges for construction jobs separately from the hiring challenges that pertain to the jobs offered by businesses that rent space in new developments: the service and retail sector jobs that are commonly referred to as end-user or permanent jobs. Differences in how these industries interact with the development process, and how they approach hiring and retention, abound. For example, whereas construction workers in any given trade might be on site for only a few weeks or months, retail establishments and service vendors, once opened, may maintain employees indefinitely. Further, whereas construction workers have to navigate a complicated hiring process that often includes establishing union membership before getting hired on by a contractor, the hiring process for permanent jobs is much more direct. Among the key findings in this report is the importance of addressing the policy language and implementation needs of permanent and construction jobs separately.

Regardless of the types of jobs they cover, local hire programs can bring concrete benefits to the table, making development projects better. Though many stakeholders, developers and employers included, initially resist local hire requirements, local hire programs ultimately help address the fragmentation inherent in the development process, establishing better communication among developers, employers, community organizations, local job training resources, and the workforce development system that can provide job readiness and job retention support services. Not only does this improved communication facilitate ease of hiring when new developments open, but the implementation teams that must be developed to make local hire programs function can also help address other development obstacles that arise. The costs and risks to developers of participating in local hire programs are minimal, while the pay-offs can be tremendous.

The Programs

Findings in this report are based on case studies of nine local hire programs that vary enormously according to scope of the development they affect, the types of jobs covered and progress toward implementation. The programs were all established through the efforts of organizations in the Partnership for Working Families network. Taken together, they demonstrate the range of policy approaches being tested and implemented through the community benefits movement. These programs are summarized briefly below.

- Los Angeles' **Hollywood and Highland** development required construction and permanent local hire programs; these requirements were incorporated into development agreements signed in 1999 and were implemented in 2000 and 2001.
- A community-labor coalition won local hire requirements as part of its community benefits campaign for the **North Hollywood Commons Mixed-Use development (NoHo)**. The CBA, signed in 2001, required local hire only for permanent jobs. The first round of hiring began in spring 2007.
- The CBA won in 2001 for **The L.A. Sports and Entertainment District (Staples)** required local hire for the permanent jobs associated with a district-wide development plan, including several hotels, food service and retail outlets. Implementation began in summer 2007.
- The CBA won in 2004 required local hiring as part of the **Los Angeles Airport modernization (LAX)**. The agreement covers a wide array of jobs at the airport, including approximately 300 retail and food service vendors, airline employees, service contractors, baggage handlers and other jobs on the tarmac. Local hire requirements are incorporated into all new lease and contract agreements, and will be applied to renewals as existing agreements expire. Implementation began late in 2006 and is ongoing.
- **The City of East Palo Alto** first established local hiring requirements for a major development project in 1996. Subsequently, those requirements were codified in a city ordinance passed in 2000 that covers all redevelopment that receives more than \$50,000 in city subsidy. The ordinance applies both to construction and permanent jobs. Implementation began immediately upon passage and is ongoing.
- The project labor agreement for Oakland's ports modernization (**MAPLA**) requires local hire for all construction work associated with a \$1.2 billion modernization program. The Port of Oakland, the general contractor, and signatory unions of the Building Trades Council signed the agreement in 2000 and implementation has been ongoing since then.
- Significant community-labor efforts led the Boston Public Schools to implement **Our Schools, Our Future**, a program that established a local hire pipeline for construction industry work related to summer school painting. The program has been implemented over two summers, 2006 and 2007.

- Community benefits won for Denver's **Cherokee-Gates Redevelopment** in 2006 include enhanced implementation of the city's existing local hire program for both permanent and construction jobs. Developers have yet to break ground for the project, so implementation has not formally begun, though stakeholders are in the process of establishing the infrastructure and relationships needed to implement the program.
- The CBA for **Ballpark Village**, in San Diego, requires local hire for permanent and construction jobs. The agreement was signed in 2005, but changes in the nature of the project have delayed groundbreaking. The current project design includes residential, retail and entertainment venues, and a major hotel. Stakeholders are now preparing the infrastructure in anticipation of groundbreaking sometime in the coming year.

The programs vary according to the types of jobs they cover, the size and scope of the development to which they are attached, and the length of the implementation period. This set of programs also showcases local hire requirements that are built into a wide variety of policy vehicles, including community benefits agreements, project labor agreements, public contracting processes, and the like.

Of the programs included in this report, four cover both the construction phase and the permanent jobs: Hollywood & Highland, East Palo Alto, Cherokee-Gates and Ballpark Village. Three cover only permanent jobs (NoHo, Staples and LAX) and two cover only construction jobs (MAPLA and BPS). Analysis of projects that include both will treat the construction and permanent jobs phases separately, because the issues surrounding implementation differ enormously.

Summary of Findings

A. Local Hire for Permanent Jobs

- **Local hire programs can be developed effectively to provide large-scale opportunities for employment.** The programs reviewed for this report consistently met or exceeded the percentage goals established in CBAs and other policy documents, serving workers and employers in a wide range of possible settings. Even preliminary outcomes already achieved are impressive, but some of the programs have further potential to implicate huge numbers of jobs.
- **Permanent jobs programs function most effectively by setting up a first source referral system, which is essentially a designated clearinghouse that provides job applicants to employers when they are ready to hire.** Employers commit to giving job applicants from this clearinghouse advance notice of the jobs, and refrain from hiring outside the system for the first few days or weeks of the hiring period.
- **Developers and employers initially participate in first source referral systems because they have to, but they quickly realize the systems provide them with a valuable amenity.** First source referral systems streamline recruitment and hiring processes and minimize some of the challenges posed by turnover.



The local hiring component of the Maritime and Aviation Project Labor Agreement helped hundreds of local residents get into construction industry jobs at the Port of Oakland.

- **In order to get the most job opportunities for low-income residents, policy language must to require developers and all eventual employers to participate.** Policy language should require employers both to use the first source referral system and to make a good faith effort to hire the job seekers it refers.
- **Behind the scenes, first source referral systems require a strong implementation team, including community-based organizations, the workforce development system, and any existing job training providers.** The implementation team needs a designated coordinator to staff the effort.

B. Construction Local Hire

- **The hiring process for construction careers is more complicated than for permanent jobs, requiring more extensive knowledge of the industry and the relationships between unions, contractors and developers, and thus requiring different policy language and program structure than for permanent jobs.** Community organizations and construction trades organizations need to work together to develop effective programs. Sometimes this is best accomplished by creating programs that pertain to all trades work on a particular project. Other effective programs target particular trades and establish pre-apprentice and apprenticeship pipelines to provide new workers for those specific construction jobs.

- **Construction local hire outcomes can be achieved by increasing the number of journeymen who are local residents, by increasing apprenticeship opportunities on site for local residents, or both.** Hiring local journeyman onto designated construction projects is usually accomplished through *zip-coding* or *name-calling*. Essentially, this means unions identify members that are already working and who live in the targeted local hire area and make sure they are employed on the site. Case studies in this report suggest that it is important to try to increase local residents' access to both types of construction employment.
- **Getting more low income workers and workers of color into union apprenticeships requires increasing union contractors' access to work.** Without new job opportunities, unions will not open up apprenticeship slots and contractors will not hire any new workers.
- **Like with permanent jobs programs, the implementation team behind the scenes is critical to getting people into jobs.** Successful implementation teams include pre-apprenticeship programs, community-based organizations that can recruit job seekers, and workforce development centers that can provide job readiness and retention services.
- **Programs work best when they are structured to help unions and contractors that already buy in to the importance of hiring locally, while also creating incentives (including rewards and penalties) for those that have not yet bought in to the benefits.**

C. All Local Hire Programs

- **All local hire programs require strong staff commitment.** Good staff can make or break the project. Staffing activities include coordinating the roles of the implementation team, monitoring outcomes and problem solving in real time as obstacles arise.
- **All local hire programs benefit from funding, not only to support staff coordination, but also to provide for job readiness services, orientation, and training.**
- **Monitor, monitor, monitor!** If the program is not being monitored, it will not work. Policy language must require regular reports. Public entities must be diligent about collecting reports. Staff and community benefits coalitions must assess reports to determine follow-up activities. All programs require periodic adjustment to address new needs and unforeseen circumstances. Making the right adjustments starts with good monitoring.

Jobs and Hiring Outcomes

The right approach to implementation can win significant new job opportunities for low-income residents. The community benefits movement is still in its youth, and few negotiated agreements have been in place long enough to establish a significant body of outcomes to consider. Development projects can take years to get off the ground even after formal negotiations have concluded; many agreements negotiated at the outset of this movement, in the late 1990s and early 2000s, are only now reaching implementation. The cases analyzed in this report include two that have a significant body of implementation experience: East Palo Alto's ordinance, passed in 2000 but with roots that go back to 1996, has been in place for eight years, and the Port of Oakland MAPLA, signed in 2000, has also covered almost eight years of work. Two of the programs reviewed – Gates Cherokee and Ballpark Village – have not yet reached the hiring stage. Analysis of these programs is limited to identifying crucial activities that must be undertaken between the time the agreement is signed and the point at which employment begins. Implementation periods for the other five programs range between 6 months and 3 years.

Even the preliminary outcomes already achieved are impressive, but some of the programs have further potential to implicate huge numbers of jobs. A first source referral system that has only completed its first round of major hire-ups may have placed a handful of workers, but over the course of a decade or more, the maturity of the system and the cumulative number of placements may have a significant effect on employment opportunities for local residents.

Tables 1 and 2 show hiring outcomes to date, alongside program characteristics that place these outcomes in proper context.¹

The local hire programs for permanent jobs have created hundreds of new job opportunities for low-income local residents. The programs reviewed for this report consistently met or exceeded the percentage goals established in CBAs and other policy documents, serving workers and employers in a wide range of possible settings. It is important to note that two of the projects pertained to single developments – Hollywood and Highland and NoHo Commons. The rest of the programs reviewed attached local hire requirements to permanent jobs associated with multiple construction sites and dozens of employers. The success of these programs suggests the applicability of permanent jobs local hire requirements across a broad range of sites and settings, and provides a glimpse of the massive scale of the new job opportunities that could be leveraged by such efforts.

¹ All non-confidential documents – including the text of local hire policy language and outcomes reports — are posted on the Partnership for Working Families website, www.communitybenefits.org. Some of the documentation of outcomes was provided personally to the author and is not available publicly. Contact the author at kmh@communitybenefits.org with questions.

TABLE 1 | Local Hire for Permanent Jobs, Programs and Outcomes

Program	Development	Implementation Period	Outcomes to Date		Anticipated expansion over time	Notes
Hollywood and Highland <i>Development Grant Agreement</i>	260,000 sq. ft. Kodak Theater	2000 - 2001	234.8 jobs filled by local residents; 36% of jobs created in the development		None; program has ended	Policy language did not specify process, only outcomes requirements
East Palo Alto <i>Local Hire Ordinance</i>	All redevelopment projects in the City that receive \$50,000 or more in subsidy	2000 to present	Q1 2007	381 positions; 43% of retail/service jobs in subsidized developments	Moderate	Currently ordinance covers 12 retail and service establishments including a total of 888 jobs; this number has been relatively stable over the last 3 years, but new redevelopment projects are on the horizon
			Q1 2006	368 positions; 41% of retail/service jobs in subsidized developments		
			Q1 - 2 2005	322 positions; 40% of retail/service jobs in subsidized developments		
North Hollywood Commons <i>Community Benefits Agreement</i>	60,000 sq. ft. retail & mixed-use development, including food service, retail and a bank branch	January 2007 to present	42 entry-level jobs and 3 upper-level jobs at Hows Market		Minimal	Policy language does not <i>require</i> participation by all permanent jobs employers; so far only one employer has utilized the system
LA Live <i>Community Benefits Agreement</i>	4 million sq. ft. retail and entertainment district adjacent to the Staples Center; will include Nokia Theater & Nokia Plaza as well as 2 hotels	September 2007 to present	338 workers placed Sept through Dec 2007		Tremendous growth potential	Only fraction of anticipated development has been completed. On the horizon: 6000 hotel jobs, hundreds of jobs at smaller food, entertainment and retail outlets
LAX <i>Community Benefits Agreement</i>	Over 300 vendors and contractors at LAX airport, including service, food & retail workers, baggage handlers; covers all non-construction jobs not covered by collective bargaining agreements	October 2006 to present	Estimated 125 positions filled with local residents to date		Tremendous growth potential	Currently working with 50 employers. Anticipate all 300 coming online over next few years. Program language requires all hiring to first go through first source referral for entry-level and management positions

Construction local hire outcomes are also impressive, especially in cases where the programs were established and negotiated with direct buy-in from building trades unions. In East Palo Alto, the outcomes reflect challenges that the program continues to face, including the unwillingness of trades unions to take ownership over the program's success. In the Oakland and Boston cases, however, where trades unions were directly involved in negotiations over the programs and where they have continued to support their implementation, the outcomes are much better.

Construction outcomes can be achieved through two different sets of requirements and practices. On the one hand, simply requiring a percentage of the workforce on any given construction project to reside in targeted neighborhoods is likely to result in journey-level workers who are already established in construction careers to get work on that project. There are clear benefits to this practice. Those workers may be out of work. Ensuring that they receive opportunities to use their skills and get hired onto a particular project not only gives them and their households income they might otherwise lack, but it can also leverage other benefits: relationships with new contractors who might hire them in the future, and access to additional work hours credits that can improve their standing in the field, among others. Simple percentage requirements, however, are unlikely to do much to create opportunities for new job seekers to get access to construction trades careers. In order to increase the likelihood that unemployed residents of low-income neighborhoods get into good jobs in the trades, construction local hire programs have to require utilization of apprentices on site and ensure that some or all of those apprentices will be residents of low-income neighborhoods.

Table 2 presents program characteristics and outcomes for the construction local hire programs reviewed in this report. Programs tended to be more successful at meeting journey-level workers requirements than new apprenticeship requirements. Nonetheless, these programs were successful in developing new job opportunities, through apprenticeships, for low-income local residents. The scope of the projects varies from a few dozen apprenticeships in Boston to hundreds of new job opportunities at the Port of Oakland modernization. Both approaches are probably needed and in both cases, program advocates developed structures and systems appropriate to the scope and scale of the projects.

TABLE 2 | Construction Local Hire Programs and Outcomes

Program	Development	Implementation Period	Jobs Outcomes	Expansion over time	Notes	
Hollywood and Highland <i>Development Agreement</i>	Construction of Kodak Theater	2000-2001	19% worker hours completed by local residents; primarily achieved through zip-coding	None (construction complete)	Largely achieved through zip-coding	
Port of Oakland <i>Project Labor Agreement</i>	\$1.2 billion planned modernization of Port of Oakland	July 2001 to present	Through September 2007: <ul style="list-style-type: none"> • Total of 3,144,954 hours worked; • 31% worked by local residents; • 12.8% completed by apprentices; • 6.2% completed by <i>local resident</i> apprentices; 	Minimal (construction winding down; agreement set to expire in December 2008)	Broad definition of local impact area, but all accounts suggest made profound progress in getting low-income local residents into construction jobs	
East Palo Alto <i>Local Hire Ordinance</i>	All redevelopment projects that receive \$50,000 or more in subsidy	2000 to present	Q1 2007	84 jobs; 23% of construction hires	Moderate	Little to no buy-in from construction trades; lacks mechanism to get apprentices into the trades
			Q1 – 2 2006	24 jobs; 6.5% of construction hires		
			Q1 – 2 2005	40 jobs; 5% of construction hires		
Our Schools, Our Future <i>Boston Public Schools Summer school repainting program</i>	Summer school repainting overseen by Boston Public Schools; approx. \$2.5 million in work annually	Summer 2006 and 2007	Outcomes available from Summer 2006: <ul style="list-style-type: none"> • 44 total new apprentices recruited into Painter's apprenticeship program • 13 local resident/low-income apprentices worked on these projects • 30 total apprentices worked on these projects • 51 Boston residents worked on summer repainting 2006 	Minimal	Intention is to institutionalize program in the workforce development system; scope of annual work expected to remain stable for the foreseeable future	

Conclusions

Generating real local hire outcomes requires real investment of effort, yet the case studies in this report show that with good policy language, a strong implementation team, and a committed, diligent staff coordinator, local hire programs can succeed in creating significant new job opportunities for low-income local residents.

Documenting the extent of unemployment and joblessness in urban areas, and the negative effects of the cycles of violence and poverty that undermine urban communities, is beyond the scope of this report. But its essential reality is at the heart of community benefits work, and inspires these coalitions to seek innovative methods for redirecting resources outside of the protected urban enclaves that continue to benefit from the back-to-the-city movement and expanded use of TIFs and other development subsidies.

Advocates of incorporating local hire requirements into development often meet with skepticism and unwillingness, not only on the parts of developers, but also from the elected officials who represent low-income urban communities. Some of that unwillingness stems from lack of concrete documentation that these programs can work: that they can operate effectively without scaring developers off nor unnecessarily complicating the development process, and that the low-income workers they recruit can meet the challenges of the jobs. This report provides strong evidence that they do.

Threaded throughout this report is the need for public institutions to take a leading role. To maximize the benefits to their communities, public entities, including elected and appointed officials and redevelopment administrations, should:

- Establish local hire requirements in their jurisdictions, especially for large-scale projects with strong public investment;
- Support community benefits coalitions' efforts to strike private agreements with developers to participate in first source referral systems;
- Ensure timely and regular collection of reports, and make them available to the community;
- Ensure that programs staffed by public employees are seen as a high priority, and work to maintain the political will needed to see them succeed.

Many cities and local governments maintain local hire policies, but it is unclear how effectively they have been staffed. This report focuses on programs that are connected to the Partnership for Working Families network, prohibiting an exhaustive review of all of the issues related to local government policies. But extrapolations can and should be made from the success of the programs profiled here. On the face of it, there seem to be no real reasons why these programs cannot be made to work.

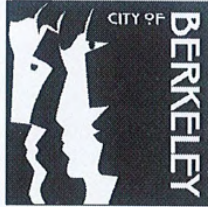
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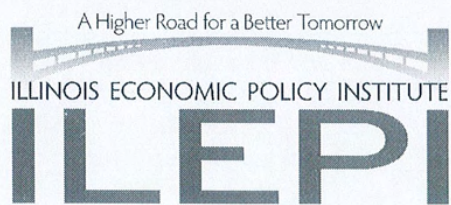
**The Economic, Fiscal, and Social Impacts of State Prevailing Wage Laws:
Choosing Between the High Road and the Low Road in the Construction Industry**

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Executive Summary

Opponents of prevailing wage laws claim that repealing or weakening the wage policy will save taxpayer dollars, yet 75% of recent peer-reviewed studies indicate that construction costs are not affected by prevailing wages. However, the absence of prevailing wages increases taxpayer burdens by increasing the likelihood that construction workers will earn incomes below the poverty level, become more dependent on public assistance, and will not have health insurance and retirement benefits. Furthermore, prevailing wages perform an important economic development function by reducing the leakage of construction funds, jobs, income, and spending from the local economy. Weakening or repealing prevailing wages does not reduce construction costs, but increases poverty and decreases economic activity. In fact, weakening or repealing state-level prevailing wage laws in the 25 states that currently have strong or average wage policies would have negative economic, fiscal, and social impacts on the U.S. economy.

This study is a data-driven examination of prevailing wage laws with the economic impacts and statistical analysis of construction worker labor market outcomes based on information from the U.S. Census Bureau (the *Current Population Survey*, *American Community Survey*, and the *Economic Census of Construction*) and the *National Health Expenditures Survey*. The economic impact results are obtained from IMPLAN, an input-output model that is based on data from the U.S. Bureau of Economic Analysis. All of the quantitative analyses presented in this report are reproducible. The review of the research on prevailing wages and construction costs distinguishes between those studies that were peer reviewed and those studies that were not examined by experts prior to publication.

The Purpose and Consequences of Prevailing Wages

The main purpose of prevailing wage laws is to protect local construction labor standards from distortions associated with publicly funded construction.¹ Large infusions of government spending into an area, along with a contract award process that favors the lowest bidder, may attract contractors from areas where construction worker wage rates are lower and where the industry underinvests in skills development. Competition between these out-of-area and local contractors may result in the erosion of local compensation standards and the labor market institutions designed to develop and enhance workers' skills and safety. Prevailing wage laws create a level playing field for all contractors by ensuring that public works expenditures maintain and support local area standards.

This study is motivated by three consequences of prevailing wage laws. The first involves the effect of the wage policy on the cost of public construction. The second addresses the relation between the absence of adequate prevailing wage protection, construction worker poverty, and dependence on public assistance that impacts taxpayers. The third consequence concerns the economic impact of prevailing wage laws. This study is organized along these issues.

Summary of Research on Prevailing Wage Laws and Construction Costs

The research addressing the relationship between prevailing wage laws and construction costs can be divided into two groups. The research that has been peer reviewed and the research that has not been examined by experts prior to the publication of results.

The overwhelming majority of peer-reviewed research conducted over the last 15 years forms the consensus view that construction costs are not affected by prevailing wages. For example, 80% of

¹ As an example see "The Davis-Bacon Act Protecting Wage Equality Since 1931," Wage and Hour Division, U.S. Department of Labor. Accessed at: <http://www.dol.gov/whd/programs/dbra/Survey/conformancefaq.htm>.

peer-reviewed studies find that the wage policy does not affect the cost of building public schools. For all project types examined, 75% of studies reach this same conclusion. This body of research utilizes state-of-the-art statistical techniques and software to empirically examine samples of construction projects. Peer-reviewed research also indicates that prevailing wages are associated with increased productivity and efficiency. Prevailing wages do not alter the level of bid competition, an important determinant of project costs. Furthermore, winning bids do not change when contractors move between projects that require prevailing wages and projects that are not covered by the wage policy.

Why don't prevailing wages increase construction costs? First, labor costs are a low (and declining) percentage of total costs in the construction industry—approximately 23% of all building costs in the U.S.² Contractors also reduce expenditures on materials, fuels, rental equipment, and profit when wages are higher.³ Finally, peer-reviewed research indicates that when wages increase in the construction industry, contractors respond by utilizing more capital equipment and substituting skilled workers for less-productive counterparts.⁴ Since labor costs represent a small portion of overall costs, relatively minor changes are needed to offset the effect of the wage policy.

The results of peer-reviewed research contrast sharply with the findings of research that has not been reviewed by experts. The preponderance of these studies suggests that prevailing wages increase costs, with estimates ranging as high as 36%. The majority of these studies are based on the wage differential method. This is an outdated, theoretical approach that estimates the cost of the wage policy by comparing prevailing wage rates to alternative wages that would be paid in the absence of the policy.

By focusing exclusively on wage differences as the basis of the prevailing wage cost effect, the wage differential method ignores changes in labor productivity, material and fuel costs, contractor profit, and other construction efficiencies that change with wage rates. With this approach, it is not a question of *if* there is a cost impact; it is a question of how large the cost effect is. Because of this bias, the wage differential method is fundamentally unscientific. The statistical analysis that is the basis of peer-reviewed studies allows researchers to determine *if* a cost effect exists before measuring its size. Additionally, the wage differential method provides a large prevailing wage cost impact when results from other analyses yield overwhelming evidence that no such effect exists.⁵ Because of the method's numerous shortcomings, studies using this approach would not survive a peer review.⁶ In sum, wage differential studies provide cost estimates that are too high and promise savings with the repeal or weakening of prevailing wage laws that cannot be delivered.

² See the 2012 U.S. Census Bureau, *Economic Census of Construction*, Construction: Geographic Area Series: Detailed Statistics for Establishments, accessed at:

http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2012_US_23A1&prodType=table.

³ See "How Weakening Wisconsin's Prevailing Wage Policy Would Affect Public Construction Costs and Economic Activity," by Kevin Duncan and Alex Lantsberg, May 22, 2015. Accessed at: <http://www.faircontracting.org/wp-content/uploads/2015/05/How-Weakening-Wisconsin%E2%80%99s-Prevailing-Wage-Policy-Would-Affect-Public-Construction-Costs-and-Economic-Activity2.pdf>.

⁴ See William Blankenau and Steven Cassou, "Industry Differences in the Elasticity of Substitution and Rate of Biased Technological Change between Skilled and Unskilled Labor." *Applied Economics*, 2011, Vol. 43, pp. 3129-3142 and Edward Balistreri, Christine McDaniel and Eina Vivian Wong, "An Estimation of U.S. Industry-Level Capital-Labor Substitution Elasticities: Support for Cobb-Douglas." *The North American Journal of Economics and Finance*, 2003, Vol. 14, No. 3, 343-356.

⁵ See Kevin Duncan, "Using Wage Differences to Measure the Cost Effect of Prevailing Wage Laws: An Exercise in Futility," Institute for Construction Economics Research, forthcoming.

⁶ The last peer-reviewed study based on the wage differential method was published in 2001. See Keller, Edward C. and William T. Hartman. 2001 'Prevailing Wage Rates: the Effects on School Construction Costs, Levels of Taxation, and State Reimbursements,' *Journal of Education Finance*, Vol. 27, pp. 713-728.

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In spite of these shortcomings, wage differential studies have been referenced in testimony regarding prevailing wage policy. For example, James Sherk, Ph. D. of the Heritage Foundation cited three wage differential studies in his 2015 testimony before the Indiana State Senate.⁷ Dr. Sherk also referenced a wage differential study during his testimony before the U.S. House of Representatives in 2011.⁸ There is very little evidence that a distinction is made between research that has and has not been peer-reviewed in the public policy debate regarding prevailing wage laws. In this debate, decisions are too often influenced by ideology rather than the highest standards of research.

Statistical Analysis of Construction Worker Earnings, Poverty, Reliance on Public Assistance, and Health and Retirement Benefits

Prevailing wage laws result in net positive contributions to the tax base by increasing income tax contributions and reducing reliance on public assistance. Due to their higher personal incomes, blue-collar construction workers in the 25 states with average and strong prevailing wage laws contribute \$3,289 per year in federal income taxes (on average, after credits and deductions and adjusted for differences in costs of living). Their equivalents in the 25 states with weak or no prevailing wage laws only contribute \$1,964 in annual federal income taxes. As a result of higher incomes, construction workers in states with average or strong prevailing wage laws are less likely to earn an income below the official poverty level. On average, only 9.4% of construction workers in states with average/strong wage policies earn incomes below the poverty level while 15.2% of these same workers in states with weak or no prevailing wage laws earn below poverty-level incomes. As a consequence of less poverty, only 5.1% of blue-collar construction workers receive aid from the Supplemental Nutrition Assistance Program (SNAP) in states with average/strong prevailing wage laws while 9.2% of construction workers in states with weak or no wage policies receive SNAP. Similarly, 12.2% of construction workers in states with at least average laws receive Earned Income Tax Credits (EITC) while 15.3% of counterparts in states with less than average prevailing wage laws qualify for these credits. These data reveal how strong or average prevailing wage laws play a significant role in fostering self-sufficient, middle-class incomes for construction workers.

If all 25 states with strong or average prevailing wage legislation weakened or outright repealed their laws, an additional 99,000 blue-collar construction workers would see their incomes fall below the poverty level. Weakening or repealing prevailing wage laws across the nation would result in 319,000 more construction workers losing their health insurance coverage and 124,000 construction workers losing their pension plan at work, resulting in increased reliance on public insurance programs. In addition, weakening or repealing prevailing wage laws across the country would increase blue-collar construction worker enrollment in SNAP by 102,000 workers, translating into an additional \$308.5 million cost to taxpayers every year. Similarly, an estimated 36,000 more construction workers would receive EITC, costing taxpayers another \$74.6 million a year. At the same time, the loss in construction worker earnings would be accompanied by a loss in federal income tax contributions of over \$3.4 billion. The findings reported in this study for government assistance such as SNAP are likely to be understated and *conservative* estimates. Recent research indicates that the data used here to

⁷ See James Sherk, Ph. D., "How the Common Construction Wage Affects the Cost and Quality of Construction Projects," the Heritage Foundation, July 24, 2015. Accessed at: <http://www.heritage.org/research/all-research?categories=testimony>.

⁸ See James Sherk, Ph. D., "Examining the Department of Labor's Implementation of the Davis-Bacon Act," The Heritage Foundation, April 28, 2011. Accessed at: <http://www.heritage.org/research/all-research?categories=testimony>.

measure government assistance (the *Current Population Survey*) considerably under-reports government transfers of income.⁹

These national findings can be applied to states that are considering (or have already) repealed or weakened their prevailing wage laws. For example, in Wisconsin, which repealed its prevailing wage standard earlier this year, approximately 2,300 more construction workers are expected to fall below the official poverty line, with about 2,400 more Wisconsin workers expected to rely on food stamps, and 900 more to rely on EITC assistance. A total of 7,700 construction workers will likely lose health insurance coverage and 3,000 workers will lose their employer-provided pension plans across the Badger State.

Michigan, which is currently circulating a petition to circumvent an expected veto of prevailing wage repeal by Republican Governor Rick Snyder, can expect approximately 4,300 more construction workers earning below the official poverty line if repeal efforts are successful. This would result in about 4,400 additional construction workers in Michigan receiving food stamps and 1,500 more relying on EITC assistance. A total of 13,500 blue-collar construction workers would lose health insurance coverage and 5,300 would lose their employer-provided pension plans across the Wolverine State. In both states, the increase in workers relying on government assistance programs would increase costs to taxpayers.

While the preponderance of peer-reviewed research indicates that prevailing wages do not affect taxpayers through increased construction costs, results of this study reveal how the repeal or weakening of prevailing wages increases taxpayer burdens by increasing expenditures on public assistance and reducing tax revenue.

Prevailing wage laws also reduce disparities in the construction industry. By increasing construction worker incomes, prevailing wages close the earnings gap between blue-collar workers and white-collar managers and supervisors. Strong and average prevailing wage laws increase the earning of all blue-collar workers with larger earnings increases for those at the lower end of the income distribution. Because prevailing wage laws particularly affect low-income construction workers, the absence of the wage policy pushes the most vulnerable into poverty. In addition, strong or average prevailing wage laws increase the probability that a nonwhite individual works as a blue-collar construction worker by 5.6 percentage points. Thus, prevailing wages close the employment gap between racial or ethnic groups.

Military veterans represent a larger share of the construction labor force (8.4%) compared to total employment in the U.S. (7.5%). Veterans also represent a larger share of construction occupations in states with average/strong prevailing wage policies where the construction industry is more likely to provide middle-class incomes as well as health and retirement benefits. For example, veterans represent 8.6% of construction employment and 6.8% of the overall work force in states with average/strong prevailing wage laws. On the other hand, vets make up 8.0% of all construction workers and 8.5% of total employment in states with no/weak prevailing wages laws. Veterans disproportionately benefit from adequate prevailing wage policies. Weakening or repealing prevailing wages in states with at least adequate wage policies has a disproportionate and adverse effect on veterans.

⁹ See Bruce Meyer and Nikolas Mittag, "Using Linked Survey and Administrative Data to Better Measure Income: Implications for Poverty, Program Effectiveness and Holes in the Safety Net." National Bureau of Economic Research (NBER), 2015, Working Paper 21676. Accessed at: <http://www.nber.org/papers/w21676>.

Prevailing Wages and the Economic Impact of Spending Leakages

By protecting local wages, prevailing wage laws also protect work for local contractors and construction workers. When local companies and workers are employed on a project, more project funds remain in the local economy and stimulate additional economic activity. Without adequate prevailing wage policies, more work is completed by out-of-area contractors with more project funds, jobs, income, spending, and economic activity leaking out of the local economy. To illustrate this effect, we present new data measuring the leakage impacts associated with the weakening or repeal of prevailing wages in Michigan and Wisconsin.¹⁰ Impacts from these states are applicable and reproducible for other states considering changes in prevailing wage policy.

Data from the *Economic Census of Construction* indicate that states with weak/no prevailing wages have about 2% more of the total value of construction completed by out-of-state contractors than states with strong/average policies. The corresponding policy-induced leakages from the Wisconsin and Michigan economies would be approximately \$500 million and \$673 million, respectively. The impact of these leakages would ripple throughout the economies of these states and affect industries that are unrelated to the construction industry.

If efforts to repeal Michigan's prevailing wage law are successful, with more work completed by out-of-state contractors the state can expect a decrease in economic activity of approximately \$1.5 billion, the loss of over 9,700 jobs, and a decrease in state and local tax revenue over \$55 million. These impacts would be experienced each year following prevailing wage repeal. With a weaker prevailing wage policy and more work completed by out-of-state contractors, Wisconsin can expect a decrease in economic activity of approximately \$1.1 billion. Employment would decrease by over 6,700 jobs and state and local tax revenue would decrease by more than \$40 million dollars annually. These results indicate that for every dollar of construction value that is completed by an out-of-state contractor, economic activity decreases by \$2.15 in Michigan and \$2.26 in Wisconsin.¹¹

Prevailing Wages and the Economic Impact Due to Changes in Construction Expenditures

The allocation of construction expenditures differs between states with different prevailing wage policies. States with strong/average policies have relatively higher labor costs, lower material and fuel expenditures, and lower contractor profits. We measure the economic impact *if* the 25 states with strong/average prevailing wages were to weaken or repeal their wage policies and assume the cost structure of states with less than average policies. This type of policy change would result in reductions in construction worker wages and benefits of \$23 billion, an increase in materials expenditures of \$18 billion, and an increase in contractor profits of \$5 billion.

The economic impact analysis of this scenario indicates that the largest effect is due to changes in construction worker wages and benefits. The increase in proprietor income would marginally improve

¹⁰ The leakage impacts are reported separately here. In our previous examination of Wisconsin and Michigan, the leakage impacts were not reported separately and were included as part of the overall results. See "The Cost of Repealing Michigan's Prevailing Wage Policy: Impacts on Total Construction Costs and Economic Activity," by Kevin Duncan, Alex Lantsberg, and Frank Manzo IV, June 17, 2015. Accessed at: <http://illinoisepi.org/countrysidenonprofit/wp-content/uploads/2014/06/The-Cost-of-Repealing-Michigans-PWL-FINAL.pdf> and "How Weakening Wisconsin's Prevailing Wage Policy Would Affect Public Construction Costs and Economic Activity," by Kevin Duncan and Alex Lantsberg, May 22, 2015. Accessed at: <http://www.faircontracting.org/wp-content/uploads/2015/05/How-Weakening-Wisconsin%E2%80%99s-Prevailing-Wage-Policy-Would-Affect-Public-Construction-Costs-and-Economic-Activity2.pdf>.

¹¹ The per-dollar impact is obtained by dividing the total economic impact by the initial level of spending. The figure of \$2.15 for Michigan is obtained by dividing \$1.45 billion by \$673 million.

economic activity, as would new spending on materials, fuels, and rental equipment. However, the impact of materials and fuel costs is due to the relatively less efficient construction methods used in states with no/weak prevailing wage polices.¹² These inefficiencies can be eliminated by adequate prevailing wages. Omitting the economic impact associated with inefficient use of materials and fuels results in a decrease in national economic activity of approximately \$65 billion, the loss of 400,000 jobs, and a combined federal, state, and local tax revenue decrease of over \$8 billion.

Conclusion

Prevailing wage legislation is part of a broader set of interrelated institutional arrangements that promote a strong construction industry and a thriving middle class, including a stronger emphasis on apprenticeship training, skilled workmanship, workplace safety, increased access to health insurance and retirement security.¹³ Prevailing wage laws support a high road economy by establishing the underlying legal framework for a construction industry that provides the skills needed to build quality infrastructure for a growing, technologically-sophisticated, and competitive economy. By fostering an economy with a strong middle class, prevailing wages promote sound public sector budgets at all levels of government.

Legislators have a choice between this construction industry high road and the low road that leads to less training, lower quality workmanship, more waste and inefficiency at the worksite, higher levels of poverty, increased taxpayer burdens, and reduced economic activity.

¹² This inefficiency is similar to an increase in output following a natural disaster (earthquake, flood, etc.). While a disaster or inefficient use of materials and fuel generates economic activity, it is not desirable in an economic or social sense.

¹³ For more discussion of these issues see Peter Philips, "Lessons for Post-Katrina Reconstruction: A High-Road vs. Low-Road Recovery." Briefing Paper, Economic Policy Institute, 2005 and Alison Dickson-Quesada, Frank Manzo, Dale Belman, and Robert Bruno, "A Weakened State: The Economic and Social Impacts of Repeal of the Prevailing Wage Law in Illinois." School of Labor and Employment Relations, Labor Education Program, University of Illinois at Urbana-Champaign, 2013.

Introduction

The main purpose of a prevailing wage law is to protect local construction labor standards and labor market institutions in the competitive public bidding process.¹⁴ Large infusions of government spending into an area, along with a contract award process that favors the lowest bidder, may attract contractors from areas where construction worker wage rates are lower and where the industry underinvests in skills development. Competition between local and these out-of-area contractors may result in the erosion of local compensation standards and the labor market institutions designed to develop and enhance workers' skills and safety. Prevailing wage laws create a level playing field for all contractors by ensuring that public works expenditures maintain and support local area standards.

This report examines the consequences of prevailing wage laws. By protecting local wages, prevailing wage laws protect work for local contractors and construction workers. When local workers and companies are employed, more of the project funds remain in the local economy, stimulating additional economic activity. Prevailing wage laws also have an economic impact by altering the component cost shares of the construction industry in ways that increase economic activity. An ongoing public policy debate centers on the effect of prevailing wage rates on construction costs and an extensive body of research has examined this issue. A related issue concerns the impact of prevailing wages on taxpayers via the relationships between the wage policy, construction worker poverty, reliance of public assistance, presence of health insurance coverage, and funding for retirement.

The remainder of this study is organized into two parts. Part I of the report examines the effect of prevailing wages on taxpayers. This section includes a comprehensive review of the research on the effect of prevailing wage laws and construction costs. This review traces the research from inception

¹⁴ As an example see "The Davis-Bacon Act Protecting Wage Equality Since 1931," Wage and Hour Division, U.S. Department of Labor. Accessed at: <http://www.dol.gov/whd/programs/dbra/Survey/conformancefaq.htm>.

in the late 1970s to the present. Another cost consideration of prevailing wage laws is the effect of the wage policy on construction worker poverty, reliance on public assistance, and health and retirement coverage that also affects taxpayers. Part II examines the economic impact on the U.S. economy of weakening or repealing state-level prevailing wage laws. This section includes a description of economic impact analysis and software along with a description of how the cost components of the construction industry change with a change in prevailing wage policy. These data illustrate how U. S. economic activity would change if the prevailing wage laws in the 25 states with average and strong wage policies as of 2012 were to be weakened or repealed. The economic impact associated with the leakage of project funds and spending from a local economy is illustrated for states that have recently considered weakening or repealing their wage policies (Wisconsin and Michigan).

I: Prevailing Wage Laws, Construction Costs, and Construction Labor Market Outcomes

Prevailing Wage Policies and Construction Costs

This section of the report summarizes the research on the effect of prevailing wage policies on construction costs. While all research is sampled, distinctions are made between research that has and has not been peer-reviewed.¹⁵ A peer-review is not based on whether reviewers agree with the research results. Rather, the purpose of the review is to ensure quality, provide credibility, and maintain standards in the discipline. One benefit of this type of review is that peer experts are more likely to detect errors that may not be obvious to casual readers. It is entirely up to casual readers to evaluate the accuracy of research that has not been peer reviewed. This survey covers this research from its inception in the late 1970s to the present. With the development of advanced statistical software and greater access to project-level data over the last 40 years, the methods employed by

¹⁵ Peer reviewed research is published in academic journals. These types of publications are listed in footnotes and can be identified by journal names that appear in italics and are underlined.

researchers have evolved. Regardless, the preponderance of this research, whether dated or recent, indicates that prevailing wages either have no effect or a negligible impact on construction costs.

Early studies relied on an intuitive approach to measure the cost effect of prevailing wage laws, using the difference between prevailing wages and wage rates that would be paid in the absence of the policy. This “wage differential” method is based on the following steps:

1. Calculate the percentage difference between prevailing wages and alternative rates that would be paid in the absence of the wage policy.
2. Calculate the percentage of labor costs (wages and benefits) to total construction costs.
3. Multiply the percentages from steps 1 and 2 to obtain the percentage increase in total costs due to prevailing wages.

This method is often used in fiscal notes when legislatures are considering policy changes and time constraints prevent the use of other more precise methods of measuring the cost impact of prevailing wages. Recent use of the wage differential method by the Vermont Legislative Joint Fiscal Office provides a good illustration. During the 2015 legislation session, Vermont’s “Capital Bill” sought to switch from the current state prevailing wage policy that did not include health and retirement benefits up to federal Davis-Bacon standards.¹⁶ Following the first step of the wage differential method, the Vermont Legislative Joint Fiscal Office estimated that Davis-Bacon rates exceeded current prevailing wage rates by 20% to 30%. Results of step 2 indicated that labor costs represented 32% of total construction costs.¹⁷ If labor costs are 32% of total costs and if Davis-Bacon rates are 20% higher than current prevailing wage rates, then switching to Davis-Bacon rates would

¹⁶ See “Prevailing Wage Mandate Tacked onto \$157 million Capital Bill,” VTDigger.org. May 8, 2015. Accessed at: <http://vtdigger.org/2015/05/08/senate-approves-157-million-capital-bill/>.

¹⁷ See “Components of the Capital Bill-Prevailing Wage,” Fiscal Note-Revised, Vermont Legislative Joint Fiscal Office, July 24, 2015. Accessed at: http://www.leg.state.vt.us/jfo/fiscal_notes/2015_H_492%20Prevailing%20Wages%20Fiscal%20Note%20%28Revised%29%203-25-2015.pdf.

increase labor costs by 6.4% (20% x 32%). Since labor costs are the only cost component thought to be affected by the wage policy, the increase in labor costs is the same percentage-point increase in total costs (6.4%). With average capital bill authorizations of \$72 million, the change in prevailing wages would increase expenditures by \$4,608,000 (6.4% x \$72 million). Given the ease of this approach, the wage differential is often referred to as a “back of the envelope” estimate.¹⁸

Before the introduction of modern statistical software, academic research beginning in the late 1970s utilized the wage differential method. A survey of this early research by Professor Bilginsoy and Philips indicates that these studies, many of which were peer-reviewed, provide a prevailing wage cost effect ranging from zero to 3%.¹⁹ This low range contrasts considerably with the results of recent studies based on the wage-differential method, none of which have been peer-reviewed. Results of these new “back of the envelope” studies suggest that prevailing wages increase costs by as much as 36%.

For example, the Anderson Economic Group estimates that, due to the difference between prevailing wages and alternative rates, Michigan’s prevailing wage laws adds 7.5% to the cost of school construction in the state.²⁰ Several other studies by the Mackinac Center for Public Policy have also focused on the Michigan prevailing wage policy and found that prevailing wages increase costs from 7.2% to 15%.²¹ A report by the Beacon Hill Institute indicates that Davis-Bacon prevailing

¹⁸ See Peter Philips “Mr. Rosaen’s Magical Thinking A Short Evaluation of Alex Rosaen’s 2013 Prevailing Wage Methodology,” Department of Economics Working Paper Series, University of Utah, November 20, 2013. Accessed at: https://ideas.repec.org/p/uta/papers/2013_12.html.

¹⁹ See Bilginsoy, Cihan and Peter Philips. 2000 ‘Prevailing Wage Regulations and School Construction Costs: Evidence from British Columbia.’ *Journal of Education Finance*, Vol. 24, 415-432.

²⁰ See Alex L. Rosaen. 2013. “The Impact of Michigan’s Prevailing Wage Law on Education Construction Expenditures.” Prepared by the Anderson Economic Group, LLC, November 13, 2013. Accessed at: <http://prevailingwagetruth.com/wp-content/uploads/2013/11/AEG-Report-MI-PW-Law-and-Education-Construction-2.pdf>.

²¹ See Paul Kersey, J. D., “The Effect of Michigan’s Prevailing Wage Law,” Mackinac Center for Public Policy, August 27, 2007. Accessed at: <http://www.michigancapitolconfidential.com/8907>, John Taylor, Ph. D. 2007. “Prevailing Wage Laws,” Mackinac Center for Public Policy, April 16, 2007. Accessed at: <http://www.mackinac.org/8473>, and Richard Vedder, Ph. D. “Michigan’s Prevailing Wage Law and Its Effects on Government Spending and Construction Employment,” A Mackinac Center Report, September 1999. Accessed at: <https://www.mackinac.org/archives/1999/s1999-07.pdf>.

wages increase construction costs by 9.9%.²² Two additional studies have examined the State of New York's policy. The Citizens Housing and Planning Council estimates that the Empire State's wage policy increases construction costs by 25%.²³ The Center for Government Research provides an impact of 36%.²⁴ All of these studies possess numerous errors that would not survive a peer review.²⁵

A fundamental and fatal flaw of the wage differential method is that this approach is not capable of including numerous other changes that take place when wages change in the construction industry. Evidence from peer-reviewed studies indicates that that when wages increase, more skilled construction workers and more capital equipment are utilized in construction.²⁶ Material costs, fuel costs, and contractor profits are all lower when construction worker wages and benefits are higher.²⁷ Each of these changes occurs as a result of efforts to maintain overall costs and competitive bids in light of standardized wage rates. By ignoring these changes, studies utilizing the wage differential method are based on an incomplete understanding of the construction industry and provide a cost estimate of the prevailing wages that is too high.

²² See Sarah Glassman, MSEP, Michael Head, MSEP, David Tuerck, Ph. D., and Paul Bachman, MSIE. "The Federal Davis-Bacon Act: The Prevailing Mismeasure of Wages," Beacon Hill Institute, February 2008. Accessed at: <http://www.beaconhill.org/BHISTudies/PrevWage08/DavisBaconPrevWage080207Final.pdf>.

²³ See Elizabeth A. Roistacher, Ph. D., Jerilyn Perine and Harold Schultz, *Prevailing Wisdom: The Potential Impact of Prevailing Wages on Affordable Housing*, Citizens Housing & Planning Council, New York (December 2008). Accessed at: <http://chpcny.org/wp-content/uploads/2011/02/Prevailing-Wisdom-web-version1.pdf>.

²⁴ See Kent Gardner, Ph. D. and Rochelle Ruffner, Ph. D., "Prevailing Wage in New York State: The Impact of Project Costs and Competitiveness," Center for Government Research, January 2008. Accessed at: <http://reports.cgr.org/download-single-report/1532>.

²⁵ For a thorough review of these studies and the wage differential method see Kevin Duncan. 2015. "Using Wage Differences to Measure the Cost Effect of Prevailing Wage Laws: An Exercise in Futility," Institute for Construction Economics Research, September 15.

²⁶ See William Blankenau and Steven Cassou, "Industry Differences in the Elasticity of Substitution and Rate of Biased Technological Change between Skilled and Unskilled Labor." *Applied Economics*, 2011, Vol. 43, pp. 3129-3142 and Edward Balistreri, Christine McDaniel and Eina Vivian Wong, "An Estimation of U.S. Industry-Level Capital-Labor Substitution Elasticities: Support for Cobb-Douglas." *The North American Journal of Economics and Finance*, 2003, Vol. 14, No. 3, 343-356.

²⁷ See "How Weakening Wisconsin's Prevailing Wage Policy Would Affect Public Construction Costs and Economic Activity," by Kevin Duncan and Alex Lantsberg, May 22, 2015. Accessed at: <http://www.faircontracting.org/wp-content/uploads/2015/05/How-Weakening-Wisconsin%E2%80%99s-Prevailing-Wage-Policy-Would-Affect-Public-Construction-Costs-and-Economic-Activity2.pdf>.

Other methods make use of advances in statistical software and access to project-level data to analyze the effect of prevailing wages on all construction costs. A common approach is to compare the total costs of projects covered by prevailing wage laws to the total costs of projects that are not covered by the wage policy. Statistical methods such as regression analysis make it possible to make this type of comparison, taking other project differences into account. While new methods and data have addressed some problems, other issues have arisen. A statistical comparison of two types of projects requires that the researcher is able to include all the important project characteristics that affect construction costs. However, if construction projects have differences other than the wage policy, and if these differences are not taken into account, the analysis can result in an incomplete and inaccurate measure of the cost effect of the wage policy. In other words, comparing prevailing wage projects to other projects may be like making a proverbial apples-to-oranges comparison.

A good example of such an apples-to-oranges comparison is found in the study by Professors Fraundorf, Farrell, and Mason, who compared public construction projects that were covered by the Davis-Bacon Act to privately-funded projects that were not covered by the policy.²⁸ This comparison found that federally-funded projects were between 26% and 35% more expensive than comparable privately-funded projects. There are several problems with this study and its findings. Data from the *Economic Census of Construction* indicate that, around the time of this study, labor costs were approximately 30% of total construction costs. It is unlikely that the difference between federal and private project costs, due to prevailing wages, would be about 30% when labor only accounts 30% of total costs. It is more likely that the measured cost effect is due to factors other than the wage policy. Publicly-funded projects typically have a greater life expectancy that requires higher standards of quality. If so, the prevailing wage cost effect obtained in the study by Fraundorf, Farrell, and Mason

²⁸ See Fraundorf, Martha, John P. Farrell and Robert Mason. 1984. 'The Effect of the Davis-Bacon Act on Construction Costs in Rural Areas.' *The Review of Economics and Statistics*, 66, 142- 146.

may be due to the combined effect of the wage policy and other differences between federal or public projects. But the analysis was unable to isolate the effect of the wage policy from these other factors.

School construction projects are relatively similar and provide more of an apples-to-apples comparison. Several studies have compared construction costs for schools built with and without prevailing wage regulations. Many of these studies have taken advantage of the introduction of a prevailing wage policy in British Columbia to compare school construction costs. Professors Bilginsoy and Philips examine the impact of British Columbia's Skill Development and Fair Wage Policy, which is similar to "strong" prevailing wage policies in the U.S.²⁹ Using regression analysis to take a number of factors into consideration— including the construction business cycle, number of competitors, type of school, and a time trend— the construction bid costs under the policy were not statistically different from built before the introduction of prevailing wages.³⁰

Professors Duncan, Philips, and Prus examine the effect of British Columbia's prevailing wage standard by including a control group of private school projects.³¹ This analysis indicates that before the introduction of the prevailing wage policy, the cost of building public schools was approximately 40% more expensive than the costs of comparable private schools.³² This cost differential did not change after the wage policy was introduced. These authors have also used the British Columbian example to study the effect of prevailing wage laws on the productivity and efficiency of construction. They find that prior to the introduction of the wage legislation, public school projects were 16% to

²⁹ Bilginsoy, Cihan and Peter Philips. 2000 'Prevailing Wage Regulations and School Construction Costs: Evidence from British Columbia.' *Journal of Education Finance*, Vol. 24, 415-432.

³⁰ Statistical analysis makes a distinction between 'statistically significant' and 'statistically insignificant' results. A statistically significant result is unlikely to have occurred due to chance. If a result is statistically insignificant, then the measured result is likely to have occurred due to chance.

³¹ See Duncan, Kevin, Philips, Peter, and Prus, Mark. 2014. "Prevailing Wage Regulations and School Construction Costs: Cumulative Evidence from British Columbia." *Industrial Relations*, Vol. 53, No. 4, October, pp. 593-616.

³² Professors Duncan and Prus examine the effect of the British Columbian wage policy on assorted building types, (assembly halls, hospitals, offices, schools, etc.), and find a similar effect. See Duncan, K. and Prus, M. 2005. "Prevailing Wage Laws and Construction Costs: Evidence from British Columbia's Skills Development and Fair Wage Policy" in *The Economics of Prevailing Wage Laws*, Azari-Rad, Hamid, Philips, Peter and Prus, Mark, eds. (Aldershot, G.B.: Ashgate), pp. 123-148.

19% smaller, in terms of square feet, than comparable private structures (given the same project expenditure). This size differential did not change after the policy was in effect.³³ These results suggest that prevailing wage requirements do not alter labor or other input utilization in a way that significantly affects the relative size of covered and uncovered projects. The authors also find that average total efficiency for public school construction is 94.6% (100% is optimal construction efficiency).³⁴ Average efficiency for projects covered by the introductory stage of British Columbia's construction wage legislation was 86.6%. This policy mandated apprenticeship training requiring journeymen to divide time between teaching and building, which can explain the decrease in efficiency when the policy was first introduced. Regardless, by the time of the expansion of the policy 17 months later, the average efficiency of covered projects increased to 99.8%. These findings suggest that the introduction of prevailing wage laws disrupted construction efficiency. However, in a relatively short period of time, the construction industry adjusted to wage requirements by actually improving overall construction efficiency in a way that is consistent with stable total costs. A similar pattern was observed with respect to cost efficiency.³⁵ Taken together, these studies of prevailing wages in British Columbia provide a comprehensive analysis that fails to find an effect on construction costs or efficiency consistent with the view that prevailing wages increase construction costs.

Professors Azari-Rad, Philips, and Prus find similar results in two studies that examine school construction in the U.S. After taking into account differences in project size, type, location, and other factors, they found no evidence that schools built in states with prevailing wage laws were more

³³ See Duncan, Kevin, Philips, Peter, and Prus, Mark. 2006. "Prevailing Wage Legislation and Public School Construction Efficiency: A Stochastic Frontier Approach," *Construction Management and Economics*, Vol. 24, June 2006. pp. 625-634.

³⁴ See Duncan, Kevin, Philips, Peter, and Prus, Mark. 2009. "The Effects of Prevailing Wage Regulations on Construction Efficiency in British Columbia," *International Journal of Construction Education and Research*, Vol. 5, No. 1, pp. 63-78.

³⁵ See Duncan, Kevin, Philips, Peter, and Prus, Mark. 2012. "Using Stochastic Frontier Regression to Estimate the Construction Cost Efficiency of Prevailing Wage Laws." *Engineering, Construction and Architectural Management*, Vol. 19, No. 3, pp 320-334.

costly.³⁶ Professor Atalah tests the hypothesis that prevailing wages increase school construction costs by examining 8,093 bids submitted by signatory contractors that pay union wage and benefit rates and by “open shop” contractors. A comparison of bids between these two groups indicates that there is no significant difference in bid costs.³⁷ Union rates set the upper bound for prevailing wage rates. Wages paid by open shop contractors represent wages at the other extreme, if prevailing wages do not apply. If costs do not differ between these extremes, the inference is that prevailing wages do not affect costs. Professors Keller and Hartman compare labor costs under prevailing wage regulations and “open shop” conditions and report that Pennsylvania’s prevailing wage law adds, on average, 2.25% to the cost of building public schools, though this analysis is based on the flawed wage differential method.³⁸ Vincent and Monkkonen report a prevailing wage cost effect ranging from 8% to 13%.³⁹

Thus, of the ten peer-reviewed studies that examine the effect of prevailing wages on school construction costs, eight provide evidence that the wage policy does not affect costs. Two other studies find positive cost effects, but the results of one of the studies are questionable because the analysis is based on the outdated wage differential method.

A series of studies by Professor Duncan have focused on the effect of Davis-Bacon prevailing wage requirements on the cost of highway resurfacing in Colorado. The first study compares the costs of projects funded by the federal government to projects financed by the State of Colorado.⁴⁰ Federal

³⁶ See Hamid Azari-Rad, Peter Philips and Mark Prus. 2003 ‘State Prevailing Wage Laws and School Construction Costs.’ *Industrial Relations*, Vol. 42, No. 3, pp. 445-457 and Hamid Azari-Rad, Peter Philips and Mark Prus.

2002. “Making Hay When It Rains: The Effect Prevailing Wage Regulations, Scale Economies, Seasonal, Cyclical and Local Business Patterns Have On School Construction Costs.” *Journal of Education Finance*, Vol.27, 997-1012.

³⁷ See Alan Atalah. 2013. “Comparison of Union and Non-Union Bids on Ohio School Facilities Commission Construction Projects,” *International Journal of Economics and Management Engineering*, Vol. 3, Issue 1, pp. 29-35.

³⁸ This 2001 study is the last peer-reviewed paper based on the wage differential method. See Keller, Edward C. and William T. Hartman. 2001 ‘Prevailing Wage Rates: the Effects on School Construction Costs, Levels of Taxation, and State Reimbursements,’ *Journal of Education Finance*, Vol. 27, pp. 713-728.

³⁹ See Jeffrey Vincent, Jeffrey and Paavo Monkkonen. 2010. “The Impact of State Regulations on the Cost of Public School Construction,” *Journal of Education Finance*, Vol. 35, No. 4, spring, pp. 313-330.

⁴⁰ See Duncan, Kevin. 2015. “The Effect of Federal Davis-Bacon and Disadvantaged Business Enterprise Regulations on Highway Maintenance Costs.” *Industrial and Labor Relations Review*, Vol. 68, No. 1, pp. 212-237.

funding requires the payment of Davis-Bacon prevailing wages while state-funded projects in Colorado are not covered by a wage policy. Resurfacing projects funded by the federal government are more costly, but are also larger and more complex than state projects. After taking these and other project characteristics into account, there is no difference in average project costs, regardless of prevailing wage coverage. This study also indicates that the level of bid competition does not vary between state and federal projects. Additional analysis compares resurfacing costs as contractors switch from federal to state projects.⁴¹ Once again, after taking differences in project size and complexity into consideration, winning bids on less-regulated state projects are not different than winning bids on federal projects that require the payment of prevailing wages. Finally, when prevailing wage and benefit rates changed from union to average rates, the relative cost of federal resurfacing projects did not change.⁴² From at least the mid-1990s until 2002, union rates prevailed for all of the job classifications involved in highway resurfacing. From April 2002 until the next wage determination in 2011, average rates prevailed for 85% of these job classifications. This represented an 18% decrease in total hourly compensation for these workers, yet the relative costs of federal projects did not change. The level of bid competition on federal projects also did not change.

Similar to the school studies in British Columbia, the studies examining highway resurfacing in Colorado examine the effect of prevailing wages from multiple perspectives. Any single study may have errors or other limitations that contribute to an imprecise measure of the relationship between prevailing wages and construction costs. This issue is minimized when a comprehensive approach is taken that consistently indicates that prevailing wages are unrelated to costs.

⁴¹ See Duncan, Kevin. 2015. "Do Federal Davis-Bacon and Disadvantaged Business Enterprise Regulations Affect Aggressive Bidding? Evidence from Highway Procurement Auction," *Journal of Public Procurement*, Vol. 15, Issue 3, pp. 291-316.

⁴² See Duncan, Kevin. 2015. "Do Construction Costs Decrease When Davis-Bacon Prevailing Wages Change from Union to Average Rates?" Working Paper, Colorado State University-Pueblo.

How can construction costs not be affected by prevailing wages? First, labor costs comprise a low and historically declining share of total costs in the construction industry. According to data from the *Economic Census of Construction*, labor costs (wages and benefits) represent 22.8% of total construction costs for the entire U.S. construction industry in 2012.⁴³ Second, peer-reviewed research indicates that, when wages increase in the construction industry, skilled workers replace less-skilled workers and more capital equipment is utilized.⁴⁴ These changes increase productivity and tend to offset the cost effect of higher wages. As the data in Figure 2 illustrates, when wages are higher, contractors reduce material, fuel, and rental equipment costs as well as profit rates. These changes increase efficiency, stabilize costs, and allow for continued competitive bids.

These types of changes are important, particularly to nonunion contractors. Prevailing wages are uneven in their effect. Since these wage rates are typically equal to or lower than rates paid by union contractors, prevailing wages do not affect the labor costs of these contractors. It is when prevailing wages exceed those paid by nonunion establishments that changes must be made to maintain

⁴³ The *Economic Census of Construction* for 2012 does not report labor costs as a percent of total costs. This ratio must be calculated based on other data. Here, labor cost as a percent of total construction cost is derived by dividing total construction worker payroll, plus proportionally allocated total fringe benefits, by the net value of construction work. The net value of construction is based on the value of work completed by a contractor, less the value of work subcontracted to other contractors. The *Economic Census of Construction* defines construction worker payroll as the gross earnings paid in the reporting year to all construction workers on the payroll of construction establishments. It includes all forms of compensation such as salaries, wages, commissions, dismissal pay, bonuses, and vacation and sick leave pay, prior to deductions such as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The *Economic Census of Construction* defines the net value of construction as the receipts, billings, or sales for construction work done by contractors, less the value of construction work subcontracted to others. The net value of construction does not include contractor business receipts from retail and wholesale trade, rental of equipment without operator, manufacturing, transportation, legal services, insurance, finance, rental of property and other real estate operations, and other nonconstruction activities. Receipts for separately definable architectural and engineering work for others are also excluded. Nonoperating income such as interest, dividends, the sale of fixed assets, and receipts from other business operations in foreign countries are also excluded. See Construction: Geographic Area Series: Detailed Statistics for Establishments: 2012. Accessed at: See Construction: Geographic Area Series: Detailed Statistics for Establishments: 2012. Accessed at:

http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2012_US_23A1&prodType=table .
⁴⁴ See William Blankenau and Steven Cassou, "Industry Differences in the Elasticity of Substitution and Rate of Biased Technological Change between Skilled and Unskilled Labor." *Applied Economics*, 2011, Vol. 43, pp. 3129-3142 and Edward Balistreri, Christine McDaniel and Eina Vivian Wong, "An Estimation of U.S. Industry-Level Capital-Labor Substitution Elasticities: Support for Cobb-Douglas." *The North American Journal of Economics and Finance*, 2003, Vol. 14, No. 3, 343-356.

competitive bids with union contractors. Since labor costs are such a low percentage of total construction costs, limited adjustments are needed to maintain stable costs when wage rates increase.

The findings of other studies are generally consistent with those described above. An examination of public works projects in five northern California cities (Palo Alto, Mountain View, San Carlos, San Jose, and Sunnyvale) finds no evidence that wage policies affect the bid process or outcome in a way that increases construction costs.⁴⁵ Professors Kim, Chang, and Philips do not find any support for the view that wage policies discourage bidding by nonunion contractors, reduce the number of bidders, or prevent nonunion contractors from winning bids on prevailing wage projects. Additionally, the authors find no statistically significant differences between the winning bid and two measures of project costs (the engineer's estimate and the median bid). Their findings indicate that prevailing wage laws of northern California cities are not associated with higher construction costs.

On the other hand, professors Dunn, Quigley, and Rosenthal used data on publicly-funded affordable housing projects in California to find that prevailing wage requirements increased subsidized-housing projects' total costs by between 9.5% and 37.9%.⁴⁶ An obvious problem with this estimate concerns the measured impact and labor costs as a percentage of total costs. It is unlikely that the total cost of construction would fall by up to 38% from a wage policy that affects only 23% of total costs.⁴⁷

⁴⁵ See JaeWhan Kim, Kuo-Liang Chang and Peter Philips, "The Effect of Prevailing Wage Regulations on Contractor Bid Participation and Behavior: A Comparison of Palo Alto, California with Four Nearby Prevailing Wage Municipalities" *Industrial Relations*, Vol. 51, Issue 4, pp. 874-891, October, 2012.

⁴⁶ See Dunn, Sarah, Quigley, John, and Rosenthal, Larry. 2005. "The Effect of Prevailing Wage Regulations on the Cost of Low-Income Housing," *Industrial and Labor Relations Review*, Vol. 59, No. 1, pp. 141-157.

⁴⁷ The authors provide 'rough' data specific to housing construction in selected California cities indicating that labor's share of construction costs range from 42% to 46% of total costs. Even if labor costs are 46% of total costs, it is unrealistic to assume that total costs would fall by up to 38%. The implication is that labor's share of total costs would fall from 46% to about 17% (0.46 x 0.38 reduction if the wage laws was repealed). This figure for labor's share of total cost (17%) is unrealistically too low.

Background on the Statistical Analysis of Prevailing Wages

This section of the report compares labor market outcomes for construction workers residing in states with strong/average prevailing wages and in states with weak/no wage policies. Data from the Annual Social and Economic Supplement (ASEC) of the *Current Population Survey* of the U.S. Census Bureau contain economic and demographic information on a large number of construction workers.⁴⁸ The *Current Population Survey* is a poll of randomly-selected households across America, jointly sponsored by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics. Data are collected through personal and telephone interviews of the civilian non-institutionalized population ages 15 years old and older. Weights are provided by statisticians at the U.S. Census Bureau to match the survey sample to the overall American population.

The Annual Social and Economic Supplement provides additional data on income and noncash benefits, including food stamps and public and private health insurance plans. In total, the dataset comprises 77,337 observations from persons connected to the construction industry across America—including 66,786 individuals who are employed—over ten years from the beginning of 2004 through the end of 2013. The 77,337 individuals surveyed over ten years is the actual sample size. When weighted to match the actual U.S. population, the data represent an average of 12.3 million Americans in construction labor force per year. This includes approximately 6.0 million employed blue-collar construction workers in an average year. Adjusting the 77,337-person sample size using weighting techniques provided by the U.S. Census Bureau to account for demographic groups who are under-sampled or oversampled allows the data to mirror the actual construction industry.⁴⁹ The information

⁴⁸ See "Poverty," *Current Population Survey* Annual Social and Economic Supplement, US Census Bureau. Accessed at: <http://www.census.gov/hhes/www/poverty/publications/pubs-cps.html>.

⁴⁹ An example of a traditionally under-sampled group is foreign-born immigrants, who may be more difficult to reach via telephone or home visits. On the other hand, an example of a traditionally oversampled group is stay-at-home parents, who are more likely to be home to take the survey, tend to have more availability on a given day, and are consequently more likely to answer survey questions.

was extracted from the Integrated Public Use Microdata Series (IPUMS-CPS) project by the Minnesota Population Center at the University of Minnesota.⁵⁰

To understand the actual and unique impact that strong/average prevailing wage laws have on worker incomes and public sector budgets, the statistical method of 'regression analysis' was utilized. This statistical technique, a "curve fitting" method, allows us to compare labor market outcomes between workers in the two groups of states, taking other individual characteristics into consideration. For example, we are able to compare earnings between individuals in states with different wage policies, taking into account other factors that also influence income (education, marital status, gender, race, etc.). This analysis allows us to ask questions such as "if the same worker moved from a state without strong/average prevailing wage legislation to a state with a strong/average prevailing wage law, how much would his or her income increase or decrease?" Statistical analysis also allows us to determine if a measured difference is statistically significant or not. A difference that is not statistically significant is likely due to chance. A statistically significant finding is an indication of a causal relationship.

The effects of residence in a state with strong/average prevailing wages on construction worker wage income, the distribution of income, poverty level status, eligibility for public assistance, health and retirement coverage, income tax contributions, etc. are examined in Part II. Two types of models are utilized in the examination. The first is referred to as the "Standard Analysis." The second, called the "Advanced Analysis," is more statistically comprehensive. For a technical explanation of each model, please see the Appendix at the conclusion of this report.

There are limitations to these statistical approaches. First, data from the *Current Population Survey* reports a worker's state of residence rather than state of employment, so the results may be

⁵⁰ See Sarah Flood, Miriam King, Steven Ruggles, and J. Robert Warren. Integrated Public Use Microdata Series, *Current Population Survey*: Version 4.0. [Machine-readable database]. Minneapolis: University of Minnesota, 2015.

biased by workers who live in states without strong/average prevailing wage laws but work in states with a strong/average prevailing wage law (e.g., living in Iowa but working in Minnesota) and vice-versa. Second, the data is based on household survey responses rather than on administrative payroll reports. There may be more potential for human error in reporting income and government assistance than official payroll records. In addition, a recent paper by Professor Bruce Meyer at the University of Chicago and Nikolas Mittag at CERGE, Charles University has found that the *Current Population Survey* and other household data considerably under-reports government transfers of income.⁵¹ Using data from New York, the researchers find that the *Current Population Survey* misses 40 percent of all Supplemental Nutrition Assistance Program (SNAP) food stamp recipients. The largest instance of underreporting is for single mother households. Blue-collar construction occupations are male-dominated, so underreporting is a smaller issue for this industry. Nevertheless, it is a potential limitation to the analysis that follows. All government assistance findings are likely to be *conservative* estimates as a result. The final limitations are those associated with all statistical models, such as lurking and unobservable variables.

Summary Statistics of the CPS-ASEC Data

Table 1 provides summary statistics for all employed blue-collar construction workers in the dataset, by state of employment. Blue-collar construction workers are defined as all workers employed in “construction occupations,” such as construction laborers, operating engineers, electricians, carpenters, plumbers, pipefitters, and painters. First-line supervisors are excluded. These numbers describe “what is.” For example, without considering any other factors, what is the average wage and salary income of a blue-collar construction worker in a state without a strong/average prevailing wage law compared to the same income in a state with a strong/average law?

⁵¹ See Bruce Meyer and Nikolas Mittag, “Using Linked Survey and Administrative Data to Better Measure Income: Implications for Poverty, Program Effectiveness and Holes in the Safety Net.” National Bureau of Economic Research (NBER), 2015, Working Paper 21676. Accessed at: <http://www.nber.org/papers/w21676>.

The blue-collar construction workforce is generally comparable in states with a weak or no prevailing wage law and in states with a strong or average law (Table 1). For blue-collar construction workers in both types of states, approximately 7-in-10 are employed by private contractors, the average age is about 38 or 39, and only 2% of the workforce is female. The construction industry employs more foreign-born immigrants in states with a weak or no prevailing wage law; a larger fraction of the workforce is white, non-Latino in states with an average or strong law. In addition, military veterans are a larger share of the construction workforce.

Data from the *Current Population Survey* (2004-2013) indicate that military veterans represent a larger share of the construction labor force (8.4%) compared to total employment in the U.S. (7.5%).⁵² In particular, veterans represent a larger share of construction occupations in states with average/strong prevailing wage policies. For example, veterans represent 8.6% of construction employment and 6.8% of the overall work force in states with average/strong prevailing wage laws. On the other hand, vets make up only 8.0% of all construction workers and 8.5% of total employment in states with no/weak prevailing wages laws. Other data reported in Table 1 indicate that construction jobs in states with at least adequate prevailing wage laws offer higher incomes and are more likely to provide self-sufficient jobs. Taken together, these data reveal how vets disproportionately chose careers in construction where the industry is more likely to provide a solid, middle-class income in states with at least average prevailing wage policies. The data also indicate that weakening or repealing prevailing wages in states with at least adequate wage policies has a disproportionate and adverse effect on veterans.

⁵² All of the differences in veteran labor force representation, described here and below, are statistically different at the 0.05 level.

Table 1. General Information on Blue-Collar Construction Workers, 2004-2013

Summary Statistics	Weak/No PWL	Strong/Average PWL
Unweighted Observations (n=)	34,735	43,602
Weighted Annual Observations (N=)	2,755,126	3,257,248
<i>Employment</i>		
Real wage and salary income*	\$32,212	\$44,095
Works for private sector	72.4%	71.6%
Self-employed	24.2%	24.6%
Works for federal government	0.4%	0.1%
Works for state government	0.9%	1.0%
Works for local government	1.9%	2.5%
<i>Demographics</i>		
Age	37.7	38.6
White, non-Latino	54.7%	65.5%
Female	2.3%	2.0%
Married	56.0%	58.1%
Foreign-born immigrant	32.9%	28.7%
Military veteran	8.0%	8.6%
<i>Education</i>		
Less than a high school degree	32.6%	20.3%
High school degree or equivalent	39.7%	48.2%
Some college, no degree	14.0%	15.5%
College degree	13.8%	16.0%
<i>Poverty, Government Assistance, and Taxes</i>		
Lives below official poverty line	15.2%	9.4%
Receives SNAP assistance	9.2%	5.1%
Real SNAP value (for recipients)**	\$3,103	\$3,113
Receives Earned Income Tax Credits (EITC)	15.3%	12.2%
Real EITC value (for recipients)**	\$2,134	\$2,026
Real federal income taxes paid, after credits**	\$1,964	\$3,289

Source: Current Population Survey, Annual Social and Economic Supplement (2004-2013).

*Adjusted for both inflation (Consumer Price Index) and regional differences (Regional Price Parities Index).

**Adjusted only for inflation (Consumer Price Index).

As shown in Table 1, personal economic outcomes contrast starkly. After adjusting for both inflation and regional price parities, the average wage and salary income for blue-collar construction workers is \$44,095 in states with a strong or average prevailing wage law, or \$11,883 greater than their counterparts in states with a weak or no law (\$32,212). While prevailing wage may be responsible for a portion of this income differential, many other factors also improve incomes in states with prevailing wage protections. For example, blue-collar construction workers are better educated in states with a strong or average prevailing wage law, where 79.7% have at least a high school degree or equivalent

compared to 67.4% in states with a weak or no law. This includes 31.5% of workers with at least some college education in average/strong prevailing wage states compared to just 27.8% in weak/average law states.

Other data reported in Table 1 indicate that approximately 9.4% of construction workers in states with strong/average prevailing wages earn an income that places them below the official poverty line, but the analogous working poverty rate is 15.2% in states without effective protections. As a result, fewer blue-collar construction workers receive SNAP assistance (5.1%) and Earned Income Tax Credits (12.2%) in states with strong/average prevailing wage laws than in those without (9.1% and 15.3%, respectively). Due to their higher personal incomes, blue-collar construction workers in states with strong/average prevailing wage laws contribute \$3,289 per year in federal income taxes after credits and deductions on average. Their equivalents in states without an adequate law only contribute \$1,964 on average in annual federal income taxes after credits and deductions. Construction workers in states with a strong or average prevailing wage law generate more tax revenue and receive less government assistance.

Table 2 translates the government assistance and tax outcomes reported in Table 1 into actual dollar values. By multiplying the total recipients of a government program by the average real value of the public assistance, we estimate the cost of government assistance to taxpayers. Despite having fewer total blue-collar construction workers (2.76 million workers) than states with adequate laws (3.26 million workers), states with a weak or no law cost American taxpayers more in food stamps (SNAP assistance) paid to blue-collar construction workers—\$786.5 million to \$512.1 million— and more in Earned Income Tax Credits deducted from tax receipts—\$896.8 million to \$803.9 million. Construction workers of states with a strong or average prevailing wage law, meanwhile, add almost *twice* as much in federal income tax revenues to support these programs. Data from the *Current Population Survey* suggest that Internal Revenue Service collects an estimated \$10.7 billion in income

taxes paid by blue-collar construction workers every year in states with strong/average prevailing wage laws compared to only about \$5.4 billion per year from their counterparts in other states.

Table 2. Public Assistance for, and Tax Contributions of, Blue-Collar Construction Workers

Government Assistance and Tax Contributions	Weak/No PWL	Strong/Average PWL
Total SNAP recipients	253,472	164,491
Real SNAP assistance value	\$3,103	\$3,113
<i>Estimated total SNAP assistance</i>	<i>\$786.5 million</i>	<i>\$512.1 million</i>
Total EITC recipients	420,157	396,733
Real EITC value	\$2,134	\$2,026
<i>Estimated total EITC assistance</i>	<i>\$896.8 million</i>	<i>\$803.9 million</i>
Total blue-collar construction workers	2,755,126	3,257,248
Real federal income taxes paid, after credits	\$1,964	\$3,289
<i>Estimated total EITC assistance</i>	<i>\$5,411.1 million</i>	<i>\$10,713.1 million</i>

Source: Current Population Survey, Annual Social and Economic Supplement (2004-2013).

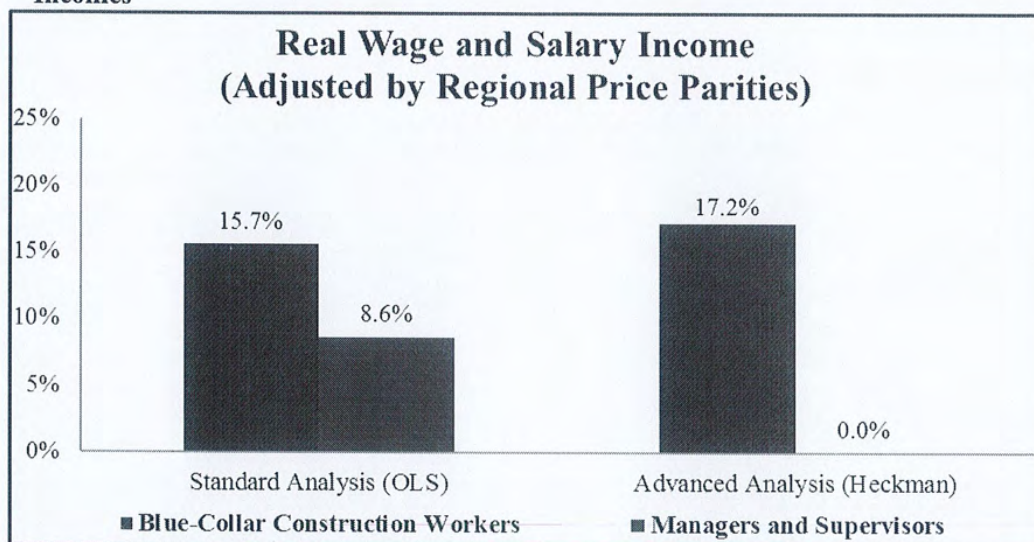
Prevailing Wages, Worker Incomes, and Worker Self-Sufficiency

While the summary statistics of Tables 1 and 2 report “what is,” the remainder of Part I investigate “how much” strong or average prevailing wage legislation is uniquely responsible for these outcomes. Determining the causal impact of prevailing wage after netting out the effects of all other variables allows us to assess the consequences of repealing or weakening prevailing wage laws in the 25 states with average/strong policies.

Results reported in Figure 1 indicate that residing in a state with at least average prevailing wages increases incomes in the construction industry. Even after accounting for all other factors, a strong/average prevailing wage increases a blue-collar construction worker’s earnings by between 15.7% and 17.2% per year. These results are statistically significant. Prevailing wage legislation has a much smaller impact on managers and supervisors in the construction industry. While the Standard Analysis finds that prevailing wage increases the wage and salary income of an average manager or supervisor by about 8.6%, the more comprehensive Advanced Analysis finds that prevailing wage neither raises nor reduces his or her earnings. By substantially improving the incomes of blue-collar

construction workers and having a smaller or no effect on their managers and supervisors, prevailing wage helps to reduce income inequality in the construction industry.

Figure 1. The Impact of Strong/Average Prevailing Wage on Real Wage and Salary Incomes

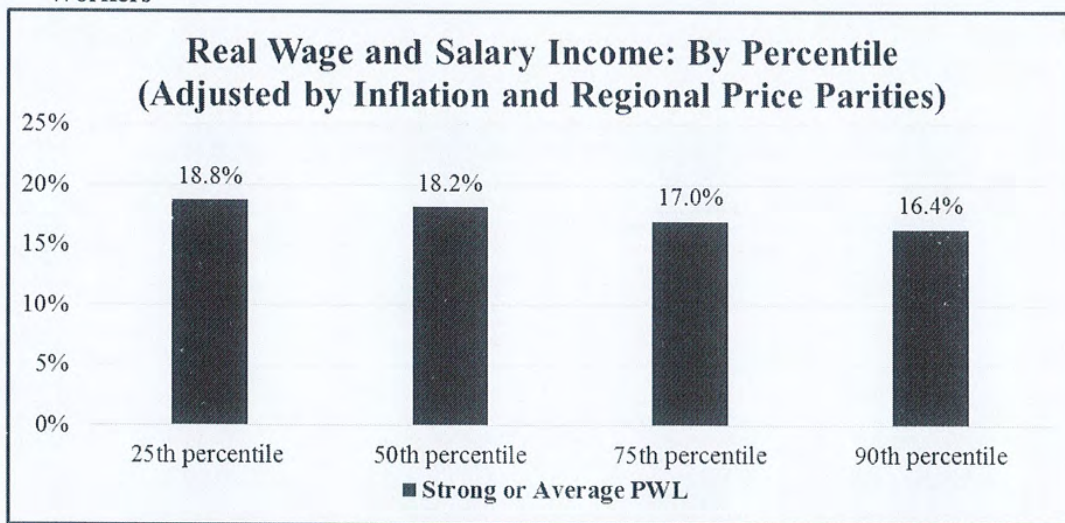


Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013). For partial regression results, please see the Appendix following the conclusion of this report.

While prevailing wage reduces income inequality between blue-collar construction workers and construction managers and supervisors, the policy also raises and compresses earnings *within* the blue-collar construction workforce. Results reported in Figure 2 detail the effects of the wage policy on the distribution of income for different blue-collar construction worker earnings levels. Strong or average prevailing wage laws increase the incomes of all construction workers in a statistically significant way. The effects are largest at the lower ends of the income distributions. For example, strong or average prevailing wage laws increase earnings by 18.8% for the 25th percentile, versus 18.2% for the median worker. The increase for the top 10 percent of blue-collar construction workers (the 90th percentile) is only 16.4%. The results illustrate how adequate prevailing wage policies improve personal incomes for all construction workers but benefit low-income and workers most. Strong or average prevailing

wage laws are an effective institution that reduces wage inequality in the construction industry, fostering middle-class incomes for construction workers and their families.

Figure 2. Prevailing Wage and the Distribution of Income for Blue-Collar Construction Workers

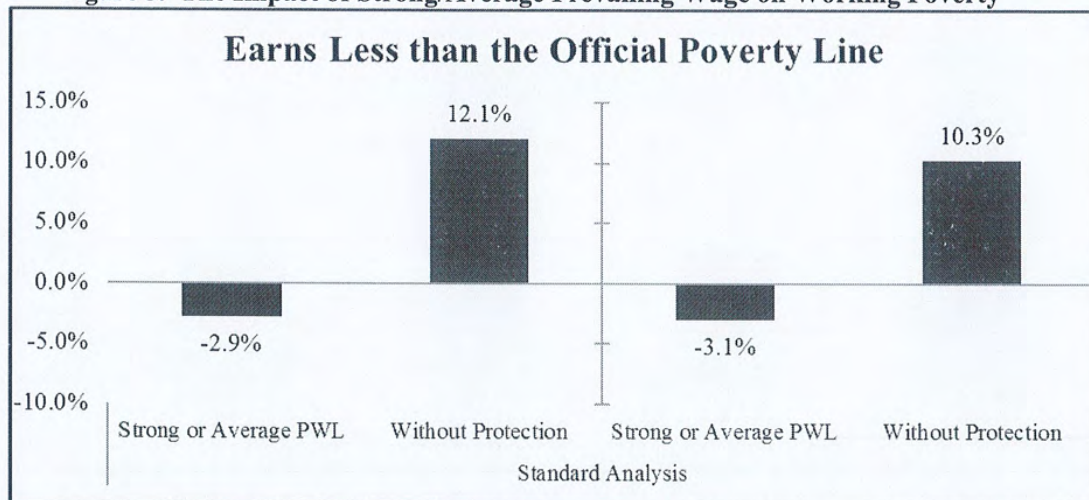


Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013). For partial regression results, please see the Appendix following the conclusion of this report.

The finding that prevailing wage legislation has larger benefits for the lowest-paid workers is reflected in an analysis of the working poverty rate for blue-collar construction workers. Data reported in Figure 3 reveals that strong/average prevailing wages decrease the probability that a construction worker will earn an income below the official poverty level by about 3 percentage points. Independent of all other observable factors (including race, gender, and education), the chances that a blue-collar construction worker, who is not a union member and does not live in a state with at least average prevailing wages, will earn an income below the poverty line is between 10.3% and 12.1%. Those baseline estimates are reported in Figure 3 as a state economy “without protections” for workers because they are also independent of the effect of union membership and adequate prevailing wage requirements. The Advanced Analysis indicates that the number of construction workers in poverty in states with a weak or no law would be reduced by 30% if they enacted or strengthened prevailing

wage.⁵³ Strong/average prevailing wages significantly reduce the poverty rate for construction workers.

Figure 3. The Impact of Strong/Average Prevailing Wage on Working Poverty



Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013). For partial regression results, please see the Appendix following the conclusion of this report.

A common argument against prevailing wage laws is that they exclude non-white workers from employment in the construction industry. The current evidence that prevailing wage discriminates against non-white workers is founded on weak and incomplete analyses which, if corrected, do not support the argument. Vedder and Galloway find that federal and state prevailing wage laws were associated with a reduced proportion of African-Americans in the construction labor force.⁵⁴ The finding, however, is merely descriptive (i.e., a “what is” analysis) and fails to control for other factors which may influence the results (i.e., a “how much” analysis). Thieblot slightly improves on their study by adjusting 1990 Census data on the proportion of African-Americans in the construction labor force to the racial composition of the share of African-Americans who are employed overall.⁵⁵ His research also suggests that prevailing wages discriminate against hiring African-Americans. However,

⁵³ -3.1 percentage points ÷ 10.3 percentage points = -30.1%.

⁵⁴ See Vedder, R. and D. Galloway. (1995). “Cracked Foundation: Repealing the Davis-Bacon Act.” Center for the Study of American Business.

⁵⁵ See Thieblot, A. (1999). “Prevailing Wage Laws and Black Employment in the Construction Industry” *Journal of Labor Research*. Volume XX, Number 1.

Thieblot also does not allow for other meaningful factors to determine outcomes, rendering much of his analysis statistically meaningless.

Table 3 provides results from an advanced analysis of employment in the construction industry. The analysis controls for the type of worker who typically enters the construction industry. Certain individuals may be more likely to want to work a blue-collar construction job based on a number of factors, including their level of education, their age, and whether or not the state has a prevailing wage law that they might expect to raise their lifetime personal earnings. Once we have accounted for the type of worker who typically wants to work in construction, we investigate the impact of strong or average prevailing wage laws on the probability that a non-white worker has a construction job, the probability that a female worker has a job, and the probability that a foreign-born immigrant has a job. Note that this analysis does not explore whether prevailing wage encourages or discourages a given worker from seeking employment in a blue-collar construction occupation; rather, it explores impacts on workers who self-select into the trades and want to work a blue-collar construction job.

Without considering the impact of a strong or average prevailing wage law, the results indicate that non-white and female workers are less likely to work in construction overall (Table 3). Compared to white, non-Latino individuals, minority workers are 7.6 percentage points less likely to work a blue-collar construction job. Similarly, a female worker is 32.3 percentage points less likely than a comparable male worker from being employed in a blue-collar construction job, regardless of whether the state has an adequate prevailing wage law or not. Foreign-born immigrant workers, on the other hand, are statistically no more or less likely to work in construction than native-born residents. The presence of a strong or average prevailing wage law actually *increases* the chances that any given worker who wants to work in construction actually has a blue-collar construction job by 4.2 percentage points— independent of the person's race, gender, or place of birth.

The evaluation of “how much” a strong or average prevailing wage law specifically affects minority employment in a construction occupation produces results that are at odds with the “what is” analyses by Vedder and Galloway and by Thieblot (Table 3). After netting out the general fact that non-white and female workers are less likely to be employed in a construction job regardless of where they live, a strong or average prevailing wage law actually increases the likelihood that a non-white individual worker in a construction occupation by a statistically significant 5.6 percentage points. This impact is *in addition to* the 4.2 percentage-point increase in the probability of employment due to strong/average prevailing wage laws for all workers. Prevailing wage has no statistically significant effect on female employment in construction other than the 4.2 percentage-point increase provided to all workers. On the other hand, a strong or average prevailing wage law decreases the chance that a foreign-born immigrant is employed in a blue-collar construction job by 8.9 percentage points.

This analysis has three implications. First, strong or average prevailing wage laws increase non-white employment in construction occupations and help to correct a racial employment gap that persists in construction regardless of wage policy. Second, strong or average prevailing wage laws have no discriminatory employment effect for women compared to men. Finally, prevailing wage laws reduce the chances of employment of foreign-born workers. The laws improve outcomes for a non-white worker, as long as he or she is not an immigrant to the United States. This aligns with a finding by Professor Philips that states with prevailing wage laws tend to address skilled labor shortages through industry-sponsored apprenticeship programs for local workers, while the response in states without prevailing wage laws is to advocate for guest-worker programs which increase labor supply and drive down worker wages.⁵⁶

⁵⁶ See “Wisconsin’s Prevailing-Wage Law: An Economic Impact Analysis,” by Peter Philips, April, 2015. Accessed at http://www.wisconsincontractorcoalition.com/application/files/9914/2889/7832/Wisconsin_Report_April_2015.pdf.

Table 3. The Impact of Strong/Average Prevailing Wage on the Likelihood of Employment

Probability of Being Employed in a Blue-Collar Construction Job	Independent Effect
Non-white	-7.6%
Female	-32.3%
Foreign-born immigrant	0.0%
Strong/average PWL	+4.2%
<i>Interaction: Strong/average PWL & Non-white</i>	+5.6%
<i>Interaction: Strong/average PWL & Female</i>	0.0%
<i>Interaction: Strong/average PWL & Immigrant</i>	-8.9%

Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013). For partial regression results, please see the Appendix following the conclusion of this report.

In addition to higher personal incomes, reduced income inequality in construction, reduced racial employment inequality in construction, and fewer workers below the official poverty line, strong/average prevailing wages increase the likelihood that a worker has both health insurance coverage and a pension plan available at work (Table 4). An effective state prevailing wage law increases the probability that a construction workers is covered by health insurance in the past month by between 8.0 and 9.8 percentage points (see Advanced and Standard Analysis). The baseline without worker protections is 59% to 60%, meaning that three-in-five construction workers would be covered by a health insurance plan even without prevailing wage or union membership. However, with effective prevailing wage legislation increasing coverage by 8.0 percentage points in the Advanced Analysis, a construction worker would have a 68% chance of having a health care plan.⁵⁷ All of these results are statistically significant. Prevailing wage helps to significantly increase private health coverage, ensuring that construction workers are self-sufficient and not forced to rely on public insurance programs.

⁵⁷ 60.3 percentage points + 24.8 percentage points + 8.0 percentage points = 93.1 percentage points.

Table 4. The Impact of Strong/Average Prevailing Wage on the Likelihoods of Health Insurance Coverage and Pension Plan Coverage

Economic Outcome	Standard Analysis		Advanced Analysis (Heckman)	
	Strong/Average PWL	Without Protection (No Strong/Ave PWL, No Union)	Strong/Average PWL	Without Protection (No Strong/Ave PWL, No Union)
Has Health Insurance	+9.8%	59.1%	+8.0%	60.3%
Has a Pension Plan at Work	+3.8%	26.1%	+0.0%	38.7%

Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013). For partial regression results, please see the Appendix following the conclusion of this report. "Without protection" indicates that the individual worker does not live in a state with a strong or average prevailing wage law and is not a member of a labor union.

Other academic research that examines the benefits of prevailing wage laws by Professor Waddoups has explored the connection between the lack of employment-based health insurance and the disproportionate uncompensated care costs that accrue to public hospitals and, by extension, the community.⁵⁸ In particular, Waddoups' study documented the particularly low incidence of employment-based health insurance among construction workers and the corresponding disproportionately high incidence of uncompensated care among construction workers at a local public hospital. The findings clearly demonstrate that a large share of uncompensated care is attributable to the construction industry relative to its size, which means that local taxes supporting the hospital are higher than they would otherwise be. To the extent that cross-subsidies from paying patients cover uncompensated care costs, prices of health care— and thus, insurance prices— are higher than they would be without the high levels of uncompensated care.

Data reported in Table 4 also indicate that strong/average prevailing wages increase the probability that a construction worker is enrolled in a pension plan at work by up to 3.8 percentage points. The Advanced Analysis finds a positive but statistically insignificant effect of prevailing wage,

⁵⁸ See Jeff Waddoups, "Health Care Subsidies in Construction: Does the Public Sector Subsidize Low Wage Contractors?". Accessed at: http://www.researchgate.net/publication/237102337_Health_Care_Subsidies_in_Construction_Does_the_Public_Sector_Subsidize_Low_Wage_Contractors.

so the results are reported as 0.0%. The 3.8 percentage-point effect indicates that the wage policy contributes towards increased worker self-reliance and less dependency on government retirement programs.

Prevailing Wage, Reliance on Public Assistance, and Worker Tax Contributions

Prevailing wage raises and compresses worker earnings, fostering self-sufficient construction workers. In theory, these economic outcomes should reduce reliance on government programs and should enhance public sector budgets. This subsection investigates whether this intuition is true, evaluating “how much” prevailing wage impacts public assistance payments and tax revenue contributions.

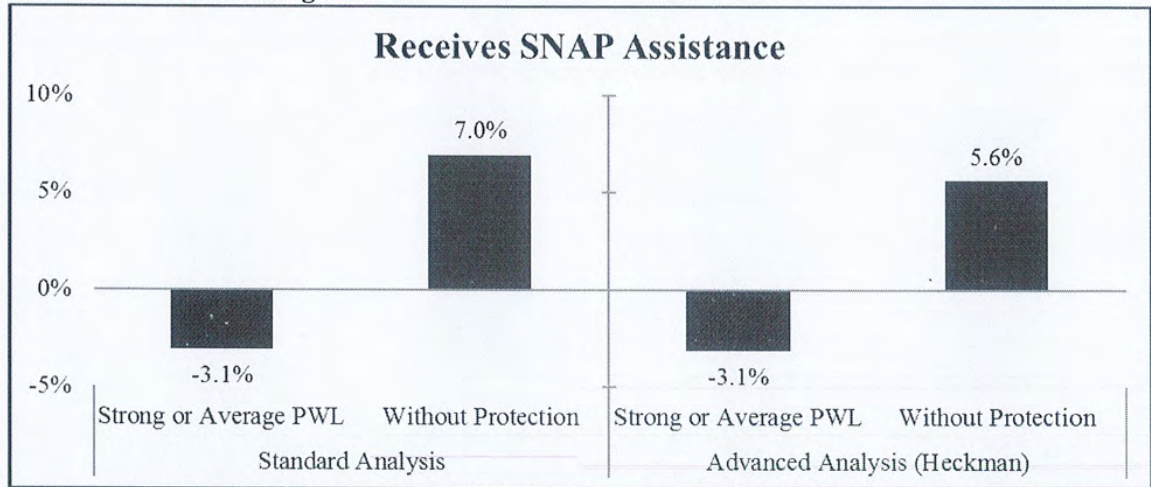
Results reported in Figure 4 indicate that strong or average prevailing wage laws reduce the probability that a blue-collar construction worker receives Supplemental Nutrition Assistance Program (SNAP) aid by 3.1 percentage points. This finding is statistically significant in both the Standard Analysis and the Advanced Analysis. The “without protection” baseline in the Advanced Analysis is 5.6%, meaning that individual construction workers living in a weak or no law state who are not members of a labor union have a 5.6% chance of relying on food stamps. Prevailing wage, on the other hand, lowers this likelihood to 2.5%. In other words, the total number of construction workers receiving food stamp assistance is currently 55% lower in states with strong or average prevailing wage laws on average than it otherwise would be if the states had a weak or no law.⁵⁹

The Earned Income Tax Credit (EITC) is a benefit for working people who have low to moderate income. Strong or average prevailing wages decrease the probability of qualifying for the EITC by about 1 percentage point (Figure 5). Results for the Advanced Analysis are statistically insignificant, but the Standard Analysis finds that prevailing wage reduces EITC reliance by 1.1 percentage point. Relative to the baseline without worker protection from prevailing wage or a labor

⁵⁹ $-3.1 \text{ percentage points} \div 5.6 \text{ percentage points} = -55.4\%$.

union, prevailing wage lowers the number of blue-collar construction workers receiving this federal government assistance by about 8%.⁶⁰ In other words, the total number of construction workers who get Earned Income Tax Credits is currently 8% lower in states with strong or average prevailing wage laws on average than it otherwise would be if the states had a weak or no law.

Figure 4. The Impact of Strong/Average Prevailing Wage on Reliance on Supplemental Nutrition Assistance Program



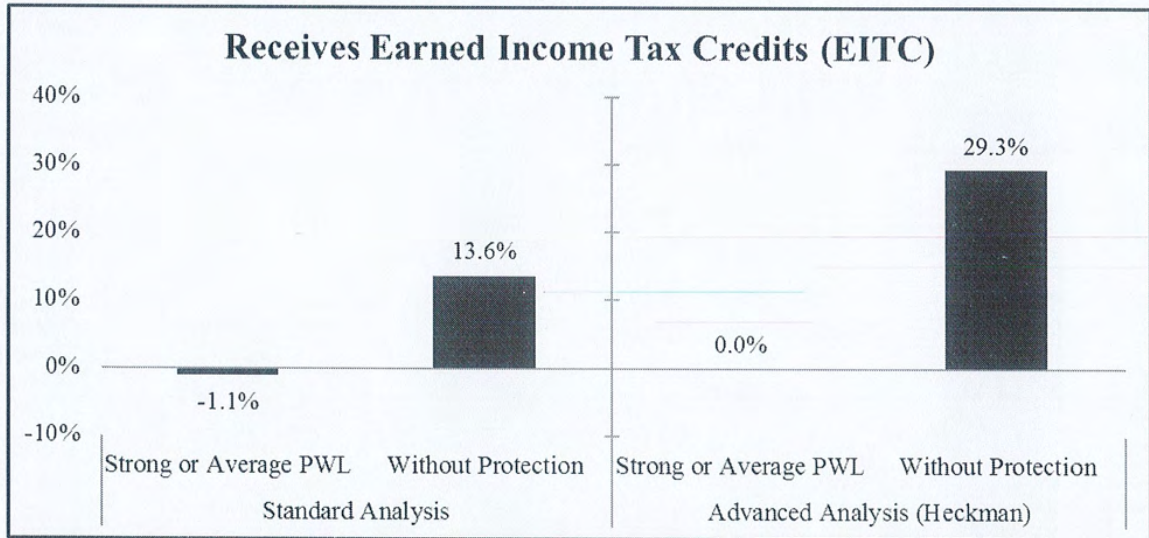
Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013). For partial regression results, please see the Appendix following the conclusion of this report. "Without protection" indicates that the individual worker does not live in a state with a strong or average prevailing wage law and is not a member of a labor union.

The higher incomes associated with strong or average prevailing wage laws preclude blue-collar construction workers from receiving public assistance. Blue-collar construction workers are more likely to be self-sufficient in states with effective prevailing wage laws. This lowers costs borne by taxpayers. Simultaneously, the higher worker earnings from prevailing wages also increase the contributions of blue-collar construction workers to the federal budget (Table 5). Without worker protections from prevailing wage or a labor union, the average blue-collar construction employee annually pays \$2,631 in real federal income taxes after credits and deductions. By living in a state with a strong or average prevailing wage law, however, the average blue-collar construction worker

⁶⁰ -1.1 percentage points ÷ 13.6 percentage points = -8.1%.

sees a \$1,057 hike in his or her federal income tax liability after credits and deductions— due to the accompanying increase in his or her personal income. As discussed in previous sections, this added income is also spent throughout the economy, which increases state income tax revenues, local property tax revenues, and state and local sales tax revenues. Strong/average prevailing wage policies therefore positively impact the public budget by adding tax revenues and cutting public assistance expenditures.

Figure 5. The Impact of Strong/Average Prevailing Wage on Reliance on the Earned Income Tax Credit



Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013). For partial regression results, please see the Appendix following the conclusion of this report. "Without protection" indicates that the individual worker does not live in a state with a strong or average prevailing wage law and is not a member of a labor union.

Table 5. The Impact of Strong/Average Prevailing Wage on Federal Income Tax Liability

Economic Outcome	Strong/Average PWL	Without Protection
Real federal income taxes paid (after credits and deductions)	+\$1,057	\$2,631

Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013). For partial regression results, please see the Appendix following the conclusion of this report. "Without protection" indicates that the individual worker does not live in a state with a strong or average prevailing wage law and is not a member of a labor union.

Finally, Table 6 aggregates the findings of Part II to forecast both the number of affected workers and the total dollar impact on the federal budget from weakening prevailing wage. Note that, given the finding by Professors Meyer and Mittag that government assistance is actually underreported by the *Current Population Survey* Annual Social and Economic Supplement (ASEC), Table 6 likely provides conservative estimates.⁶¹ If all states with strong or average prevailing wage legislation weakened or outright repealed their laws, blue-collar construction workers earning an income below the poverty line would increase by 3.1 percentage points, resulting in an estimated 99,000 newly impoverished workers. Weakening or repealing prevailing wage laws across the nation would result in 319,000 construction workers losing their health insurance coverage and 124,000 construction workers losing their pension plan at work, resulting in increased reliance on public insurance programs.⁶² In addition, weakening or repealing prevailing wage laws across the country would be expected to increase blue-collar construction worker enrollment in the Supplemental Nutrition Assistance Program (SNAP) by 102,000 workers, translating into an additional \$308.5 million cost to taxpayers every year. Similarly, an estimated 36,000 more construction workers would receive Earned Income Tax Credits,

⁶¹ See Bruce Meyer and Nikolas Mittag, "Using Linked Survey and Administrative Data to Better Measure Income: Implications for Poverty, Program Effectiveness and Holes in the Safety Net." National Bureau of Economic Research (NBER), 2015, Working Paper 21676. Accessed at: <http://www.nber.org/papers/w21676>.

⁶² It is important to note that these are all, in essence, non-union construction workers. The method of statistical analysis utilized in this report investigates the impact of weakening or repealing prevailing wage independent of all other factors, including union membership. The analysis assumes that weakening or repealing prevailing wage laws would have no impact on union membership (i.e., that the number of union members in construction would be the same before and after the policy change). Given that unions statistically increase construction worker incomes (especially for low-wage workers) and significantly reduce the chances that a given workers lives below the poverty line, receives SNAP assistance, and gets EITC reimbursements, these numbers almost exclusively reflect changes in the non-union construction market. If union membership were to decline as a result of weakening or repealing prevailing wage, the estimated impacts would be larger.

costing taxpayers another \$74.6 million a year. At the same time, the loss in construction worker earnings would be accompanied by a loss in federal income tax contributions of over \$3.4 billion from blue-collar construction workers. Combined, the drop in federal income tax revenues plus the increase in food stamp and EITC costs for blue-collar construction workers would further strain the federal budget by almost \$4 billion every year.

Table 6. Estimated Impact of Weakening or Repealing Prevailing Wages on Public Budgets

Economic or Public Sector Budget Outcome	Percentage Point Change	Workers Affected	Average Value	Total Impact on Public Budgets
Lives below the official poverty line	+3.1%	+99,000	--	--
Has health insurance	-9.8%	-319,000	--	--
Has a pension plan available at work	-3.8%	-124,000	--	--
Supplemental Nutrition Assistance Program (SNAP)	+3.1%	+102,000	\$3,107	+308.5 million
Earned Income Tax Credit (EITC)	+1.1%	+36,000	\$2,082	+\$74.6 million
<i>Federal income taxes paid, after credits and deductions</i>	--	<i>3,260,000</i>	<i>-\$1,057</i>	<i>-\$3,442.9 million</i>

Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013).

This predictive national analysis can be applied to states that are considering repealing or weakening their prevailing wage laws. Note that it is a “static” assessment and assumes that nothing else changes other than the weakening or repeal of a prevailing wage law. For example, the analysis assumes that union membership is unchanged in construction occupations. It also assumes that prevailing wage alterations are not packaged with other policy changes, such as an increase in guest worker programs to address labor shortages.

Table 7 applies the national impacts to Wisconsin and Michigan, two Midwestern states that have recently considered changing their prevailing wage laws. The top-line figures in Table 7 are the average annual number of blue-collar construction workers in each state from 2004 through 2013. These estimates do not include extraction occupations, which are often grouped with construction

workers, and do not include first-line supervisors or managers. The rest of the table incorporates the data to understand how each state would be different by weakening or repealing their prevailing wage laws, reported in percentage values and total worker values. All total worker estimates are rounded to the nearest hundred.

Table 7. Estimated Impact of Weakening or Repealing Prevailing Wages on Government Assistance in Two Midwestern States

Midwestern States: Economic or Public Sector Budget Outcome	Wisconsin		Michigan	
	Actual (2004-2013)	With Weakened or No PWL	Actual (2004-2013)	With Weakened or No PWL
Average workers in construction occupations	77,600	77,600	138,500	138,500
Lives below the official poverty line	4.9%	7.9%	7.5%	10.6%
	3,800	6,100	10,400	14,700
Supplemental Nutrition Assistance Program (SNAP)	3.7%	6.8%	4.9%	8.0%
	2,900	5,300	6,700	11,100
Earned Income Tax Credit (EITC)	10.7%	11.8%	9.2%	10.3%
	8,300	9,200	12,800	14,300
Has health insurance	72.6%	62.8%	72.3%	62.5%
	56,400	48,700	100,100	86,600
Has a pension plan available at work	38.1%	34.3%	35.5%	31.7%
	29,600	26,600	49,200	43,900

Source: Authors' analysis of the Current Population Survey, Annual Social and Economic Supplement (2004-2013).

The data forecast that thousands of Midwestern construction workers would be forced to rely on government assistance if Wisconsin and Michigan weakened or repealed their prevailing wage laws (Table 7). In Wisconsin, approximately 2,300 workers earning a sufficient wage would experience an earnings decline that would put them below the official poverty line. This would result in about 2,400 new Wisconsin workers receiving food stamps and 900 more relying on EITC assistance. An estimated 7,700 blue-collar construction workers would lose health insurance coverage and

approximately 3,000 blue-collar construction workers would lose their employer-provided pension plan across the Badger State. The results are comparable for Michigan, which has a larger construction industry. Approximately 4,300 workers more would earn below the official poverty line, resulting in about 4,400 new Michigan workers receiving food stamps and 1,500 more relying on EITC assistance. An estimated 13,500 blue-collar construction workers would lose health insurance coverage and approximately 5,300 blue-collar construction workers would lose their employer-provided pension plan across the Wolverine State. In both states, the increase in workers relying on public assistance, tax assistance, public health insurance systems, and the public retirement system would all increase costs to taxpayers.

II: Economic Impact of Weakening State Prevailing Wage Laws

The IMPLAN Economic Impact Software

The economic impact analysis reported in this section is based on the IMPLAN software to measure the ripple, or multiplier effects of changes to the state-level prevailing wage policies. Specifically, this software is used to estimate the impact on national economic activity, employment, and tax revenue. IMPLAN (IMPact analysis for PLANning) was originally developed by the U.S. Department of Agriculture to assist the Forest Service with land and resource management planning. The Minnesota IMPLAN Group (MIG, Inc.) started work on the data-driven model in the mid-1980s at the University of Minnesota. The software was privatized in 1993 and made available for public use. The software contains an input-output model with data available at the zip-code, county, state, and national levels.

Input-output analysis measures the inter-industry relationships within an economy and is particularly useful in analyzing policy alternatives. Specifically, input-output analysis is a means of measuring the market transactions between businesses and between businesses and consumers. This

framework allows for the examination of how a change in one sector affects the entire economy. In this way, input-output analysis is able to analyze the economic effects of changes in construction industry cost components and spending leakages by measuring the multiplier, or ripple effect, as an initial change in one industry stimulates further changes in transactions between other businesses and households. The results reported in this study are based on industry figures from the 2012 *Economic Census of Construction*, income distributions in the 2011 5-year *American Community Survey*, and 2007-2009 health care industry spending proportions from the *National Health Expenditures Survey*. IMPLAN deflators are used to adjust for changes in prices over time. The results are reported in constant 2015 dollars.

The Economic Impacts of Prevailing Wages: Effect of Spending Leakages

There are several ways prevailing wages affect economic activity in a region. First, prevailing wage laws are associated with a greater employment of local contractors and construction workers. When public construction funds are used to employ local companies and workers, local economic activity increases. The effect of higher incomes and spending ripples through the economy affecting industries that are not directly related to the construction industry. When prevailing wages are repealed or weakened, the opposite takes place. More funds leak out of the area economy as more contractors from other regions replace local contractors and their employees.

Previous research has investigated this aspect of prevailing wages. An examination of library construction in Santa Clara County, California found that 71% of subcontractors employed on prevailing wage projects were county residents.⁶³ When prevailing wages were not paid, only 12% of subcontractors resided within the county. Had 16 libraries— with a combined project value of \$177 million— been built without prevailing wages, economic activity in the county would have decreased

⁶³ See “Economic, Fiscal and Social Impact of Prevailing Wage on San Jose, California,” Economic Policy Brief, April 25, 2011. Accessed at: http://wpusa.org/5-13-11%20prevailing_wage_brief.pdf.

by over \$11 million, over 100 jobs would have been lost, and county sales and tax revenues would have fallen by approximately \$128,000.

Elsewhere we have examined the economic impact associated with weakening or repealing prevailing wages in Wisconsin and Michigan.⁶⁴ These studies measured the combined effects of increased work completed by out-of-state contractors as well as the impact associated with changes in construction cost components that vary with prevailing wage status. The leakage associated with the increased work completed by out-of-state contractors dominates the overall economic effect weakening or repealing prevailing wages.⁶⁵ In this study we report the leakage impact separately. For example, if Wisconsin weakened its prevailing wage law an additional \$500 million in private and public construction value would be completed by out-of-state contractors. Because of this leakage, economic activity would decrease in the state by approximately \$1.1 billion. Total employment would decrease by over 6,700 jobs and state and local tax revenue would decrease by over \$40 million dollars. These are annual impacts that would be sustained every year after the weakening of the wage policy. Evidence from Michigan is consistent with these results. Repeal of Michigan's prevailing wage policy would be associated with increased work by contractors from surrounding states of approximately \$670 million. This leakage would decrease economic activity by about \$1.5 billion, reduce state-wide employment by over 9,700 jobs and decrease state and local tax revenue by over \$55 million. Like the Wisconsin impact, the effect on the Michigan economy is not a one-time impact, but would decrease economic activity on an annual basis.

⁶⁴ See "How Weakening Wisconsin's Prevailing Wage Policy Would Affect Public Construction Costs and Economic Activity," by Kevin Duncan and Alex Lantsberg, May 22, 2015. Accessed at: <http://www.faircontracting.org/wp-content/uploads/2015/05/How-Weakening-Wisconsin%E2%80%99s-Prevailing-Wage-Policy-Would-Affect-Public-Construction-Costs-and-Economic-Activity2.pdf> and "The Cost of Repealing Michigan's Prevailing Wage Policy: Impacts on Total Construction Costs and Economic Activity," by Kevin Duncan, Alex Lantsberg, and Frank Manzo IV, June 17, 2015. Accessed at: <http://illinoisepi.org/countrysidenonprofit/wp-content/uploads/2014/06/The-Cost-of-Repealing-Michigans-PWL-FINAL.pdf>.

⁶⁵ The leakage impact represents 88% of the total impact associated with repeal or weakening prevailing wages in Michigan. The corresponding figure for the Wisconsin impact is 92%.

This current study examines the economic impact associated with changes in construction industry cost components with a change in prevailing wage policy. Construction establishments in states with strong and average prevailing wage laws have higher construction worker wage and benefit costs, lower material and fuel costs, and lower retained earnings by contractor firms. Establishments in states with no or weak prevailing wage regulations have lower construction worker wage and benefits costs, higher material and fuel costs, and higher retained earnings for contractors. The economic impact analysis used in this current study measures the net effect on *national* economic activity as these cost components change with changes in prevailing wage policies. Specifically, we measure the impact on the U.S economy if the 25 states with average or strong prevailing wage laws (in 2012) were to weaken or repeal their wage policies and alter the component costs accordingly.

Economic Impact on the U.S. Economy of Weakening or Repealing Prevailing Wage Laws in 25 States with Average or Strong Wage Polices

The economic impact is based on differences between states with strong/average prevailing wage laws and those with weak/no wage laws. To illustrate these differences, the United States is divided into two groups: 25 states with “average” and “strong” prevailing wage laws and 25 states with “weak” or no prevailing wage laws. Figure 5 maps the states by their prevailing wage status. We rely on several sources to determine the “strength” of state-level policies.⁶⁶ Armand Thieblot rated state-level prevailing wage laws based on factors including coverage thresholds, type of work excluded/included, and the determination of wage rates, etc.⁶⁷ Thieblot’s numeric rating ranges from 2 (for a state law with very low strength) to 17 (for a law with very high strength). The weighted

⁶⁶ We define the strength of a law on the ability to protect local wages on public projects from the depressing influence of nonlocal contractors.

⁶⁷ See Thieblot Armand J.1995. “*State Prevailing Wage Laws.*” Prepared for Associated Builders and Contractors, Inc.

average across all states with prevailing wage laws is 9.8. We updated Thiéblot’s classifications reflective of subsequent policy changes and other research.⁶⁸

Figure 5. Strong and Average Prevailing Wages Law States vs. Weak and No Law States

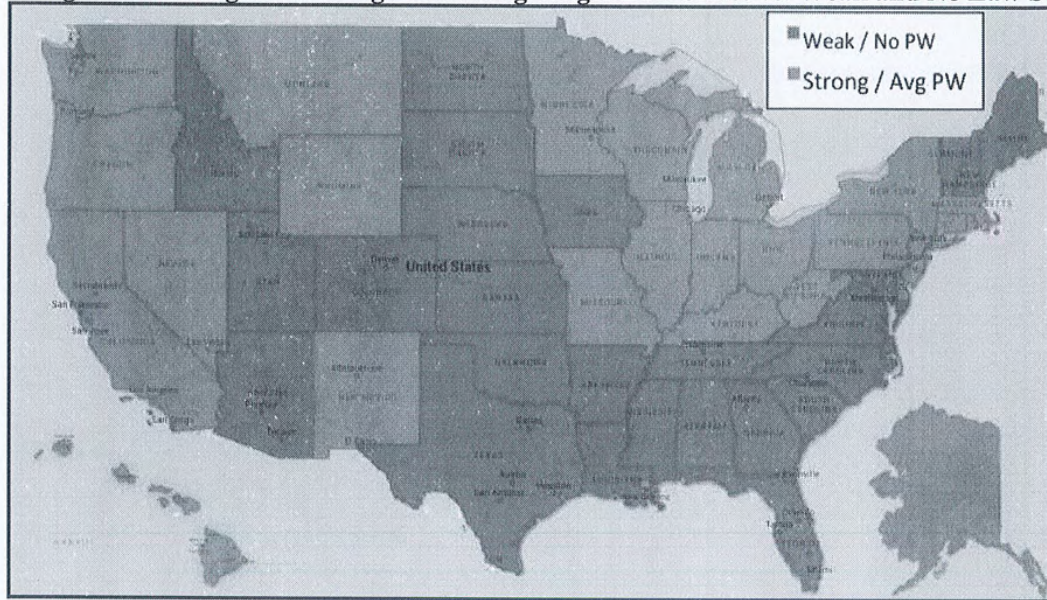
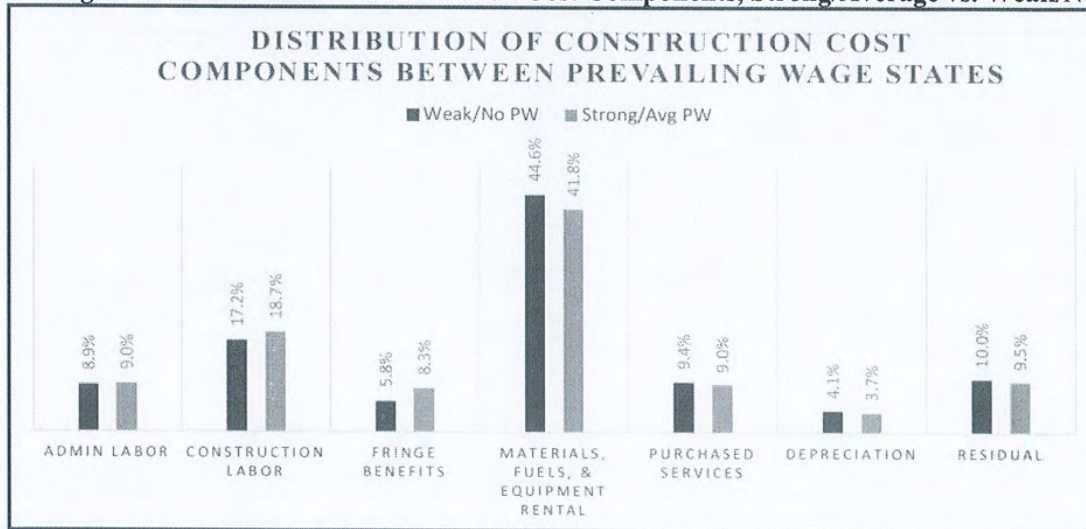


Figure 6. Distribution of Construction Cost Components, Strong/Average vs. Weak/No



Source: Economic Census of Construction, 2012

⁶⁸ A description of state-level prevailing wage laws is available at: <http://www.dol.gov/whd/state/dollar2011.htm#1>. A summary of recent state-level prevailing wage characteristics is available at www.cga.ct.gov/2010/rpt/2010-R-0526.htm.

Results from academic research indicate that when wages rise in the construction industry, more skilled construction workers replace less productive workers.⁶⁹ The use of more productive workers may be associated with more efficient construction and lower material and fuel cost shares in states with at least average prevailing wage policies. As Figure 6 reveals, material, fuels, and equipment rental costs are 44.6% of total costs in states with weak or no wage policy and are 41.8% in states with strong and average laws. In addition to employing more productive workers, contractors may economize on material and fuel costs in states with higher labor costs to keep overall costs low to remain competitive.

Other data reported in Figure 6 indicate that expenditures on administrative workers are the same in the two groups of states (at approximately 9%). Contractors in states with weak or no prevailing wage laws spend more on purchased construction services (9.4%, compared to 9.0% in states with at least average wage policies). Depreciation expenses are also higher in states with weak or no laws (4.1% versus 3.7%).

States with strong and average prevailing wage laws also differ in many other policy areas compared to those with weak and nonexistent ones. Prevailing wage laws are part of a set of interrelated institutional arrangements, including a stronger emphasis on apprenticeship training, greater workplace safety, higher participation rates in health insurance and retirement plans, , and middle-class wages that support working families.⁷⁰ Prevailing wage laws establish the underlying legal framework for a construction industry that provides the skills needed to build quality infrastructure for a growing, technologically-sophisticated, and competitive economy.

⁶⁹ See William Blankenau and Steven Cassou, "Industry Differences in the Elasticity of Substitution and Rate of Biased Technological Change between Skilled and Unskilled Labor." *Applied Economics*, 2011, Vol. 43, pp. 3129-3142.

⁷⁰ See Peter Philips, "Kentucky's Prevailing Wage Law: An Economic Impact Analysis," 2014, accessed at: <http://www.faircontracting.org/wp-content/uploads/2014/02/Kentucky-Report-2014-Philips.pdf>; and Frank Manzo IV and Robert Bruno, "Which Labor Market Institutions Reduce Income Inequality? Labor Unions, Prevailing Wage Laws, and Right-to-Work Laws in the Construction Industry," 2013, accessed at: http://illinoisepi.org/countrysidenonprofit/wp-content/uploads/2013/10/ILEPI-LEP-Research-Report_Institutions-Income-Inequality_ManzoBruno1.pdf.

In contrast to this “high road” construction industry, the construction “low road” does not have the same legal basis. In states with weak or no prevailing wage laws, there are lower levels of training and productivity and higher rates of job-related injury. One study found that, from 2008 through 2010, there were 8.5 fatal work-related injuries per 100,000 full-time construction workers in states with strong prevailing wage laws. By contrast, the fatality rate was 12.1 work-related deaths per 100,000 full-time construction workers in states without a prevailing wage law over that time.⁷¹ Wages and benefits are also lower, with evidence suggesting that there is greater reliance on public assistance, particularly related to uncompensated health care costs.⁷² A key assertion made by prevailing wage opponents is that prevailing wages increase construction costs, reduce the number projects, and decrease employment in the construction industry.⁷³ By implication, the goal is to achieve higher levels of economic activity and employee prosperity through lower construction worker wages, benefits, and related income. However, economic impact studies have made clear that it is repeal of prevailing wage laws that is associated with reduced construction activity in a state and reduced construction employment. Furthermore, reducing health and retirement benefits on public construction projects increases reliance on public assistance and increases taxpayer burdens.

The evidence reported in Figure 6 is illustrative of this problem. Without prevailing wages, worker benefits are lower and retained contractor income is higher. With lower health benefits, the

⁷¹ Alison Dickson-Quesada, Frank Manzo, Dale Belman, and Robert Bruno, “A Weakened State: The Economic and Social Impacts of Repeal of the Prevailing Wage Law in Illinois.” School of Labor and Employment Relations, Labor Education Program, University of Illinois at Urbana-Champaign, 2013.

⁷² See Jeff Waddoups, “Health Care Subsidies in Construction: Does the Public Sector Subsidize Low Wage Contractors?” 2005, Accessed at:

http://www.researchgate.net/publication/237102337_Health_Care_Subsidies_in_Construction_Does_the_Public_Sector_Subsidize_Low_Wage_Contractors; and Frank Manzo IV and LeNee Carroll, “Self-Sufficient Construction Workers: Why Prevailing Wage Laws Are the Best Deal for Taxpayers,” 2014, accessed at: http://illinoisepi.org/countrysidenonprofit/wp-content/themes/12/docs/Self%20Sufficient%20Construction%20Workers_ManzoCarroll.pdf.

⁷³ See Paul Kersey, J. D., “The Effect of Michigan’s Prevailing Wage Law,” Mackinac Center for Public Policy, August 27, 2007. Accessed at: <http://www.michigancapitolconfidential.com/8907>, John Taylor, Ph. D. 2007. “Prevailing Wage Laws,” Mackinac Center for Public Policy, April 16, 2007. Accessed at: <http://www.mackinac.org/8473>, and Richard Vedder, Ph. D. “Michigan’s Prevailing Wage Law and Its Effects on Government Spending and Construction Employment,” A Mackinac Center Report, September 1999. Accessed at: <https://www.mackinac.org/archives/1999/s1999-07.pdf>.

costs are more likely to be shifted to taxpayers when construction workers cannot pay for their own healthcare. Without adequate prevailing wages and benefits, labor income is effectively redistributed to their employers, with taxpayers *left to make up the difference through increased reliance on the safety net*. In addition, the construction industry neither attracts nor produces the human capital skills necessary to contribute to a broadly competitive state economy under these conditions.

Economic Impact Results

The economic impact analysis is based on expected changes in construction industry cost components if the states with strong/average prevailing wages were to weaken or repeal their policies and move to the cost components of states with no/weak wage policies. The economic impact is based on the largest components (construction worker wages and benefits, material, fuel and rental equipment costs, and contractor profit).⁷⁴ The changes in these components are listed in Table 8. These data reflect changes in cost components associated with changes in prevailing wage laws in the two groups of states. For example, if prevailing wage laws were weakened or repealed in the 25 states with at least average policies, construction worker income would decrease by approximately \$23.0 billion. Expenditures on materials, fuel, and equipment rental would increase by \$17.9 billion. Contractor income would increase by \$5.1 billion. If prevailing wage policies in these states were to be weakened or repealed, the spending changes would ripple through the U.S. economy and affect other industries. The net effect of these changes is reported in Table 9.

⁷⁴ Differences in administrative workers, purchased services, and depreciation are not included because these components are small percentages of total costs and differences in these categories between two groups of states are small.

Table 8. Changes in Construction Cost Components Associated with Changes in Prevailing Wage Policies.

Construction Industry Changes Associated with Changes in Prevailing Wage Policies	Weakening in States with Strong/Average Laws
Change in Construction Worker Income, Health, & Retirement Benefits	-\$23.0 Billion
Change in Materials, Fuels, etc. Use	\$17.9 Billion
Change in Proprietor (Contractor) Income	\$5.1 Billion

Source: 2012 Economic Census of Construction

The economic impact results indicate that the largest effect is due to changes in construction worker wages and benefits. With a decrease income and benefits, economic activity would decrease by approximately \$82 billion. Employment would decrease by over 500,000 jobs and combined state, local, and federal tax revenue would decrease by over \$10 billion. The increase in proprietor income and corresponding spending would increase economic activity by approximately \$17 billion, create slightly over 100,000 jobs and contribute about \$2 billion in combined tax revenue. The increased spending on materials, fuels, and rental equipment would increase overall economic activity by over \$65 billion, increase employment by about 350,000 jobs and increase combined state, local, and federal tax revenue by approximately \$8 billion. Because the individual component effects push and pull the economy in different directions, the overall net effect of all three components is relatively small and mixed. Economic activity and tax revenue increases by \$400 million and \$200 million, respectively, but employment decreases by about 52,000 jobs.

Table 9. Economic Impact: Prevailing Wage Laws are Weakened or Repealed in States with Strong/Average Policies.

Component	Economic Activity (Value Added)	Employment	Combined State, Local, and Federal Tax Revenue
Construction Worker Wages and Benefits	-\$81.5 Billion	-503,000 Jobs	-\$10.2 Billion
Proprietor Income	\$16.6 Billion	102,000 Jobs	\$2.1 Billion
Materials, Fuels, and Rental Equipment Costs	\$65.3 Billion	349,000 Jobs	\$7.9 Billion
<i>Total</i>	<i>\$400 Million</i>	<i>-52,000 Jobs</i>	<i>\$200 Million</i>
<i>Total (Less Materials, Fuels, and Rental Equipment Costs)</i>	<i>-\$64.9 Billion</i>	<i>-401,000 Jobs</i>	<i>-\$8.1 Billion</i>

Source: IMPLAN.

The impact of materials, fuels, and rental equipment costs is due to the relatively less efficient construction methods used in states with no/weak prevailing wage policies. This inefficiency increases spending and, in turn, actually increases economic activity. However, an increase in economic activity due to inefficiency is similar to an increase in economic activity following a natural disaster (earthquake, flood, etc.). While a disaster or an inefficient use of materials, fuels, and rental equipment generates added economic activity, it is not desirable in an economic or social sense.⁷⁵ Omitting the economic impact associated with inefficient use of materials, fuels, and rental costs results in a decrease in economic activity of approximately \$65 billion, a decrease of 400,000 jobs, and a

⁷⁵ Standard economic theory of production predicts that companies alter the use of inputs depending on the relative costs of labor, capital equipment, etc. When labor costs are low, companies will utilize more labor and less capital equipment because labor is relatively cheap. This indicates that labor and capital are substitutes in production. Output can be produced, to some extent with either labor or equipment. The data for the component costs of construction indicate that labor and materials, fuels, and rental equipment are complements. When cheaper labor is employed, additional material, fuels, and rental equipment are needed. On the other hand, when more expensive and skilled labor is utilized, fewer materials, fuels and rental equipment are needed. These data indicate that the increased expenditures on materials, etc., are due to the relative inefficiency of lower paid and skilled workers. While this inefficiency is associated with increased economic activity, this effect is omitted here because it can be avoided with the use of more skilled construction labor. In either group of states, materials represent 91% of the total for this category with fuels representing 6% and rental equipment equal to 3% of the total.

combined tax revenue loss of over \$8 billion. The economic impact of \$65 billion is approximately 0.4% of total U.S. GDP.⁷⁶ The employment impact is 0.2% of total national employment.⁷⁷

The total economic impacts reported in Table 9 are the sum of industry-level effects. These impacts are reported in Table 10 for the impact based on construction worker wages, benefits, and contractor income (excluding the impact due to expenditures on materials, fuels, and rental equipment). The industry level impacts illustrate how the reductions in construction worker earnings and increases in contractor incomes associated with weakening or repealing prevailing wages ripple throughout the economy, exerting a negative impact on all industries. If the 25 states with strong/average prevailing wages were to weaken or repeal their policies, the health care industry would lose 85,000 jobs and suffer a decrease of approximately \$10 billion in revenue. The overall service industries (including food, real estate, financial, and all other services) would lose approximately 266,000 jobs and over \$36 billion in revenue with a change in prevailing wage policy. Among goods producers, the construction and manufacturing industries would each lose over 21,000 jobs and experience revenue reductions of \$4.3 billion and \$11.0 billion, respectively. Employment would decrease by over 34,000 jobs in the retail sector due to a revenue loss of over \$2.7 billion. These impacts, which would be experienced each year after a change in the wage policy, are primarily the result of the decrease in construction worker income and benefits.

⁷⁶ GDP for Q II, 2015 is \$17,913.7 billion (unadjusted for inflation). See "U.S. Economic Accounts," Bureau of Economic Analysis, U.S. Department of Commerce. Accessed at: <http://bea.gov/>.

⁷⁷ Compared to August 2015 when national employment was 142,288,000. See "Economy at a Glance," U.S. Bureau of Labor Statistics, U.S. Department of Labor. Accessed at: <http://www.bls.gov/eag/eag.us.htm>.

Table 10. Impact of Repealing Prevailing Wage on All Sectors of the U.S. Economy

Industry Category	Employment Change (Jobs)	Revenue Change (Millions)
Total Impact	-401,000	-\$64,900
Health care	-85,400	-\$10,312
Professional, business, and legal services	-59,000	-\$7,711
Retail trade	-34,300	-\$2,767
Other services	-29,500	-\$1,807
Financial activities (excluding real estate)	-28,900	-\$6,296
Government	-28,200	-\$2,726
Restaurants and bars	-26,200	-\$1,563
Construction	-21,500	-\$4,307
Manufacturing	-21,200	-\$11,042
Real estate	-12,800	-\$2,338
Arts, recreation, and accommodation services	-10,900	-\$1,142
Transportation and warehousing	-10,800	-\$1,537
Wholesale trade	-10,700	-\$2,524
Educational services	-7,900	-\$559
Information and communications	-6,200	-\$4,533
Agricultural, fishing, and hunting	-5,100	-\$683
Mining, energy, and utilities	-3,200	-\$2,062

Source: IMPLAN.

Conclusion

Prevailing wage legislation is part of a broader set of interrelated institutional arrangements to maintain a strong construction industry, including a stronger emphasis on apprenticeship training, greater workplace safety, higher participation rates in health insurance and retirement coverage, relatively higher unionization rates, and middle-class wages that support working families. If all state prevailing wage laws were to be weakened or repealed across the country, the data demonstrate that the

economic, fiscal, and social impacts would be catastrophic. A nationwide weakening of prevailing wage would reduce national economic output by nearly \$65 billion and result in the loss of over 400,000 jobs in the American labor market. The accompanying effect on public budgets would amount to over \$8 billion lost in state, local, and federal tax revenues.

Due to the approximately 17% drop in blue-collar construction worker incomes in states weakening the wage policy (and an even larger decrease in earnings for the lowest-paid construction workers), federal income taxes contributed by these workers after credits and deductions would fall by about \$3.4 billion alone. Approximately 310,000 blue-collar construction workers would lose their health insurance coverage and about 124,000 would see their pension plans at work vanish. The nationwide policy change would also increase working poverty by 99,000 individuals, as lower-paid construction workers would no longer be able to earn enough to exceed the official poverty line. Consequently, additional blue-collar construction workers would turn to public assistance programs to support their families. The total increased cost to American taxpayers would be an almost \$400 million in extra food stamps and Earned Income Tax Credits provided to construction workers who did not previously rely on government assistance programs.

Prevailing wage supports a high road economy with self-sufficient construction workers. Prevailing wage establishes the underlying legal framework for a construction industry that provides the skills needed to build quality infrastructure for a growing, technologically-sophisticated, and competitive economy. The policy also ensures that workers can support a middle-class family in the communities where they are constructing or repairing the infrastructure. By fostering an economy with a strong middle class, prevailing wage promotes sound public sector budgets at all levels of government.

Appendix

In nearly all analyses, we run two models for the ten-year (2004-2013) dataset:

- A weighted regression model using *svyset [iweight=earnwt]*. For both ordinary least squares (linear) and probit (probabilistic) regressions, the analysis includes all employed workers.
- A weighted model using *svyset [iweight=earnwt]*, with Heckman selection. For both Heckman regressions and Heckprobits, the analysis involves all workers attached to the labor force in construction occupations. The two-stage regression model is “selected” for employed residents controlling for observable factors including the presence of a strong/average prevailing wage law.

In all cases, the Heckman variant is likely the preferred regression. The former model allows us to see effects *among* the employed, while the latter is more comprehensive and corrects based on characteristics that make workers more likely to enter the construction industry.

Controls may include variables for usual hours worked per week, *year_ordinal*, *year_ordinal*², *age*, *age*², *gender*, *race/ethnicity*, *foreign-born status*, *marital status*, *veteran status*, *educational attainment*, *disability status*, *federal government employment*, *state government employment*, *local government employment*, *urban status*, and a constant. Thus, the regressions control for trends over time (the Great Recession occurred roughly in the middle of the period of analysis, which is generally captured by the *year_ordinal*² variable), demographics, education, full-time vs. part-time, urban status, and sector of employment.

All wage and salary income, government assistance values, and federal income tax contributions are adjusted by the Consumer Price Index (CPI-U) and reported in constant 2014 dollars. The wage and salary incomes are further adjusted by Regional Price Parities by the Bureau of Economic Analysis. State-level regional price parities are not reported prior to 2008. For the four years from 2004 through 2007, states were assigned their 2008 regional price parity. Regional price parities range from 0.858 to 1.182 for all states over the entire period of analysis, and the standard deviation for any given state never exceeds 0.013 (Arizona) from 2008 through 2013. Thus, 2008 regional price parities provide a valid approximation of 2004-2007 values. The assumption is unlikely to dramatically alter the findings.

APPENDIX TABLE 1: REGRESSIONS OF REAL WAGE/SALARY INCOME, RPP-ADJUSTED, BCCW

ln(real_inc_wage)	Standard Regression	Heckman Regression
<i>Strong/average PWL</i>	0.1566*** (0.0114)	0.1724*** (0.0390)
<i>Union member</i>	0.3028*** (0.0277)	0.3649*** (0.0286)
R ²	0.2511	
Rho		0.0376
Sigma		0.7843
Lamda		0.0295
Observations	30,922	45,483

***P>|0.01|; **P>|0.05|; *P>|0.10|

Control variables [both analyses]: usual hours worked, year_ordinal, year_ordinal², age, age², female, white, foreign-born, married, veteran, difficulty_any, less than high school degree, some college, associates degree, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, metro area dummies, and a constant.

APPENDIX TABLE 2: QUANTILE REGRESSIONS OF REAL WAGE/SALARY INCOME, RPP-ADJUSTED, BCCW

ln(real_inc_wage)	Mean	25TH	50TH	75TH	90TH
<i>Strong/average PWL</i>	0.1566*** (0.0007)	0.1875*** (0.0006)	0.1819*** (0.0007)	0.1700*** (0.0006)	0.1637*** (0.0011)
<i>Union member</i>	0.3028*** (0.0010)	0.3380*** (0.0008)	0.2987*** (0.0009)	0.2624*** (0.0007)	0.2073*** (0.0014)
R ²	0.2511	0.1612	0.1761	0.1789	0.1534
Observations	5,064	5,064	5,064	5,064	5,064

***P>|0.01|; **P>|0.05|; *P>|0.10|

This analysis is not a Heckman analysis. It is a standard quantile regression [qreg] with 10 weighted least-squares (WLS) iterations each before linear programming iterations. Control variables [all quantiles]: usual hours worked, year_ordinal, year_ordinal², age, age².

female, white, less than high school degree, some college, associates degree, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, metro area dummies, and a constant.

APPENDIX TABLE 3: REGRESSIONS OF REAL SALARY INCOME, RPP-ADJ., MANAGERS/SUPERVISORS

In(real_inc_wage)	Standard Regression	Heckman Regression
Strong/average PWL	0.0860*** (0.0203)	0.0171 (0.0259)
Union member	0.1455** (0.0647)	0.1467 (0.0796)
R ²	0.2053	
Rho		-0.0062
Sigma		0.7136
Lamda		-0.0044
Observations	8,729	11,508

***P>|0.01|; **P>|0.05|; *P>|0.10|

Control variables [both analyses]: usual hours worked, year_ordinal, year_ordinal², age, age², female, white, foreign-born, married, veteran, difficulty_any, less than high school degree, some college, associates degree, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, metro area dummies, and a constant.

APPENDIX TABLE 4: PROBIT REGRESSION OF FOOD STAMP RECIPIENCY, BCCW | margins, dydx

Prob(SNAP)	Standard Probit	Heckman Probit
Strong/average PWL	-0.0308*** (0.0036)	-0.0313*** (0.0030)
Union member	-0.0250* (0.0149)	-0.0280** (0.0125)
Constant	0.0695*** (0.0021)	0.0564*** (0.0017)
R ²	0.0000	
Rho		0.7307
Observations	38,714	46,854

***P>|0.01|; **P>|0.05|; *P>|0.10|

Control variables [Probit]: less than high school degree, some college, associates degree, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, and a constant; [Heckprobit]: year_ordinal, year_ordinal², bachelors degree, advanced degree, and a constant. Other variables failed to return Heckprobit outputs.

APPENDIX TABLE 5: PROBIT REGRESSION OF EITC RECIPIENCY, BCCW | margins, dydx

Prob(EITC)	Standard Probit	Heckman Probit
Strong/average PWL	-0.0112** (0.0045)	0.0431 (0.0512)
Union member	-0.0792*** (0.0176)	-0.0589*** (0.0220)
Constant	0.1358*** (0.0026)	0.2930*** (0.1129)
Prob>chi2	0.0000	
Rho		-0.9488
Observations	38,714	46,854

***P>|0.01|; **P>|0.05|; *P>|0.10|

Control variables [Probit]: year_ordinal, year_ordinal², age, age², female, white, foreign-born, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, and a constant; [Heckprobit] usual hours worked, year_ordinal, year_ordinal², age, age², female, white, foreign-born, married, veteran, difficulty_any, less than high school degree, some college, associates degree, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, metro area dummies, and a constant. The high constant term in the Heckprobit may indicate that blue-collar workers who enter the construction industry would be likely to receive EITC credits in another industry.

APPENDIX TABLE 6: PROBIT REGRESSION OF POVERTY STATUS, BCCW | margins, dydx

Prob(Below Poverty)	Standard Probit	Heckman Probit
<i>Strong/average PWL</i>	-0.0286*** (0.0044)	-0.0305*** (0.0068)
<i>Union member</i>	-0.1096*** (0.0219)	-0.0945*** (0.0082)
Constant	0.1207*** (0.0025)	0.1026*** (0.0232)
Prob>chi ²	0.0000	
Rho		0.4626
Observations	38,714	46,854

***P>|0.01|; **P>|0.05|; *P>|0.10|

Control variables [both analyses]: less than high school degree, some college, associates degree, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, and a constant.

APPENDIX TABLE 7: PROBIT REGRESSION OF HEALTH INSURANCE COVERAGE, BCCW | margins, dydx

Prob(Health Insurance)	Standard Probit	Heckman Probit
<i>Strong/average PWL</i>	0.0980*** (0.0044)	0.0798*** (0.0118)
<i>Union member</i>	0.2281*** (0.0189)	0.2481*** (0.0262)
Constant	0.5910*** (0.0022)	0.6025*** (0.0350)
Prob>chi ²	0.0000	
Rho		-0.2333
Observations	38,714	46,854

***P>|0.01|; **P>|0.05|; *P>|0.10|

Control variables [both analyses]: usual hours worked, year_ordinal, year_ordinal², age, age², female, white, foreign-born, married, veteran, difficulty_any, less than high school degree, some college, associates degree, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, metro area dummies, and a constant.

APPENDIX TABLE 8: PROBIT REGRESSION OF PENSION PLAN COVERAGE, BCCW | margins, dydx

Prob(Pension at work)	Standard Probit	Heckman Probit
<i>Strong/average PWL</i>	0.0382*** (0.0055)	0.0762* (0.0408)
<i>Union member</i>	0.3476*** (0.0136)	0.3565*** (0.0294)
Constant	0.2606*** (0.0036)	0.3867*** (0.1395)
Prob>chi ²	0.0000	
Rho		-0.9439
Observations	38,714	46,854

***P>|0.01|; **P>|0.05|; *P>|0.10|

Control variables [both analyses]: less than high school degree, some college, associates degree, bachelors degree, advanced degree, federal government employment, state government employment, local government employment, and a constant.

APPENDIX TABLE 9: REAL FEDERAL INCOME TAXES PAID AFTER CREDITS/DEDUCTIONS, BCCW

Real fed tax after	Standard Regression
<i>Strong/average PWL</i>	1014.87*** (115.35)
<i>Union member</i>	1439.06*** (323.13)
R ²	0.0099
Observations	37,783

***P>|0.01|; **P>|0.05|; *P>|0.10|

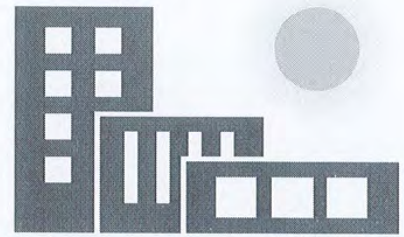
Control variables year_ordinal, year_ordinal², and a constant. The standard regression and the Heckman regression return the same outputs, like because, order to pay federal income taxes, an individual must be employed and earn an income.

APPENDIX TABLE 10: PROBIT REGRESSION OF BCCW EMPLOYMENT | *margins, dydx*

Prob(Employed)	Heckman Probit
<i>Strong/average PWL</i>	0.0419*** (0.0153)
<i>White*strong/avePWL</i>	-0.0564*** (0.0182)
<i>Female*strong/avePWL</i>	0.0276 (0.0267)
<i>Immigrant*strong/avePWL</i>	-0.0894*** (0.0180)
<i>White</i>	0.0755*** (0.0177)
<i>Female</i>	-0.3225*** (0.0303)
<i>Immigrant</i>	0.0432 (0.0273)
Constant	0.6298*** (0.0238)
Prob>chi ²	
Rho	0.6679
Observations	77,337

***P>|0.01|; **P>|0.05|; *P>|0.10|

Control variables: age, age², married, veteran, citizen status, right-to-work state, bachelors degree, advanced degree, and a constant.



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The Value of Linking Good Construction Jobs to California's Housing Reforms

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ABOUT THE AUTHOR

ALEX LANTSBERG, MCP, AICP is a Research Analyst with Smart Cities Prevail, a leading construction industry research and education organization. Alex holds a Master of City Planning from the University of California, Berkeley and a Bachelor of Science in Finance from Northern Illinois University. He was admitted to the American Institute of City Planning in 2013. Having completed the advanced training program in IMPLAN, the leading economic impact software, Lantsberg has coauthored numerous economic impact studies, including research analyzing the economic impact of prevailing wage laws in California and across the country, the public costs of wage and benefit restructuring, and the economic impact of minimum wage. Lantsberg has also conducted considerable research around sustainable urban energy, water, and wastewater infrastructure planning.

Introduction

The cost of California housing and the level of most working Californians' wages are dangerously misaligned. The State of California has identified housing development as a key ingredient in pursuing broad equity, sustainability, and economic goals. But what is to be done about wages?

Several proposed frameworks to reform California's residential development process now are coming into focus. Leading legislators are offering the opportunity to connect the supply-side approach to the jobs-housing mismatch to a construction industry labor standard—"prevailing wage"—that buttresses good career opportunities through middle-class compensation and best-in-class vocational training.

Prevailing wages and apprenticeships also could help address a looming issue: The housing industry may have difficulty finding workers in sufficient numbers and with the requisite skills to build the housing it needs. Despite the fact that construction employment has only recovered to levels seen in 2000, unemployment rates are relatively low. Housing development at the scale envisioned by state policy makers will entail a jump in demand for construction labor that likely will outstrip supply unless industry wages and benefits improve.

The California residential building industry has for decades been on the path of declining wages, the evaporation of health and retirement plans, little systematic skills training, and reduced productivity. Quite simply, it takes 13% more workers today to produce the same amount of output than it did 20 years ago.¹ With immigration unlikely to expand any time soon, a productivity renaissance will be necessary to produce housing units in the numbers that will noticeably shave what Californians pay for housing.

With low wages and lower-than-average benefits coverage, the housing industry does not fully "internalize" the costs of its activities, either shifting those responsibilities on to the public or leaving significant social needs unmet. Because construction labor accounts for only 15% of housing development costs, the benefits of incentivizing a "high-road" workforce strategy in a comprehensive reform package will dramatically outweigh the minimal impacts of wage standards on total project development costs.

**CONSTRUCTION
LABOR ACCOUNTS FOR
ONLY 15% OF HOUSING
DEVELOPMENT COSTS.**

The value of prevailing wage

In its 2014 study, *Building the Golden State, Smart Cities Prevail* examined the impacts of prevailing wages on California's construction industry.

Our findings mirrored the overwhelming research consensus that prevailing wages do not increase overall project costs, but do result in stronger local economies, more local hiring, and less reliance on taxpayer-funded public assistance by construction workers. Employers respond to higher direct wages by improving the skills of their workforce offsetting higher per-unit labor costs with higher worksite productivity and less spending on such things as fuels and materials.

Reduced reliance on public subsidies: We estimate that if California's multifamily residential construction resembled the rest of the industry on wage standards, worker income would increase by more than \$1 billion, state and local government coffers would grow by \$55 million a year, and public assistance payments for direct expenditures like MediCal would decrease by at least \$30 million per year.²

Additionally, raising incomes for residential construction workers through a prevailing wage policy would improve housing affordability for the thousands of working families that are already far more likely to qualify for already inadequate housing subsidies than the workforce at large. Because of the disproportionate

concentration of workers of color at the lower end of the construction industry wage distribution, as discussed below, communities on the margins of economic growth would be among the greatest beneficiaries of a higher wage standard.

Local workforce development: Apprenticeship is a regulated, earn-while-you-learn, multi-year training system that includes a clear wage ladder for career advancement that is tied to the acquisition of skills and experience. Research shows that apprenticeships not only substantially raise the lifetime earnings of its

participants, but provide significant net social benefits through higher tax collections, private health care coverage, and reduced reliance on unemployment insurance and other forms of assistance. In fact the increased lifetime earnings for workers

EMPLOYERS RESPOND TO HIGHER DIRECT WAGES BY IMPROVING THE SKILLS OF THEIR WORKFORCE, OFFSETTING HIGHER PER-UNIT LABOR COSTS WITH HIGHER WORKSITE PRODUCTIVITY AND LESS SPENDING ON FUELS AND MATERIALS.

THE VALUE OF PREVAILING WAGE

completing their apprenticeship are roughly equivalent to the costs of subsidizing an affordable, below-market rate residential unit.³

California's construction apprenticeship system is among the state's largest post high-school educational systems, with more than 35,000 participants receiving a combination of classroom and on-the-job training. Prevailing wage regulations are one of the underlying pillars of California's construction apprenticeship system, relying on state certified, privately run apprenticeship programs funded by employer contributions from public works and private union jobs. Union-affiliated joint Labor-Management administered apprenticeship programs account for approximately 95% of the state's registered construction apprentices.

Improving industry productivity: Industry associations like the Associated General Contractors⁴ and analysts like McKinsey⁵ have identified labor productivity as a key to the industry's growth and its ability to efficiently and cost-effectively ramp up residential production in California. While a perennial concern in years past, this problem may prove all the more difficult to address at times of growing infrastructure investment, when the best skilled workers are drawn to the higher compensation levels of public works construction.

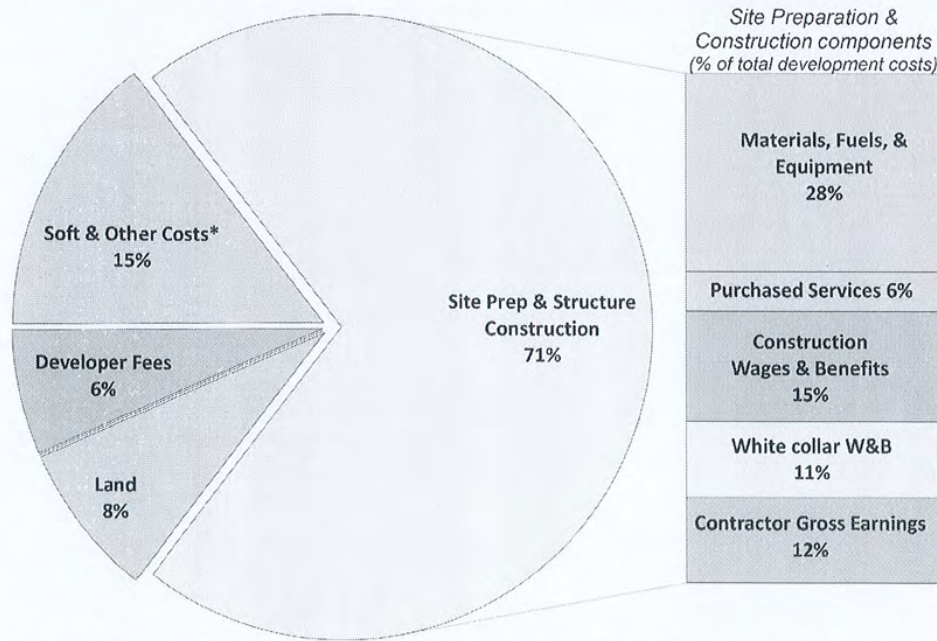
Apprenticeship programs accept, each year, only as many trainees as are needed to meet projected demand for their labor. As a demand-driven training program, apprenticeship avoids the pitfalls often associated with workforce development: training more people than there are jobs. Policies that encourage more construction projects to utilize state-registered apprentices will create more openings for workers who can obtain middle-class careers in the industry.

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Construction Labor and Multi-Family Housing Development

Given that construction labor comprises only 15% of total California housing development costs, it is unlikely that elevated wage standards could have major impacts on total housing costs. The preponderance of academic research on prevailing wage standards⁶ cost impacts has found no significant overall impacts on the construction of nonresidential structures.⁷

State government housing officials were motivated to commission a study of tax credit assisted developments of below market rate housing by a suspicion that specific regulatory choices created significantly higher costs. Several regulatory programs or requirements were prime suspects: California’s Redevelopment Area program and accompanying regulations; federal and/or state mandates that projects deemed to be public works require payment of “prevailing wages” to construction workers; California Environmental Quality Act (CEQA) review and mitigation; and tax credit regulations that connect higher project application scoring to various project and/or site amenities. Statistical analysis of nearly 300 California housing projects found that none of these factors proved to exercise powerful influence on housing costs.



Sources: U.S. Census (2007 & 2012), *Economic Census*, Table EC1223A1; State of California (2014), *Affordable Housing Cost Study*
 * Architecture & engineering, surveys, permit & impact fees, offsite improvements, site acquisition, & misc. other costs
 Note: Total Site Preparation, Demolition, & Structure construction and the sum of its individual components do not equal due to rounding.

CONSTRUCTION LABOR & MULTI-FAMILY HOUSING DEVELOPMENT

Misconceptions about construction labor are prevalent in the public debate regarding the costs of residential development. The pie chart on the previous page presents the cost structure of California multi-family housing development. It is derived from two highly credible sources: the State of California's *2014 Affordable Housing Cost Study*⁸ (AHCS) and *Economic Census data* specific to California's construction industry.⁹ While this is a snapshot of the residential building industry, changes over the past generation show a clear divergence between the costs of construction and distribution of the value it generates. Since 1992 the construction industry's gross operating surplus, the basis for profitability, has increased 50% more than either materials or construction labor, according to the Economic Census.¹⁰

Using this data we find:

- The largest cost components, comprising 34% of total project costs, are the **materials, fuels, equipment, and purchased services** required to build the structure.
- **Contractor earnings and developer fees**¹¹ together account for at least 18% of a project's total costs. Because developer fees are capped by the regulations of the California Tax Credit Allocation Committee, the source of the project cost data, it is reasonable to expect developers of market rate projects to demand higher fees.
- **Soft & other costs**, which includes architectural & engineering services, acquisition & finance costs, off-site improvements, and permitting and impact fees comprise another 15% of total project costs.
- **Construction wages and benefits** average approximately 15% of total project costs, just under 22% of the total "hard cost" of the structure. This includes demolition and site preparation expenses, which are broken out separately from building costs in the AHCS.
- **White collar wages & benefits** account for 11% of project costs. White collar workers comprise approximately 30% of the construction industry's employees but account for more than 40% of its payroll.
- **Land**, on average, accounts for 8% of a below-market rate project's costs according to the AHCS¹², however this is among the most variable of expenses. High demand coastal markets routinely see much higher land cost shares for both affordable housing and market rate projects.

CONSTRUCTION LABOR & MULTI-FAMILY HOUSING DEVELOPMENT

Analysis of the AHSC data reveals three fundamental factors — location, the business cycle and project type and scale — are the most important drivers of variation of BMR housing costs. Indicators of these three fundamental forces can account for 85 percent of the variation in affordable housing total development costs (net land acquisition costs). When various regulatory requirements, developer characteristics, or project level details are added to the model, those hypothetical “cost drivers” only marginally improve the model’s overall fit with the data. Regulatory impediments, which are the principal target of proposed reforms, were found to have a statistically significant impact of approximately 8% on costs. Prevailing wages on the other hand only showed an impact of about half that, albeit that impact was not found to be statistically significant.

Given the evidence above, it is clear that (1) construction labor costs are far from the determining factor in overall housing costs and (2) the industry has room to absorb wage increases for the men and women building the housing California desperately needs.

IT IS CLEAR THAT THE INDUSTRY HAS ROOM TO ABSORB WAGE INCREASES FOR THE MEN AND WOMEN BUILDING THE HOUSING CALIFORNIA DESPERATELY NEEDS.

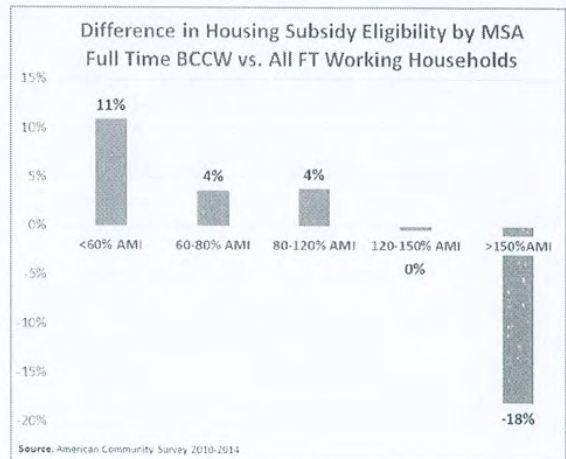
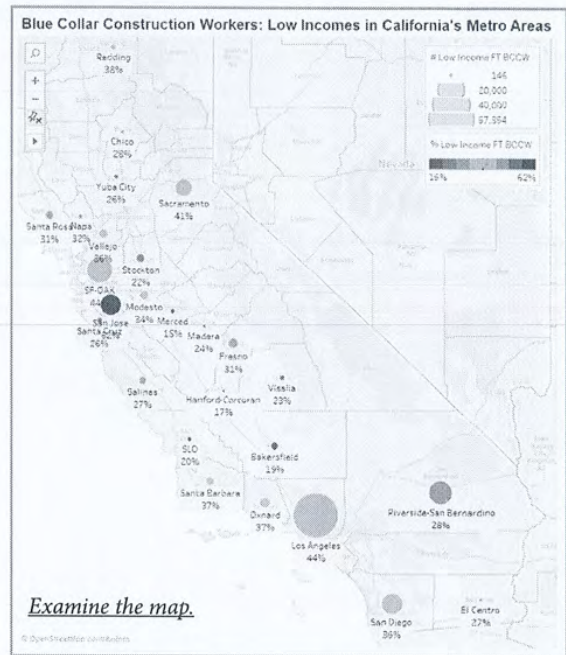
The Housing Affordability and Social Challenges of California's Residential Construction Workforce

The Legislative Analyst's *California's High Housing Costs: Causes and Consequences* explicitly lays the blame for the state's unaffordability crisis on inadequate housing production. While the problem is most acute in coastal regions, high housing cost burdens exist in every part of the state.

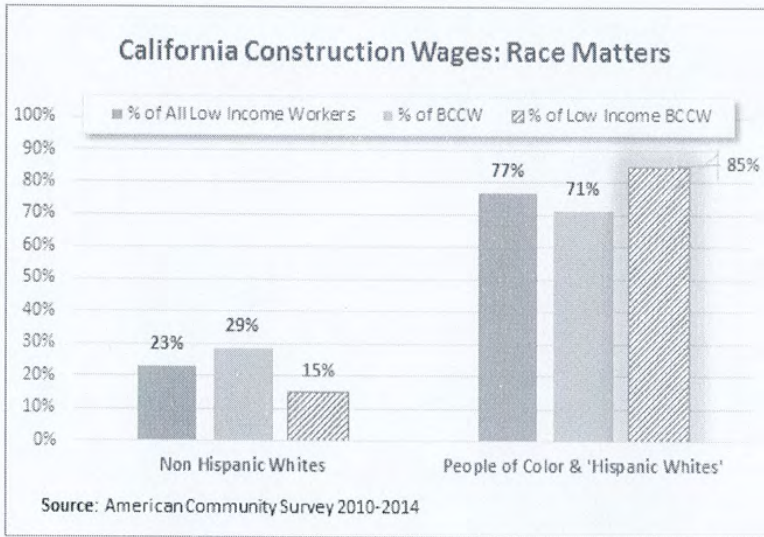
Price relief through "filtering" of increased housing supply will take time however. In the meantime, nearly 40% of California blue collar construction workers (BCCWs) are low-income workers earning less than two-thirds the area median income. Today, the statewide median annual wage for a BCCW is approximately \$35,000, with that median sinking to \$30,000 in Los Angeles County, according to U.S. Census Bureau survey data.¹³

Housing affordability is a problem for BCCWs throughout the state. While only about 25% of statewide households with a full time worker qualify for tax credit based low-income housing subsidies (under 60% AMI) or inclusionary units (between 60% & 80% AMI), that figure rises to 40% for full-time BCCW households. In the five largest metros, containing about four-fifths of California's population, that proportion rises to 42%. In the state's two wealthiest metros – San Jose and San Francisco – 55% and 48%, respectively, of BCCW households qualify for housing subsidies.

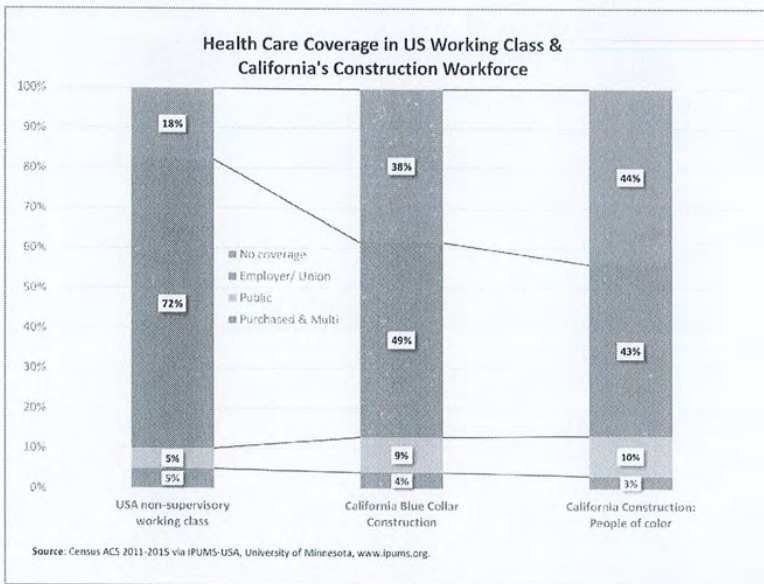
Race is both a defining characteristic of the blue collar construction workforce and a dividing line for workers' well-being. Statewide, non-whites make up more than seventy percent of BCCWs and comprise 85 percent of the low-



HOUSING AFFORDABILITY AND SOCIAL CHALLENGES



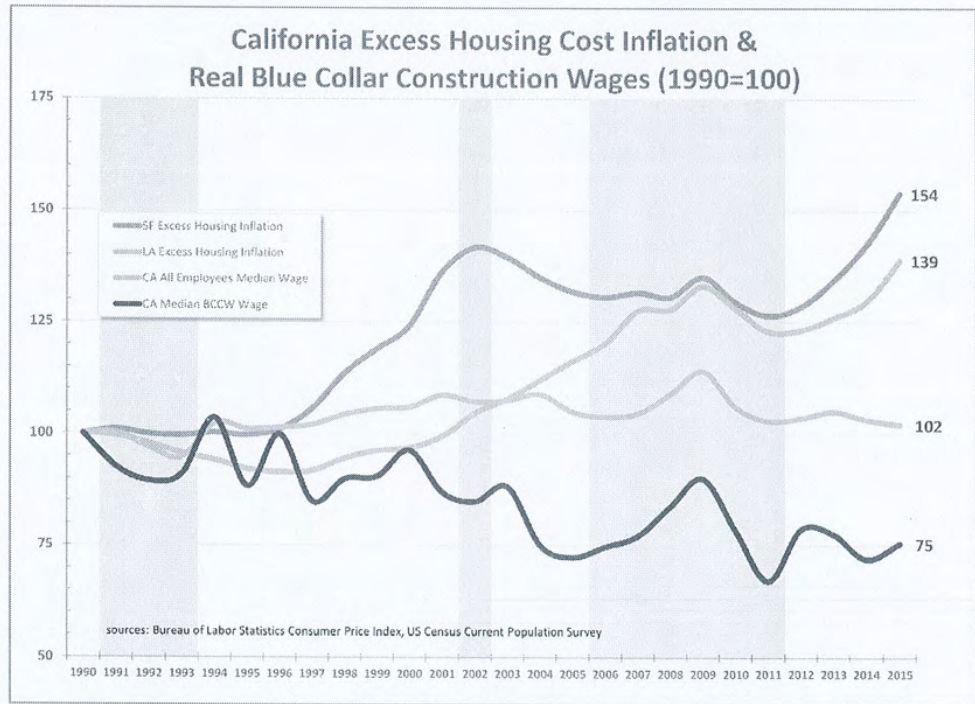
wage construction workers. Latinos, who make up two-thirds of California BCCWs, saw annual wage income of slightly less than two-thirds of that of white BCCWs (\$35,800 vs \$55,300). Controlling for skill, lesser-skilled Latinos make about \$0.70 on the dollar compared to lesser-skill Whites; more-skilled Latinos make \$0.68 on the dollar compared to more-skilled whites. There are similar disparities for other non-white BCCWs.



The construction industry's steadily declining wages and growing reliance on the public to subsidize its workforce's basic living needs is also evident in health coverage data. According to Census data 38% of blue collar construction workers have no health care coverage, even after implementation of the Affordable Care Act. Consistent with the racialized character of the industry's low wage

workforce this number rises to 43% for BCCWs of color. These are more than twice the national average for lack of health care coverage for non-supervisory production workers. Use of Medicaid is 1.8, and 2.2 times the national average respectively. A growing low wage residential construction workforce combined with the threatened disruption of the health care marketplace have the potential to further

HOUSING AFFORDABILITY AND SOCIAL CHALLENGES



swell the ranks of the uncovered when California can least afford to subsidize profitable industries meeting basic needs.

Union apprenticeships and membership substantially elevate wages of Hispanics and African Americans. Union membership is associated with greater Latino wage gains than those associated with a high school degree, citizenship, or a more skilled construction occupation.¹⁴ Over 80% of apprentices enrolled in the Carpenters Training Center for Northern California are people of color.

Trends over the past generation suggest that markets will not take care of a dramatically widened gap between BCCW wages and California housing costs. Since 1990, “real” (inflation-adjusted) BCCW wages have declined almost 25%. Inflation-adjusted housing costs have gone up between 39% in the LA Region and 54% in the Bay Area, far exceeding the rise in construction costs, as shown in the LAO March 2016 report.¹⁵ Real construction wages declined during the mid-2000’s housing boom, and the average real BCCW wages have been stagnant since industry growth restarted in 2011.

Conclusion

California needs to increase its overall housing supply in order to maintain the quality of life for its residents, to build an equitable and competitive economy, and to continue to progress towards its ambitious environmental goals. The scale of the shortage suggests that such an effort will take years. A residential construction industry that attracts and retains a skilled workforce is central to that project.

Given that direct construction labor comprises 15% of project development costs, construction worker payroll growth has lagged industry price & profit growth, the housing industry has room to absorb wage increases for the men and women building the housing. Because housing affordability amongst blue collar construction workers is also declining—particularly amongst workers of color in high cost metropolitan and coastal regions—incorporating wage standards into a housing development streamlining package is a reasonable and cost-effective approach for boosting overall supply while helping to close the affordability gap for hundreds of thousands of California families.

¹ Author's calculations of Bureau of Economic Analysis per capital construction GDP table.

² Analysis of Current Population Survey, March supplement, by Frank Manzo, Midwest Economic Institute, La Grange, IL

³ *An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States Final Report*, by Debbie Reed, et al., Mathematica Policy Research, 2012

⁴ *BUILDING FOR THE FUTURE Construction Economics Market Conditions in Construction*, Gilbane Building Company 2016 Edition.

⁵ *A Tool Kit to Close California's Housing Gap: 3.5 Million Homes By 2025*, McKinsey Global Institute, October 2016.

⁶ Prevailing wages are minimum wages and benefits paid to construction workers on publicly supported construction projects that are determined based on the rate paid to the greatest number of workers in a particular craft and region where the work is performed.

⁷ Research on California housing costs that use standard statistical methods report prevailing wage project cost impacts of 9-12 percent. Littlehale (forthcoming) analyzed the ACHS dataset and estimates prevailing wage costs of only half that magnitude. Other drivers of costs, such as inefficiencies of scale, are greater.

⁸ The AHCS is an empirical housing development cost study intended to measure the factors that influence the cost of building affordable rental housing in California and forms the basis of the cost breakdown for the major project cost components such as structure, site preparation, and soft costs, permitting, impact, and developer fees, and other costs related to particular projects (elevators, parking, public meetings, etc.).

⁹ "The Economic Census is the U.S. Government's official five-year measure of American business and the economy," according to the United States Census Bureau. Together with the AHCS, Economic Census data allow us to understand the entire cost structure of housing and the firms building the housing. We averaged the 2007 and 2012 Census of Construction for this analysis due to the particular conditions the industry found itself in during the survey years. In 2007 the housing bubble put the entire construction industry (NAICS 23) at full capacity and at peak profitability with \$216 billion in business, however in 2012 the industry just began to recover, doing only \$148 billion in business, a 31% decline. Multifamily housing (236116) declined from more than \$3.6 billion in business to just under \$2.6 billion, a 28% decline. Our construction labor share estimates are weighted averages of both multifamily residential contractors and specialty trade contractors.

¹⁰ We examined average BCCW trends in comparison to various construction industry price indices tracked by the Federal Reserve; in every instance BCCW wages increased less than the price index.

¹¹ Because a sizable number of the BMR projects are done by non-profit developers we assume here that the developer fee is intended to cover the specific administrative expenses associated with a project without room for profit.

¹² The AHCS had an average per-unit land price of \$24,000 and only one project with land costs in excess of \$100K per unit in its 2010-2012 database. By 2016, the \$100K/unit threshold has become common in the Bay Area for affordable housing projects. As an extreme example for market rate projects, KB Homes paid \$470K/unit for a fully entitled .76 acre parcel in San Francisco.

¹³ Author's calculations US Census Bureau of American Community Survey 2010-2014 microdata; IPUMS-USA, University of Minnesota, www.ipums.org.

¹⁴ Based on regression analysis of U.S. Census Current Population Survey public use microdata, via the Center for Economic Policy Research.

¹⁵ See Figure 6, <http://www.lao.ca.gov/reports/2015/finance/housing-costs/housing-costs.aspx>

BUILDING THE GOLDEN STATE



THE ECONOMIC IMPACTS OF CALIFORNIA'S PREVAILING WAGE POLICY



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— March 2015 —

EXECUTIVE SUMMARY

In recent years, prevailing wage policies have been the subject of vigorous debate in city councils, state legislatures, and the Congress. Often missing from the discussion is the broader effect of prevailing wage on the overall economy.

Prevailing wage laws were first established in the 1930s — both federally and in many states — to maintain local labor standards and increase the amount of construction work being done by local businesses and workers. As will later be discussed, some states have strong prevailing wage laws, some have no prevailing wage laws, and still others are somewhere in between.

For the purposes of this study, the question “What would be the economic impact of eliminating prevailing wage in the state of California?” is posed.

Using IMPLAN software — the industry standard — along with data from the Census of Construction and the American Community Survey the economic impacts of prevailing wage policy choices were analyzed, and the outcomes were compelling.

Our research concludes that eliminating prevailing wage would have broad reaching negative impacts across the California economy. These impacts include:

- ▶ **A net loss of more than 17,500 jobs — not just in the construction industry — across large swaths of the economy.**
- ▶ **A \$1.5 billion dollar loss in real income to Californians working in a variety of economic sectors outside of the construction industry. The overall impact to California’s economy would be a \$1.4 billion output reduction.**
- ▶ **Greater inefficiencies in the construction industry with 5% greater materials use and per worker productivity declines of 12%.**
- ▶ **A loss of between \$8 and \$8.9 billion in income and reduced earned benefit contributions for construction industry professionals.**

Because prevailing wage elimination would reduce workers’ wages and overall spending, the effects would ripple across all sectors of the economy. Worse, as past research has shown, it would also increase the reliance of full-time construction professionals on taxpayer funded public assistance programs.

While these negative impacts would be a major change from the status quo, they should also be considered together with prior research that has concluded prevailing wage has a neutral effect on the overall cost of public construction.

Our findings make it clear that if California repealed its strong prevailing wage laws, the consequences would spread outward resulting in negative impacts to nearly every sector of the economy.

INTRODUCTION

Prevailing wage laws (PWL) establish minimum standards for construction funded with public dollars and have been part of the construction landscape at the state and national levels since the 1930s. The impacts of prevailing wage policies on construction costs and quality, labor markets, and productivity have been the subject of extensive economic analysis over the decades. However recent debate about income inequality, infrastructure investment, labor standards, and fiscal policy have brought renewed focus on prevailing wages and has sparked renewed study of prevailing wage impacts.

“ a robust and growing body of evidence shows prevailing wages to be a key labor standard undergirding the middle class ”

While a robust and growing body of evidence shows prevailing wages to be a key labor standard undergirding the middle class, local economic development, and construction industry workforce development at no additional cost to taxpayers, legislation that aims to repeal or weaken prevailing wage standards is perennially introduced in states across the country.

Careful analysis of construction costs reveals that there is no consistent evidence that prevailing wage policies impact overall construction costs.¹ The results indicate that contractors faced with prevailing wage and other requirements deploy a combination of strategies to minimize project costs, which include increasing productivity through heightened managerial and job-site efficiency, the substitution of equipment for labor, and/or the employment of highly skilled and trained workers.²

Our study aims to analyze the statewide economic impacts of prevailing wages by modeling changes in how the construction industry uses materials, services, and labor to produce a finished product. This differs from traditional economic analyses of prevailing wage policy which focus on just one or two measures like construction costs, productivity, and investments in

safety and workforce development, and earned benefits like health care and retirement security, rather than the impacts of the policy on the economy as a whole.

This recognition is key because while the construction process is generally similar across the nation, the construction industries in states with and without prevailing wage laws differ markedly in how they are organized. These structural differences extend beyond the wages earned by construction workers to include materials use rates, management productivity, local subcontracting rates, income distributions for both construction and administrative workers, provision of earned benefits, and other factors. In the interest of providing the most complete information possible, we have included an Appendix at the end of the study which provides the raw data used to achieve these results.

“ there is no consistent evidence that prevailing wage policies impact overall construction costs ”

UNDERSTANDING ECONOMIC IMPACT ANALYSIS

An activity has an economic impact if it draws, or attracts “new dollars” to a region. When these funds are spent within the region, additional economic activity takes place. For example, California’s prevailing wage standard is associated with middle-class incomes for the state’s construction workers. Additional economic activity is induced as construction industry employees spend a portion of their income in their communities.

This process is often referred to as a “ripple effect”, where the initial stimulus to a local economy — the spending by California construction workers — is multiplied as additional local rounds of income, spending, and job creation take place. Because of the ripple effect, the total impact of construction worker spending on the California economy will be larger than the initial spending by these workers. Relatedly, since prevailing wages are also associated with higher shares of construction spending with in-state firms as is shown later, public works expenditures are more

likely to be reinvested into a local workforce. The data also indicates that prevailing wage laws help shift construction business revenues back into the economy instead of being retained. This shift produces a measurable increase in spending in California — resulting in more economic activity and job creation due to the state’s prevailing wage law.

“ California's prevailing wage standard is associated with middle-class incomes for the state's construction workers. ”

THE IMPLAN ECONOMIC IMPACT SOFTWARE

This economic impact study uses the IMPLAN software and data for the state of California to estimate the ripple, or multiplier, effect of the spending associated with the state's prevailing wage standard. Specifically, this software (IMPLAN) is used to estimate the impact on state-level economic activity, employment, and tax revenue. IMPLAN (Impact analysis for PLANNing) was originally developed by the U.S. Department of Agriculture to assist the Forest Service with land and resource management planning. The Minnesota IMPLAN Group (MIG) started work on the data-driven model in the mid-1980s at the University of Minnesota. The software was privatized in 1993 and made available for public use. The software contains an input-output model with data available at the zip-code, county, state, and national levels.

Input-output analysis measures the inter-industry relationships within an economy. Specifically, input-output analysis is a means of measuring the market transactions between businesses and between businesses and consumers. This framework allows for the examination of how a change in one sector affects the entire economy. In this way, input-output analysis is able to analyze the economic effects of policy alternatives by measuring the multiplier, or ripple effect, as an initial change in one industry that stimulates further changes in transactions between other businesses and households.

The results reported in this study are based on industry figures from the 2007 Economic Census (the most recent available as of August 2014), income distributions in the 2011 5-year American Community Survey, and 2007-2009 health care industry spending proportions from the National Health Expenditures Survey. IMPLAN deflators are used to adjust for changes in prices over time. The results are reported in 2014 dollars.

“ this software (IMPLAN) is used to estimate the impact on state-level economic activity, employment, and tax revenue ”

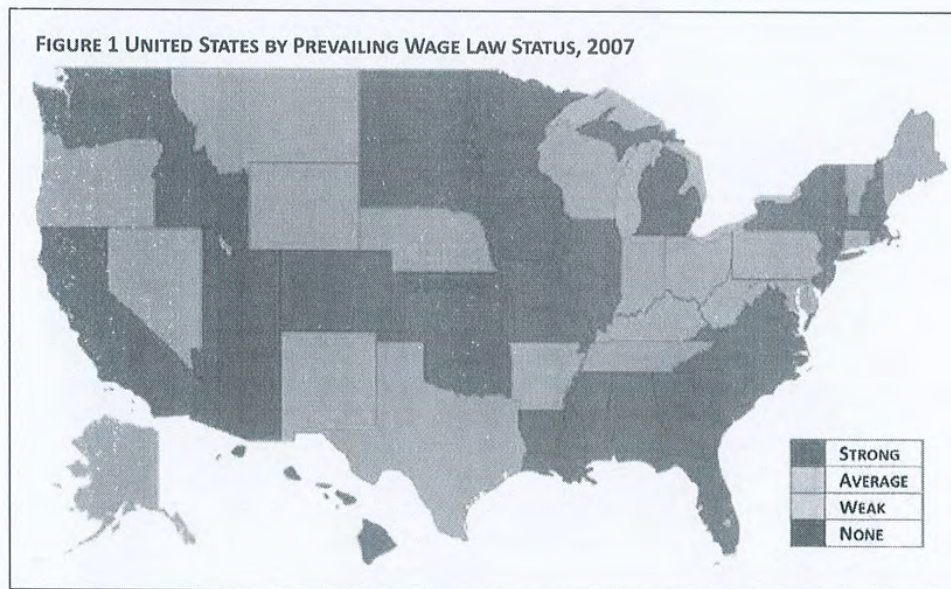
THE DUAL WORLDS OF THE CONSTRUCTION INDUSTRY

The nation's construction industry is incredibly diverse, employing 6 million persons in more than 650,000 establishments, comprising approximately 5% of Gross Domestic Product and 4% of national non-farm employment in 2013.³ However, this national total obscures significant differences in how the industry is organized around the nation.

In this study, we divide the United States into two groups of states: 26 states with average and strong prevailing wages laws and 24 states with weak or no prevailing wage laws.⁴ The prevailing wage states account for 56% of the nation's population, 53% of \$1.33 trillion of construction output and 52% of the industry's total employment, yet 57% of its construction wages paid and 63% of the industry's earned-benefit payments.⁵ Figure 1 below maps the states by their prevailing wage status.

Relying on the Census of Construction, it is possible to break the industry down into its major cost components and examine the differences between the two groups, and how these groups compare to California. We know that states with "strong" and "average" prevailing wage laws, and those with "weak" and non-existent ones differ in ways other than this policy.

“ In the absence of prevailing wage laws, a contractor's search for cheaper labor is more likely to result in the use of more out-of-area subcontractors ”

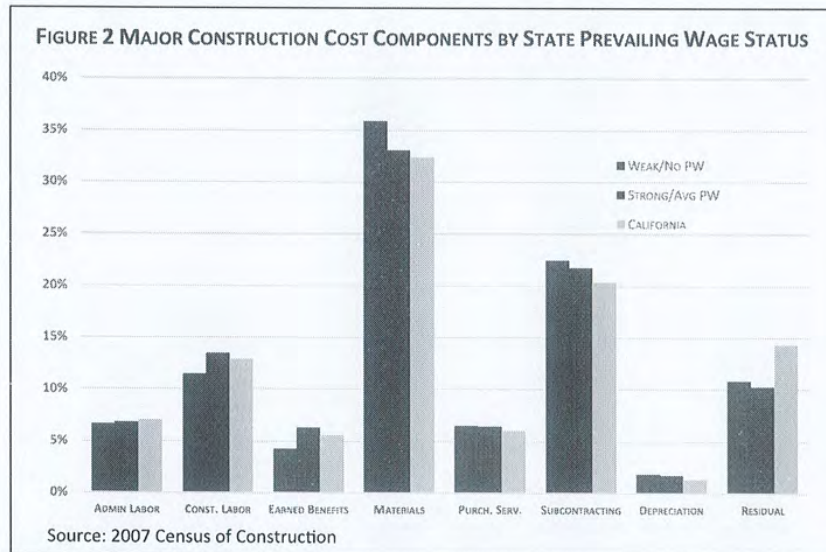


For example, while the construction process is generally similar nationwide, the differences in the methods and techniques between states are consistent with the differences economists expect when wages are higher or lower in an industry (or when PWL apply and when they do not). The payment of prevailing wages is associated both with a higher labor share of construction value and a higher rate of in-state contracting (discussed further below). In the absence of prevailing wage laws, a contractor's search for cheaper labor is more likely to result in the use of more out of area contractors that pay less than local area standards. Similarly, while the payment of middle-class sustaining wages tends to yield more skilled workers and more job site efficiencies, the data suggests that absence of prevailing wage standards has the opposite effect.

Apart from their overall size, clear differences between states with and without PWLs, as well as California's unique position between them, are visible in Figure 2. Consistent with economic research, we see that the cost of construction labor comprises a smaller share of overall construction value in states without PWLs, 11.5% vs. 13.5% and 12.9% in California. This translates into lower earnings for construction workers in non-PWL states. Also consistent with economic research, benefit payments are significantly lower in states without PWLs, 4.3% vs. 6.4%, and 5.6% in California.

“ payment of middle-class sustaining wages tends to yield more skilled workers and more job site efficiencies, the data suggests that absence of prevailing wage standards has the opposite effect ”

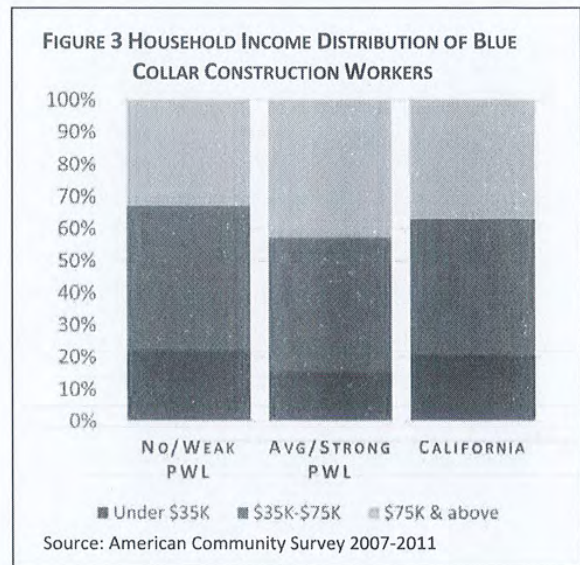
These national differences prove to be significant in the context of California's \$214 billion in total construction value, translating into more than \$9 billion of wages and health care and retirement investment for California's construction industry workforce.⁶ As table 2 makes clear, reductions in wages and earned benefit payments to these workers would be offset by dramatic increases in materials use. Similarly, we see that non-PWL states have higher rates of subcontracting and depreciation. The balance of the difference in labor, materials, and services goes to firm owners as pre-tax earnings in non-PWL states at 10.8% compared to 10.3% in PWL states. Construction business profits in California, likely driven by the massive run-up in construction values preceding the recession, was significantly higher than either group at 14.3%.



INCOME AND EARNED BENEFITS

Similar to the differences in how the construction industries of PWL and non-PWL states deploy their resources, we also see differences in how wages are distributed among various income groups. While disparities exist for both construction workers and administrative staff, the lower share of construction value earned by construction workers in non-PWL states shows up as lower incomes overall and higher propensity to be in a lower income household.

Relying on the American Community Survey of households and adjusting for state-level price differences via the Bureau of Economic Analysis' Regional Price Parities Index,⁷ we grouped construction and administrative workers based on their total household incomes according to IMPLAN's income groups.⁸ Figure 3 shows the extent to which there are distributional differences between the states for construction worker households.



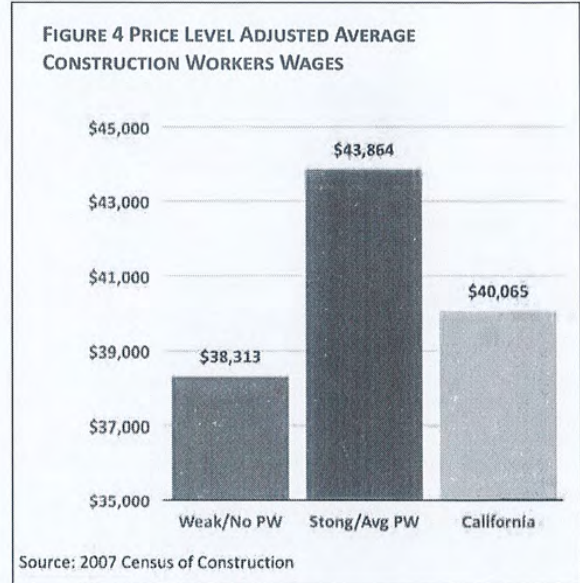
The differences between the groups were particularly pronounced with construction workers in non-PWL states both earning less themselves as well as having a higher likelihood of living in a lower income household than in a state with PWLs. More than 22% of construction worker households in non-PWL states have price level adjusted incomes of less than \$35,000/year. In PWL states that proportion is less than 16%, or 40% lower. In California, that proportion is a more modest 7% lower with less than 21% of its blue collar construction workers in these lower income households. Conversely, while 43% of construction worker households in PWL states and 37% in California had incomes over \$75,000/year, fewer than 33% of households were in that category in non-PWL states. These distributional differences have economic consequences as these households see reductions in disposable income that plays out as reduced spending across the economy.

Overall, according to the employer-reported Economic Census, construction workers in PWL states on average earned 14% more in wages than their counterparts in non-PWL states after taking into account regional price parities. California's per capita construction worker payroll exceeded that of non-PWL states by a more modest 5%, as shown in Figure 4.⁹

DEBUNKING THE MYTHS — UNDERSTANDING INCOME AND BENEFITS IN CONTEXT

Over the years, opponents of prevailing wage policies have regularly asserted that because PWL workers generally receive higher wages and benefits than their non-PWL counterparts, savings can be found by simply eliminating prevailing wage policies.

This is false. A substantial body of existing research has already shown no material difference in project cost between PWL and non-PWL projects. Research has also highlighted other “hidden” cost factors associated with non-PWL projects. For example, a recent study in California by Working Partnerships found that the average non-PW worker could expect to qualify for up to \$8,032 in taxpayer funded public assistance per year, while PW workers would qualify for no public assistance at all. This staggering disparity is especially notable, because it would reflect a substantial added cost associated with non-PW projects that is never included in overall project cost estimates.¹⁰



There are several other factors — some of which will be discussed in the balance of this paper — that must also be weighed in any evaluation of prevailing wage policies. These include the economic impact of increased local hiring and more spending by PWL workers in their local communities; as well as industry adjustments to prevailing wage that yield increased labor productivity and reduced spending on items like materials, fuel, equipment rental and purchased services.

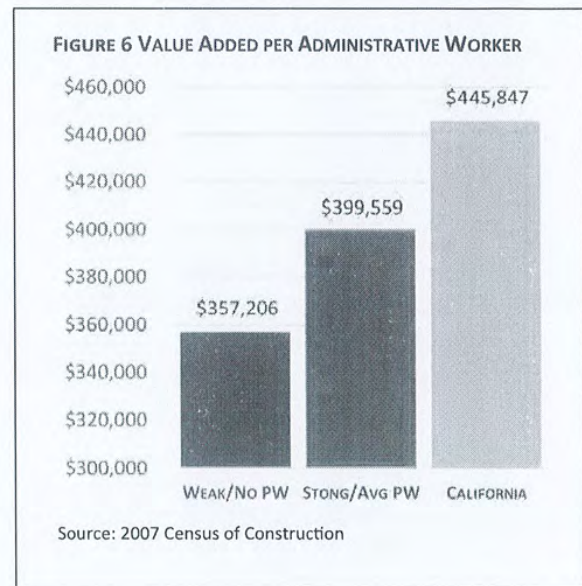
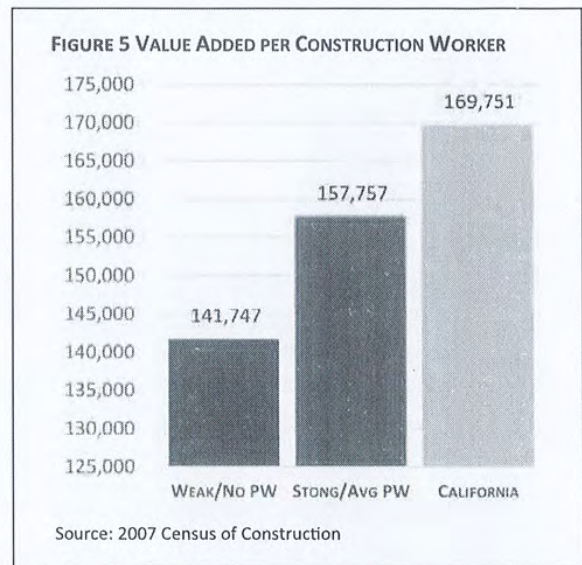
“ a recent study in California by Working Partnerships found that the average non-PW worker could expect to qualify for up to \$8,032 in taxpayer funded public assistance per year, while PW workers would qualify for no public assistance at all. ”

WORKER PRODUCTIVITY

Greater productivity is one of the principal adjustment responses to prevailing wage policies. Cross-state productivity differences show up in measures of average value added per worker, a measure of labor efficiency, and reduced materials use. For example, Figure 2 shows that significantly higher share of construction value is taken by materials, fuels, and rental equipment in non-PWL states compared to both average PWL states as well as California. California's case is particularly noteworthy because of the state's seismic and energy efficiency standards that tend to require more sophisticated building systems and more expensive material inputs. Especially so, considering the strongest regulations are in the state's largest construction markets — Los Angeles and the San Francisco Bay Area.

“ Greater productivity is one of the principal adjustment responses to prevailing wage policies ”

The higher productivity of the prevailing wage workforce — measured through average value added per worker — is demonstrated in figures 5 and 6. Figure 5 shows that the average California construction worker contributes 20% more value than peers in non-PWL states, and avg. PWL construction workers contribute 11% more value than peers in Non-PWL states. One of the principal arguments in support of prevailing wage laws is that by anchoring construction wages to a common standard, construction firms do not just need better trained construction workers, but also more effective project management. Here again we see a stark difference between the groups, with California and PWL states showing administrative productivity levels of 25% and 12% higher than the average non-PWL state.

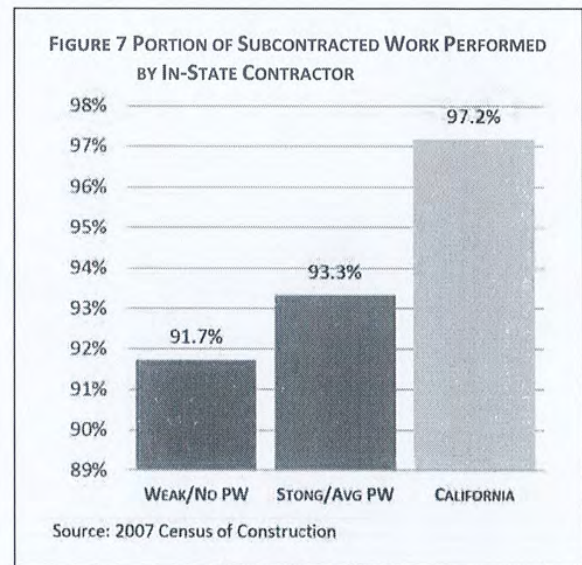


LOCAL CONTRACTING

Advocates have likened prevailing wage regulations to California's Local Hiring ordinance. That description is apt both for California and other PWL states. According to the Economic Census, California enjoys a significantly higher rate of in-state contracting than its nearby non-PWL counterparts, as does the average state with a PWL as shown in Figure 7. Although it is tempting to ascribe California's high local contracting rate¹¹ to the distance of its major coastal construction markets from neighboring states, a comparison of other Western states shows a similar divergence (95.2% vs. 92.1%) in local contracting rates between PWL and non-PWL states.

Although the state data examined in this study does not allow for a regional analysis, the same dynamic is likely to hold at smaller geographic levels. This is particularly true in California where expensive coastal markets with higher wages and low-unemployment abut large regions driven by low construction spending, lower wages, and high unemployment. In such an environment, the absence of locally benchmarked labor standards or administrative impediments (i.e. licensing as with out-of state contractors) would orient the "lowest bidder" process towards out-of-area contractors. The resulting process would undercut area wages and drive down standards while local tax dollars are "offshored" and sent to the contractors' home regions.

One case study of two similar library projects in Santa Clara County, CA that began about the same



time in 2011 — one built with prevailing wage, and one without neatly illustrates this point. A comparison of initial hiring on these two projects revealed that the prevailing wage project had a 71% regional contracting share while the non-prevailing wage project came in under 12%.¹² It is also notable to point out that the prevailing wage project was completed on time and on budget while its counterpart remained incomplete and delayed for more than two years, before it was finally completed after running significantly over contracted cost and a change in contractors.

“ Advocates have likened prevailing wage regulations to California’s Local Hiring ordinance ”

TOTAL SPENDING SHIFT SCENARIOS

As we have shown, the construction industries of PWL and non-PWL states behave differently in a variety of ways. In this section we calculate the economic ripple effects of transforming California's construction industry to resemble a non-PWL state.¹³

To ensure a reliable range of how construction spending would change with weaker PWL laws, we used two methods of calculating the expenditure shifts, and each yielded similar results.

The first method takes California's 2007 \$171B net construction expenditures (total construction values, less subcontracted work), and shows how spending in major categories would change if these expenditures shifted from that of an average PWL state to that of an average non-PWL state.

Mathematically, this scenario is expressed as:
 $CAf(AvgPW) - CAf(AvgNoPW)$

In the second scenario, we take the same \$171B net construction expenditures and subtract from it a proportionally scaled distribution (rather than average in Scenario 1) of an average PWL state to an average non-PWL state.

Mathematically, the second scenario is expressed as:
 $CAf(CA) - CAf(AvgNoPW/AvgPW)$

Figure 8 presents the results of each of these scenarios side by side, showing similar and notable results.

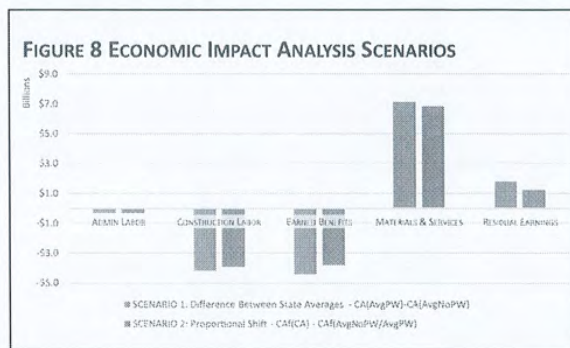
The findings of this analysis are significant. They show a substantial shift from wage and benefit expenditures toward increased materials expenditures and residual earnings, and this shift has broad based negative economic impacts.

“PWL states stimulate local economies by returning more of their public works construction investment to their communities than their non-PWL counterparts.”

The most compelling findings regarding this shift are:

- ▶ Between \$8B and \$8.9B in lost income and benefits to California construction professionals
- ▶ Between \$8B and \$8.9B in increased expenditures on materials, fuels, equipment rentals and residual earnings.

In simple terms, PWL states stimulate local economies by returning more of their public works construction investment to their communities than their non-PWL counterparts.



MODELING RESULTS

In order to gain a more complete understanding of how the elimination of prevailing wage would influence California's economy, it is necessary to understand current policy impacts across the economic spectrum.

Overall, prevailing wage policies result in a net gain of 17,500 jobs to California's economy, \$1.5 billion in labor income, and a more productive construction industry that minimizes its reliance on taxpayers to make up the shortfall in workers' earnings through public assistance programs. Overall, economic output increases \$1.4 billion.

The broadly defined Business and Personal Services sector shows a gain of \$2.6 billion labor income, \$5.9 billion in output, and nearly 39,000 jobs. Public service workers realize \$303 million in labor income and more than 2,900 jobs and \$380 million in output. Because construction is reflective of broader economic activity, that sector creates more than 3,900 jobs, nearly \$275 million in labor income and more than \$530 million of output.

Despite the cost neutrality of the internal shifts among the major expenditure groups envisioned in our analysis, clear differences can be seen once these shifts are modeled in IMPLAN (summary IMPLAN results available in the Appendix). Prevailing wage workers are more efficient, resulting in less job-site waste and directly leading to less spending on materials. Consequently, increased efficiency reduces demand for the sectors most associated with these expenditures as it also reduces the environmental impacts of producing and transporting those materials.

In practice this means the 45,500 jobs gained with prevailing wage policies in place are offset by 3,100 fewer jobs in the Agriculture, Mining, and Tech/Info sectors and approximately 24,900 fewer jobs in the Manufacturing and Trade sectors.

In the end, it is clear that significant and broad reaching negative effects would impact California's economy if existing prevailing wage laws were eliminated.

“ Overall, prevailing wage policies result in a net gain of 17,500 jobs to California's economy ”

CONCLUSION

The elimination of prevailing wage in California would have broad reaching economic impacts, including the loss of thousands of jobs, billions in lost income and economic activity, a less productive construction industry workforce, a less efficient construction industry overall, and far more full time workers at risk of living in poverty.

For decades, a body of research has accumulated detailing the effects of prevailing wage on economies, governments, construction standards, and workers. Past studies have shown that prevailing wage has similar costs, creates a safer work environment, supports job ladders for workforce development, and ensures less dependence on public assistance.

Our findings in this study add a new dimension to the existing body of research, demonstrating prevailing wage's real and substantial benefits to California in terms of employment levels and incomes.

Our research also shows that California's prevailing wage policy provides extensive benefits to the state's construction workforce and the construction industry as a whole. In addition to boosting construction industry productivity, prevailing wage policies increase rates of local subcontracting, and improve efficiency to both construction project management and materials and fuels usage.

In addition to the \$8-\$8.9 billion in additional wages and benefits afforded to the construction industry's blue and white collar workers, the ripple effects from these prevailing wage policies help add more than 17,500 jobs and \$1.4 billion of output to California's economy. As a point of comparison, California has

added an average of 26,000 jobs per month since coming out of the deep recession of 2008. These additional jobs pump more than \$1.5 billion in additional labor income into the overall California economy, concentrating the benefits in Personal services like health care and retail, construction, and public services.

Finally, because the benefits of prevailing wage come at neutral costs to California taxpayers as they would with no prevailing wage laws, it is clear that prevailing wage policies pairing strong labor standards with a competitive public contracting process provide taxpayers with a far better return on investment for publicly funded construction projects than the weaker (non-PWL) labor standard alternative.

END NOTES

- 1 A recent study of WV school construction revealed that costs in WV, a prevailing wage state, were substantially lower than school construction costs in surrounding states that do not pay prevailing wage. The study is available at <http://www.smartcitiesprevail.org/wp-content/uploads/2015/02/ExecSummaryWVKelsayStudy.pdf>
- 2 For a review of the several generations of academic studies of prevailing wage cost implications, see Kevin C. Duncan (2011), "An Analysis of Davis-Bacon Prevailing Wage Requirements: Evidence from Highway Resurfacing Projects in Colorado," available for download via the website of the Colorado state legislature: <http://www.smartcitiesprevail.org/wp-content/uploads/2015/01/HseLocal0125AttachB.pdf>
- 3 FRED, Federal Reserve Economic Data, from the Federal Reserve Bank of St. Louis. The construction industry has weathered significant challenges since its 2006 peak, losing approximately almost 4 out of every 10 of its workers and two-thirds of the inflation adjusted value of construction put in place at the recession's bottom in 2010. Since then the industry has recovered only 17% of the real loss in construction value and only 14% of the jobs lost between 2007 and 2010.
- 4 State-level prevailing wage laws were coded using an approach developed by Armand J. Thieblot in *Prevailing Wage Legislation: The Davis-Bacon Act, State "Little Davis-Bacon" Acts, The Walsh-Healey Act, and The Service Contract Act* (Philadelphia: The Wharton School, University of Pennsylvania, 1986). Thieblot evaluated the strength of prevailing wage laws across several dimensions including the dollar limit at which they apply, the projects they cover, and the determination method. The authors updated Thieblot's classifications reflective of subsequent policy changes and our own judgment. For the purposes of this analysis, we refer to states with weak laws as non-PWL states. A summary of recent state-level prevailing wage characteristics is available at www.cga.ct.gov/2010/rpt/2010-R-0526.htm.
- 5 2007 Census of Construction.
- 6 We use net construction value for the purposes of our analysis, subtracting subcontracting costs because the expenses incurred by those subs are already reflected in the production function categories.
- 7 We relied on the 2008 Regional Price Parities Index, the first year available for the series.
- 8 IMPLAN reports household incomes in nine intervals. These are <\$10k, \$10k-15k, \$15k-25k, \$25k-35k, \$35k-50k, \$50k-75k, \$75k-100k, and >\$150k. We collapse these groups in the charts for clarity. Complete distributions are available in the Appendix.
- 9 A discussion of California's divergence from other avg./strong-PWL states is beyond the scope of this brief. Future research will investigate demographic factors and variation in the relative weights across states of the various sub-sectors of the construction industry.
- 10 Working Partnerships USA, "Economic, Fiscal and Social Impacts of Prevailing Wage in San Jose, CA", Economic Policy Brief, April 25, 2011: http://wpusa.org/5-13-11%20prevailing_wage_brief.pdf
- 11 Defined here as the percentage of construction value performed by contractors domiciled in the state.
- 12 Working Partnerships USA, "Economic, Fiscal and Social Impacts of Prevailing Wage in San Jose, CA", Economic Policy Brief, April 25, 2011: http://wpusa.org/5-13-11%20prevailing_wage_brief.pdf
- 13 Detailed tables showing the sectoral shifts for both scenarios are available on the Smart Cities Prevail website at: <http://www.smartcitiesprevail.org/wp-content/uploads/2015/01/Detailed-Spending-Shift-Scenarios.pdf>.

APPENDIX

	Net Value Of Construction	Admin Labor	Const. Labor	Earned Benefits	Materials	Purchased Services	Depreciation	Residual	Residual %	Subcontracting
Weak/No PW	\$ 604,521,655	\$ 51,683,372	\$ 89,452,945	\$ 33,364,758	\$ 279,977,385	\$ 50,839,847	\$ 14,545,317	\$ 84,658,031	14%	\$ 175,278,159
Strong/Avg PW	\$ 722,613,353	\$ 63,129,402	\$ 124,517,822	\$ 58,509,257	\$ 305,660,968	\$ 59,712,559	\$ 16,016,346	\$ 95,066,999	13%	\$ 200,719,012
California	\$ 171,035,867	\$ 15,122,744	\$ 27,788,717	\$ 11,937,708	\$ 69,528,873	\$ 13,005,196	\$ 2,884,281	\$ 30,768,348	18%	\$ 43,663,343
Weak/No PW		8.5%	14.8%	5.5%	46.3%	8.4%	2.4%			28.99%
Strong/Avg PW		8.7%	17.2%	8.1%	42.3%	8.3%	2.2%			27.78%
California		8.8%	16.2%	7.0%	40.7%	7.6%	1.7%			25.53%
WHAT IF CA AVG NON PWL										
	171,035,867	\$ 14,622,653	\$ 25,308,708	\$ 9,439,811	\$ 79,213,332	\$ 14,383,996	\$ 4,115,272	\$ 23,952,094		\$ 49,591,031
WHAT IF CA'S (fp) scaled to Avg PW ratio										
	171,035,867	\$ 14,942,143	\$ 29,472,212	\$ 13,848,598	\$ 72,347,111	\$ 14,133,408	\$ 3,790,920	\$ 22,501,475		\$ 47,508,325
WHAT IF CA'S (fp) adjusted by O/1 shift										
	171,035,867	\$ 14,799,392	\$ 23,863,039	\$ 8,137,265	\$ 76,127,625	\$ 13,235,781	\$ 3,131,060	\$ 31,741,705		\$ 45,577,489
BENEFITS ALLOCATION										
AvgPW-AvgNoPW Income shift										
Description	TOTAL	HEALTH CARE	H.C. ADMIN	PENSION	PENSION ADMIN					
		65%		35%						
ADMIN/BENEFIT SPLIT		85%	15%	98%	2%					
TOTAL BENEFITS	\$ 3,880,280,406	\$ 2,143,854,924	\$ 378,327,340	\$ 1,330,936,179	\$ 27,161,963					
356: Brokers	\$ 27,161,963				\$ 27,161,963					
357: Insurance Carriers	\$ 378,327,340		\$ 378,327,340							
394: Offices of physicians, dentists, and other health practitioners	\$ 1,060,111,881	\$ 1,060,111,881								
395: Home health care services	\$ 105,791,684	\$ 105,791,684								
396: Medical and diagnostic labs and outpatient and other ambulatory care services	\$ 95,192,528	\$ 95,192,528								
397: Private hospitals	\$ 882,758,831	\$ 882,758,831								
Capital	\$ 1,330,936,179			\$ 1,330,936,179						
	\$ 3,880,280,406	\$ 2,143,854,924	\$ 378,327,340	\$ 1,330,936,179	\$ 27,161,963					
CA-NoPW/AvgPWL shift										
Description	TOTAL	HEALTH CARE	H.C. ADMIN	PENSION	PENSION ADMIN					
		65%		35%						
ADMIN/BENEFIT SPLIT		85%	15%	98%	2%					
TOTAL BENEFITS	\$ 3,299,519,234	\$ 1,822,984,377	\$ 321,703,125	\$ 1,131,735,097	\$ 23,096,635					
356: Brokers	\$ 23,096,635				\$ 23,096,635					
357: Insurance Carriers	\$ 321,703,125		\$ 321,703,125							
394: Offices of physicians, dentists, and other health practitioners	\$ 901,445,044	\$ 901,445,044								
395: Home health care services	\$ 89,957,854	\$ 89,957,854								
396: Medical and diagnostic labs and outpatient and other ambulatory care services	\$ 80,945,072	\$ 80,945,072								
397: Private hospitals	\$ 750,636,407	\$ 750,636,407								
Capital	\$ 1,131,735,097			\$ 1,131,735,097						
	\$ 3,299,519,234	\$ 1,822,984,377	\$ 321,703,125	\$ 1,131,735,097	\$ 23,096,635					
ACS Income Distributions										
	NAICS 23 Blue Collar Construction Workers			NAICS 23 White Collar Workers						
	No/Weak PWL	Avg/Strong PWL	California	No/Weak PWL	Avg/Strong PWL	California				
<10K	0.7%	0.5%	0.7%	0%	0%	0%				
10K-15K	1.9%	1.2%	1.9%	0%	1%	1%				
15K-25K	8.0%	5.3%	7.5%	2%	2%	2%				
25K-35K	11.6%	8.4%	10.6%	5%	4%	4%				
35K-50K	18.8%	15.3%	16.8%	10%	9%	10%				
50K-75K	26.2%	26.4%	25.6%	20%	20%	19%				
75K-100K	16.3%	19.4%	16.8%	20%	20%	19%				
100K-150K	12.2%	17.1%	14.5%	25%	26%	25%				
>150K	4.3%	6.3%	5.6%	17%	19%	21%				

APPENDIX

IMPLAN Results

SCENARIO 1: Difference Between State Averages

Summary Impacts

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	7,844.3	(\$135,589,999)	\$923,948,214	\$1,850,599,581
Indirect Effect	3,868.6	\$295,523,662	\$479,041,689	\$1,342,617,236
Induced Effect	-30,394.4	(\$1,819,964,226)	(\$3,036,149,103)	(\$4,855,202,295)
Total Effect	-18,681.5	(\$1,660,030,564)	(\$1,633,159,199)	(\$1,661,985,478)

Detailed Employment Impacts, Aggregated by Industry Sector

Sector	Description	Direct	Indirect	Induced	Total
0	Total	7,844.3	3,868.6	-30,394.4	-18,681.5
1	Agriculture	675.1	797.7	-179.8	1,293.0
2	Mining	671.4	410.5	-45.6	1,036.4
3	Construction	-3,531.4	352.7	-992.6	-4,171.2
4	Manufacturing	11,096.6	1,031.6	-900.0	11,228.2
5	TIPU	93.2	1,569.6	-820.4	842.4
6	Trade	20,611.3	367.9	-6,680.5	14,298.7
7	Service	-21,771.6	-727.6	-17,837.0	-40,336.2
8	Government	-0.2	66.1	-2,938.7	-2,872.8

SCENARIO 2: Proportional Shift

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	10,413.0	\$104,926,631	\$1,165,593,217	\$2,236,602,400
Indirect Effect	4,828.0	\$352,894,825	\$574,935,887	\$1,479,579,086
Induced Effect	-31,587.2	(\$1,886,480,244)	(\$3,147,153,555)	(\$5,034,082,171)
Total Effect	-16,346.3	(\$1,428,658,788)	(\$1,406,624,452)	(\$1,317,900,685)

Detailed Employment Impacts, Aggregated by Industry Sector

Sector	Description	Direct	Indirect	Induced	Total
0	Total	10,413.0	4,828.0	-31,587.2	-16,346.3
1	Agriculture	647.8	769.3	-186.7	1,230.3
2	Mining	650.1	396.6	-46.4	1,000.3
3	Construction	-2,996.4	354.0	-992.9	-3,635.3
4	Manufacturing	10,683.8	1,062.7	-924.7	10,821.9
5	TIPU	95.5	1,548.8	-851.3	793.0
6	Trade	19,844.0	421.6	-6,878.0	13,387.6
7	Service	-18,511.7	196.2	-18,671.0	-36,986.5
8	Government	-0.2	78.7	-3,036.1	-2,957.6

TRAINING THE GOLDEN STATE

AN ANALYSIS OF CALIFORNIA APPRENTICESHIP PROGRAMS



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DECEMBER 2020

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Dan Calamuci received his Bachelor of Arts degree from The George Washington University, and his Masters of Science in Labor Studies from the University of Massachusetts-Amherst. Calamuci has been a labor and economics researcher for nearly two decades, with a concentration on the construction industry since 2007. He has provided testimony to numerous public bodies, including the City of San Francisco, the City of Stockton, Alameda County, and the California State Senate. A San Francisco resident, Calamuci was appointed by the San Francisco Municipal Transit Authority to the Geary Community Advisory Committee.

ABOUT SMART CITIES PREVAIL

Smart Cities Prevail is a 501c(4) national non-profit research and educational organization that collaborates with leading academics, elected officials, employers and labor organizations to promote public policies and contracting standards that deliver the best possible value for our economy and the taxpaying public.

TRAINING THE GOLDEN STATE

AN ANALYSIS OF CALIFORNIA APPRENTICESHIP PROGRAMS

Currently training over 67,000 students, registered apprenticeships in California's construction industry are critical to ensuring the State maintains a highly skilled and productive construction workforce. Primarily supported by employers and construction trade unions, apprenticeship programs help California contractors recruit, train and retain workers and ensure that they will have a stable skilled workforce for years to come. For thousands of California workers, apprenticeship is the "escalator to the middle class" providing an opportunity to build a stable, family supporting career that is not dependent on a college degree. With a combination of on site and classroom training, apprenticeship offers an opportunity to "earn while you learn" to California's diverse workforce, at no cost to taxpayers.

KEY FINDINGS

- Construction industry apprenticeships enroll more students than any single college or university undergraduate program in California
- There are two types of construction apprenticeship programs— "joint" programs administered by trade unions and funded by specified per hour contributions from participating employers and "employer only" programs that are principally funded by voluntary contributions from employers.
- Joint apprenticeship programs train 92% of California's apprentices
- Two-thirds of California apprentices are people of color
- Joint apprenticeships train 97% of female construction apprentices
- Joint apprenticeship invests hundreds of millions per year in training, while also spending more on training per student than "employer only" counterparts.
- Because of increased wages and lack of student debt, a construction apprenticeship can be a better option for many young people than a more traditional undergraduate program.
- Graduates of joint apprenticeship programs earn more money immediately upon completion than graduates of "employer-only" programs.



APPRENTICESHIP IN CALIFORNIA

The current system of registered apprenticeship in the United States was established in 1937 through the National Apprenticeship Act, which established minimum standards for the certification of programs and graduates. The California Apprenticeship Council was established with passage of the Shelley-Maloney Labor Standards Act of 1939, which oversees apprenticeship programs in the State to this day.

Apprenticeship is supported by a tri-partite system of business, labor, and government. Key to the continued success of the State's apprenticeship programs are California's strong prevailing wage laws and regulations. Labor Code Section 1777 requires that contractors on publicly funded construction projects employ a minimum number of apprentices in relation to the number of journeypersons on the site. The induced demand created by prevailing wage law is key to ensuring successful outcomes for students and programs. Requiring contractors to employ apprentices means that students have ample work opportunities, thus acquiring the on-the-job skills they will need for an eventual career in the construction industry.

While construction apprenticeship programs vary by craft, all share some essential features. Programs are a combination of both class time and job site time, with apprentices required to complete a specified number of class and work hours.

As apprentices complete a specified amount of work and classroom hours, wages and contributions to various benefit funds increase.

Registered apprenticeships are supported by training fund contributions from participating employers which allow them to be offered at no-cost to participants. Joint programs are typically funded via a cents per hour contribution from union signatory employers (the amount will vary based on the collective bargaining agreement). Employer-only programs have no such dedicated funding stream, and instead are reliant on voluntary contributions from participating employers. Research shows that the voluntary nature of the employer-only apprenticeship funding model can create an incentive for large swaths of the industry to forego long-term workforce development investments in order to win short-term bids (Littlehale, 2019).

As apprentices complete a specified amount of work and classroom hours, wages and contributions to various benefit funds increase. The typical apprenticeship takes three to four years to complete. Upon completion, journeypersons have transferrable skills, allowing them to work for any employer in their craft, in any area of the country.



WHO TRAINS TOMORROW'S WORKFORCE

JOINT PROGRAMS LEAD THE WAY

Registered apprenticeships in the construction industry are “the largest privately-financed system of higher education in the country (Philips, 2014). According to the Division of Apprenticeship Standards (DAS), approximately 67,467 California residents were actively enrolled in an approved apprenticeship program in 2020 (DAS, 2020).

In the construction industry, apprenticeship programs can largely be divided into two categories. Joint (sometimes referred to as “union” or “union affiliated”) apprenticeship programs are funded, governed, and managed by both employers and labor unions. Employer-only, or “unilateral” programs are primarily funded through voluntary contributions and managed exclusively by employers, usually through small non-union employer associations such as the Associated Builders and Contractors.

The largest programs in California are exclusively joint apprenticeship programs. Table 1 below shows the top ten programs in California, ranked by active students as of February, 2020.

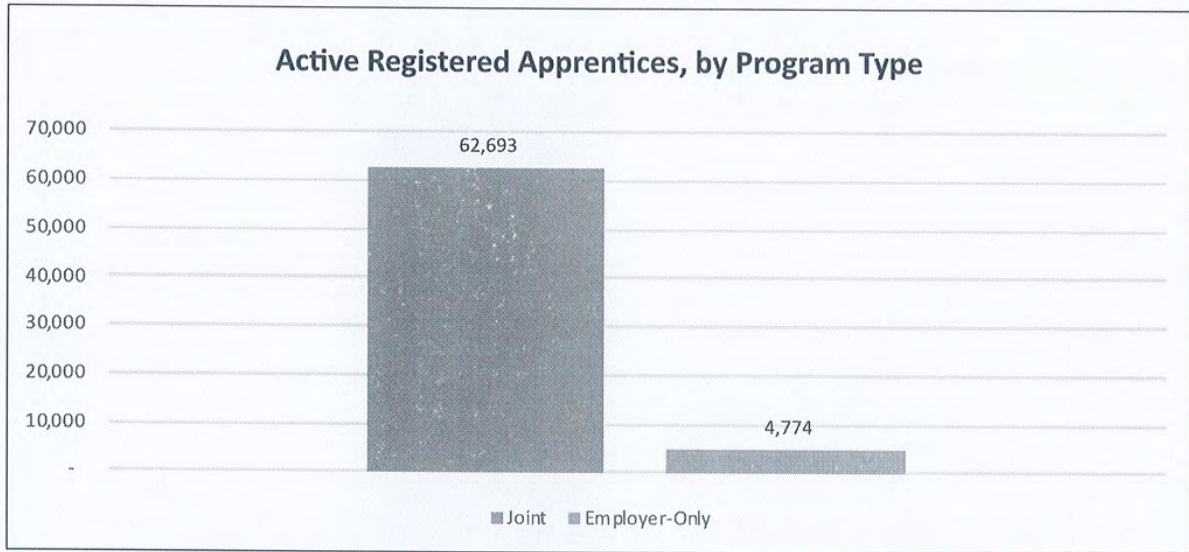
Table 1:

RANK	PROGRAM	LOCATION	ACTIVE APPRENTICES, 2020
1	Southwest Carpenters Training Fund	Los Angeles	13,962
2	Carpenters Training Committee for Northern California	Pleasanton	6,347
3	Laborers Training and Re-training fund Southern California	El Monte	3,957
4	California Ironworkers Apprentice Training	Pasadena	3,730
5	Laborers Training and Re-Training for Northern California	San Ramon	4,826
6	Apprentice and Journeyman training of Southern California Plumbing, Heating, and Piping Industry	Van Nuys	2,629
7	District Council 16 Northern California	San Leandro	2,161
8	Los Angeles Electrical Joint Apprenticeship	Commerce	1,833
9	District Council 36 Southern California	Commerce	1,253
10	Operating Engineers, Northern California	Alameda	1,165

Source: Author's Analysis: Division of Apprenticeship Standards database of registered apprentices, 2020



While a handful of employer-only programs do operate in a few crafts, joint programs train most of California's apprentices. The chart below shows joint apprenticeships train 92% of California's construction apprentices. Further, while joint apprenticeships operate in every construction craft, employer-only apprenticeships are limited to a handful of occupations (primarily the electrical, carpentry, laborer, and plumbing crafts).



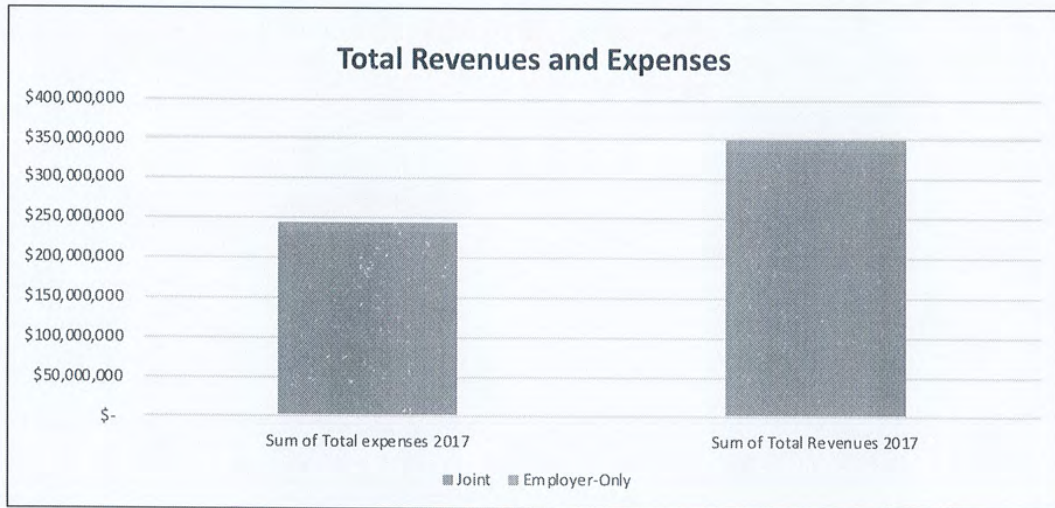
Source: Author's Analysis: Division of Apprenticeship Standards database of registered apprentices, 2020

Unlike their employer-only counterparts, joint apprenticeships are located in every region of the State. For example, while the employer-only Northern California A.B.C. Carpentry apprenticeship has only one space for classroom and shop instruction (Livermore), the jointly administered Carpenters Training Committee for Northern California has recently invested approximately \$50,000,000 on two new state of the art training centers, and now operates in Pleasanton, Fairfield, Morgan Hill, and Fresno.



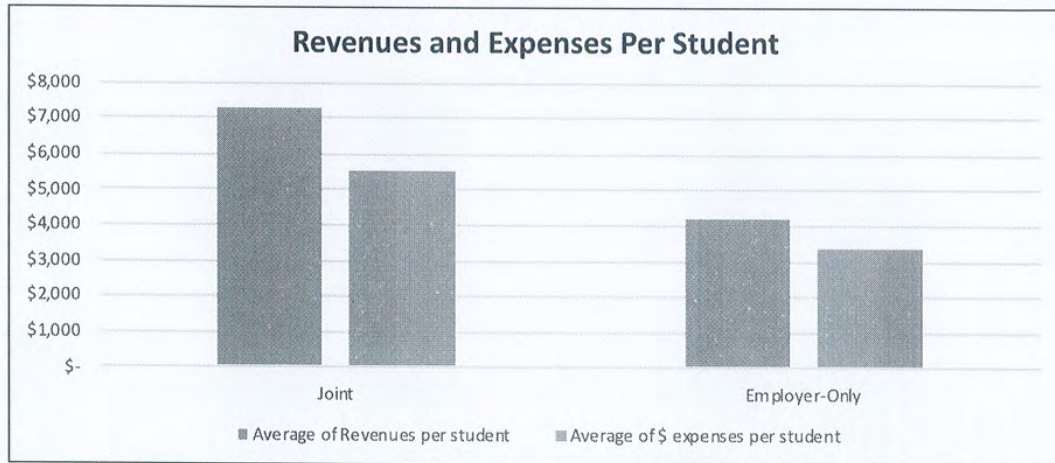
INVESTMENTS IN CALIFORNIA'S FUTURE

Funded primarily via hourly contributions from participating employers, construction apprenticeship programs, in particular joint apprenticeship programs, invest hundreds of millions of dollars per year to train the overwhelming majority of California's construction apprentices. Using data compiled from IRS Form 990, it is estimated that in 2017 (the last year complete data was available), construction apprentice programs had total revenues of \$351 Million in 2017, and \$264 Million in expenses. As shown below, joint apprenticeship program revenues and expenses were nearly 20 times the revenue and expenses for employer-only programs.



Source: Author's Analysis, 2018 IRS Form 990 Filings

Classroom time and job-site time should be the same in both joint and employer-only programs. However, revenues and expenses per student are higher amongst the joint programs than the employer-only programs, demonstrating the strong commitment to training by construction unions and their signatory contractors.

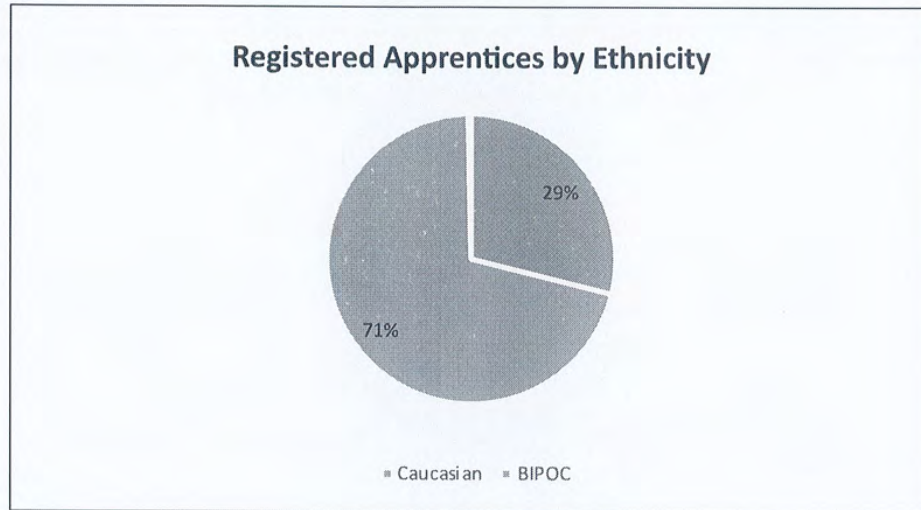


Source: Author's Analysis, 2018 IRS Form 990 Filings, Division of Apprenticeship Standards database of registered apprentices, 2018



WHO ARE CALIFORNIA'S APPRENTICES?

California's construction apprenticeships reflect the diversity of the State, both in its geography and ethnic diversity. Data from the Division of Apprenticeship show that in 2020, 71% of apprentices identified as BIPOC (Black, Indigenous, or Person of Color), with 29% non-Hispanic white. By way of comparison, California's overall population is 36.6% non-Hispanic white, according to 2018 estimates from the US Census.



Source: Author's Analysis: Division of Apprenticeship Standards database of registered apprentices, 2020

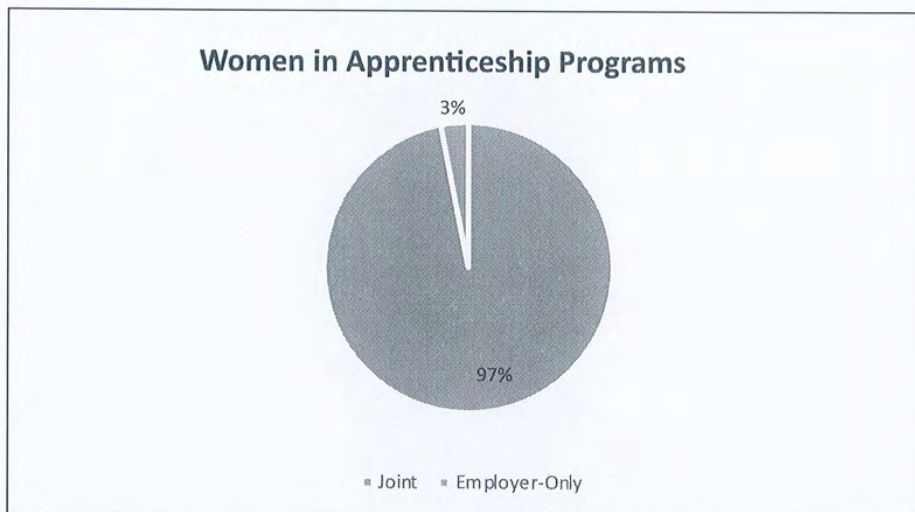
FROM HELMETS TO HARDHATS

Construction apprenticeships and the construction industry have long been pathways to the middle class for returning veterans. For example, through the "Helmets to Hardhats" program, transitioning active duty military, veterans, National Guard and Reservists are connected with construction careers and offered direct entry into apprenticeship programs. The relationship between "Helmets to Hardhats" and joint apprenticeship programs means that the overwhelming amount of veterans being trained in construction apprenticeship programs are trained via joint programs.

WOMEN IN THE TRADES

Joint apprenticeships are stepping up to meet the challenge of bringing more women into the ranks of the construction workforce. Starting with joint apprenticeship affiliated pre-apprenticeship programs, which often require that female students make up at least 20% of enrollees, joint apprenticeships now train 97% of female apprentices in California, even though joint apprenticeships train 92% of all apprentices. In other words, while joint programs are committed to expanding the ranks of female apprentices, the employer only programs have failed to promote gender diversity in the construction trades.





Source: Author's Analysis: Division of Apprenticeship Standards database of registered apprentices, 2020

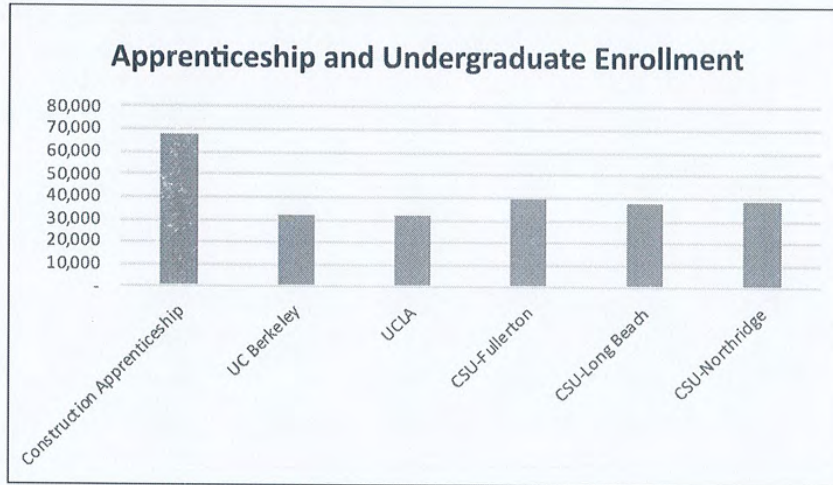
Many unions and apprenticeship programs also offer specific programs, or work with community partners that aim to attract and retain more women to the construction industry. Organizations such as Tradeswomen Inc., BOOTS from the Southwest Carpenters, and Sisters in the Brotherhood (affiliated with the Carpenters Union) recruit female apprentices, support them through their training, and offer resources from members and employers to help build a more inclusive and equitable construction industry.

The California Legislature has also recognized the importance of increasing opportunities for women in the construction industry. The 2017 Road Repair and Accountability Act (Senate Bill 1, 2017), which was strongly supported by construction unions and signatory contractors, included \$25 Million to recruit and retain more women in construction industry pre-apprenticeship programs (Wiltz, 2018).



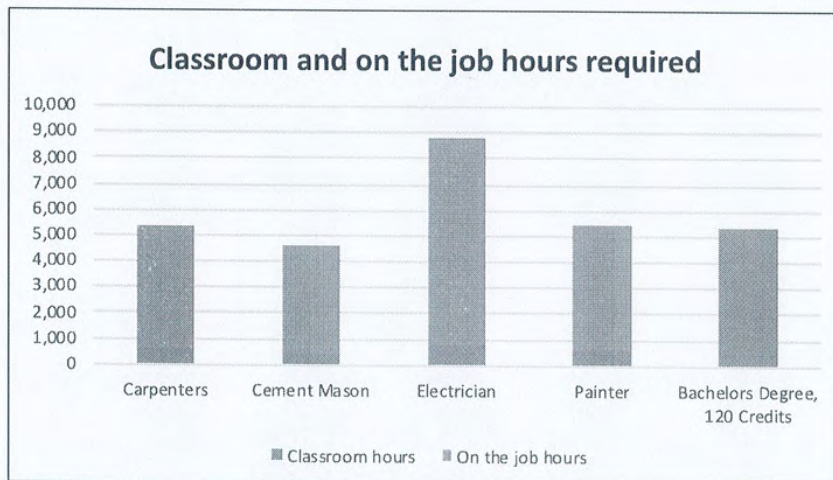
CONSTRUCTION APPRENTICESHIP COMPARED TO UNIVERSITY-LEVEL EDUCATION

Taken as a whole, construction apprenticeship programs are one of the largest secondary education programs in the State. The combined enrollment of all apprenticeship programs is larger than the undergraduate populations of UCLA, CSU Fullerton, and other major UC and CSU campuses.



Sources: CSU Fact Book, 2019, University of California InfoCenter, Fall Enrollment at a Glance, 2019

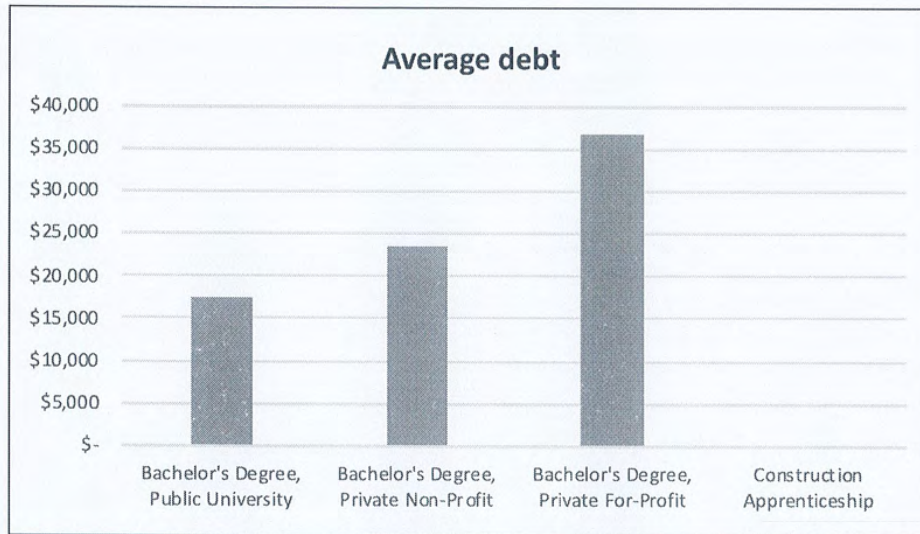
Like undergraduate-level education, almost all apprenticeship programs require a certain amount of classroom training. Unlike most undergraduate programs, apprenticeship programs require a significant amount of on the job training, offering apprentices an opportunity to develop the hard skills that will be crucial as they begin their construction careers. In most cases, apprenticeship programs require the same or more training hours than does a bachelor's degree.



Source: Division of Apprenticeship Standards



A crucial distinction between college/university level education and registered apprenticeships in the construction industry is student debt. College and university students are often forced to take on student loans to pay for their education, debt that must be paid back, with interest, for years after graduation. By contrast, construction apprentices have only a small amount of upfront costs, which can typically be paid back quickly because apprentices are earning a living wage while completing on-the-job training.



Source: Johnson, 2019

For many young people, a construction apprenticeship can be a better option than a four-year degree. In addition to completing a program without carrying any student loan debt, construction apprentices often will earn credits that can be applied towards a college degree. For example, apprentices who complete the Carpenters joint apprenticeship in Northern California receive up to 42 college units, only 18 shy of an Associate's degree (which could then be applied towards a Bachelor's degree).



THE APPRENTICESHIP PREMIUM

While empirical research on outcomes for apprenticeship students and graduates is scant, most evidence points towards increased earnings for workers who enter and graduate from a registered apprenticeship program. The most comprehensive review of apprenticeship in the United States is the 2012 report from Mathematica Policy Research, prepared for the U.S. Department of Labor. The study examined apprenticeship programs and outcomes in ten states (not including California) with differing labor market characteristics and unionization rates. On average, apprenticeship participants earned \$124,000 more in wages and benefits over their careers. Apprenticeship also reduced the chances a construction worker will endure long term unemployment (Reed et al., 2012).

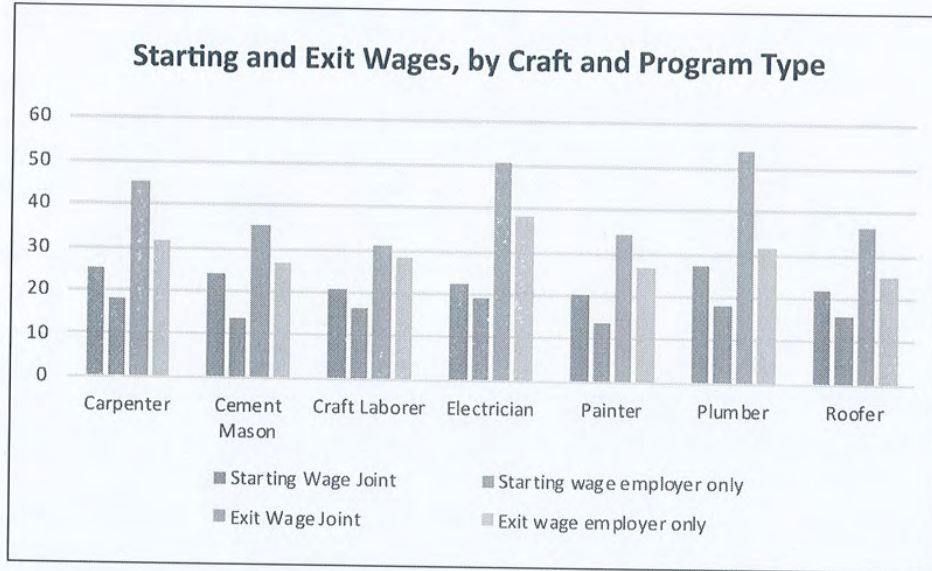
Data from the Department of Labor’s Registered Apprenticeship Sponsor Information Database (RAPIDS) shows almost immediate earnings increases for construction workers who complete apprenticeship programs.

CRAFT	AVERAGE STARTING WAGE (USD)	AVERAGE OF EXIT WAGE (USD)	% INCREASE
CONSTRUCTION CRAFT LABORER	20.68	31.10	50%
ELECTRICIAN	21.84	47.93	120%
CARPENTER	24.89	44.08	77%
PLUMBER	25.74	50.26	95%
SHEET METAL WORKER	22.68	50.90	124%
OPERATING ENGINEER	27.10	41.50	53%
PAINTER (Const)	19.96	33.62	68%
CEMENT MASON	22.74	34.52	52%
DRY-WALL APPLICATOR	22.09	43.43	97%
ROOFER	21.06	34.87	66%
IRONWORKER	19.72	37.36	89%

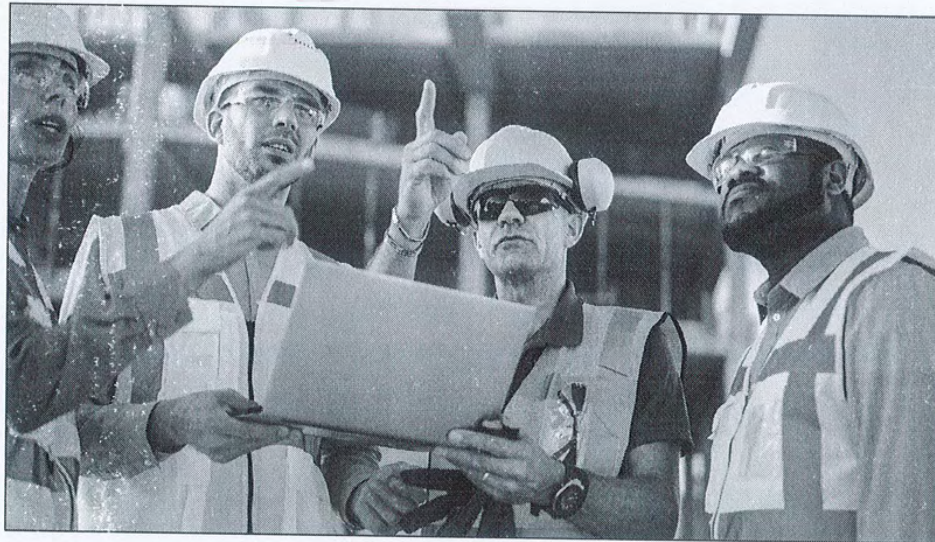
Source: Authors Analysis of DOL Employment and Training Administration RAPIDS database, FY2020 Q3



Department of Labor data also shows a premium for apprentices who graduate from joint apprenticeship programs. In crafts where there are both joint and employer-only apprenticeship programs, apprentices who graduate from a joint program earn an average of 37% more than graduates of employer-only programs.



Source: Authors Analysis of DOL Employment and Training Administration RAPIDS database, FY2020 Q3. Adjusted for inflation and reported in 2020 dollars.



TRAINING FOR THE FUTURE

Since the great recession, California's construction labor market has been tight, particularly in the residential construction industry. In 2017 construction employment in the trades was 25% lower than 2006 levels. The existing labor force has grown older, while the flow of immigration has dramatically slowed. Meanwhile, the non-union construction sector has failed to invest in any viable and scalable form of workforce development (Littlehale, 2019).

California's system of registered apprenticeships in the construction industry is a counterpoint to the low wage, low training investment model that exists in the non-union and residential construction industry. Just as importantly, apprenticeship is a win-win for all Californians. Offering increased wages and mobility for workers, ensuring the State has the construction workforce necessary to meet future demands, and giving contractors and the building industry the security of knowing they are employing the best trained, safety-conscious, and productive workers possible, apprenticeship is a key part of California's economic engine.

To ensure continued success support for apprenticeship and policies that induce demand for apprentices are an important part of policymaking for all state and local bodies. Elected officials should consider whether proposed construction projects, both public and private, will employ contractors who will properly hire apprentices in accordance with prevailing wage law or because of collective bargaining agreements. Policies that require apprenticeship employment can be a part of any state or local funds

For over 100 years, a partnership between labor, contractors, and government has helped produce an extraordinary apprenticeship system within California's construction industry.

that subsidize private construction projects. Staff and elected officials can incorporate strong apprenticeship language into long term land use planning, recognizing that any future growth or development cannot be inclusive or equitable if opportunities in future construction are not also inclusive and equitable.

For over 100 years, a partnership between labor, contractors, and government has helped produce an extraordinary apprenticeship system within California's construction industry. It is a program that has brought millions of workers and their families into the middle class, opened up opportunities for traditionally undeserved communities, supported veterans returning to the workforce, and helps ensure California's growing economy can benefit everyone. It is a statement that California is committed to its current and future workforce, and to ensuring that California has the resources it needs to build through the 21st century and beyond.



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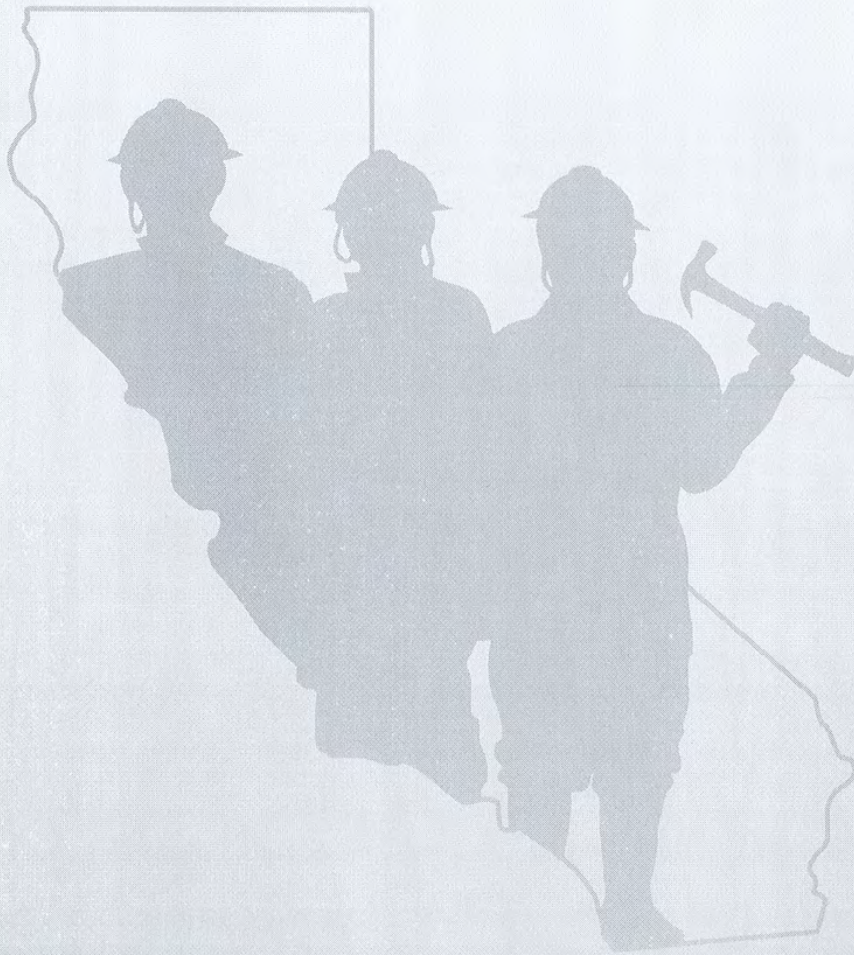
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SmartCitiesPrevail.org
Building community value with prevailing wage

ECONOMIC POLICY BRIEF

APRIL 25, 2011

ECONOMIC, FISCAL AND SOCIAL IMPACTS OF PREVAILING WAGE IN SAN JOSE, CALIFORNIA

INTRODUCTION

In the city of San Jose and the surrounding metropolitan area, the construction industry carries considerable economic importance, employing more than 30,000 people each year. The NOVA Workforce Investment Board described construction as a foundational occupation, creating the infrastructure necessary for the South Bay region to attract and grow driving industries.¹

In this highly mobile industry, where paychecks depend on the weather and workers are employed only for the length of a construction contract, industry and community have developed tools designed to ensure safety and quality of work and to induce positive economic impacts from major construction projects. One such tool is prevailing wage on public works.

Prevailing wage is an important economic development tool in the state of California. Both the state and the federal government utilize prevailing wage policies which apply to taxpayer-funded public works projects receiving state or federal funds. Many local governments in the state have their own prevailing wage policies covering projects funded by local taxpayers. The City of San Jose's prevailing wage policy was adopted in 1988; its statutory purpose is to ensure equitable and sufficient wages, protect local job opportunities, and stimulate the local economy.

This policy brief examines the economic, fiscal, and social impacts of San Jose's prevailing wage policy by analyzing a hypothetical scenario: how would construction costs, tax revenues, overall economic activity, and other relevant factors change if San Jose's public works projects were *not* built under prevailing wage?

- Over 5 years, estimated increase in countywide economic activity due to prevailing wage for City of San Jose buildings:

\$164 million

- Estimated increase in local jobs: **1,510**

- Estimated increase in local tax revenues:

\$1.9 million

- Increase in local hiring on libraries when prevailing wage applies: **21%**

- Miles driven daily by out-of-town construction workers: **over 1 million**

ABOUT THIS STUDY

This working paper is produced by Working Partnerships USA with funding from the Construction Employers' Association, the Bay Area Chapter of the Sheet Metal and Air Conditioning Contractors' National Association, the Santa Clara Valley Chapter of the National Electrical Contractors Association, and the Northern California Mechanical Contractors Association, collectively representing over 500 construction contractors in the Santa Clara Valley and Northern California. Dr. Kevin Duncan, Professor and Senior Economist at the Healy Center for Business and Economic Research, Colorado State University-Pueblo, carried out the economic impact analysis summarized on pages 3 to 7. Dr. Duncan's complete analysis is provided as Appendix A to this brief.

P R E V A I L I N G W A G E I N S A N J O S E

2

KEY FINDINGS

Economic Impacts

- **Municipal building projects covered by a prevailing wage policy employ a higher proportion of local contractors and local workers.** Prevailing wage laws therefore help reduce the leakage of local taxpayer dollars by directing public construction expenditures into the local economy.
- If prevailing wage coverage is removed from a municipal building project, **then roughly 6% of the project's value leaks from the Santa Clara County economy.**
- If prevailing wage had not applied to San Jose's 2007-2012 municipal building projects:
 - Total economic activity in the County would have **fallen by \$164 million.**
 - **1,510 fewer local jobs** would have been created in the County.
 - In addition to construction, the economic sectors with the greatest job loss induced by the loss of prevailing wage include **retail and food service (88 jobs)** and **health (57 jobs).**

Fiscal Impacts

- If prevailing wage had not applied to San Jose's 2007-2012 municipal building projects:
 - Reduced local contracting would have produced a **\$1.9 million drop in local property and sales tax revenues** for local governments within Santa Clara County.
 - **The shift of income away from blue-collar construction workers to contractors/owners would result in additional economy-wide impacts.** For every cumulative \$1 million shift upwards in personal income, the net effect is a decrease in county economic activity of \$34,000.
- The preponderance of studies over two decades have **found no impact of prevailing wages on total construction costs.** Rather, prevailing wages are believed to increase labor productivity on a project.
- Prevailing wage is a very low-cost economic development tool relative to other programs intended to create jobs. **The 1,510 additional jobs induced by prevailing wage on San Jose municipal projects are equivalent to the total projected impact of the proposed Major League Soccer stadium.**

Traffic and Environmental Impacts

- In 2008, non-local construction workers employed in Santa Clara County **cumulatively drove over 1 million miles per day to and from work.** If the work done by non-locals was instead performed by locals with shorter commutes, then the estimated savings would be 123,619,000 miles per year.
- If a project is not covered by prevailing wage, then the shift towards a non-local construction workforce induces excess commute miles, resulting in **traffic congestion, less livable neighborhoods, lower social cohesion and increased greenhouse gas emissions.**

Social Impacts

- **Public assistance costs:** A typical non-union construction employee on a non-prevailing wage project without health benefits would be eligible for \$3,665 in public assistance. At prevailing wage, the same worker would earn enough to support his or her family with no public assistance.
- **Higher education:** Prevailing wage also provides for employment of apprentices on public works. If apprenticeship programs could no longer enroll students, then the result would be a loss of about 2,340 full-time student slots. This would be equivalent in scale to shutting down half of San Jose City College.
- **Diversity:** Relative to the total construction workforce in Santa Clara County, joint apprenticeship programs employ 1.4 times more women and 4.7 times more African-Americans.

CASE STUDY: MITCHELL PARK LIBRARY (PALO ALTO) AND GILROY PUBLIC LIBRARY

- **On the Mitchell Park Library in Palo Alto, built without prevailing wage, 11.7% of the total project value went to local contractors.**
- **On the similarly-sized Gilroy Public Library, built with prevailing wage, 71.2% of the total project value went to local contractors.**
- **Economic modeling of these individual projects shows a loss of 22 local jobs if the Gilroy library had not been built under prevailing wage.** The following sections will extend this analysis from a single case study to all municipal building projects in San Jose.

Two recent library projects in Santa Clara County provide a paired case study of the impacts of prevailing wage.

The Gilroy Public Library and the Mitchell Park Library and Community Center (in Palo Alto) are about the same size and were bid just six weeks apart. However, the Gilroy library was built under a prevailing wage policy, while the Palo Alto library was not.

The Gilroy project, at 53,000 square feet, has a contract value of about \$17 million and a square foot cost of \$326. The Palo Alto project, at 56,332 square feet, has a contract value of about \$24 million and a square foot cost of \$430. Consequently, there is no obvious support for the hypothesis that prevailing wages increase project costs.

The case studies do suggest that prevailing wage increased local contracting. In Gilroy, 18 of 33 listed subcontractors and the general contractor were based in Santa Clara County, totaling 71.2% of the total project value which went to local contractors. In Palo Alto, only one of the 33 listed subcontractors was based in Santa Clara County, totaling 11.7% of the total project value which went to local contractors.

For the purposes of this case study, an economic impact analysis using the IMPLAN modeling

tool was run on the Gilroy and Mitchell Park libraries. The Gilroy analysis evaluates the impact of the counterfactual scenario in which the library was not built under a prevailing wage policy. The Palo Alto analysis evaluates the impact of the counterfactual scenario in which the library was built under a prevailing wage policy.

If the Gilroy Public Library had been built without prevailing wage, the total economic impact would be a \$2.4 million decrease in local economic activity and the loss of 22 local jobs, including 17 direct construction jobs and 5 indirect jobs in retail, services, and other sectors attributable to lost spending from local construction workers. Fiscal impact would be a net decline of \$27,500 in sales and property tax revenues for local governments within the county.

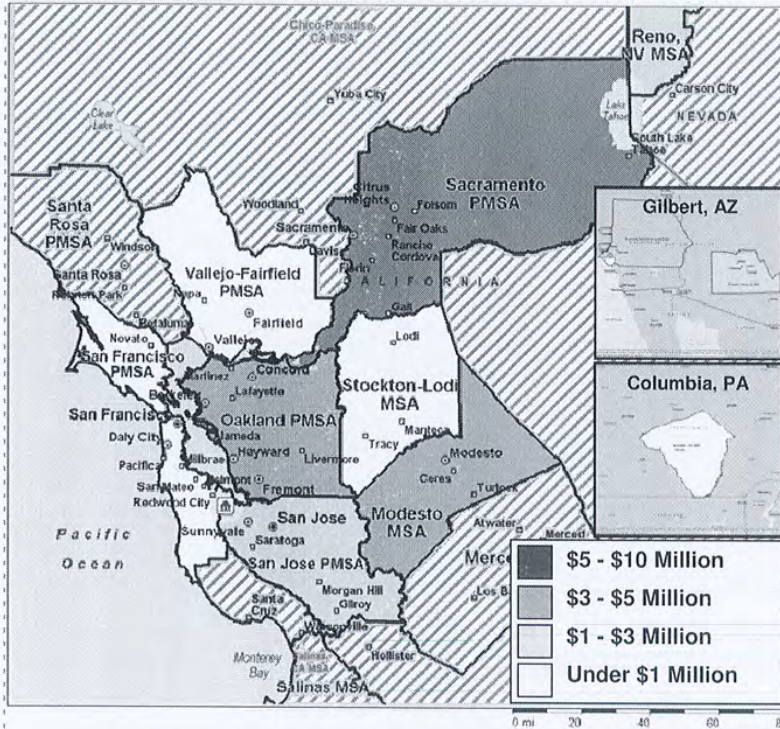
In the reverse scenario, if the Mitchell Park Library had been built with prevailing wage, the total economic impact would be a \$3.3 million increase in local economic activity and 31 more local jobs, with a fiscal impact of \$38,800 additional tax revenues.

The maps on the following page show the dispersion of subcontractor work for the two projects.

Where Does the Money Go?

Geographic Dispersion of Local Funds Spent for Library Construction

Dispersion of Funds from Palo Alto Library (W/Out Prevailing Wage)



Percent of local funds going to local contractors: 11.8%

Dispersion of Funds from Gilroy Library (With Prevailing Wage)

Percent of local funds going to local contractors: 71.2%

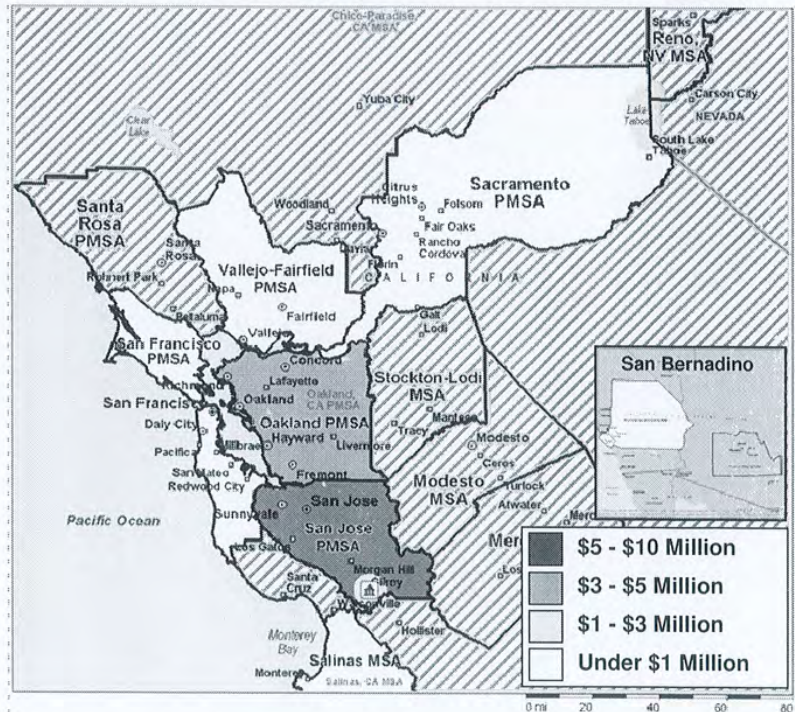


Figure 1. Maps prepared by Scott Littlehale.

IMPACTS OF PREVAILING WAGE IN THE SAN JOSE METRO REGION

Moving from case studies to a region-wide perspective, the remainder of this brief focuses on the economic, social, and fiscal impacts of prevailing wage in the San Jose metropolitan region.

The impact analysis includes the following components:

- Construction Costs
- Economic and Fiscal Impact Analysis
- Relative Importance to Economic Development
- The Bigger Picture
- Public Assistance Costs
- Education and Training Opportunities
- Workforce Diversity
- Traffic and Environmental Impacts

CONSTRUCTION COSTS

- **The preponderance of research shows no significant impact of prevailing wage on total construction costs.**

Standard economic theory suggests that as wages rise, less labor will be used on a project, either through an increase in labor productivity (via a higher-skilled or more motivated workforce) or through greater use of labor-saving equipment. Prevailing wage policy can thus be expected to affect the entire construction cost of a project, not solely the hourly labor cost.

Studies which examine the effect of prevailing wage on total construction costs, using the statistical method of regression analysis, have overwhelmingly found no significant cost effect of prevailing wage. Multiple studies using different data sets, project types, and different statistical tests have nearly all produced the same result: prevailing wage laws are not associated with higher construction costs.²

A recent study of five South Bay and Peninsula cities³ compared public works projects in cities with and without prevailing wage laws. The study failed to find any effect of prevailing wage on the total number of bidders, bids by union or non-union contractors, or on the likelihood of non-union contractors submitting the winning bid.

Furthermore, it found no impact of prevailing wage law on the difference between the winning (low) bid and either the median bid or the engineer's initial estimate. These findings strongly suggest that cities with prevailing wage laws did not experience less competitive bidding or inflated bid prices compared to cities without prevailing wage.

ECONOMIC AND FISCAL IMPACT ANALYSIS

- **Roughly 6% of the value of a library or similar project leaks from the Santa Clara County economy if projects are not completed under prevailing wage policies.**
- **If the City of San Jose's major municipal buildings from 2007-2012 were not built under prevailing wage, then major economic impacts would include reduction in total economic activity of \$164 million, net loss of 1,510 local jobs, and loss in local property and sales tax revenues of \$1.9 million.**
- **In addition to construction, the economic sectors with the greatest job loss induced by the loss of prevailing wage include retail and food service (88 jobs) and health (57 jobs). Residential property values would also decline due to reduced economic activity.**

P R E V A I L I N G W A G E I N S A N J O S E

Moving from case studies to a region-wide perspective, this study analyzes the economic impacts of prevailing wage by modeling an alternative scenario: what would have happened in recent years if no San Jose municipal prevailing wage had been in place?

The economic impact analysis performed for this study uses the IMPLAN software and local data to estimate the effect of municipal prevailing wage laws on the local economy. IMPLAN provides sophisticated modeling which is widely used in economic impact analysis; for example, it is used by the federal Bureau of Economic Analysis, several departments of the State of California, the San Jose Convention and Visitors Bureau, and the Santa Clara Valley Transportation Authority. For this study specifically, IMPLAN was used to estimate the impact of a change in labor income on the level of economic activity, employment, and local taxes within Santa Clara County.

Examining the 16 library projects built between 2003 and 2009, with total costs in 2010 dollars of about \$177 million, the IMPLAN model provides a total net economic impact of – \$11,017,000, that is, a reduction in economic activity of more than \$11 million. The net employment impact is a loss of 103 local jobs.

The economic impact represents about 6% of these projects’ combined value. This provides a rule of thumb: about 6% of the value of a library or similar project leaks from the Santa Clara County economy if projects are not completed under prevailing wage policies.

This initial analysis of libraries examined only a small subset of the City of San Jose’s public works. To better illustrate the impact of the City of San Jose’s prevailing wage policy on the Santa Clara economy, municipal building projects from the city’s 2007-2012 Capital Improvement Program (CIP) budget are used.⁴

Table 1 shows detailed results of the economic analysis on the 2007-2012 CIP projects. Major impacts *if* these projects had not been built under prevailing wage policy include:

- Reduction in total economic activity of \$164 million, or about 0.1% of county GDP.
- Net loss of 1,510 jobs in Santa Clara County, or about 0.2% of total county employment. This includes a direct impact of 1,155 fewer construction jobs and indirect impacts of 355 fewer jobs in other sectors.
- Total loss in local property and sales tax revenues of \$1.9 million.
- Decrease in sales taxes collected by the City of San Jose of \$181,000.

Table 1: Impact on the Santa Clara County Economy If San Jose’s 2007-2012 Capital Improvement Projects Were Built Without Prevailing Wage.

Includes only the impact from municipal building projects, comprising 60% of the total CIP.

Sources: IMPLAN, Quarterly Census of Employment and Wages.

Economic Impact Category	Economic Impact (2010 dollars)
Direct Income Decrease in the County:	-\$106,897,000
Induced Decrease in Spending in the County:	-\$56,621,000
Combined Economic Impact:	-\$163,518,000
Direct Job Loss:	-1,155 Construction Jobs
Secondary Job Loss:	-355 Local Retail and Service Sector Jobs
Total Employment Decrease:	-1,510 Jobs in the County
County Property Tax Revenue Decrease:	-\$1,483,000
County Sales Tax Revenue Decrease:	-\$421,000
Total County Tax Revenue Decrease:	-\$1,904,000
Reduction in City of San Jose Sales Tax Revenue:	-\$181,000

P R E V A I L I N G W A G E I N S A N J O S E

The economic impact of repealing the prevailing wage standard would be spread across the local economy, with industries not directly related to construction experiencing substantial induced impacts:

- The reduction in economic activity would decrease home values in the county.
- The health care sector in the county would experience a decrease in revenue of

approximately \$8.9 million and a decrease in employment of about 57 workers.

- The broad food service and retail sectors would experience a decrease in revenue of approximately \$6.7 million and an employment decrease of about 88 workers.

Additional impacts to specific industries within Santa Clara County are shown in Table 2.

Table 2: Impact on Industry-Level Revenue and Employment Source: IMPLAN

Santa Clara County Industry	Revenue Loss by Industry	Job Loss by Industry
Total	-\$56,621,017	-355
Imputed rental activity for owner-occupied dwellings [indicates reduction in home values]	-\$8,877,570	n/a
Real estate establishments	-\$4,119,799	-23
Private hospitals	-\$3,914,528	-19
Offices of physicians & dentists	-\$3,405,486	-23
Food services and drinking places	-\$2,963,211	-42
Wholesale trade businesses	-\$2,560,573	-8
Non-depository credit intermediation and related institutions	-\$1,584,886	-2
Monetary authorities and depository credit institutions	-\$1,544,013	-5
Telecommunications	-\$1,388,240	-3
Private junior colleges, colleges, universities	-\$1,366,550	-11
Legal services	-\$1,043,742	-4
Retail Stores - Food and beverage	-\$1,018,925	-13
Electric power generation- transmission	-\$913,723	-1
Medical and diagnostic labs and outpatient analysis	-\$888,802	-5
Other state and local government enterprises	-\$817,404	-3
Insurance carriers	-\$786,213	-2
Retail Nonstores - Direct and electronics	-\$770,220	-4
Securities, commodity contracts, investments	-\$764,162	-9
Nursing and residential care facilities	-\$688,578	-10
Retail Stores - General merchandise	-\$637,519	-10
Retail Stores - Motor vehicle and parts	-\$536,467	-6
Retail Stores - Clothing and clothing accessories	-\$528,399	-8
Services to buildings and dwellings	-\$491,450	-7
Religious organizations	-\$467,923	-3
Data processing, hosting, ISP, web search providers	-\$449,606	-1
Amusement parks, arcades, and gambling industries	-\$446,390	-4
Funds, trusts, and other financial vehicles	-\$440,862	-1
Automotive repair and maintenance, except car sales	-\$403,455	-4
Other personal services	-\$374,769	-1
Retail Stores - Health and personal care	-\$368,636	-5

RELATIVE IMPORTANCE TO ECONOMIC DEVELOPMENT

- **Had prevailing wage not applied to San Jose’s 2007-2012 municipal building projects, 1,510 fewer local jobs would have been created in the County, representing a 0.2% reduction in total employment.**
- **The jobs induced by prevailing wage on these projects are equivalent to 80% of all local jobs at Adobe Systems, or to the total jobs that would be induced by the proposed Major League Soccer Stadium sought by San Jose.**
- **The shift of income away from blue-collar construction workers to contractors/owners would result in additional economy-wide impacts.** For every cumulative \$1 million shift upwards in personal income, county economic activity decreases by \$34,000.

As discussed in the previous section, the absence of prevailing wage coverage for municipal building projects from the City of San Jose’s 2007-2012 Capital Improvement Program (CIP) budget would result in a net economic impact of 1,510 fewer jobs. This would produce a decline in total Santa Clara County employment of approximately 0.2%.

While small in the context of the entire regional economy, this loss of 1,510 jobs is equivalent to:

- Losing 40% of all local jobs at Applied Materials.⁵
- Losing 80% of local jobs at Adobe Systems.⁶
- The total projected economic impact of a proposed Major League Soccer stadium in San Jose.⁷
- Three times the local jobs projected at SunPower Corporation, to which the City of San Jose recently offered a \$2.5 million incentive package.⁸

For the purpose of evaluating return on investment of taxpayer dollars, the economic development effects of local prevailing wage policy can be compared to the standard “economic multiplier” impacts of public spending. Economic multipliers show the “ripple effects” in the economy resulting from increased output in a particular industry. For state and local government enterprises in California,

economic multipliers indicate that inducing 1,510 jobs in the state would require increased public sector output of \$105,604,000.⁹

In addition to the effects included in the economic and fiscal impact analysis, the elimination of prevailing wage is also likely to reduce wages for the construction workforce employed on the job.

The labor income thus reduced would then shift to another production factor, which (since the cost of materials is typically fixed) would likely be income for the contractor/owner. This reduction in wages and shift in income is difficult to quantify at the local level, and therefore was not included in the economic impact analysis.

An illustrative analysis of an upward shift of \$1,000 in household income - again using the IMPLAN model for Santa Clara County - provides insight into the potential effects. If income decreases by \$1,000 for a household earning \$75,000 to \$100,000, and simultaneously increases by \$1,000 for a household earning above \$150,000, the net effect is a decrease in county economic activity of \$34.

Generalized, this result indicates that for any upward shift in income between these two brackets, total economic activity will decline by 3.4% of the amount shifted.

THE BIGGER PICTURE: IMPACTS OF ALL PREVAILING WAGE POLICIES

- **A conservative estimate suggests that all prevailing wage policies in effect within the county from 2008 to 2010 had a cumulative impact of \$75 million in additional economic activity.**

The preceding analysis examined only projects built by the City of San Jose. Yet nearly all public works within Santa Clara County – with the exception of City of Palo Alto-funded projects – are built under local, state, or federal prevailing wage policies.

To estimate the cumulative impacts of all prevailing wage policies on the county economy, we obtained total public building construction expenditures in Santa Clara County for 2008 to 2010. This includes all federal, state, or local government building projects, but does not include non-building public works such as roads and sewers. Palo Alto projects were subtracted from this total, resulting in \$1,244,428,000 in public building projects built from 2008-10 which were covered by prevailing wage.

Applying the “6% rule” derived from the preceding analysis of library projects – that is, roughly 6% of the value of a library or similar project leaks from the Santa Clara County economy if projects are not completed under prevailing wage policies – this data suggests that

Santa Clara County economic activity was increased by \$74,666,000 from 2008-2010 because of federal, state, county, and city prevailing wage regulations on municipal buildings.

This estimate is highly conservative because it is based only on public building projects, omitting the impact associated with other public works construction such as roads, sewers, and other infrastructure-related projects (which are outside the scope of this study).

The estimates are also conservative because the 6% rule was derived from the repeal of a city prevailing wage policy, assuming that federal and state policies remain in effect. If prevailing wage regulations were removed at all levels, then it is likely that the impact would exceed 6%. With complete repeal of prevailing wage standards, the structure of the regional construction labor market would change as construction worker income falls and workers move from the Bay Area to locations with lower costs of living.

PUBLIC ASSISTANCE COSTS

- **A typical non-union construction employee on a non-prevailing wage project without health benefits would be eligible for \$916 to \$8,032 in public assistance for his or her family.** At prevailing wage with health benefits, the same worker would earn enough to support his or her family with no public assistance.

In high-cost Silicon Valley, workers with low wages and no health coverage face particular challenges in supporting their families. Inadequate compensation not only impacts individual workers; it also places an additional burden on the region’s safety net services and thereby on the greater public.

In a hidden subsidy for industries paying substandard wages, the region’s taxpayers provide state- or county-sponsored children’s health coverage, low-income tax credits, and free or reduced school lunches to low-wage workers in order to make ends meet for themselves and their families.

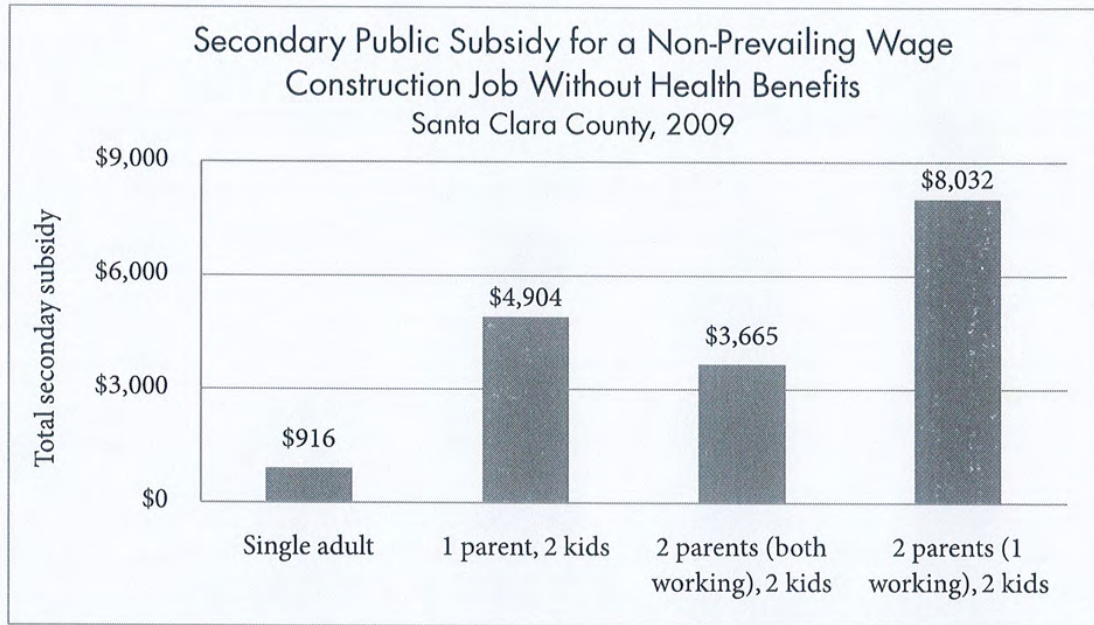


Figure 2. Source: Government Transfers to Low-Wage Workers Calculator

Taxpayers subsidize employers through public assistance programs only if those employers are not paying a livable wage with health benefits. To approximate compensation on prevailing wage projects versus non-prevailing wage projects, the model uses average weekly wages for Santa Clara County construction workers covered or not covered by a union contract. We also modeled the presence or absence of affordable family health coverage, using the simplifying assumption that workers on prevailing wage projects have comprehensive job-based family health insurance, while those on non-prevailing wage projects do not.

The hypothesized reduction in wages, combined with a loss of health coverage, would incur a secondary subsidy from taxpayers totaling

between \$916 and \$8,032 annually per worker affected, with the midrange subsidy estimated at \$3,665 annually per worker affected.

With this secondary subsidy propping up inadequate pay, the majority of responsible employers who do pay livable wages find themselves at a competitive disadvantage.

Furthermore, the burden of the invisible public subsidy for low-wage work threatens the region's social safety net. Emergency rooms, community clinics, and hospitals such as Valley Medical Center are hard-pressed to maintain adequate health services as the number of uninsured workers has grown to more than one-fifth of Silicon Valley's workforce.¹⁰

EDUCATION AND TRAINING OPPORTUNITIES

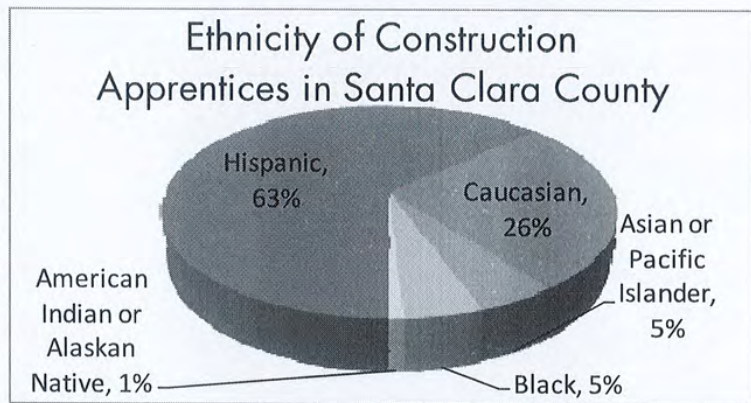
- **In the past twenty years, 14,104 County residents have been educated through apprenticeship programs.** These privately funded industry training centers provide motivated students with no-cost education and paid on-the-job experience.
- **Because they provide placement opportunities for apprentices, prevailing wage projects are critical to sustaining the apprenticeship system.**
- **If apprenticeship programs could no longer enroll students, it would be equivalent to cutting enrollment at San Jose City College in half.**

Apprenticeship is a form of post-secondary education that combines classroom and hands-on training with paid on-the-job training. Apprenticeship programs require an intensive, long-term commitment from the student; the training period is three to five years and typically requires successful completion of a curriculum of 400 to 800 classroom hours combined with 3,000 to 8,000 hours of on-the-job training, where apprentices work side by side with experienced workers to learn the skills required for a trade.

the present, 14,104 Santa Clara County residents participated in apprenticeship programs.

With an average annual enrollment of 2,339 students, apprenticeship programs in Santa Clara County educate approximately half as many full-time equivalent students annually as Mission College (4,423 FTE students in 2008) or San Jose City College (4,457 FTE students in 2008). Privately funded apprenticeships thus fill a significant gap in the educational system.

Joint labor-management apprenticeships (which represent 92% of all apprenticeship graduates in California) are free to the student and offer full-time paid work experience with a living wage and healthcare coverage, making them a key pathway for students with limited financial means who are seeking a lifelong, family-supporting career.¹¹



Joint apprenticeships are paid for and overseen by a training trust fund, which is funded by a small hourly contribution made by all journey-level workers in the trade who are union members or work for a participating employer. The State of California Department of Apprenticeship Standards has oversight authority over all registered apprenticeship programs in the state.

The San Jose prevailing wage policy, like state prevailing wage, requires contractors to employ apprentices in specified ratios on covered projects. These public works projects provide critical paid work experience for apprentices

The registered apprenticeship system is the primary source of highly trained workers for the California construction industry. From 1990 to

Studies which have examined the relationship between prevailing wage and workforce training show that states with prevailing wage laws have more apprentice training slots, higher rates of apprentice completion, and better training outcomes for ethnic/racial minorities than do states without prevailing wage laws.¹²

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If prevailing wage were eliminated, then opportunities for apprentices on public works projects would likely decline substantially.

Prevailing wage is therefore critical to sustaining the apprenticeship system.

WORKFORCE DIVERSITY

- **Relative to the total construction workforce in Santa Clara County, joint apprenticeship programs employ 1.4 times more women and 4.7 times more African-Americans.**

Women and minorities, particularly African-Americans, have historically been underrepresented in the United States construction industry. Joint apprenticeship programs in California typically enroll a higher proportion of women and underrepresented minorities than are employed in the industry at large, making them a valuable pipeline for increasing these populations' access to construction careers.

at large to employ an African-American.

Examining the data by gender, women comprised just 1.7% of construction industry workers, yet made up 2.4% of enrollments in joint apprenticeship programs. Joint apprenticeships were therefore 1.4 times more likely than the industry at large to employ a woman.

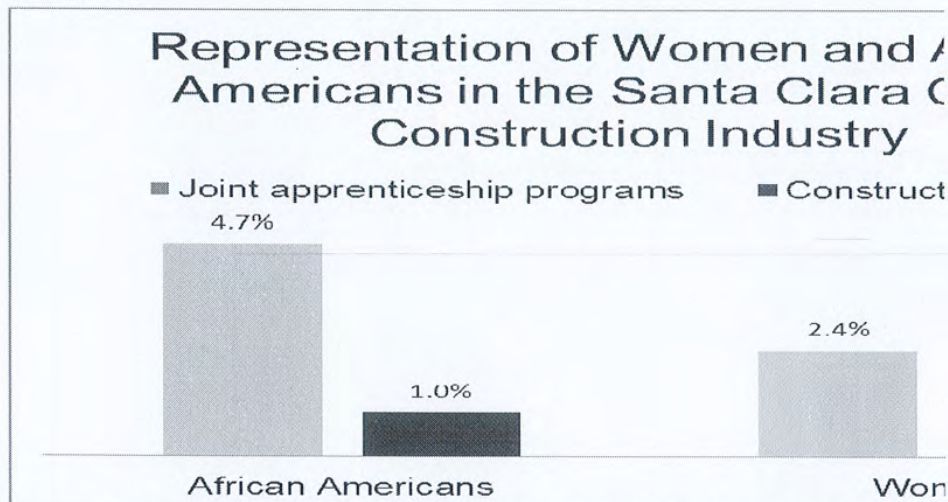


Figure 4. Data represents residents of Santa Clara County. "Construction industry" includes residents employed in non-supervisory construction occupations.

Source: DAS and ACS 2006-2008

An analysis of joint apprenticeship program enrollments in Santa Clara County compared with construction industry employment from 2006-2008 shows that 126 African-Americans residing in Santa Clara County enrolled in joint apprenticeship programs during this period, making up 4.7% of all enrollments. Among all residents employed in non-supervisory construction occupations, African-Americans made up just 1.0%. Joint apprenticeships were therefore 4.7 times more likely than the industry

While these numbers are still low, they indicate that the pipeline of workers currently being trained through apprenticeship programs, if they remain employed in construction, will diversify the industry relative to its current state.

If prevailing wage projects did not provide placement for apprentices, the opportunity to access construction careers for women, African Americans and other underrepresented groups could be considerably reduced.

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13

TRAFFIC AND ENVIRONMENTAL IMPACTS

- **In 2008, non-local construction workers employed in Santa Clara County cumulatively drove over 1 million miles per day to and from work.** If this work were instead performed by locals with shorter commutes, then the estimated savings would be 123,619,000 miles per year.
- **If a project is not covered by prevailing wage, then the shift towards a non-local construction workforce induces excess commute miles, resulting in traffic congestion, less livable neighborhoods, lower social cohesion, and increased greenhouse gas emissions.**

In addition to economic impacts, importation of a non-local workforce creates traffic and environmental impacts caused by longer commutes. Analysis of construction workers in non-supervisory occupations (Blue-Collar Construction Workers) employed in Santa Clara County from 2006-2008 shows that 66% lived within the county. Of the remainder, 10% lived in the Central Valley, 6.4% in Alameda County, 4.9% on the Central Coast, and the remainder scattered throughout the state.¹³

Estimating commute times based on county of residence, in 2008, non-local Blue-Collar Construction Workers (BCCWs) employed in the county drove an estimated 1,084,000 commute miles daily.

The average non-local construction worker had a round-trip commute of 105 miles, compared with an average daily commute of 37 miles for BCCWs living in Santa Clara County. With an

average of 43 weeks of work per year for BCCWs¹⁴, the non-local construction workforce in 2008 accounted for a total of 191,218,000 Vehicle Miles of Travel (VMT). If the work done by non-local commuters was instead performed by local residents, then the estimated savings in annual VMT (after subtracting the average in-county commute) would be 123,619,000 miles.¹⁵

Excessive commute distances generate traffic congestion, impact neighborhood livability, and pollute the air. Nationally, the San Jose area ranks as the 6th most congested commute shed, averaging 53 hours – or more than 2 full days – of traffic delay per driver in 2007. This congestion cost the South Bay an estimated \$1 billion in lost productivity and wasted fuel.¹⁶

Commute times and traffic congestion have significant impacts on livability and community cohesion. Long commutes limit the amount of time that workers have available to spend at

Table 3: Top 10 Counties of Residence for Non-Local Construction Workers Employed in Santa Clara County

Top 10 Counties	Round-trip Distance to Santa Clara County (miles)
1. Alameda	72
2. Santa Cruz	84
3. Merced	202
4 San Joaquin	163
5. San Mateo	70
6. Contra Costa	113
7. Stanislaus	191
8. San Francisco	89
9. Monterey	125
10. Solano	189

P R E V A I L I N G W A G E I N S A N J O S E

home and in their communities, reducing civic participation and straining families. Local residents are affected indirectly as increased highway congestion generated by commuters forces locals to spend more time in traffic.

Finally, miles travelled by passenger vehicles are a major driver of climate change; in fact, they are the single largest CO₂ emitter in California. In addition to accounting for 27% of the state's greenhouse gas emissions, vehicle emissions produce smog and other pollutants that affect residents' health.¹⁷ California's historic Global Warming Solutions Act of 2006 (AB32) committed the state to reduce its total greenhouse gas emissions to 1990 levels by 2020

and to 80% below 1990 levels by 2050 – a goal that can only be reached if vehicle-produced emissions are greatly reduced. California voters recently affirmed their support of this goal by decisively rejecting a Nov. 2010 ballot measure attempting to suspend AB32.

The imperative to reduce Vehicle Miles of Travel is further emphasized by SB 375, passed in 2008, which requires regions throughout the state to take greenhouse gas emissions into account in their land use planning. Santa Clara County faces considerable challenges to meeting this goal. Total VMT in Santa Clara County rose by 41% between 1990 and 2000 and are expected to double by 2030.¹⁸

REFERENCES

¹ Jenny Reid Austin et al, *Silicon Valley Roots* (2006). Sunnyvale, CA: NOVA Workforce Board.

² See Appendix A for a review of existing literature on construction costs and prevailing wage.

³ JaeWhan Kim, Kuo-Liang Chang and Peter Philips, "The Effect of Prevailing Wage Regulations on Contractor Bid Participation and Behavior: A Comparison of Palo Alto, California with Four Nearby Prevailing Wage Municipalities". Article, Refereed Journal, submitted, Nov. 30, 2010.

⁴ Other types of capital improvement projects such as parks, water, sewers, roads, and airport taxiways are not included in this analysis because they may differ significantly in subcontracting patterns from municipal buildings. This analysis provides a conservative estimate of impacts because not all capital improvement projects are included.

⁵ As of June 2009, Applied Materials had 3,988 full-time equivalent employees in greater Silicon Valley. Source: Silicon Valley/San Jose Business Journal Book of Lists, Vol. 27, No. 36, Dec. 25, 2009, p. 114.

⁶ As of June 2009, Adobe Systems had 1,850 full-time equivalent employees in San Jose. Source: Ibid, p. 112.

⁷ SportsEconomics LLC, "Market Assessment and Economic Impact Analysis for Proposed Soccer Stadium in the City of San Jose (A Secondary Study)." Prepared for City of San Jose, February 8, 2008.

⁸ See http://www.sjeconomy.com/publications/pressreleases/sunpower_11_16_10.pdf, Subsidy package is subject to approval of the San Jose City Council.

⁹ RIMS II Multipliers for the state of California, July 2002 Release, Bureau of Economic Analysis.

¹⁰ American Community Survey 2009.

¹¹ Corinne Wilson, *Construction Apprentice Programs* (2009). San Diego: Center on Policy Initiatives. <http://onlinecpi.org/downloads/Construction%20Apprenticeship%20Programs%20report.pdf>

¹² Peter Philips and Cihan Bilginsoy, "Impact of Prevailing Wages on the Economy and Communities of Connecticut." (2010) University of Utah.

¹³ Analysis of Blue-Collar Construction Workers (BCCWs) performed by Alex Lantsberg with data drawn from ACS 2006-2008. This data covers the entire construction industry, including residential, commercial, and public sectors. While the data source used does not differentiate between these sectors, it is likely that large commercial or public jobs attract a higher proportion of non-local workers than does the residential sector.

¹⁴ ACS 2006-08, accessed via DataFERRETT.

¹⁵ Using BCCW dataset described above, commute distances between counties were estimated with Google Maps. Workers residing more than 200 miles from Santa Clara County are excluded on the assumption that they are unlikely to commute daily. Means of transportation to work is estimated using the 2009 American Community Survey Workplace Geography dataset. Commute distance within Santa Clara County estimated using 2005 MTC data adjusted for BCCWs using the ACS travel time to work variable.

¹⁶ Shrank, David and Lomax, Tim. "2009 Urban Mobility Report." Texas Transportation Institute. July 2009.

¹⁷ California Air Resources Board, "California Greenhouse Gas Inventory for 2000-2008", updated May 12, 2010.

¹⁸ Metropolitan Transportation Commission Projections.



City Clerk Department

November 1, 2022

Kelilah D. Federman, Adams Broadwell Joseph & Cardozo
on behalf of East Bay Residents for Responsible Development
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

RE: 2065 Kittredge Street – Appeal ZAB Decision Use Permit #ZP2021-0193

Dear Appellant:

This will acknowledge receipt of your appeal of the Zoning Adjustments Board decision of September 22, 2022, approving the following permits:

- Use Permit under BMC Section 23.326.070(A) to demolish a non-residential building
- Use Permit under BMC Section 23.204.020(A) to construct a new mixed-use Development
- Use Permit under BMC Section 23.204.020(A) to construct dwelling units
- Use Permit under BMC Section 23.204.030(B)(1) to create new floor area of 10,000 square feet or more
- Use Permit under BMC Section 23.204.130(E)(1) to exceed the maximum building height limits, up to 75 feet (plus 5-foot parapet, by right)

Your appeal has been referred to the Planning Department.

The Planning Department will transmit to Council a statement setting forth the reasons for the Zoning Adjustments Board decision. This report, as well as a copy of the appeal, will appear on the Council agenda of **January 31, 2023**.

This meeting of the Council will commence at 6:00 p.m. and will be held in the School District Board Room located at 1231 Addison Street. However, depending on future conditions, this meeting may be held exclusively through videoconference and teleconference to ensure the health and safety of the public.

Pursuant to the City Council Rules of Procedure, this appeal will appear on the City Council's agenda as a public hearing. Time shall be provided for five-minute presentations each by the appellant and applicant. Where the appellant is not the

RE: 2065 Kittredge Street – Appeal ZAB Decision Use Permit # ZP2021-0193 Page 2

applicant, the appellants collectively shall have five minutes to comment and the applicant shall have five minutes to comment. Where the appellant is the applicant, the applicant/appellant shall have five minutes to comment and the persons supporting the action of the board or commission on appeal shall have five minutes to comment.

After the conclusion of the five-minute comment periods, members of the public may comment on the appeal pursuant to the Rules of Procedure in effect for the Council meeting.

The Council will then deliberate and determine to do one of three things: 1) continue the public hearing; 2) based on the record of the Council's consideration and hearing, reverse or affirm, wholly or partly, or modify any decision, determination, condition or requirement of the Board's original action; or 3) remand the matter to the Board to reconsider the application, or any revisions thereto submitted after the Board's action.

Communications to the City Council that are received by the City Clerk pursuant to the following deadlines will be accepted and distributed as follows:

Submission Deadline	Distributed	Packet
January 17, 2023, by 5:00 p.m. (Tuesday)	Twelve days before the meeting (Thursday)	Agenda Packet
January 24, 2023, by 5:00 p.m. (Tuesday)	Five days before the meeting (Thursday)	Supplemental 1
January 30, 2023, 12:00 p.m. (Monday)	By 5:00 pm the day before the meeting (Monday)	Supplemental 2

Communications should be submitted directly to the City Clerk to ensure receipt by all Councilmembers. Electronic communications may be submitted to council@cityofberkeley.info for immediate distribution to the Mayor, each City Councilmember, and the City Clerk for inclusion in the official record. Please note that for communications submitted in hardcopy, if the communication includes maps or photos or any other material not reproducible on a copy machine, fifteen copies should be provided to the City Clerk.

Please note that Berkeley's Lobbyist Registration Act (Berkeley Municipal Code Chapter 2.09) is effective beginning on January 1, 2020. Information and resources regarding the Lobbyist Registration Act are available from the City's website at:

<https://berkeleyca.gov/your-government/lobbyist-registration>

If you have any additional questions regarding this matter, please do not hesitate to contact me at (510) 981-6908.

RE: 2065 Kittredge Street – Appeal ZAB Decision Use Permit # ZP2021-0193 Page 3

A copy of the staff report and a City Council agenda will be available from this office upon request after 4:00 p.m. on Thursday, January 19, 2023 or can be viewed on our website at: <https://berkeleyca.gov/your-government/city-council/city-council-agendas>.

Sincerely,



Mark Numainville
City Clerk

cc: Jordan Klein, Director of Planning
Steven Buckley, Land Use Planning Manager
Sharon Gong, Staff Planner
Farimah Brown, City Attorney
Bill Schrader (Applicant)
CA Student Living Berkeley, LLC (Owner)
Kelilah D. Federman, Adams Broadwell Joseph & Cardozo (Interested Party)

NOTICE CONCERNING YOUR LEGAL RIGHTS: If you object to a decision by the City Council to approve or deny an appeal, the following requirements and restrictions apply: 1) Pursuant to Code of Civil Procedure Section 1094.6 and Government Code Section 65009(c)(1)(E), no lawsuit challenging a City decision to deny or approve a Zoning Adjustments Board decision may be filed and served on the City more than 90 days after the date the Notice of Decision of the action of the City Council is mailed. Any lawsuit not filed within that 90-day period will be barred. 2) Pursuant to Government Code Section 66020(d)(1), the 90-day protest period for any fees, dedications, reservations, or other exactions included in any permit approval begins upon final action by the City, and that any challenge must be filed within this 90-day period. 3) In any lawsuit that may be filed against a City Council decision to approve or deny a Zoning Adjustments Board decision, the issues and evidence will be limited to those raised by you or someone else, orally or in writing, at a public hearing or prior to the close of the last public hearing on the project.