

Labor Markets in Goods Movement Occupations in Southern California  
Final Report

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**ABSTRACT**

Using data from the decennial Census as well as the American Community Survey, we examine the earnings and employment in manufacturing, retail trade, transportation, and wholesale trade in Southern California. We find that the labor markets show evidence of limited job ladders without significant educational investment (including language skills) and that there are clear patterns in the types of jobs held by residents of the communities in which new logistics facilities are being built; low skill/low pay jobs tend to be held by individuals who live and work in the Inland Empire and the high skill/high pay jobs tend to be held by workers who live in Los Angeles and Orange Counties.

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**DISCLOSURE**

This project was funded in entirety under this contract to California Department of Transportation.

# 1. Introduction

Given the decline in manufacturing employment over the last 20 years, it is not surprising that economists and policymakers are interested in what occupations can take manufacturing's place as a source of "middle-class" income for those with limited amounts of education. In Southern California, where the combined ports of Long Beach and Los Angeles constitute the fifth largest container port in the world, it is logical to look to logistics as an important source of employment that could substitute for lost manufacturing jobs.

Both ports boast of their economic impact. The Port of Long Beach estimates that activity from their operations supports 371,000 jobs in California and the Port of Los Angeles estimates 1.1 million jobs within the state are directly attributable to their activities. Both estimates are the result of economic impact studies generated by input-output (I-O) models.

Rather than taking an I-O approach to examining the jobs stemming from port-related activity, we are going to focus on four industries that are closely tied to international trade: manufacturing, wholesale trade, retail trade, and transportation. Obviously the first three industries rely on trade for their inputs (raw or semi-finished materials in the case of manufacturing and wholesale trade or finished goods in the case of retail trade) and the last provides services related to goods movement. While it is the case that manufacturing, wholesale, and retail trade firms conduct some activities entirely unrelated to trade, it is increasingly common for these industries to depend upon imports from overseas.

The goal of this paper is not to estimate the jobs and earnings specifically associated with the ports. Rather, it is to examine the characteristics of the types of trade-dependent jobs in which Southern Californians are employed. This is not the first research project that attempts to do so. There are two recent studies that focus on this subject but employ very different research techniques and draw strikingly divergent conclusions.

The first, by John Husing (2004), has a thesis made clear by the report's title, Logistics and Distribution: An Answer to Regional Upward Social Mobility. Husing, using ES-202 data, which is provided by firms, develops "job ladders" to contend that logistics and distribution jobs are characterized by upward mobility similar to that which used to apply to manufacturing jobs. Given that Husing uses firm-level data, his analysis is unable to examine (and control for) the demographic characteristics of the workers in these logistics jobs and there is little attention given to how likely a worker is to actually be able to climb a particular "job ladder" (i.e. how many high paying jobs are there relative to entry-level jobs?).

A more recent research project (though many years in development) is Getting the Goods: Ports, Labor, and the Logistics Revolution by Edna Bonacich and Jake Wilson (2007). Bonacich and Wilson analyze the labor market associated with the different components of the supply chain involved in moving goods from the Ports to market. As sociologists, Bonacich and Wilson focus on structured interviews with different stakeholders in the supply chain. They focus particularly on the de-unionization in different segments of the supply chain and its effects on labor conditions, with a particular focus on the use of temporary and immigrant labor in warehouses and distribution centers.

Thus, while Husing sees the potential for workers to move up job ladders, especially in the logistics jobs created in the Inland Empire (Riverside and San Bernardino counties), Bonacich and Wilson suggest that such job ladders are not prevalent in goods movement occupations and improvements in wages and working conditions will primarily rely on re-unionization of these jobs.

Making the assessment of these labor markets more complicated is the ambiguity inherent in new job creation within these industries. Since goods movement inherently involves either trucks or trains moving freight, the communities that see an increase in logistics-related jobs are also experiencing an increase in the negative impacts of truck and train traffic – noise, traffic congestion, and pollution. Thus, environmentalists and environmental justice activists are interested in exploring the trade-offs between the jobs, and the accompanying negative effects on air quality and land usage.

Given that most entry-level jobs are low paid (relative to median earnings in manufacturing), it is important to assess the potential for job advancement and the resulting wage effects when evaluating whether the positive impacts on jobs outweigh the negative externalities. Also important is the question of who is getting the jobs created in these industries. Are they going to residents of the communities in which the expansion is taking place? If so, what types of jobs (and salaries) are these workers earning?

We seek to answer these questions using data from various sources, but primarily rely on data from the Census and the American Community Survey. We find that the labor markets show evidence of limited job ladders without significant educational investment (including language skills) and that there are clear patterns in the types of jobs held by residents of the communities in which new logistics facilities are being built.

## 2. GDP by Industry

Using data from the Bureau of Economic Analysis, we first summarize the economic activity in the industries of interest: manufacturing, wholesale trade, transportation, and retail trade for the nation and the state of California. Tables 1 and 2 present the real GDP (in 2006 dollars) for the nation and California, respectively.

Table 1: Real GDP for the United States (in billions of 2006 dollars)

	Total	Manufacturing	Retail Trade	Transport	Wholesale Trade
1997	10064.31	1563.553	701.4873	309.9733	636.8084
1998	10487.38	1623.736	723.3112	330.7076	656.019
1999	10959.23	1635.478	756.8749	342.3253	688.0857
2000	11364.33	1662.514	772.1814	351.5947	689.7177
2001	11449.59	1526.886	787.2489	338.0269	691.0594
2002	11633.42	1513.293	805.0423	340.7292	688.4519
2003	11925.49	1489.104	823.228	346.7999	697.8207
2004	12388.79	1527.929	831.8848	351.5101	732.8262
2005	12762.96	1560.195	849.4976	355.5022	766.6256



2006	13149.03	1601.152	863.155	363.678	788.674
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Source: Bureau of Economic Analysis, Regional Data

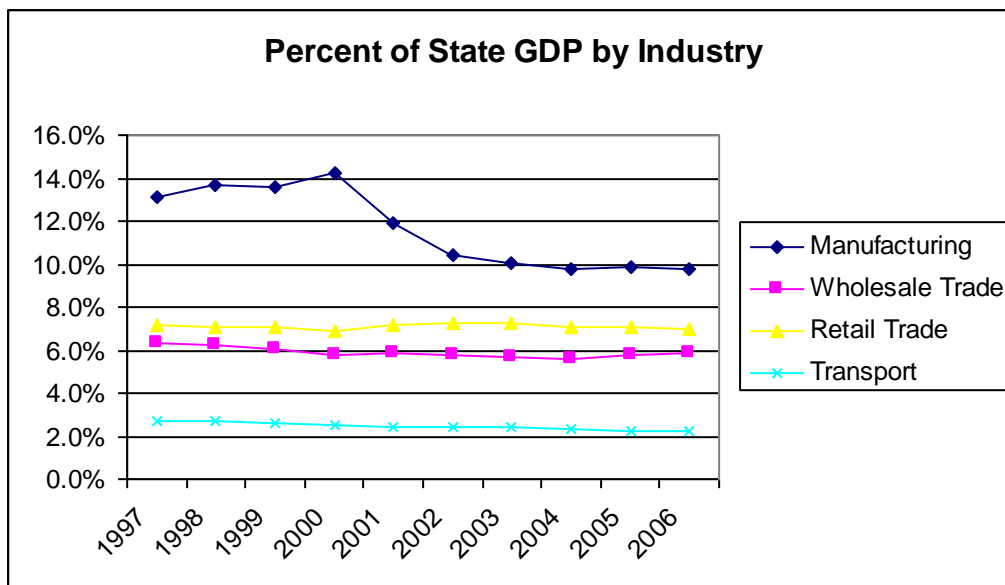
Table 2: Real GDP for California (in billions of 2006 dollars)

	Total	Manufacturing	Retail Trade	Transport	Wholesale Trade
1997	1245.09	163.0119	89.39995	33.62348	78.72112
1998	1312.043	179.1202	92.51131	35.29361	81.34084
1999	1406.17	190.6456	98.77098	36.55524	85.31065
2000	1500.399	213.3101	103.7525	37.94055	86.46082
2001	1481.034	176.1144	105.657	35.88266	87.38331
2002	1499.651	156.375	109.2389	36.4719	87.1712
2003	1540.792	154.6488	111.3273	36.69171	87.57854
2004	1613.832	157.1669	114.5521	37.28063	90.03984
2005	1667.314	163.9967	117.9131	37.38469	96.86372
2006	1727.355	168.976	119.716	38.813	101.757

Source: Bureau of Economic Analysis, Regional Data

Figure 1 presents the percent of total California GDP accounted for by the four industries that are the focus of this study.

Figure 1: California GDP by Industry



Source: Authors' calculations from BEA Regional Data

The percent of GDP generated by wholesale trade, retail trade, and transportation has remained relatively stable over the past decade. The percent attributable to manufacturing activity declined rapidly from 2000 to 2003 and then leveled off.

### 3. Employment in Trade-Dependent Industries

Tables 3 and 4 present data on employment in the four industries as well as total employment at the national and state level.

Table 3: National Employment

Year	Total Employment	Manufacturing	Retail Trade	Transportation/ Warehousing	Wholesale Trade
1997	155,608,200	17,987,535	17,850,749	5,047,517	6,023,125
1998	159,628,200	18,166,978	18,161,707	5,234,462	6,127,669
1999	162,955,300	17,923,092	18,242,786	5,257,278	6,220,883
2000	166,758,800	17,829,608	18,544,350	5,460,182	6,341,776
2001	167,014,700	16,994,600	18,528,800	5,474,000	6,273,400
2002	166,633,100	15,819,700	18,473,100	5,344,300	6,143,800
2003	167,553,500	15,063,000	18,505,100	5,296,500	6,110,500
2004	170,521,700	14,870,900	18,654,500	5,404,800	6,233,500
2005	174,183,400	14,806,400	18,988,600	5,587,100	6,381,100
2006	178,342,900	14,766,400	19,199,400	5,767,200	6,545,300

Source: Bureau of Economic Analysis, Regional Data

Table 4: State of California Employment

Year	Total Employment	Manufacturing	Retail Trade	Transportation/ Warehousing	Wholesale Trade
1997	17,786,862	1,902,564	1,879,033	526,439	688,843
1998	18,504,281	1,953,190	1,924,163	550,345	698,796
1999	19,024,298	1,915,310	1,924,490	552,034	713,678
2000	19,626,033	1,937,891	1,975,353	573,555	730,996
2001	19,715,866	1,881,924	1,999,197	576,214	742,193
2002	19,660,375	1,733,432	2,009,759	557,605	731,135
2003	19,780,956	1,626,594	2,031,866	554,201	727,991
2004	19,795,674	1,608,202	2,030,735	532,500	736,681
2005	20,034,526	1,588,001	2,070,395	530,143	760,004
2006	20,530,550	1,587,053	2,102,066	542,277	791,744

Source: Bureau of Economic Analysis, Regional Data

The decline in the manufacturing sector resulted in considerable job loss over the past decade. The job loss was initially at a lower rate than the rate of decline in real GDP. However, even as real manufacturing GDP leveled from 2003 onward, employment in manufacturing continued to decline. Table 5 presents employment in the four industries as a percent of the total for both California and the U.S.

Table 5: Allocation of Employment by Industry, National and State

Year	U.S.				California			
	Manu.	Retail Trade	Transport	Wholesale Trade	Manu.	Retail Trade	Transport	Wholesale Trade
1997	11.6%	11.5%	3.2%	3.9%	10.7%	10.6%	3.0%	3.9%
1998	11.4%	11.4%	3.3%	3.8%	10.6%	10.4%	3.0%	3.8%

1999	11.0%	11.2%	3.2%	3.8%	10.1%	10.1%	2.9%	3.8%
2000	10.7%	11.1%	3.3%	3.8%	9.9%	10.1%	2.9%	3.7%
2001	10.2%	11.1%	3.3%	3.8%	9.5%	10.1%	2.9%	3.8%
2002	9.5%	11.1%	3.2%	3.7%	8.8%	10.2%	2.8%	3.7%
2003	9.0%	11.0%	3.2%	3.6%	8.2%	10.3%	2.8%	3.7%
2004	8.7%	10.9%	3.2%	3.7%	8.1%	10.3%	2.7%	3.7%
2005	8.5%	10.9%	3.2%	3.7%	7.9%	10.3%	2.6%	3.8%
2006	8.3%	10.8%	3.2%	3.7%	7.7%	10.2%	2.6%	3.9%

Source: Authors' calculations from BEA Regional Data

Wholesale and retail trade have experienced growth rates similar to those of the nation and state. The transportation industry has remained relatively flat nationally and has lost ground in California. It is important to note that the transportation industry is narrow in its definition as it only includes transportation services provided for-hire. This is not a problem when considering railroads or most aviation, which tend not to be provided in-house. On the other hand, this means that a large segment of the trucking industry (private carriage) is not included. We can overcome this with our micro-data analysis in Section 4 of this paper.

We next turn to employment at the county level for the four counties of interest: Los Angeles, Orange, Riverside and San Bernardino. Employment by industry is presented in Table 6.

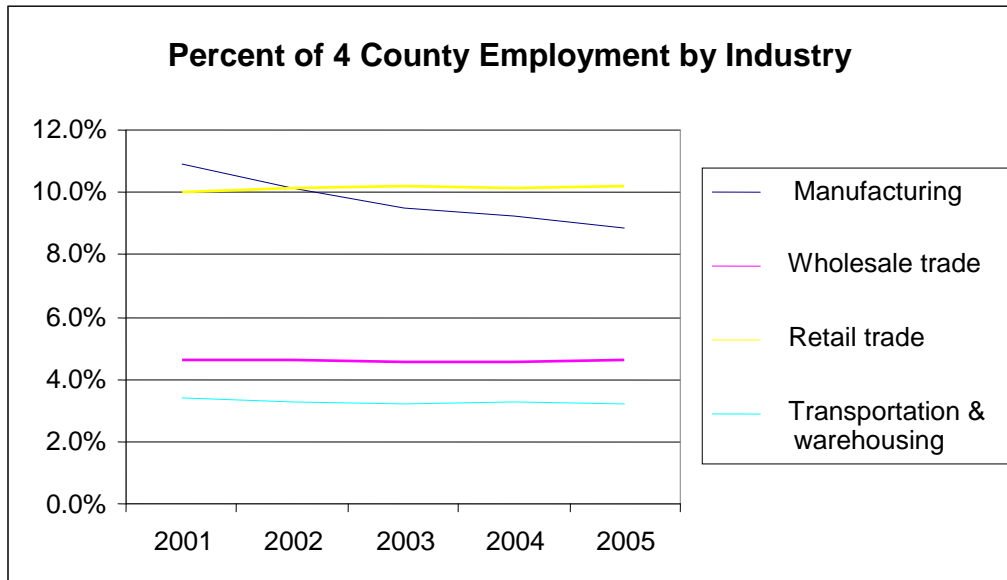
Table 6: Employment by Industry for Southern California Counties, 2001-2005

County	Industry	2001	2002	2003	2004	2005
Los Angeles	<b>Total employment</b>	5,516,905	5,483,342	5,486,629	5,561,891	5,656,299
	Manufacturing	614,260	570,130	530,617	517,716	504,531
	Retail trade	515,791	518,896	524,117	530,958	541,802
	Transportation/ warehousing	208,189	199,801	196,603	195,941	198,144
	Wholesale trade	262,669	260,108	254,797	262,610	270,711
Orange	<b>Total employment</b>	1,870,835	1,866,223	1,904,506	1,954,080	2,013,915
	Manufacturing	222,347	203,278	193,409	195,518	195,331
	Retail trade	192,436	193,505	197,951	196,334	202,355
	Transportation/ warehousing	33,904	32,576	32,621	33,691	33,190
	Wholesale trade	98,397	95,583	98,391	99,201	101,204
Riverside	<b>Total employment</b>	688,835	719,097	747,567	791,306	834,979
	Manufacturing	55,345	53,797	54,342	59,149	59,833
	Retail trade	83,261	87,456	91,036	98,572	104,864
	Transportation/ warehousing	16,548	16,486	17,107	19,044	20,324
	Wholesale trade	18,976	20,581	20,797	21,611	23,561
San Bernardino	<b>Total employment</b>	739,628	755,848	776,819	815,479	853,915
	Manufacturing	71,661	69,935	68,356	70,031	70,404
	Retail trade	90,774	93,213	95,317	99,061	106,024
	Transportation/ warehousing	38,396	38,910	40,278	47,016	50,143
	Wholesale trade	29,159	29,403	31,739	32,796	36,678

Source: Bureau of Economic Analysis, Regional Data

Figure 2 presents the distribution of employment by industry for the four counties in aggregate.

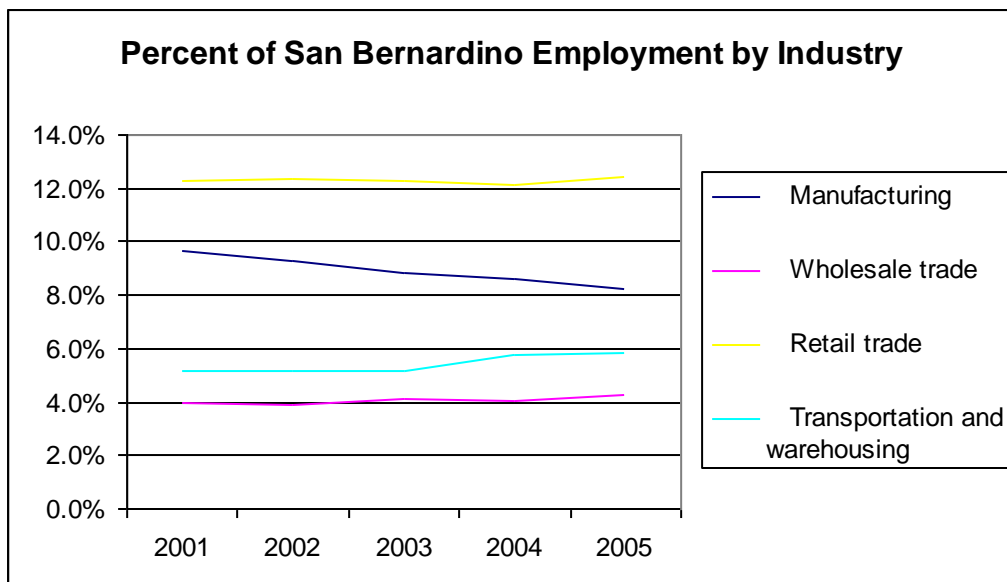
Figure 2: Distribution of Employment by Industry, Southern California



Source: Authors' calculations from BEA Regional Data

The figures for the four-county area are very similar to those of the state (Table 5). An exception can be seen by examining the trends for San Bernardino County alone (Figure 3).

Figure 3: Distribution of Employment by Industry, San Bernardino



Source: Authors' calculations from BEA Regional Data

While the share of total employment in manufacturing in San Bernardino has declined, the share of transportation, wholesale trade, and retail trade employment has increased. This is markedly different than the trend for California or even the four-county aggregate and reflects the fact that

more trade-dependent firms are locating facilities in San Bernardino County, where there is abundant land at lower cost than in Los Angeles or Orange counties.

#### **4. Occupations, Industries and Earnings**

The first step in uncovering potential job ladders for workers in the trade-dependent industries is to examine the type of work these individuals do. In order to do this, we utilize data from the 2000 Census and 2005 American Community Survey (ACS) Public Use Microdata (PUMS) files. In the case of the 2000 Census, we use the 5-percent files, which are derived from a subsample of the “long form” census questionnaire given to a subset of the population. The 2005 ACS data is also collected from the Census Bureau and contains questions similar to the Census, albeit with significantly smaller sample sizes. The advantage of the ACS is that it is administered annually, which allows us to examine more recent data. Like the Census, the ACS provides “person weights” that allow us to weight the observations and extrapolate from the sample to the population.

Most of the results presented here will rely on the ACS data as we find little has changed from 2000 to 2005. When both results are presented, we will denote the different samples using the year of data collection.

These data sets contain very detailed information on individuals. We are interested in demographic information, as well as labor market information. The data set contains information on employment status, hours of work, hourly wage, weekly earnings, and detailed codes for industry and occupations. Unfortunately, the data set does not contain information on whether or not the individual is a member of a labor union. We constrain our sample to employed persons 16-65 years of age who either live or work in the four counties: Los Angeles, Orange, Riverside, and San Bernardino. We also focus on workers in trade-dependent industries: manufacturing, retail trade, wholesale trade, and transportation.

The distribution of detailed occupation codes is presented in Appendix A for the year 2005 (2000 detailed distribution is available from the authors upon request). We aggregate the occupations into the following categories:

- Manager (census occupation codes: 1-49)
- Business and Finance occupations (50-99)
- Professional occupations (100-359)
- Service occupations (360-469)
- Sales occupations (470-499)
- Office occupations (500-599)
- Farming and Forestry occupations (600-619)
- Construction and Extraction occupations (620-699)
- Maintenance and Repair occupations (700-769)
- Production Workers (770-899)
- Transport Workers (900-979)

Table 7 presents the distribution of these occupations among all employed individuals either living or working in the four-county area.

Table 7: Distribution of Occupation by Industry

Occupation	All Industries	Manufacturing	Retail Trade	Transport/Warehousing	Wholesale Trade
Management	9.03%	11.53%	3.19%	7.59%	7.77%
Business & Finance	4.72%	3.66%	2.18%	2.11%	6.03%
Professional	17.00%	13.27%	4.54%	1.91%	3.93%
Service	15.35%	1.52%	3.32%	5.53%	1.43%
Sales	13.93%	4.49%	54.38%	1.95%	35.05%
Office	15.30%	11.48%	17.04%	24.49%	20.27%
Farming	0.32%	0.05%	0.00%	0.04%	0.89%
Construction	6.57%	1.54%	0.59%	0.83%	0.79%
Maintenance	3.37%	3.46%	3.72%	4.17%	2.85%
Production	8.11%	42.71%	3.20%	2.03%	4.69%
Transport	6.33%	6.29%	7.84%	49.34%	16.30%
Sample size	61926	8739	8034	2515	3153

What is most striking about Table 7 is the relatively small share of managerial, business and finance and professional jobs in retail trade, transportation, and wholesale trade. Across industries, 3 in 10 workers fall into these occupational categories. For workers in retail trade, that number is approximately 1 in 10. The retail trade industry operates with approximately 32 non-managerial jobs for each management job, while in manufacturing there is one manager for every nine workers in other occupations.

Tables 8a and 8b illustrate this disparity across occupations further by presenting the hourly and weekly wages (respectively) for the same distribution of occupations and industries.

Table 8a: Average Hourly Earnings by Occupation and Industry

Occupation	All Industries	Manufacturing	Retail Trade	Transport/Warehousing	Wholesale Trade
Management	\$33.15	\$31.75	\$27.32	\$33.32	\$36.15
Business & Finance	\$32.93	\$33.18	\$21.20	\$25.89	\$30.23
Professional	\$31.55	\$33.49	\$27.25	\$32.70	\$26.88
Service	\$14.52	\$13.88	\$11.79	\$27.29	\$12.11
Sales	\$20.58	\$25.11	\$16.30	\$27.34	\$26.20
Office	\$18.40	\$17.71	\$13.40	\$17.76	\$16.19
Construction	\$18.30	\$16.49	\$18.49	\$25.92	\$20.50
Maintenance	\$19.82	\$22.51	\$18.26	\$22.15	\$19.41
Production	\$15.28	\$14.79	\$12.57	\$16.82	\$11.83

Transport	\$15.53	\$12.04	\$12.47	\$18.22	\$17.65
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Table 8b: Average Weekly Earnings by Occupation and Industry

Occupation	All Industries	Manufacturing	Retail Trade	Transport/Warehousing	Wholesale Trade
Management	\$1,259.04	\$1,415.19	\$1,187.31	\$1,328.77	\$1,516.59
Business & Finance	\$1,112.22	\$1,338.18	\$792.52	\$1,060.68	\$966.14
Professional	\$1,146.90	\$1,407.92	\$1,047.94	\$1,316.61	\$1,051.39
Service	\$428.60	\$549.43	\$405.99	\$835.85	\$459.83
Sales	\$735.57	\$1,086.57	\$570.23	\$1,221.19	\$1,017.26
Office	\$632.87	\$718.89	\$462.12	\$696.21	\$624.96
Construction	\$701.95	\$697.34	\$637.97	\$1,093.36	\$913.69
Maintenance	\$804.60	\$941.21	\$765.54	\$898.90	\$841.94
Production	\$598.24	\$600.43	\$514.24	\$719.48	\$473.54
Transport	\$619.11	\$499.00	\$456.29	\$746.80	\$718.64

There is considerable dispersion in wages (both hourly and weekly) by occupation, with managers and professionals the highest paid. There is substantial divergence in wages within the broad occupational groups across industries. Service workers in retail trade average \$11.79/hr while those in transport and warehousing average \$27.34/hr. This can be traced back to the detailed occupations in Appendix A, which presents the distribution within industry by detailed occupational code. For example, flight attendants dominate the service occupations for transportation, which clearly drives the higher service sector wages in transportation.

To evaluate the “true” wage dispersions between occupations and industries, it is necessary to control for differences in demographics (age, gender, race, ethnicity, education, and location). We estimate a wage equation with all of these as control variables as well as dummy variables for occupation and industry. Full results are presented in Appendix B, but for ease of exposition, we will present the results over the next few sections. We will describe the different sources of wage differentials beginning with those by industry and occupation. Table 9 presents the wage differentials – the base group is managers, so the numbers below present the wage differential between managers and each occupational group (as expected these gaps are largely negative, as most non-management workers earn less than managers).

Table 9: Wage Differentials by Occupation (managers as base group)

	Manufacturing		Retail Trade		Transportation/Warehousing		Wholesale Trade	
	Weekly	Hourly	Weekly	Hourly	Weekly	Hourly	Weekly	Hourly
Business & Financial	-5.40%	0.95%	-26.38%	-16.99%	-9.57%	-4.91%	-22.93%	-17.77%
Professional	-6.24%	1.69%	-13.96%	-0.19%	1.48%	10.97%	-16.31%	-11.91%
Service	-45.99%	-37.79%	-48.80%	-40.09%	-32.59%	-18.02%	-55.44%	-49.65%
Sales	-21.30%	-13.42%	-39.76%	-29.95%	-1.89%	-4.02%	-22.27%	-18.77%
Office	-30.46%	-23.99%	-42.58%	-33.66%	-33.75%	-29.78%	-41.16%	-34.21%

Construction	-26.74%	-23.26%	-25.29%	-14.60%	-2.66%	3.56%	-24.50%	-24.86%
Maintenance	-18.90%	-13.79%	-22.39%	-16.85%	-21.49%	-17.35%	-29.81%	-24.29%
Production	-37.08%	-31.87%	-42.18%	-37.72%	-26.66%	-27.36%	-44.59%	-40.69%
Transportation	-43.45%	-38.52%	-47.32%	-38.22%	-33.07%	-31.88%	-37.97%	-33.93%

The highlighted boxes indicate differentials that are statistically significant at the 5% level or better in a two-tailed test. Across industries, service, production, and transportation workers earn substantially less than their counterparts in management. It is important to keep in mind that these results control for demographic attributes. Thus, though education is important in determining income (as is discussed later in this paper), it is not enough – there must be available jobs in the more highly paid occupations in order for individuals to realize higher incomes.

## 5. Analysis by County

As there is considerable difference in pay between industries and occupations, it is important to consider what types of people are employed in different segments of the labor market involved in trade-dependent industries.

Table 10 presents the distribution of the place of work and place of residence in the sample.

Table 10: Distribution of Place of Work and Place of Residence

		Live				
		Los Angeles	Orange	Riverside	San Bernardino	Total
Work	Los Angeles	<b>44.11%</b>	2.07%	0.53%	1.27%	49.12%
	Orange	2.39%	<b>14.76%</b>	0.77%	0.42%	18.59%
	Riverside	0.21%	0.21%	<b>6.61%</b>	0.72%	7.88%
	San Bernardino	0.69%	0.17%	0.92%	<b>4.21%</b>	6.02%
Total		58.38%	20.79%	11.42%	7.86%	

The numbers in the interior cells are the joint probabilities of a work-residence combination (note that these numbers will not add to 100% since the sample contains people who either live or work in one of the four counties – thus, people are included who live in the four-county area, but work outside it and also people who work in the four-county area, but live outside it – most of these live or work in Ventura county).

The joint probabilities can be turned into conditional probabilities by dividing the joint probability by the individual probability of interest. For example, 4.21% of the sample lives and works in San Bernardino. To calculate the conditional probability of living in San Bernardino given that an individual works in San Bernardino, the ratio calculated is  $.0421/.0602$ , or 70%. Thus, 30% of individuals who work in San Bernardino actually live in another county (in this case, most live in either LA or Riverside Counties).



As we are primarily concerned with the live-work patterns in the trade-dependent industries, we generate the same probability table, restricted to those who work in one of these industries. This is presented in Table 11.

Table 11: Distribution of Place of Work and Place of Residence, Trade-dependent Industries

		Live				
		Los Angeles	Orange	Riverside	San Bernardino	Total
Work	Los Angeles	<b>43.45%</b>	2.66%	0.74%	1.58%	49.50%
	Orange	2.53%	<b>14.49%</b>	0.88%	0.46%	18.62%
	Riverside	0.25%	0.25%	<b>6.10%</b>	0.76%	7.49%
	San Bernardino	0.97%	0.15%	1.29%	<b>4.47%</b>	6.91%
Total		57.43%	21.18%	11.47%	8.43%	

Source: Authors' calculations from the 2005 ACS

The patterns in Table 11 are similar to those of Table 10, although a slightly higher percentage of workers in San Bernardino live outside the county; 35% of people who work in San Bernardino county live outside the county.

Finally, we examine this distribution of only managers and professionals in the four industries. These probabilities are presented in Table 12.

Table 12: Distribution of Place of Work and Place of Residence, Managers and Professionals in Trade-Dependent Industries

		Live				
		Los Angeles	Orange	Riverside	San Bernardino	total
Work	Los Angeles	<b>40.68%</b>	5.65%	0.88%	2.15%	51.52%
	Orange	3.53%	<b>19.49%</b>	1.35%	0.71%	25.52%
	Riverside	0.15%	0.47%	<b>3.83%</b>	0.62%	5.21%
	San Bernardino	0.85%	0.21%	1.03%	<b>2.77%</b>	4.89%
Total		52.22%	29.14%	9.16%	6.71%	

Source: Authors' calculations from the 2005 ACS

It is notable that a much smaller number of managers live or work in Riverside and San Bernardino. And of the managers who do work in San Bernardino, 44% of them live outside the area. This provides mounting evidence that the jobs that appear to be emerging in these industries for residents of the Inland Empire are not the high-paying jobs held by managers and professionals.

Tables 13a and 13b present weekly and hourly (respectively) wages by place of work and place of residence.

Table 13a: Mean Weekly Earnings by Place of Work and Residence

		Live			
		Los Angeles	Orange	Riverside	San Bernardino
Work	Los Angeles	\$706.71	\$1207.50	\$1173.44	\$1112.25
	Orange	\$783.31	\$836.96	\$1068.10	\$946.85
	Riverside	\$999.16	\$900.71	\$649.71	\$751.44
	San Bernardino	\$708.34	\$1146.50	\$768.48	\$647.31

Table 13b: Mean Hourly Earnings by Place of Work and Residence

		Live			
		Los Angeles	Orange	Riverside	San Bernardino
Work	Los Angeles	\$17.53	\$28.11	\$27.40	\$32.95
	Orange	\$19.03	\$20.72	\$24.62	\$21.82
	Riverside	\$24.09	\$20.58	\$16.17	\$17.35
	San Bernardino	\$17.16	\$25.94	\$18.51	\$15.76

The earnings in Tables 13a and 13b confirm that, generally, people commute in order to receive higher salary; in most cases, people who work in a different county than they live also earn more money per hour (or week).

Generally, once we control for demographics, there is relatively little return to location in our wage estimations (Table 14). The omitted category is those who work in LA.

Table 14: Percentage Returns to Location by Industry

	Manufacturing		Retail Trade		Transportation/Warehousing		Wholesale Trade	
	Hourly	Weekly	Hourly	Weekly	Hourly	Weekly	Hourly	Weekly
Work OC	3.68%	3.28%	2.49%	3.08%	-1.78%	-0.96%	8.51%	7.07%
Work RC	-19.18%	-3.24%	-1.20%	-2.44%	-4.00%	-4.72%	3.19%	1.83%
Work SB	1.34%	-3.31%	-2.44%	-3.36%	-0.56%	-5.60%	-8.11%	-8.44%

As in earlier tables, the highlighted boxes are the results that are significant in a 5 percent or lower test. For most industries, there are few statistically significant wage differentials by location. An exception to this is the wholesale trade industry. Those working in Orange County earn roughly 7% per week more than those working in Los Angeles County. The opposite is true for San Bernardino County, where workers in wholesale trade earn roughly 8% less than those in Los Angeles County, controlling for all other factors.

To examine the wage gaps by both place of residence and place of work, we estimate the wage equations separately by place of residence and look at the coefficients on place of work. These results are aggregated across all four trade-dependent industries (in order to ensure adequate sample size) and include all the same explanatory variables as the first set of estimates. The complete set of results is presented in Appendix C. Table 15 presents the percentage wage differential by place of work and place of residence (where the base group is those who work in Los Angeles County).

Table 15: Percentage Wage Differential by Place of Residence and Work

Work	Live							
	LA		OC		RC		SB	
	Weekly	Hourly	Weekly	Hourly	Weekly	Hourly	Weekly	Hourly
OC	5.19%	5.00%	-14.21%	-12.68%	1.87%	-4.45%	-1.99%	-2.79%
RC	21.17%	17.57%	-9.16%	-10.87%	-27.85%	-27.79%	-10.36%	-14.62%
SB	0.02%	-0.12%	0.66%	-3.91%	-20.55%	-22.35%	-16.83%	-18.54%

Since the base wages for those working in Los Angeles differ by area of residence, Table 16 presents the results for the adjusted hourly wages by place of work and residence in dollars using the mean wage of Los Angeles workers as its base.

Table 16: Predicted Wages by Place of Work and Residence

Work	Live			
	LA	OC	RC	SB
LA	\$17.06	\$26.72	\$26.79	\$31.91
OC	\$17.91	\$23.33	\$25.60	\$31.02
RC	\$20.06	\$23.81	\$19.34	\$27.24
SB	\$17.04	\$25.67	\$20.80	\$25.99

As seen in the earlier descriptive tables, workers who commute to a job in a different county generally experience higher wages (all else equal) than those who do not, but the increases are especially large if they commute to Los Angeles or Orange counties. What is important to note, and will be examined later, is that the people who reside in Los Angeles and Orange counties and commute to the Inland Empire, are well compensated for this. However, they typically have higher levels of education and are employed in high-compensation occupations.

## 6. Travel Time

As seen in Tables 10 and 11, many workers in the four county area live in a county other than that in which they work. This leads to logical questions regarding commuting and the resulting congestion. Descriptive statistics on travel time by place of residence and place of work are presented in Table 17.

Table 17: Average Travel Times by Place of Residence and Place of Work (in minutes)

		Place of Residence							
		Los Angeles		Orange		Riverside		San Bernardino	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Place of Work	Los Angeles	<b>27.843</b>	20.754	44.866	26.482	72.752	37.768	50.559	31.604
	Orange	41.030	23.530	<b>22.968</b>	16.747	58.072	30.316	58.023	31.516
	Riverside	53.278	31.093	44.895	23.791	<b>21.793</b>	18.889	37.257	22.804
	San Bernardino	38.337	25.371	51.495	27.245	36.995	21.326	<b>22.546</b>	20.508

Not surprisingly, those who work in another county have significantly longer commuting times. The commute (in minutes) among those who live and work in the same county is highest for Los Angeles County. We generate two more tables (18 and 19) to compare the commute times for those working in trade-dependent industries (Table 18) and those working in other industries (Table 19).

Table 18: Average Travel Times by Place of Residence and Place of Work: Workers in Trade-Dependent Industries

		Place of Residence							
		Los Angeles		Orange		Riverside		San Bernardino	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Place of Work	Los Angeles	<b>26.540</b>	19.421	43.856	24.304	70.813	33.826	49.774	29.985
	Orange	37.424	20.446	<b>22.979</b>	16.298	53.576	26.645	56.481	34.138
	Riverside	50.255	25.735	40.036	22.311	<b>21.333</b>	18.085	31.912	16.428
	San Bernardino	38.422	26.942	49.176	23.349	36.462	21.197	<b>22.938</b>	19.515

Table 19: Average Travel Times by Place of Residence and Place of Work: Workers Outside Trade-Dependent Industries

		Place of Residence							
		Los Angeles		Orange		Riverside		San Bernardino	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Place of Work	Los Angeles	<b>28.593</b>	21.447	<b>45.741</b>	28.222	74.763	41.477	51.201	32.890
	Orange	<b>43.275</b>	25.010	<b>22.962</b>	16.996	<b>61.285</b>	32.352	59.045	29.721
	Riverside	55.410	34.375	<b>48.429</b>	24.348	<b>22.030</b>	19.289	<b>40.568</b>	25.463
	San Bernardino	38.250	23.712	52.575	28.969	37.552	21.484	<b>22.291</b>	21.131

Somewhat surprising is that the mean commute times are lower, on average, for workers in trade-dependent industries. Statistically significant differences (at the 10% level) in means between the two groups are highlighted in blue.

Though not presented in separate tables, the commute times of managers and professionals in trade-dependent industries are significantly higher than non-professionals. The average commute of managers and professionals is 30 minutes, compared to 27 minutes for non-professionals. This supports the findings in Table 12 that managers have different patterns of work and residence than other workers in trade-dependent industries. For example, only 55% managers who work in San Bernardino also reside there; compared with 66% of workers overall.

## 7. Job Ladders and Returns to Education

It is clear from the wage data that in order for a worker to increase his/her earnings, they need to move to a higher paying occupation (Tables 8a, 8b, 9). For most, this is not possible by simply increasing years of experience – it is necessary to increase investment in education. Table 20 presents the distribution of educational degree by occupational category for individuals employed in trade-dependent industries.

Table 20: Educational Distribution by Occupation

Occupation	Less than High School Diploma	High School Diploma	Some College	Associate's Degree	College Degree	Graduate Degree
Management	5.13%	15.45%	24.30%	7.16%	31.53%	16.43%
Business & finance	2.84%	12.56%	21.97%	10.01%	39.91%	12.71%
Professional	3.17%	8.51%	17.70%	10.56%	39.94%	20.12%
Sales	13.87%	28.51%	30.69%	7.27%	17.00%	2.66%
Service	31.16%	29.93%	23.42%	6.69%	7.75%	1.06%
Office	17.39%	31.22%	30.76%	8.06%	10.70%	1.87%
Construction & Extraction	43.86%	33.77%	14.91%	3.51%	3.51%	0.44%
Maintenance & Repair	21.02%	32.46%	25.89%	10.64%	8.28%	1.71%
Production	49.45%	27.10%	14.51%	3.87%	4.35%	0.72%
Transport	37.45%	34.49%	19.43%	4.18%	3.77%	0.67%

This table makes it clear that investment in education is critical. While jobs in sales and service in trade-dependent industries are available to individuals with a high school diploma or lower, these are also relatively low paid jobs. Jobs in management, business, or professional occupations require significantly higher levels of investment in education (approximately 50% of these workers have a college degree or higher).

Presenting the data in a slightly different way, Table 21 presents the mean weekly and hourly wages of employees in trade-dependent industries by educational level.

Table 21: Average Weekly and Hourly Wages by Degree and Industry

		Less than High School Diploma	High School Diploma	Some College	Associate's Degree	College Degree	Graduate Degree
Trade-Dependent Industries	weekly	\$493.59	\$605.12	\$784.19	\$870.61	\$1,122.16	\$1,634.52
	hourly	\$12.99	\$15.29	\$19.84	\$21.25	\$27.78	\$38.28
Wholesale Trade	weekly	\$652.96	\$698.73	\$923.41	\$891.05	\$1,154.67	\$1,317.79
	hourly	\$17.62	\$17.09	\$21.78	\$20.95	\$30.93	\$32.97
Retail Trade	weekly	\$401.97	\$491.94	\$578.16	\$658.47	\$876.12	\$1,312.07
	hourly	\$12.17	\$13.66	\$15.95	\$17.08	\$22.49	\$31.65
Transportation/Warehousing	weekly	\$612.55	\$713.04	\$882.07	\$917.68	\$996.99	\$1,421.04
	hourly	\$15.27	\$17.02	\$22.81	\$22.94	\$25.24	\$11.96
Manufacturing	weekly	\$485.23	\$663.19	\$972.13	\$1,054.72	\$1,292.77	\$1,843.45
	hourly	\$11.96	\$15.91	\$23.22	\$24.84	\$30.46	\$42.30

Clearly there are sizeable premia for an advanced degree. Also, as evidenced in Table 9, some of the wage premia are due to occupation, not simply degree. It is clear from the labor economics literature that there are many different determinants of wage (demographics, industry, occupation, location, etc.). To determine the wage premia from advanced degrees we return to our initial regression analysis (Appendix B). Table 22 presents the returns to different levels of education. All are presented as the percentage wage premium of the degree compared to those with less than a high school diploma (holding all other worker characteristics constant).

Table 22: Wage Premia for Degrees by Industry (relative to those with less than a college degree)

	Manufacturing		Retail Trade		Transportation/Warehousing		Wholesale Trade	
	weekly	hourly	weekly	hourly	weekly	hourly	weekly	hourly
High School Diploma	19.11%	15.00%	22.05%	8.93%	12.65%	5.40%	19.64%	13.09%
Some College	40.83%	34.95%	33.14%	20.68%	31.60%	25.27%	33.11%	26.30%
Associate's Degree	43.85%	34.99%	42.16%	25.51%	34.12%	30.37%	37.19%	28.74%
College Degree	74.00%	62.51%	65.76%	41.85%	40.85%	31.68%	64.77%	54.19%
Graduate Degree	106.78%	93.48%	114.53%	79.66%	60.59%	45.47%	73.83%	60.50%

We can draw three conclusions from these results. First, education is critical to improving an individual's income. Second, the link between education and earnings stems from two sources: it increases both the hourly wage and the probability of full-time employment. This is evident from the fact that the weekly percent premia are larger than the hourly premia.

Finally, we note that the educational premia vary significantly across the industries, and are lowest in transportation. This agrees with the distribution of occupations presented in Table 7. For example, transportation provides the lowest returns on education and is also the industry with the lowest ratio of high paying occupations (especially managers and professionals).

## 8. Inequality: Racial and Ethnic Wage Differentials in Trade-Dependent Industries

Though most wage differentials between individuals can be explained by education, experience, occupation, and industry, there still remain “unexplained” wage gaps most often attributed to discrimination based on race or gender. Here we focus briefly on racial/ethnic wage gaps in trade-dependent industries, again relying on the regression results from Appendix B.

Table 23: Wage differentials by Race, Ethnicity, and Place of Birth

	Manufacturing		Retail Trade		Transportation/warehousing		Wholesale trade	
	weekly	hourly	weekly	hourly	weekly	hourly	weekly	hourly
Hispanic	-9.63%	-12.11%	-2.75%	-4.80%	-3.64%	-3.29%	-12.43%	-13.19%
Native American	-8.84%	-5.89%	-10.39%	-7.81%	-0.52%	-10.78%	-11.96%	-7.31%
Asian	-8.06%	-4.93%	-8.99%	-3.39%	-5.11%	-0.46%	-19.28%	-12.58%
Black	-1.57%	2.84%	-4.34%	-5.11%	-11.50%	-7.23%	-1.80%	1.39%
Pacific Islander	-6.79%	8.19%	12.81%	-2.24%	14.56%	10.05%	7.82%	12.24%
Other	1.49%	1.01%	3.33%	2.51%	-2.20%	0.19%	-0.08%	2.18%
Born in U.S.	19.75%	20.11%	8.43%	14.79%	15.84%	16.59%	13.71%	15.72%

Table 23 presents the wage differentials by race, ethnicity (as Hispanic is considered in the Census survey instrument), and place of birth. Again, the highlighted cells are statistically different than zero in a two-tailed five percent test. All are dummy variables, so their interpretations are dependent on the base group. The base group for the Hispanic variable is non-Hispanic. Hispanics earn significantly less than non-Hispanics in all industries, except transportation. The wage gaps are the largest in the manufacturing and wholesale trade industries where they are on the order of 10-13%.

Before assessing the racial wage differentials, we next discuss the “native U.S.” dummy variable. The base group is people born outside of the U.S. This variable is important not only because it is statistically significant in each equation, but also because of what it implies about the potential source of wage differentials. If we omit this variable from the estimation, the coefficient on the Hispanic dummy variable roughly doubles in size, suggesting that some of the wage differential is due to language skills and not racial discrimination. The wage premia for native U.S. workers in the trade-related industries varies from 10-20%. It is important to recall that we have controlled for all other demographics, including education, in these results, which means that the differential between native and non-native workers should not be attributed to level of education (though there is no way to control for potential differences in the quality of education).

The base group for the race dummies is Whites. Most racial dummy variables are not statistically significant. The exception is the Asian dummy, which is negative and statistically significant for all industries except for transportation and warehousing.

The fact that there are not sizeable wage differentials based on race and ethnicity in transportation is interesting, as it could explain why minorities might be attracted to this industry, even though it is characterized by relatively low-paying jobs. More attention should be paid to a careful analysis of the role of wage discrimination on job choice in the region, which is beyond the scope of this paper.

## 9. The Top and Bottom of the Wage Distribution: Managers and Handlers

We conclude our analysis of wages with a comparison of workers at the two extremes – managers and handlers. Handlers are defined as those workers in occupations directly related to materials moving (such as forklift operators, loaders, packers, etc.). These are typical jobs in a warehouse and are generally relatively low pay. At the other extreme, we have already analyzed the wages and characteristics of managers in our trade-dependent industries.

We estimate probit models of being employed in the two occupation groups. Probit models are characterized by dichotomous dependent variables. In this case, we estimate two models. In the first, the dependent variable takes a value of one if the individual works as a handler (and zero otherwise). In the second, the dependent variable takes a value of one if the individual works as a manager or professional (and zero otherwise).

Rather than presenting the probit coefficients themselves, Table 24 presents the marginal effects of the probit model (evaluated at the mean).

Table 24: Probit Models of Handlers and Managers/Professionals

	Handlers	Managers & Professionals
Male	0.0093	0.0017
Married	-0.0126	0.0165
Separated, Divorced, Widowed	-0.0087	0.0083
High School Diploma	-0.0116	0.0893
Some College	-0.0258	0.1794
Associate's Degree	-0.0239	0.3039
College Degree	-0.0375	0.4337
Graduate Degree	-0.0328	0.6588
Age	-0.0026	0.0076
Age-squared	0.00003	-0.00009



Hispanic	0.0182	-0.0403
Native American	-0.0072	-0.0342
Asian	-0.0087	0.0338
Black	0.0042	-0.0322
Hawaiian, Pacific Islander	0.0261	-0.0162
Other Race	-0.004	0.0002
Born in US	-0.0049	0.0419
Work in OC	0.0005	0.0079
Work in RC	0.0081	-0.0384
Work in SB	0.0175	-0.0159
Work elsewhere	0.0145	-0.0307
Wholesale Trade	0.0404	-0.0727
Retail Trade	0.0065	-0.1108
Transportation Warehousing	0.0539	-0.0855
Pseudo R <sup>2</sup>	0.1069	0.2584
X <sup>2</sup>	845.2	4605.4
Log likelihood	-3531.853	-6610.2084
Observations	20,450	20,450

As one would expect, the coefficients tend to have the opposite signs across the two models. Those with higher levels of education are less likely to be employed as handlers. The omitted group is workers with less than a high school diploma. High school graduates are one percentage point less likely than those without a high school diploma to be employed as handlers. College graduates are three percentage points less likely.

The probability of being employed as a manager or professional rises with education (the marginal effects are positive and increasing with education). Those with a graduate degree are 66 percent more likely to be employed as managers than those with less than a high school diploma.

Blacks and Hispanics are less likely to be employed as managers. Again, it is important to note that education and other demographic characteristics have been controlled in this estimation. Hispanics are four percentage points less likely than non-Hispanics to be managers, but are 1.8 percentage points more likely than non-Hispanics to be employed as handlers. The same pattern is also seen for those born in the U.S.; they are less likely to be handlers and more likely to be employed as managers or professionals.

Finally, we find that handlers are most likely to be employed in the Inland Empire. This makes sense given what we know about the location of large warehouses and distribution centers in the Southern California basin. Managers are less likely to report working in the Inland Empire,

relative to Los Angeles County. Again, this suggests that the jobs in the Inland Empire are more heavily weighted to lower-skill, lower-earning jobs.

## **10. Conclusions and Recommendations**

In this paper we have presented evidence that without additional significant investment in education (including English language skills), trade-dependent industries in Southern California are unlikely to replace lost manufacturing jobs as a vehicle for the advancement of marginally educated workers into a middle income life style. Not only is education linked to an individual's level of income, but higher levels of education increase the probability of full time employment. Likewise, our investigations find little to support the idea that these industries provide job ladders from which entry level workers can advance through experience alone to middle and upper level positions.

Our study differs from earlier investigations into this topic by examining the characteristics of the types of trade-dependent jobs in which Southern Californians are employed while controlling for worker demographic characteristics. Unfortunately, we were not able to include the effect of declining union membership on wages and job advancement in our analysis. Further investigation into the potential effects of re-unionization on wages and upward mobility remains an interesting topic for further investigation.

Our results indicate that there is considerable dispersion in wages by occupation in each of the four industries included in our study due to differences in levels of education, language skills and the availability of higher paying jobs. San Bernardino County in particular has experienced greater declines in manufacturing and larger gains in transportation, retail and wholesale trade relative to the other three counties included in the study. Many firms in these industries have migrated to the Inland Empire take advantage of lower costs and residents tend to work in low skill/low pay occupations while workers in high skill/high pay occupations tend to commute from Los Angeles or Orange counties. This in turn begs the question of whether or not the potential for job advancement and wage effects outweigh the negative externalities (pollution, noise, congestion) imposed on neighborhoods adjacent to these industries.

We also examined "unexplained" wage gaps by looking at the effect of ethnicity and gender on wages and found these characteristics did not contribute to sizeable wage differentials. Instead, our results suggest that language skills are a more important determinant of income especially within the Hispanic community. This finding adds further evidence to our argument that education is key to improving wages and job advancement in Southern California trade-dependent industries.

## **11. Implementation**

We would encourage the use of these results in conjunction with other studies as the basis for workforce development strategies that incorporate language and skills training for those working in trade-dependent industries, especially in entry-level positions.

## Appendix A: Distribution of Detailed Occupations by Industry

Census Occupation Code	Occupational Title	Manufacturing	Retail Trade	Transport & Warehousing	Wholesale Trade
10	Chief Executives	0.81	0.43	0.50	2.06
20	General & Operations Managers	0.88	0.62	1.39	1.15
40	Advertising & Promotions Managers	0.02	0.02	0.04	0.06
50	Marketing, Sales Managers	1.21	0.55	0.54	1.15
60	Public Relations Managers	0.13			
100	Administrative Services Managers	0.14		0.04	0.03
110	Computer & Information Systems Managers	0.26	0.14	0.12	0.12
120	Financial Managers	0.58	0.39	0.27	0.88
130	Compensation & Benefits, Training Managers	0.27	0.29	0.31	0.51
140	Industrial Production Managers	1.09		0.04	0.15
150	Purchasing Managers	0.40	0.13		0.18
160	Transportation, Storage, & Distribution Managers	0.21	0.13	0.81	0.63
220	Construction Managers		0.04		
300	Engineering Managers	0.49	0.01	0.04	0.03
310	Food Service Managers		0.01	0.04	
360	Natural Sciences Managers	0.04			
410	Property, Real Estate, & Community Assoc. Managers	0.02	0.04	0.12	
420	Social & Community Service Managers	0.01			
430	Managers, All Other	5.06	0.35	3.43	0.85
510	Purchasing Agents & Buyers, Farm Products		0.01		0.09
520	Wholesale & Retail Buyers, Except Farm Products		0.96		2.15
530	Purchasing Agents, Except Wholesale, Retail & Farm Products	0.68		0.04	
560	Compliance Officers, Except Agriculture, Construction, Health & Safety, & Tr	0.12	0.02	0.12	0.06
600	Cost Estimators	0.17	0.04		
620	Human Resources Specialists	0.32	0.21	0.35	0.33
700	Logisticians	0.10	0.01	0.12	0.15
710	Management Analysts	0.16	0.09	0.08	0.18
730	Emergency Management Specialists	0.23	0.08	0.19	0.30
730	Business Operations Specialists, All Other	0.23	0.08	0.19	0.30
800	Accountants & Auditors	1.77	0.75	1.15	2.51
820	Budget Analysts	0.02	0.02		
830	Credit Analysts	0.02			
840	Financial Analysts	0.02			0.03
940	Tax Preparers		0.01		0.03
1000	Computer & Information Scientists, Research	0.47	0.19	0.12	0.24
1010	Computer Programmers	0.72	0.13	0.08	0.33
1020	Computer Software Engineers	0.98	0.34	0.08	0.12
1040	Computer Support Specialists	0.28	0.18	0.12	0.30
1060	Database Administrators	0.09	0.05		0.15
1100	Network & Computer Systems Administrators	0.23	0.11	0.08	0.12
1110	Network Systems & Data Communications Analysts	0.16	0.12	0.08	0.09
1220	Operations Research Analysts	0.10			
1240	Mathematical Technicians & Scientists	0.01			
1300	Architects		0.01		0.03
1310	Cartographers & Photogrammetrists, Surveyors		0.01	0.04	

1320	Aerospace Engineers	1.98		0.08	
1340	Biomedical Engineers	0.01			
1350	Chemical Engineers	0.13	0.01		
1360	Civil Engineers	0.04		0.12	
1400	Computer Hardware Engineers	0.12	0.01		
1410	Electrical Engineers	0.93		0.04	0.12
1420	Environmental Engineers			0.08	
1430	Health & Safety Engineers, Except Mining Safety Engineers & Inspectors, Indu	0.69	0.01	0.04	
1450	Materials Engineers	0.12			
1460	Mechanical Engineers	0.50	0.02		0.06
1520	Petroleum Engineers			0.04	
1530	Engineers, All Other	1.00	0.02	0.12	0.18
1540	Drafters	0.39	0.04	0.08	0.06
1550	Engineering Technicians	1.05		0.23	0.18
1600	Food Scientists & Technologists, Soil & Plant Scientists	0.02	0.01		
1610	Biological Scientists	0.04			
1650	Medical Scientists	0.08	0.01		
1650	Life Scientists, All Other	0.08	0.01		
1700	Physicists	0.01			
1710	Atmospheric & Space Scientists	0.01			
1720	Chemists & Material Scientists	0.23			
1760	Physical Scientists, All Other	0.21			
1800	Economists				0.09
1810	Market Research Analysts, Survey Researchers	0.22	0.04	0.04	0.21
1860	Other Social Scientists	0.01			
1900	Agricultural & Food Science Technicians	0.10			
1910	Biological Technicians	0.05			
1920	Chemical Technicians	0.17			
1930	Geological & Petroleum Technicians	0.01			
1960	Research Assistants	0.04	0.01	0.04	0.03
2100	Lawyers	0.04	0.01		
2140	Paralegals & Legal Assistants	0.03	0.01		0.06
2150	Law Support Staff	0.03		0.08	0.06
2200	Postsecondary Teachers, All Other			0.08	
2330	Special Education Teachers	0.01			
2340	Teachers & Instructors, All Other	0.14	0.22	0.19	0.15
2430	Librarians	0.01			
2550	Education, Training, & Library Workers, All Other				0.03
2600	Artists & Related Workers	0.22	0.13		0.09
2630	Designers	1.28	1.12		0.91
2700	Actors		0.02		
2710	Producers & Directors	0.01			
2810	Broadcast News Analysts, Reporters	0.01			
2820	Public Relations Specialists	0.04		0.04	0.09
2830	Editors			0.04	0.03
2840	Technical Writers	0.13	0.01	0.04	
2850	Writers & Authors	0.07	0.01		
2860	Media & Communication Workers, All Other	0.02	0.01		
2900	Audio & Video Equipment Technicians	0.03	0.02		0.03

2910		0.02	0.01		0.03
2920			0.01		0.03
3030	Dietitians & Nutritionists		0.01		
3050	Pharmacists		0.79		
3110	Physician Assistants	0.01			0.03
3130	Registered Nurses	0.01	0.04		
3220	Respiratory Therapists		0.01		
3300	Medical & Clinical Laboratory Technologists	0.04			
3410	Other Technicians & Technologists		0.68		0.03
3500	Licensed Practical & Licensed Vocational Nurses	0.02			
3510	Medical Records & Health Information Technicians		0.01		
3520	Opticians, Dispensing	0.01	0.12		
3530	Health Technologists & Technicians, All Other	0.02	0.04		
3540	Occupational Health & Safety Specialists & Technicians	0.02			0.03
3600	Health Aides				0.06
3650	Healthcare Support Workers, All Other	0.02	0.27		0.03
3730	First-Line Supervisors/Managers, Protective Service Workers, All Other		0.04		
3910	Private Detectives & Investigators	0.01	0.06		
3920	Gaming Surveillance Officers & Gaming Investigators	0.25	0.41	0.54	0.12
4000	Chefs & Head Cooks		0.06	0.04	
4010	First-Line Supervisors/Managers of Food Preparation & Serving Workers	0.01	0.01		
4020	Cooks	0.05	0.31	0.08	0.12
4030	Food Preparation Workers	0.08	0.34	0.04	0.15
4040	Bartenders		0.01		
4050	Combined Food Preparation & Serving Workers, Including Fast Food		0.41		
4060	Counter Attendants, Cafeteria, Food Concession, & Coffee Shop		0.05		0.03
4110	Waiters & Waitresses	0.01	0.06	0.04	0.03
4120	Food Servers, Nonrestaurant	0.02	0.02		
4130	Dining Room & Cafeteria Attendants & Bartender Helpers	0.01	0.02		
4140	Dishwashers		0.01		
4150	Hosts & Hostesses, Restaurant, Lounge, & Coffee Shop		0.01		
4200	First-Line Supervisors/Managers of Housekeeping & Janitorial Workers	0.03	0.01		
4210	First-Line Supervisors of Landscaping, Lawn Service			0.04	
4220	Janitors & Cleaners, Except Maids & Housekeeping Cleaners	0.93	0.83	0.50	0.76
4230	Maids & Housekeeping Cleaners, Building Cleaning Workers	0.03	0.04		0.03
4240	Pest Control Workers				0.03
4250	Landscaping & Grounds Keeping Workers	0.02	0.05	0.04	0.03
4340	Animal Trainers		0.01		
4350	Nonfarm Animal Caretakers		0.12		
4420	Ushers, Lobby Attendants, & Ticket Takers		0.01		
4430	Entertainment Attendants & Related Workers, All Other		0.01		
4510	Hairdressers, Hairstylists, & Cosmetologists		0.04		
4520	Other Cosmeticians		0.07		
4530	Baggage Porters & Bellhops, Concierges		0.02	0.54	
4550	Flight Attendants & Transport Attendants			3.50	
4620	Fitness Trainers & Aerobics Instructors	0.02			
4650	Personal Care & Service Workers, All Other	0.01	0.01	0.04	
4700	First-Line Supervisors/Managers of Retail Sales Workers	0.12	16.10		0.09
4710	First-Line Supervisors/Managers of Non-Retail Sales Workers	0.10	0.05	0.12	13.18

4720	Cashiers	0.23	12.39	0.15	0.79
4740	Counter & Rental Clerks		0.11		0.03
4750	Parts Salespersons	0.02	0.54		0.12
4760	Retail Salespersons		23.51		
4800	Advertising Sales Agents	0.03	0.08		0.03
4840	Sales Representatives, Services, All Other	0.22		1.58	
4850	Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Pro	3.61			20.16
4900	Demonstrators & Product Promoters	0.03	0.14		0.09
4920	Real Estate Brokers & Sales Agents			0.04	
4930	Sales Engineers	0.04	0.05		0.09
4940	Telemarketers	0.01	0.19	0.04	0.12
4950	Door-to-Door Sales Workers, News & Street Vendors, & Related Workers	0.01	1.05		0.03
4960	Sales & Related Workers, All Other	0.01	0.29		0.18
5000	First-Line Supervisors/Managers of Office & Administrative Support Workers	1.13	0.74	1.85	1.87
5010	Switchboard Operators, Including Answering Service		0.04	0.04	0.06
5020	Telephone Operators	0.01	0.05		0.06
5030	Communications Equipment Operators, All Other			0.04	
5100	Bill & Account Collectors	0.08	0.04	0.08	0.21
5110	Billing & Posting Clerks & Machine Operators	0.14	0.28	0.42	0.36
5120	Bookkeeping, Accounting, & Auditing Clerks	1.13	1.30	1.12	2.51
5140	Payroll & Timekeeping Clerks	0.14	0.11	0.12	0.09
5220	Court, Municipal, & License Clerks		0.01		
5230	Credit Authorizers, Checkers, & Clerks	0.01	0.02		0.03
5240	Customer Service Representatives	1.08	3.47	3.50	2.36
5260	File Clerks	0.16	0.12	0.19	0.42
5330	Loan Interviewers & Clerks		0.01		
5350	Order Clerks	0.20	0.46		0.70
5360	Human Resources Assistants, Except Payroll & Timekeeping	0.04	0.01		
5400	Receptionists & Information Clerks	0.40	0.48	0.50	0.76
5410	Reservation & Transportation Ticket Agents & Travel Clerks		0.01	1.31	
5420	Information & Record Clerks, All Other	0.01		0.04	
5500	Cargo & Freight Agents	0.01	0.01	0.46	0.03
5510	Couriers & Messengers	0.07	0.05	4.50	0.03
5520	Dispatchers	0.08	0.11	1.69	0.15
5530	Meter Readers, Utilities			0.46	
5600	Production, Planning, & Expediting Clerks	0.48	0.14	0.31	0.24
5610	Shipping, Receiving, & Traffic Clerks	1.80	1.20	2.12	3.14
5620	Stock Clerks & Order Fillers	0.78	5.96	0.92	2.09
5630	Weighers, Measurers, Checkers, & Samplers, Recordkeeping	0.22	0.04	0.31	0.30
5700	Executive Secretaries & Administrative Assistants	1.78	1.05	1.46	2.51
5800	Computer Operators	0.21	0.09	0.15	0.15
5810	Data Entry Keyers	0.31	0.27	0.58	0.36
5820	Word Processors & Typists	0.15	0.21	0.46	0.45
5850	Mail Clerks & Mail Machine Operators, Except Postal Service	0.04	0.07	0.27	
5860	Office Clerks, General	0.64	0.46	0.89	0.85
5900	Office Machine Operators, Except Computer	0.03			
5910	Proofreaders & Copy Markers	0.02			
5920	Statistical Assistants	0.01		0.04	

5930	Office &Administrative Support Workers, All Other	0.28	0.21	0.54	0.21
6010	Agricultural Inspectors				0.03
6040	Graders &Sorters, Agricultural Products	0.03			0.21
6050	Agricultural Workers	0.01	0.01		0.91
6100	Fishers &Related Fishing Workers	0.01		0.04	
6200	First-Line Supervisors/Managers of Construction Trades &Extraction Workers	0.04	0.01	0.04	0.03
6220	Brick masons &Block masons, Stonemasons	0.01			
6230	Carpenters	0.63	0.12		0.12
6240	Floor installers	0.01	0.21		0.09
6260	Construction Laborers	0.10	0.01	0.04	
6320		0.02		0.27	0.06
6350	Electricians	0.24	0.02	0.08	0.15
6360	Glaziers	0.03	0.11		
6400	Insulation Workers	0.01			
6420	Painters, Construction &Maintenance	0.02	0.02		0.06
6430	Paperhangers		0.01		
6440	Pipe layers, Plumbers, Pipefitters, &Steamfitters	0.11	0.01	0.38	0.24
6520	Sheet Metal Workers	0.23		0.04	
6530	Structural Iron &Steel Workers	0.09			
6600	Helpers		0.01		
6710	Fence Erectors		0.01		
6760	Construction &Related Workers, All Other	0.02	0.02	0.04	0.03
6820	Earth Drillers, Except Oil &Gas	0.01			
7000	First-Line Supervisors/Managers of Mechanics, Installers, &Repairers	0.22	0.22	0.35	0.24
7010	Computer, Automated Teller, &Office Machine Repairers	0.17	0.28	0.08	0.45
7020	Telecomm. Equipment Installers &Repairers, Except Line Installers	0.12	0.09		0.06
7030	Avionics Technicians	0.01		0.08	
7040	Electric Motor, Power Tool, &Related Repairers	0.02	0.04	0.08	0.03
7100	Electrical &Electronics Repairers	0.03	0.01	0.08	
7110	Electronic Equipment Installers &Repairers, Motor Vehicles	0.05	0.05		
7120	Electronic Home Entertainment Equipment Installers &Repairers		0.13		
7130	Security &Fire Alarm Systems Installers		0.01		0.15
7140	Aircraft Mechanics &Service Technicians	0.25		1.27	
7150	Automotive Body &Related Repairers	0.03	0.05	0.04	
7160	Automotive Glass Installers &Repairers	0.01			
7200	Automotive Service Technicians &Mechanics	0.21	1.50	0.04	0.33
7210	Bus &Truck Mechanics &Diesel Engine Specialists	0.07	0.12	1.00	0.18
7220	Mechanics	0.11	0.04	0.23	0.24
7240	Outdoor Power Equipment &Other Small Engine Mechanics	0.03	0.07		0.03
7260	Bicycle Repairers, RV Technicians, Tire Repairers		0.27		0.03
7300	Mechanical Door Repairers	0.01	0.01	0.08	
7310	Heating, Air Conditioning, &Refrigeration Mechanics &Installers	0.10	0.06	0.04	0.09
7320	Home Appliance Repairers		0.09	0.04	0.09
7330	Industrial Machinery Mechanics	1.24		0.04	0.24
7340	Maintenance &Repair Workers, General	0.48	0.24	0.54	0.39
7350	Maintenance Workers, Machinery	0.07	0.01		
7360	Millwrights	0.03			
7420	Telecommunications Line Installers &Repairers		0.01		
7430	Precision Instrument &Equipment Repairers	0.05	0.07		0.03

7510	Coin, Vending, & Amusement Machine Servicers & Repairers	0.01	0.20		0.09
7540	Locksmiths & Safe Repairers		0.01		
7550	Manufactured Building & Mobile Home Installers	0.01			
7560	Riggers			0.04	
7610	Helpers--Installation, Maintenance, & Repair Workers	0.01			
7620	Installation, Maintenance, & Repair Workers, All Other	0.13	0.15	0.12	0.15
7700	First-Line Supervisors/Managers of Production & Operating Workers	4.66	0.07	0.42	0.18
7710	Aircraft Structure, Surfaces, Rigging, & Systems Assemblers	0.21			
7720	Electrical & Electronic Equipment Assemblers	1.34			0.03
7730	Engine & Other Machine Assemblers	0.02			
7740	Structural Metal Fabricators & Fitters	0.07			
7750	Assemblers & Fabricators, All Other	5.73	0.24	0.19	0.57
7800	Bakers	0.74	0.25		0.09
7810	Butchers & Meat Cutters	0.13	0.72		0.30
7830	Food & Tobacco Roasting, Baking, & Drying Machine Operators	0.02			
7840	Food Batch makers	0.17	0.16		
7850	Food Cooking Machine Operators & Tenders	0.04			
7900	Computer-Controlled Machine Tool Operators	0.26			
7920	Extruding & Drawing Machine Setters, Operators, & Tenders	0.03			
7940	Rolling Machine Setters, Operators, & Tenders, Metal & Plastic	0.04			
7950	Cutting, Punching, & Press Machine Setters, Operators, & Tenders	0.26			0.03
7960	Drilling & Boring Machine Tool Setters, Operators, & Tenders	0.03			
8000	Grinding, Lapping, Polishing, & Buffing Machine Tool Setters, Operators, & T	0.21	0.01		0.12
8010	Lathe & Turning Machine Tool Setters, Operators, & Tenders	0.02			
8030	Machinists	2.01	0.02		0.03
8040	Metal-Refining Furnace Operators & Tenders	0.02			
8060	Model & Pattern Makers, Metal & Plastic	0.08	0.01		
8100	Foundry Mold & Core makers	0.17			
8130	Tool & Die Makers	0.20			0.03
8140	Welders, Cutters, Solderers, & Brazers	1.54	0.05	0.04	0.27
8150	Heat Treating Equipment Setters, Operators & Tenders, Metal & Plastic	0.03			
8200	Plating & Coating Machine Setters, Operators, & Tenders,	0.16			
8220	Metal Workers & Plastic Workers, All Other	2.75		0.04	
8230	Bindery Workers	0.12			
8240	Job Printers	0.31			
8250	Prepress Technicians & Workers	0.26	0.02	0.04	0.03
8260	Printing Machine Operators	0.93			
8300	Laundry & Dry-Cleaning Workers		0.01		
8310	Pressers, Textile, Garment, & Related Materials	0.17	0.01	0.04	0.06
8320	Sewing Machine Operators	4.47	0.08		0.15
8330	Shoe & Leather Workers & Repairers	0.03			
8340	Shoe Machine Operators & Tenders	0.07			
8350	Sewers, Hand	0.52	0.19	0.04	0.27
8400	Textile Cutting Machine Setters, Operators, & Tenders	0.20	0.01		0.03
8410	Textile Knitting & Weaving Machine Setters, Operators, & Tenders	0.12			
8450	Upholsterers	0.19	0.09		0.03
8460	Textile, Apparel, & Furnishings Workers, All Other	0.29	0.04		
8500	Cabinetmakers & Bench Carpenters	0.38			
8510	Furniture Finishers	0.04			



8530	Sawing Machine Setters, Operators, &Tenders, Wood	0.10			
8540	Woodworking Machine Setters, Operators, &Tenders, Except Sawing	0.10	0.01		
8550	Woodworkers, All Other	0.09			
8600	Power Distributors &Dispatchers				0.03
8610	Stationary Engineers &Boiler Operators	0.10		0.08	0.06
8620	Water &Liquid Waste Treatment Plant &System Operators	0.01		0.23	
8630	Chemical Plant &System Operators	0.10		0.04	
8640	Chemical Equipment Operators &Tenders	0.09			0.03
8650	Crushing, Grinding, &Polishing Machine Setters, Operators, &Tenders	0.49	0.02	0.08	0.12
8710	Cutters &Trimmers	0.47	0.02		0.15
8720	Extruding, Forming, Pressing, &Compacting Machine Setters	0.09			0.06
8730	Furnace, Kiln, Oven, Drier, &Kettle Operators &Tenders	0.01			
8740	Inspectors, Testers, Sorters, Samplers, &Weighers	3.12	0.42	0.38	0.94
8750	Jewelers &Precious Stone &Metal Workers	0.19	0.19		0.15
8760	Dental &Medical Laboratory Technicians	0.38	0.04		
8800	Packaging &Filling Machine Operators &Tenders	2.01		0.04	0.21
8810	Coating, Painting, &Spraying Machine Setters, Operators, &Tenders	0.59	0.05	0.04	0.03
8830	Photographic Process Workers	0.05	0.05		0.03
8850	Cementing &Gluing Machine Operators &Tenders	0.08			
8860	Cleaning, Washing, &Metal Pickling Equipment Operators &Tenders	0.01			
8910	Etchers &Engravers	0.04	0.02		
8920	Molders, Shapers, &Casters, Except Metal &Plastic	0.19	0.01		0.03
8930	Paper Goods Machine Setters, Operators, &Tenders	0.04			0.03
8940	Tire Builders	0.01			
8950	Helpers--Production Workers	0.21	0.05	0.12	0.15
8960	Production Workers, All Other	4.76	0.26	0.27	0.51
9000	Aircraft Cargo Handling Supervisors	0.07	0.19	2.39	0.15
9030	Airline &Commercial Pilots, Copilots, &Flight Engineers	0.01	0.02	1.00	
9040	Air Traffic Controllers			0.08	
9110	Ambulance Drivers &Attendants, Except EMTs				0.03
9120	Bus Drivers		0.01	4.16	
9130	Driver/Sales Workers	1.62	1.95	25.33	7.13
9140	Taxi Drivers &Chauffeurs		0.04	3.39	0.06
9150	Motor Vehicle Operators, All Other	0.01	0.20	0.08	0.15
9200	Locomotive Engineers	0.02		0.50	
9230	Railroad Brake, Signal, &Switch Operators			0.15	
9240	Railroad Conductors &Yardmasters			0.38	
9300	Sailors &Marine Oilers			0.19	
9310	Captains, Mates, &Pilots of Water Vessels		0.01	0.15	
9350	Parking Lot Attendants		0.06		
9360	Service Station Attendants		0.32	0.12	0.03
9410	Transportation Inspectors	0.02	0.04	0.42	0.03
9420	Transportation Workers, All Other			0.08	
9510	Crane &Tower Operators	0.04		0.19	0.03
9520	Dredge Operators			0.04	
9560	Hoist &Winch Operators	0.02			
9600	Industrial Truck &Tractor Operators	0.95	0.49	2.04	2.09
9610	Cleaners of Vehicles &Equipment	0.33	0.49	0.58	0.21
9620	Laborers &Freight, Stock, &Material Movers, Hand	1.98	3.51	6.74	3.72

9630	Machine Feeders & Off bearers	0.04			
9640	Packers &Packagers, Hand	1.09	0.42	1.08	2.57
9650	Gas Compressor &Gas Pumping Station Operators				0.03
9720	Refuse &Recyclable Material Collectors				0.21
9750	Material Moving Workers, All Other	0.04		0.50	0.03

## Appendix B1: Full Regression Results, Manufacturing

Dependent variable: Ln Weekly wage

Dependent variable: Ln Hourly wage

Industry: Manufacturing

	All Employees	Full Time	Part Time	All Employees	Full Time	Part Time
Male	0.2472 (17.96)	0.2214 (17.92)	0.2744 (4.99)	0.1894 (14.92)	0.1834 (15.18)	0.2389 (4.94)
Married	0.1589 (9.31)	0.1362 (9.10)	0.2573 (3.58)	0.1482 (9.43)	0.1359 (9.28)	0.2063 (3.26)
Separated, Divorced, Widowed	0.0961 (3.99)	0.0664 (3.14)	0.1879 (1.87)	0.0908 (4.09)	0.0667 (3.23)	0.1708 (1.93)
High School Diploma	0.1749 (9.65)	0.1644 (10.08)	0.1354 (2.01)	0.1398 (8.37)	0.1506 (9.44)	0.0775 (1.31)
Some College	0.3424 (16.16)	0.3291 (17.36)	0.3356 (4.12)	0.2997 (15.35)	0.3021 (16.30)	0.2796 (3.90)
Associate's Degree	0.3636 (12.28)	0.3249 (12.41)	0.4751 (3.95)	0.3000 (11.00)	0.2934 (11.46)	0.3255 (3.07)
College Degree	0.5539 (22.32)	0.5092 (23.19)	0.6262 (6.06)	0.4856 (21.23)	0.4786 (22.29)	0.4796 (5.27)
Graduate Degree	0.7265 (22.59)	0.664 (23.75)	0.9956 (6.57)	0.6600 (22.26)	0.6266 (22.93)	0.8837 (6.63)
Age	0.0741 (19.44)	0.0578 (15.91)	0.0590 (4.34)	0.0515 (14.67)	0.0517 (14.55)	0.0358 (2.99)
Age-squared	-0.0007 (-16.43)	-0.0006 (-13.71)	-0.0005 (-3.01)	-0.0005 (-11.92)	-0.0005 (-12.30)	-0.0002 (-1.70)
Hispanic	-0.1013 (-4.88)	-0.1474 (-7.92)	0.1041 (1.33)	-0.1291 (-6.76)	-0.1353 (-7.44)	-0.1051 (-1.52)
Native American	-0.0926 (-1.44)	-0.0245 (-0.42)	-0.2334 (-1.03)	-0.0607 (-1.02)	-0.0174 (-0.30)	-0.0945 (-0.48)
Asian	-0.0840 (-3.77)	-0.0634 (-3.20)	-0.0903 (-1.03)	-0.0506 (-2.47)	-0.0394 (-2.03)	-0.088 (-1.14)
Black	-0.0158 (-0.40)	-0.0377 (-1.05)	0.1979 (1.44)	0.028 (0.08)	-0.0258 (-0.74)	0.1296 (1.07)
Pacific Islander	-0.0703 (-0.64)	-0.1014 (-1.00)	0.0938 (0.25)	0.0787 (0.78)	-0.0867 (-0.87)	0.6096 (1.86)
Other	0.0148 (0.86)	-0.0077 (0.50)	0.0483 (0.72)	0.01 (0.63)	0.002 (0.13)	0.05589 (0.95)
Born in US	0.1802 (10.60)	0.2182 (14.37)	0.0295 (0.44)	0.1832 (11.69)	0.2057 (13.86)	0.0864 (1.46)
Work OC	0.0361 (2.26)	0.0338 (2.48)	0.0368 (0.46)	0.0323 (2.19)	0.0333 (2.49)	0.0031 (0.04)
Work RC	-0.2130 (-0.82)	-0.0294 (-1.30)	0.0981 (0.87)	-0.0329 (-1.38)	-0.043 (-1.95)	0.0143 (0.14)
Work SB	0.0133 (0.49)	0.0070 (0.30)	0.0960 (0.79)	-0.0337 (-0.15)	-0.0127 (-0.55)	0.0069 (0.06)
Work elsewhere	-0.016 (-0.87)	0.0217 (1.14)	0.1068 (1.78)	0.0204 (1.02)	0.0209 (1.12)	-0.0569 (-1.08)

Business and Finance	-0.0555 (-1.48)	-0.0785 (-2.40)	-0.0266 (-0.15)	0.0095 (0.27)	-0.0305 (-0.95)	0.0825 (0.54)
Professional	-0.0644 (-2.50)	-0.0369 (-1.69)	-0.2779 (-1.94)	0.0168 (0.71)	0.0352 (1.65)	-0.1976 (-1.57)
Service	-0.6160 (-11.48)	-0.5261 (-11.29)	-1.2168 (-4.98)	-0.4747 (-9.60)	-0.4671 (-10.26)	-0.6064 (-2.82)
Sales	-0.2395 (-6.70)	-0.1359 (-4.38)	-0.7864 (-4.59)	-0.1441 (-4.37)	-0.1009 (-3.32)	-0.4712 (-3.13)
Office	-0.3633 (-13.00)	-0.3300 (-13.62)	-0.550 (-3.90)	-0.2743 (-10.64)	-0.2614 (-11.04)	-0.4395 (-3.54)
Farming and Forestry	-1.6000 (-5.69)	-0.7651 (-2.39)	-2.5972 (-3.96)	-1.057 (-4.08)	-0.6579 (-2.10)	-1.6295 (-2.82)
Construction and Extraction	-0.3112 (-5.81)	-0.3227 (-7.09)	-0.2562 (-0.91)	-0.2647 (-5.37)	-0.2537 (-5.70)	-0.4561 (-1.84)
Maintenance and Repair	-0.2095 (-5.37)	-0.1919 (-5.71)	-0.2784 (-1.47)	-0.1484 (-4.13)	-0.1331 (-4.05)	-0.3263 (-1.96)
Production	-0.4633 (-18.66)	-0.4320 (-20.37)	-0.6418 (-4.78)	-0.3837 (-16.76)	-0.3731 (-17.99)	-0.5495 (-4.65)
Transportation	-0.5700 (-17.02)	-0.5138 (-17.31)	-0.7635 (-4.95)	-0.4865 (-15.76)	-0.4555 (-15.70)	-0.7317 (-5.40)
constant	4.5095 (54.49)	4.9500 (62.37)	4.5190 (15.28)	1.2963 (16.99)	1.3122 (16.91)	1.6966 (6.52)
Adjusted R <sup>2</sup>	0.4871	0.5662	0.2983	0.4814	0.5491	0.3054
Observations	8279	6975	1304	8279	6975	1304

## Appendix B2: Full Regression Results, Retail Trade

Dependent variable: Ln Weekly wage

Dependent variable: Ln hourly wage

Industry: Retail Trade

	All Employees	Full Time	Part Time	All Employees	Full Time	Part Time
Male	0.3039 (17.22)	0.2460 (14.46)	0.2154 (6.02)	0.1568 (10.13)	0.1696 (10.53)	0.0865 (2.66)
Married	0.1333 (5.51)	0.1358 (6.37)	0.1038 (1.81)	0.1151 (5.42)	0.1172 (5.81)	0.0837 (1.61)
Separated, Divorced, Widowed	0.1144 (3.52)	0.069 (2.40)	0.182 (2.41)	0.0715 (2.51)	0.0523 (1.92)	0.1006 (1.47)
High School Diploma	0.1993 (7.81)	0.1723 (6.65)	0.1412 (3.01)	0.0855 (3.83)	0.1609 (6.55)	-0.012 (-0.28)
Some College	0.2862 (10.76)	0.2625 (9.61)	0.2243 (4.62)	0.1880 (8.06)	0.2422 (9.36)	0.1286 (2.92)
Associate's Degree	0.3518 (9.14)	0.2853 (7.81)	0.3147 (3.94)	0.2272 (6.73)	0.247 (7.15)	0.2297 (3.16)
College Degree	0.5054 (14.67)	0.4587 (14.00)	0.4441 (6.11)	0.3496 (11.57)	0.412 (13.28)	0.2678 (4.06)
Graduate Degree	0.763 (13.09)	0.6735 (13.25)	0.8519 (5.63)	0.5859 (11.46)	0.6247 (12.98)	0.5807 (4.23)
Age	0.1253 (27.84)	0.0934 (19.89)	0.0834 (9.02)	0.0653 (16.56)	0.0774 (17.40)	0.0403 (4.80)
Age-squared	-0.0014 (-24.75)	-0.001 (-17.91)	-0.0009 (-8.04)	-0.0007 (-14.22)	-0.0008 (-15.61)	-0.0004 (-3.75)
Hispanic	-0.0279 (-1.12)	-0.0743 (-3.06)	0.0018 (0.04)	-0.0492 (-2.25)	-0.0567 (-2.46)	-0.0279 (-0.64)
Native American	-0.1097 (-1.57)	-0.1803 (-2.51)	0.1307 (1.06)	-0.0813 (-1.33)	-0.1618 (-2.38)	0.0702 (0.63)
Asian	-0.0942 (-3.21)	-0.0871 (-3.07)	-0.0718 (-1.27)	-0.0345 (-1.34)	-0.0764 (-2.84)	0.0365 (0.71)
Black	-0.0444 (-1.24)	-0.1093 (-3.09)	0.0559 (0.84)	-0.0524 (-1.67)	-0.1094 (-3.27)	0.0271 (0.45)
Pacific Islander	0.1205 (0.94)	-0.1268 (-0.97)	0.3491 (1.52)	-0.0227 (-0.20)	-0.1265 (-1.02)	0.0373 (0.18)
Other	0.0328 (1.24)	0.001 (0.04)	0.0692 (1.29)	0.0248 (1.07)	0.0013 (0.20)	0.0616 (1.27)
Born in US	0.0809 (3.65)	-1752 (8.36)	-0.0944 (-2.07)	0.1379 (7.10)	0.1791 (9.02)	0.0231 (0.56)
Work OC	0.0246 (1.04)	0.0617 (2.88)	0.0336 (-0.65)	0.0303 (1.46)	0.0649 (3.19)	-0.0601 (-1.28)
Work RC	-0.0121 (-0.40)	0.0199 (0.73)	-0.0764 (-1.16)	-0.0247 (-0.93)	0.0163 (0.63)	-0.134 (-2.25)
Work SB	-0.0247 (-0.74)	-0.0268 (-0.90)	-0.0135 (-0.18)	-0.0342 (-1.17)	-0.0301 (-1.06)	-0.0609 (-0.90)
Work elsewhere	-0.1504	0.0316	0.0078	-0.0295	0.032	-0.0523

	(-6.54)	(1.16)	(0.19)	(-1.46)	(1.24)	(-1.42)
Business and Finance	-0.3062	-0.204	-0.7243	-0.1862	-0.1185	-0.4931
	(-4.03)	(-3.24)	(-3.08)	(-2.80)	(-1.99)	(-2.31)
Professional	-0.1503	-0.0444	-0.4751	-0.0019	0.0324	-0.1368
	(-2.39)	(-0.86)	(-2.30)	(-0.03)	(0.66)	(-0.73)
Service	-0.6695	-0.5857	-0.7991	-0.5123	-0.476	-0.6146
	(-9.97)	(-9.90)	(-4.01)	(-8.71)	(-8.50)	(-3.40)
Sales	-0.5068	-0.3689	-0.7496	-0.3559	-0.2941	-0.5481
	(-9.97)	(-8.99)	(-4.14)	(-7.99)	(-7.56)	(-3.33)
Office	-0.5547	-0.4869	-0.7209	-0.4104	-0.3855	-0.5386
	(-10.39)	(-11.05)	(-3.92)	(-8.77)	(-9.24)	(-3.23)
Farming and Forestry	dropped	dropped	dropped	dropped	dropped	dropped
Construction and Extraction	-0.2916	-0.298	-0.1682	-0.1578	-0.1809	-0.0664
	(-2.51)	(-2.97)	(-0.55)	(-1.55)	(-1.90)	(-0.24)
Maintenance and Repair	-0.2535	-0.2342	-0.3183	-0.1845	-0.1537	-0.3233
	(-3.87)	(-4.38)	(-1.47)	(-3.21)	(-3.03)	(-1.64)
Production	-0.5478	-0.4648	-0.8092	-0.4735	-0.3759	-0.786
	(-8.04)	(-8.16)	(-3.81)	(-7.93)	(-6.97)	(-4.08)
Transportation	-0.6410	-0.5349	-0.8339	-0.4816	-0.436	-0.6396
	(-11.06)	(-10.93)	(-4.41)	(-9.48)	(-9.41)	(-3.73)
constant	3.5651	4.2463	4.223	1.1643	0.8304	1.8955
	(35.74)	(40.81)	(18.07)	(13.31)	(8.43)	(8.53)
Adjusted R <sup>2</sup>	0.3722	0.3642	0.1792	0.2468	0.3203	0.1144
Observations	7177	4538	2639	7177	4538	2639

## Appendix B3: Full Regression Results, Transportation and Warehousing

Dependent variable: Ln Weekly wage

Dependent variable: Ln hourly wage

Industry: Transportation/Warehousing

	All Employees	Full Time	Part Time	All Employees	Full Time	Part Time
Male	0.1941 (5.78)	0.1751 (5.48)	0.1797 (1.90)	0.101 (3.17)	0.122 (3.91)	0.0409 (0.45)
Married	0.1569 (4.45)	0.1332 (4.13)	0.2050 (1.86)	0.1333 (3.99)	0.122 (3.88)	0.1931 (1.84)
Separated, Divorced, Widowed	0.0429 (0.90)	0.0635 (1.44)	0.0375 (0.27)	0.0239 (0.53)	0.0548 (1.27)	-0.0301 (-0.22)
High School Diploma	0.1191 (2.95)	0.0995 (2.63)	0.0261 (0.22)	0.0526 (1.37)	0.0785 (2.12)	-0.0899 (-0.80)
Some College	0.2746 (6.40)	0.2109 (5.20)	0.3401 (2.82)	0.2253 (5.54)	0.1927 (4.86)	0.2831 (2.47)
Associate's Degree	0.2936 (4.94)	0.2414 (4.43)	0.3194 (1.71)	0.2652 (4.71)	0.2136 (4.01)	0.5004 (2.81)
College Degree	0.3425 (6.23)	0.2924 (5.74)	0.3632 (2.17)	0.2752 (5.28)	0.2789 (5.59)	0.2338 (1.47)
Graduate Degree	0.4737 (5.05)	0.3844 (4.61)	0.821 (2.47)	0.3748 (4.21)	0.3306 (4.06)	0.6404 (2.02)
Age	0.1048 (13.32)	0.0734 (9.24)	0.1116 (5.44)	0.0659 (8.83)	0.0579 (7.46)	0.0692 (3.55)
Age-squared	-0.0011 (-12.02)	-0.0008 (-8.32)	-0.0012 (-4.84)	-0.0007 "9-7.59)	-0.0006 (-6.56)	-0.0007 (-2.81)
Hispanic	-0.0371 (-0.91)	-0.1057 (-2.86)	0.1478 (1.16)	-0.0335 (-0.87)	-0.0817 (-2.27)	0.1742 (1.43)
Native American	-0.0052 (-0.05)	-0.0339 (-0.38)	-0.0031 (-0.01)	-0.1141 (-1.27)	-0.0958 (-1.11)	-0.2864 (-1.09)
Asian	-0.0524 (-1.05)	-0.0837 (-1.85)	0.1475 (0.92)	-0.0046 (0.10)	-0.0612 (-1.38)	0.323 (2.11)
Black	-0.1222 (-2.61)	-0.1446 (-3.30)	-0.0164 (-0.12)	-0.075 (-1.69)	-0.0918 (-2.14)	-0.0114 (-0.09)
Pacific Islander	0.1359 (0.97)	0.1627 (1.37)	-0.512 (-0.80)	0.0958 (0.72)	0.1605 (1.38)	-0.3035 (-0.50)
Other	-0.0222 (-0.55)	-0.0012 (-0.03)	-0.1261 (-0.98)	0.0019 (0.05)	0.01994 (0.57)	-0.072 (-0.59)
Born in US	0.147 (4.34)	0.159 (5.16)	0.1895 (1.76)	0.1535 (4.78)	0.1441 (4.78)	0.2581 (2.53)
Work OC	-0.018 (-0.39)	-0.0239 (-0.58)	0.0508 (0.34)	-0.0096 (-0.22)	-0.0191 (-0.47)	0.0273 (0.19)
Work RC	-0.0408 (-0.70)	-0.0794 (-1.52)	0.1715 (0.87)	-0.0484 (-0.87)	-0.0851 (-1.67)	0.119 (0.63)
Work SB	-0.0056 (-0.13)	-0.0011 (-0.03)	-0.1112 (-0.70)	-0.0576 (-1.40)	-0.0516 (-1.39)	-0.1522 (-1.01)
Work elsewhere	-0.0155	-0.0111	0.2336	-0.0007	-0.0415	0.0327

	(-0.42)	(-0.28)	(2.52)	(-0.02)	(-1.09)	(0.37)
Business and Finance	-0.1006	-0.06212	-0.2454	-0.0503	-0.019	-0.2814
	(-0.99)	(-0.70)	(-0.59)	(-0.52)	(-0.22)	(-0.71)
Professional	0.0147	0.1111	-0.4907	0.1041	0.1499	-0.3721
	(0.14)	(1.25)	(-1.26)	(1.08)	(1.72)	(-1.00)
Service	-0.3944	-0.4060	-0.4330	-0.1987	-0.3431	-0.4114
	(-5.29)	(-5.58)	(-1.66)	(-2.81)	(-4.83)	(-1.66)
Sales	-0.0191	0.0129	-0.137	-0.041	-0.0018	-0.2980
	(-0.18)	(0.14)	(-0.33)	(-0.41)	(-0.02)	"9-0.76)
Office	-0.4117	-0.3498	-0.7257	-0.3535	-0.3036	-0.8158
	(-7.12)	(-7.01)	(-2.94)	(-6.46)	(-6.23)	(-3.47)
Farming and Forestry	-1.1874	dropped	-1.1168	-1.1328	dropped	-1.5851
	(-1.91)		(-1.21)	(-1.93)		(-1.81)
Construction and Extraction	-0.0270	0.0141	-0.6242	0.0350	0.0812	-0.552
	(-0.19)	(0.12)	(-0.68)	(0.26)	(0.70)	(-0.63)
Maintenance and Repair	-0.2419	-0.2048	-0.4993	-0.1905	-0.1428	-0.5979
	(-3.04)	(-3.01)	(-1.45)	(-2.53)	(-2.15)	(-1.83)
Production	-0.3101	-0.2679	-0.519	-0.3197	-0.2589	-0.7138
	(-3.06)	(-3.01)	(-1.47)	(-3.33)	(-2.98)	(-1.96)
Transportation	-0.4015	-0.3543	-0.5658	-0.3839	-0.3595	-0.7374
	(-7.24)	(-7.71)	(-2.34)	(-7.30)	(-7.69)	(-3.21)
constant	4.0660	4.8314	3.691	1.2262	1.417	1.3041
	(23.09)	(27.30)	(7.53)	(7.35)	(8.19)	(2.79)
Adjusted R <sup>2</sup>	0.2688	0.2849	0.1872	0.2203	0.2531	0.1867
Observations	2249	1747	502	2249	1747	502



## Appendix B4: Full Regression Results, Wholesale Trade

Dependent variable: Ln Weekly wage

Dependent variable: Ln hourly wage

Industry: Wholesale Trade

	All Employees	Full Time	Part Time	All Employees	Full Time	Part Time
Male	0.2147 (8.09)	0.1576 (6.76)	0.3650 (3.57)	0.1331 (5.30)	0.1109 (4.92)	0.2983 (3.11)
Married	0.1558 (4.90)	0.1744 (6.40)	0.0406 (0.32)	0.1421 (4.72)	0.1557 (5.91)	0.0874 (0.73)
Separated, Divorced, Widowed	0.0710 (1.59)	0.1045 (2.74)	-0.2299 (-1.27)	0.0222 (0.53)	0.0798 (2.17)	-0.312 (-1.84)
High School Diploma	0.1793 (4.81)	0.1835 (5.61)	0.0867 (0.63)	0.123 (3.49)	0.171 (5.42)	-0.0502 (-0.39)
Some College	0.2860 (6.92)	0.2994 (8.18)	0.2047 (1.43)	0.2335 (5.97)	0.2731 (7.73)	0.1086 (0.81)
Associate's Degree	0.3162 (5.47)	0.3597 (7.21)	0.0658 (0.29)	0.2526 (4.62)	0.3352 (6.96)	-0.0036 (-0.02)
College Degree	0.4994 (10.65)	0.5434 (13.29)	0.2087 (1.17)	0.433 (9.76)	0.4991 (12.65)	0.1981 (1.18)
Graduate Degree	0.5529 (8.06)	0.562 (0.95)	0.6766 (2.54)	0.4731 (7.29)	0.4979 (8.72)	0.593 (2.37)
Age	0.0854 (11.69)	0.0645 (9.50)	0.0926 (3.71)	0.0602 (8.71)	0.0543 (8.29)	0.0672 (2.87)
Age-squared	-0.0009 (-10.27)	-0.0007 (-8.52)	-0.0009 (-2.84)	-0.0006 (-7.31)	-0.0006 (-7.27)	-0.0006 (-1.93)
Hispanic	-0.1327 (-3.38)	-0.133 (-3.85)	-0.0596 (-0.43)	-0.1414 (-3.81)	-0.1068 (-3.20)	-0.2343 (-1.78)
Native American	-0.1274 (-1.04)	-0.1558 (-1.31)	0.0805 (0.23)	-0.0759 (-0.65)	-0.172 (-1.50)	0.2081 (0.64)
Asian	-0.2142 (-4.99)	-0.197 (-5.22)	-0.1798 (-1.16)	-0.1344 (-3.31)	-0.1453 (-3.99)	-0.1187 0.82
Black	-0.0182 (-0.24)	-0.0706 (-1.11)	0.1738 (0.49)	0.0138 (0.23)	-0.0399 (-0.65)	0.3451 (1.04)
Pacific Islander	0.0753 (0.45)	-0.1495 (-1.02)	1.0512 (1.77)	0.1155 (0.73)	-0.0944 (-0.67)	1.0861 (1.95)
Other	-0.0008 (-0.02)	-0.0114 (-0.37)	-0.0115 (-0.09)	0.0216 (0.64)	-0.0156 (-0.52)	0.1287 (1.03)
Born in US	0.1285 (3.96)	0.179 (6.27)	-0.1101 (-0.94)	0.146 (4.76)	0.1706 (6.19)	-0.0329 (-0.30)
Work OC	0.0817 (2.53)	0.1053 (3.90)	-0.0852 (-0.57)	0.0683 (2.24)	0.0982 (3.76)	-0.2017 (-1.45)
Work RC	0.0314 (0.64)	0.0025 (0.06)	0.2726 (1.300)	0.0181 (0.04)	-0.0078 (-0.19)	0.1533 (0.78)
Work SB	-0.0846 (-1.62)	-0.1191 (-2.74)	0.1412 (0.56)	-0.0882 (-1.78)	-0.1007 (-2.40)	-0.0317 (-0.13)
Work elsewhere	-0.0150	0.0379	0.1288	0.0443	0.0327	-0.0311

	(-0.43)	(1.07)	(1.22)	(1.35)	(0.96)	(-0.31)
Business and Finance	-0.2605	-0.2398	-0.3948	-0.1956	-0.1841	-0.318
	(-3.95)	(-4.30)	(-1.40)	(-3.14)	(-3.42)	(-1.20)
Professional	-0.1781	-0.0809	-0.7298	-0.1268	-0.0518	-0.5372
	(-2.45)	(-1.32)	(-2.34)	(-1.85)	(-0.87)	(-1.84)
Service	-0.8084	-0.615	-1.3100	-0.6862	-0.5461	-1.1229
	(-7.64)	(-6.35)	(-3.66)	(-6.85)	(-5.79)	(-3.35)
Sales	-0.2519	-0.2077	-0.5400	-0.2079	-0.1837	-0.3575
	(-5.18)	(-5.14)	(-2.31)	(-4.52)	(-4.71)	(-1.63)
Office	-0.5303	-0.4706	-0.7701	-0.4187	-0.3995	-0.5165
	(-10.13)	(-10.67)	(-3.26)	(-8.46)	(-9.38)	(-2.33)
Farming and Forestry	-0.7284	-0.6406	-1.0376	-0.5254	-0.5897	-0.6369
	(-5.70)	(-4.86)	(-2.82)	(-4.35)	(-4.64)	(-1.85)
Construction and Extraction	-0.2810	-0.2509	-0.5092	-0.2858	-0.2317	-0.6463
	(-2.12)	(-2.09)	(-1.14)	(-2.28)	(-2.00)	(-1.54)
Maintenance and Repair	-0.3540	-0.2243	-0.9351	-0.2783	-0.1917	-0.7417
	(-4.30)	(-3.22)	(-2.64)	(-3.57)	(-2.85)	(-2.23)
Production	-0.5905	-0.5201	-0.9911	-0.5224	-0.4922	-0.6931
	(-8.30)	(-8.70)	(-3.13)	(-7.76)	(-8.52)	(-2.34)
Transportation	-0.4776	-0.4235	-0.6891	-0.4145	-0.4028	-0.4844
	(-8.59)	(-9.02)	(-2.80)	(-7.88)	(-8.89)	(-2.10)
constant	4.4909	4.9151	4.4511	1.3138	1.3793	1.4565
	(27.37)	(33.12)	(8.38)	(8.78)	(9.63)	(2.92)
Adjusted R <sup>2</sup>	0.3624	0.4511	0.1852	0.3197	0.4202	0.1905
Observations	2745	2249	496	2745	2249	496

## Appendix C1: Full Regression Results, Los Angeles County

County of Residence:	Los Angeles			Dependent variable: Ln hourly wage		
	All Employees	Full Time	Part Time	All Employees	Full Time	Part Time
Male	0.2229 (17.51)	0.1904 (19.30)	0.1975 (5.50)	0.1389 (11.95)	0.1432 (12.63)	0.1325 (4.05)
Married	0.1103 (7.00)	0.1126 (8.18)	0.1073 (2.12)	0.1089 (7.57)	0.1047 (7.84)	0.1057 (2.29)
Separated, Divorced, Widowed	0.0587 (2.66)	0.0528 (2.74)	0.0589 (0.85)	0.0487 (2.42)	0.0443 (2.37)	0.0407 (0.64)
High School Diploma	0.1980 (11.66)	0.1769 (11.36)	0.1516 (3.29)	0.1251 (8.08)	0.1664 (11.01)	0.0091 (0.22)
Some College	0.3216 (16.77)	0.3049 (17.11)	0.2552 (5.08)	0.2448 (13.99)	0.2784 (16.09)	0.1489 (3.25)
Associate's Degree	0.3832 (13.69)	0.3214 (12.79)	0.4406 (5.43)	0.2859 (11.20)	0.2849 (11.67)	0.3273 (4.42)
College Degree	0.5180 (22.18)	0.4838 (22.99)	0.4091 (5.95)	0.3969 (18.62)	0.4432 (21.69)	0.2330 (3.72)
Graduate Degree	0.6922 (19.80)	0.6232 (20.76)	0.8800 (6.94)	0.5746 (18.02)	0.5741 (19.69)	0.7050 (6.10)
Age	0.0986 (29.60)	0.0718 (21.71)	0.0738 (8.26)	0.0558 (18.35)	0.0602 (18.75)	0.0376 (4.61)
Age-squared	-0.0001 (-25.66)	-0.0007 (-19.00)	-0.0007 (-6.70)	-0.0006 (-15.07)	-0.0006 (-16.16)	-0.0003 (-3.01)
Hispanic	-0.077 (-4.17)	-0.1188 (-6.98)	-0.0061 (-0.12)	-0.1054 (-6.26)	-0.1064 (-6.44)	-0.0879 (-1.96)
Native American	-0.0619 (-1.13)	-0.0906 (-1.73)	0.1348 (1.00)	-0.0512 (-1.02)	-0.0831 (-1.63)	0.0911 (0.74)
Asian	-0.0975 (-4.77)	-0.0914 (-4.91)	-0.0745 (-1.32)	-0.0471 (-2.52)	-0.0649 (-3.59)	0.0019 (0.04)
Black	-0.0728 (-2.75)	-0.1034 (-4.13)	0.0502 (0.75)	-0.0557 (-2.30)	-0.0835 (-3.44)	0.0307 (0.51)
Pacific Islander	0.1115 (1.30)	0.0013 (0.02)	0.4023 (1.69)	0.0915 (1.17)	0.0030 (0.04)	0.3664 (1.69)
Other	0.0110 (1.21)	0.0068 (0.47)	0.0321 (0.67)	0.0272 (1.84)	0.0131 (0.94)	0.0639 (1.47)
Born in US	0.1574 (10.45)	0.2270 (16.63)	-0.0474 (-1.11)	0.1888 (13.74)	0.2181 (16.45)	0.0727 (1.86)
Work OC	0.0506 (1.81)	0.0733 (3.09)	-0.0875 (-0.86)	0.0488 (1.91)	0.0843 (3.66)	-0.1527 (-1.66)
Work RC	0.1920 (2.22)	0.1001 (1.35)	0.6410 (2.17)	0.1619 (2.05)	0.1198 (1.67)	0.3589 (1.33)
Work SB	0.0002 (0.01)	0.0246 (0.63)	-0.0786 (-0.53)	-0.0012 (-0.03)	0.0285 (0.76)	-0.1443 (-1.06)
Work elsewhere	-0.0741	0.0169	0.0780	0.0002	0.0114	-0.0354

	(-4.69)	-0.96	-2.24	-0.02	-0.67	(-1.11)
Wholesale trade	-0.0560	-0.0300	0.0096	-0.0094	-0.0307	0.0608
	(-0.29)	(-1.71)	-0.14	(-0.51)	(-1.80)	-0.98
Retail trade	-0.2473	-0.1748	-0.3426	-0.1629	-0.1564	-0.1733
	(-13.81)	(-11.02)	(-6.23)	(-9.97)	(-10.16)	(-3.46)
Transportation and warehousing	0.0428	0.0537	0.0394	0.0593	0.0515	0.0721
	(1.92)	(2.75)	(0.56)	(2.91)	(2.71)	(1.11)
Business and Finance	-0.1416	-0.1102	-0.3855	-0.0811	-0.0698	-0.2723
	(-3.51)	(-3.20)	(-2.61)	(-2.20)	(-2.08)	(-2.02)
Professional	-0.0624	0.0021	-0.5906	0.0125	0.0606	-0.4078
	(-1.93)	(0.08)	(-4.41)	(0.43)	(2.32)	(-3.34)
Service	-0.5537	-0.5367	-0.7126	-0.4381	-0.4718	-0.5636
	(-12.92)	(-13.89)	(-5.13)	(-11.22)	(-12.57)	(-4.45)
Sales	-0.3805	-0.2770	-0.7233	-0.2909	-0.2394	-0.6045
	(-13.25)	(-11.33)	(-6.32)	(-11.10)	(-10.08)	(-5.80)
Office	-0.4412	-0.3997	-0.7391	-0.3645	-0.356	-0.6362
	(-15.45)	(-16.51)	(-6.47)	(-13.99)	(-14.29)	(-6.11)
Farming and Forestry	-0.9718	-0.6401	-1.5379	-0.6807	-0.5673	-1.1187
	(-7.05)	(-4.59)	(-4.89)	(-5.41)	(-4.19)	(-3.90)
Construction and Extraction	-0.3105	-0.3118	-0.3266	-0.2906	-0.2616	-0.5049
	(-5.03)	(-5.99)	(-1.39)	(-5.15)	(-5.17)	(-2.36)
Maintenance and Repair	-0.2306	-0.187	-0.5813	-0.1971	-0.1418	-0.5918
	(-5.90)	(-5.69)	(-3.81)	(5.52)	(-4.44)	(-4.25)
Production	-0.5409	-0.4826	-0.8671	-0.4873	-0.4374	-0.8217
	(-18.55)	(-19.71)	(-7.27)	(-18.31)	(-18.4)	(-7.56)
Transportation	-0.5123	-0.4473	-0.7951	-0.4589	-0.4114	-0.7688
	(-16.66)	(-17.02)	(-6.71)	(-16.36)	(-16.12)	(-7.11)
constant	4.1278	4.7152	4.773	1.355	1.2141	2.0631
	(57.10)	(65.05)	(23.61)	(20.54)	(17.25)	(11.19)
Adjusted R <sup>2</sup>	0.4054	0.4538	0.2536	0.3419	0.4269	0.191
Observations	11729	8938	2791	11729	8938	2791

## Appendix C2: Full Regression Results, Orange County

Dependent variable: Ln Weekly wage

Dependent variable: Ln hourly wage

County of Residence:	Orange County					
	All Employees	Full Time	Part Time	All Employees	Full Time	Part Time
Male	0.2640 (12.46)	0.1807 (9.64)	0.3958 (6.76)	0.1514 (8.07)	0.1265 (7.05)	0.2077 (3.96)
Married	0.1805 (6.44)	0.1474 (6.34)	0.2599 (2.85)	0.1593 (6.42)	0.1363 (6.12)	0.2432 (2.98)
Separated, Divorced, Widowed	0.1653 (4.22)	0.1078 (3.29)	0.2615 (2.10)	0.1007 (2.90)	0.0849 (2.71)	0.1217 (1.09)
High School Diploma	0.1996 (6.20)	0.1607 (5.45)	0.1668 (2.05)	0.1313 (4.61)	0.1438 (5.10)	0.0978 (1.34)
Some College	0.3248 (9.60)	0.2755 (8.81)	0.3021 (3.59)	0.2565 (8.57)	0.2599 (8.67)	0.2611 (3.47)
Associate's Degree	0.3600 (7.93)	0.2934 (7.43)	0.3922 (2.95)	0.2767 (6.89)	0.2731 (7.22)	0.3032 (2.55)
College Degree	0.5781 (15.04)	0.4949 (14.51)	0.6297 (5.72)	0.4741 (13.94)	0.4678 (14.31)	0.5016 (5.09)
Graduate Degree	0.7323 (14.41)	0.6566 (15.27)	0.8605 (4.91)	0.6316 (14.05)	0.6143 (14.92)	0.759 (4.84)
Age	0.1088 (20.04)	0.0791 (15.06)	0.0717 (4.68)	0.0581 (12.09)	0.0664 (13.19)	0.0244 (1.78)
Age-squared	-0.0012 (-17.83)	-0.0008 (-13.51)	-0.0008 (-4.12)	-0.0006 (-10.28)	-0.0007 (-11.65)	-0.0002 (-1.25)
Hispanic	-0.0639 (-1.92)	-0.1262 (-4.25)	0.0296 (0.33)	-0.0717 (-2.43)	-0.096 (-3.37)	-0.0379 (-0.48)
Native American	-0.0922 (-0.95)	-0.0082 (-0.09)	-0.0771 (-0.35)	-0.0409 (-0.48)	-0.0309 (-0.35)	0.0134 (0.07)
Asian	-0.1519 (-4.70)	-0.1016 (-3.54)	-0.2081 (-2.39)	-0.0726 (-2.54)	-0.0688 (-2.50)	-0.0864 (-1.11)
Black	-0.0490 (-0.66)	-0.0906 (-1.31)	0.0811 (0.47)	-0.0783 (-1.20)	-0.1101 (-1.78)	-0.0112 (-0.07)
Pacific Islander	0.0125 (0.09)	-0.0838 (-0.66)	0.3402 (1.00)	0.0012 (0.09)	-0.0486 (-0.40)	0.1967 (0.64)
Other	0.0071 (0.20)	-0.0145 (-0.48)	0.1286 (1.33)	0.0029 (0.10)	-0.0216 (-0.74)	0.1198 (1.39)
Born in US	0.0933 (3.33)	0.146 (5.89)	0.01115 (-0.14)	0.1407 (5.67)	0.1486 (6.26)	0.0894 (1.27)
Work OC	-0.1533 (-4.95)	-0.1248 (-5.12)	-0.3311 (-2.28)	-0.1356 (-4.95)	-0.1203 (-5.15)	-0.2687 (-2.07)
Work RC	-0.0961 (-1.03)	-0.0788 (-1.08)	-0.3086 (-0.72)	-0.1151 (-1.40)	-0.093 (-1.33)	-0.2603 (-0.68)
Work SB	0.0066 (0.06)	-0.0572 (-0.63)	0.711 (0.77)	-0.0399 (-0.38)	-0.0792 (-0.91)	0.7544 (0.92)
Work elsewhere	-0.1936 (-5.14)	-0.0648 (-1.84)	-0.1922 (-1.31)	-0.0744 (-2.23)	-0.0595 (-1.77)	-0.1709 (-1.30)

Wholesale trade	0.0215 (0.66)	0.0308 (1.14)	-0.1411 (-1.25)	-0.0068 (-0.24)	0.0197 (0.76)	-0.1997 (-1.97)
Retail trade	-0.2507 (-8.84)	-0.1579 (-6.64)	-0.3863 (-4.23)	-0.1725 (-6.88)	-0.1417 (-6.21)	-0.285 (-3.49)
Transportation and warehousing	0.0491 (1.12)	0.0855 (2.30)	-0.0325 (-0.24)	0.0712 (1.84)	0.0588 (1.65)	0.0939 (0.79)
Business and Finance	-0.1013 (-1.75)	-0.1103 (-2.39)	-0.1896 (-0.80)	-0.0614 (-1.20)	-0.0546 (-1.23)	-0.1831 (-0.87)
Professional	-0.0252 (-0.58)	-0.0045 (-0.13)	-0.1588 (-0.82)	0.0646 (1.68)	0.0609 (1.86)	0.0549 (0.32)
Service	-0.5965 (-8.08)	-0.4992 (-7.14)	-0.8786 (-4.13)	-0.4586 (-7.02)	-0.4081 (-6.09)	-0.7301 (-3.83)
Sales	-0.2914 (-7.06)	-0.1728 (-5.17)	-0.6863 (-4.03)	-0.1906 (-5.22)	-0.1331 (-4.16)	-0.4880 (-3.20)
Office	-0.4252 (-9.84)	-0.3721 (-10.48)	-0.7654 (-4.47)	-0.3179 (-8.32)	-0.2942 (-8.65)	-0.5602 (-3.66)
Farming and Forestry	-0.3987 (-1.51)	-0.6405 (-2.68)	0.0532 (0.08)	-0.4368 (-1.87)	-0.6048 (-2.64)	-0.1281 (-0.22)
Construction and Extraction	-0.2965 (-2.25)	-0.1586 (-1.51)	-1.2956 (-2.38)	-0.2519 (-2.16)	-0.1119 (-1.11)	-1.2751 (-2.62)
Maintenance and Repair	-0.1922 (-2.83)	-0.1724 (-3.16)	-0.4710 (-1.78)	-0.1409 (-2.34)	-0.1075 (-2.05)	-0.4463 (-1.89)
Production	-0.4711 (-10.55)	-0.4296 (-11.88)	-0.7600 (-4.24)	-0.4146 (-10.50)	-0.368 (-10.63)	-0.7456 (-4.65)
Transportation	-0.5143 (-10.22)	-0.4698 (-10.96)	-0.7560 (-4.14)	-0.4279 (-9.55)	-0.4119 (-10.03)	-0.6483 (-3.97)
constant	4.0393 (33.50)	4.7330 (39.62)	4.9693 (14.21)	1.4114 (13.23)	1.231 (10.75)	2.3858 (7.62)
Adjusted R <sup>2</sup>	0.5015	0.5161	0.3476	0.4266	0.4925	0.2618
Observations	4287	3231	1056	4287	3231	1056

### Appendix C3: Full Regression Results, Riverside County

County of Residence:	Riverside			All		
	All	Full	Part Time	All	Full Time	Part Time
	Employees	Time		Employees		
Male	0.3690 (12.43)	0.3621 (12.23)	0.2027 (2.57)	0.2177 (8.13)	0.2415 (9.38)	0.0941 (1.30)
Married	0.2166 (5.57)	0.1878 (5.62)	0.1593 (1.45)	0.1532 (4.37)	0.1699 (5.27)	0.0705 (0.70)
Separated, Divorced, Widowed	0.1302 (2.56)	0.1028 (2.34)	0.0791 (0.57)	0.0655 (1.43)	0.0842 (1.98)	-0.0331 (-0.26)
High School Diploma	0.1555 (3.96)	0.1612 (4.54)	-0.0272 (-0.28)	0.0803 (2.27)	0.1419 (4.14)	-0.108 (-1.14)
Some College	0.3162 (7.65)	0.2850 (7.58)	0.2722 (2.72)	0.2471 (6.62)	0.2508 (6.90)	0.2157 (2.35)
Associate's Degree	0.3358 (5.68)	0.3041 (5.90)	0.2222 (1.39)	0.2801 (5.25)	0.2691 (5.40)	0.2767 (1.89)
College Degree	0.4577 (8.23)	0.4581 (9.57)	0.2467 (1.49)	0.3671 (7.32)	0.4082 (8.83)	0.2149 (1.42)
Graduate Degree	0.7079 (7.66)	0.5741 (7.42)	0.9821 (3.40)	0.6150 (7.37)	0.5701 (7.63)	0.7966 (3.02)
Age	0.1028 (14.26)	0.0662 (9.44)	0.0831 (4.62)	0.0645 (9.91)	0.0541 (7.99)	0.0576 (3.50)
Age-squared	-0.0011 (-12.60)	-0.0007 (-8.58)	-0.0008 (-3.53)	-0.0007 (-8.39)	-0.0006 (-7.12)	-0.0005 (-2.34)
Hispanic	-0.0287 (-0.74)	-0.1324 (-3.83)	0.1042 (1.04)	-0.0670 (-1.91)	-0.1154 (-3.46)	0.018 (0.20)
Native American	-0.1616 (-1.59)	-0.2045 (-2.04)	-0.0622 (-0.28)	-0.186 (-2.03)	-0.2232 (-2.31)	-0.1336 (-0.67)
Asian	-0.0224 (-0.36)	-0.0782 (-1.42)	0.1146 (0.72)	-0.0116 (-0.21)	-0.0657 (-1.24)	0.0931 (0.64)
Black	0.0518 (0.79)	-0.0741 (-1.28)	0.2475 (1.47)	0.0092 (0.15)	-0.0513 (-0.91)	0.0947 (0.62)
Pacific Islander	0.3755 (1.54)	0.0865 (0.41)	0.9029 (1.40)	0.2169 (0.99)	0.0861 (0.42)	0.4628 (0.78)
Other	0.0591 (1.47)	0.0664 (1.90)	0.0491 (0.47)	0.0267 (0.74)	0.0472 (1.40)	-0.0129 (-0.13)
Born in US	0.0558 (1.48)	0.0693 (2.12)	-0.0007 (-0.01)	0.0963 (2.84)	0.0716 (2.26)	0.1379 (1.47)
Work OC	0.0185 (0.27)	-0.0242 (-0.45)	0.0041 (0.01)	-0.0455 (-0.72)	-0.0458 (-0.87)	-0.2298 (-0.80)
Work RC	-0.3264 (-5.86)	-0.3058 (-7.01)	-0.5801 (-2.32)	-0.3256 (-6.48)	-0.3016 (-7.16)	-0.6572 (-2.87)
Work SB	-0.2300 (-3.57)	-0.2206 (-4.36)	-0.5398 (-1.94)	-0.2530 (-4.36)	-0.2401 (-4.91)	-0.5237 (-2.06)
Work elsewhere	-0.3128 (-5.24)	-0.1881 (-3.75)	-0.4757 (-1.89)	-0.2739 (-5.09)	-0.1948 (-4.02)	-0.6551 (-2.85)
Wholesale trade	0.0580 (1.16)	0.03601 (0.73)	0.0249 (0.16)	0.0528 (1.17)	0.0435 (1.09)	0.0402 (0.28)

Retail trade	-0.1388 (-3.52)	-0.0502 (-1.51)	-0.3212 (-2.70)	-0.0569 (-1.60)	-0.0296 (-0.92)	-0.1286 (-1.18)
Transportation and warehousing	0.0406 (0.77)	0.0257 (0.58)	0.0341 (0.22)	0.0516 (1.08)	0.0184 (0.43)	0.0914 (0.63)
Business and Finance	-0.1156 (-1.18)	-0.1608 (-1.97)	0.0147 (0.04)	0.0390 (0.35)	-0.0671 (-0.85)	0.3911 (1.16)
Professional	-0.1200 (-1.54)	-0.0734 (-1.19)	-0.2892 (-0.84)	-0.0113 (-0.16)	0.0175 (0.29)	-0.0974 (-0.31)
Service	-0.4438 (-4.44)	-0.4331 (-4.89)	-0.4758 (-1.35)	-0.2449 (-2.71)	-0.3551 (-4.15)	-0.0555 (-0.17)
Sales	-0.2988 (-4.75)	-0.2209 (-4.43)	-0.4511 (-1.48)	-0.2010 (-3.54)	-0.1759 (-3.65)	-0.1671 (-0.60)
Office	-0.365 (-5.70)	-0.3668 (-7.14)	-0.3888 (-1.29)	-0.2696 (-4.67)	-0.2956 (-5.96)	-0.145 (-0.52)
Farming and Forestry	-0.3144 (-0.96)	dropped	-0.4093 (-0.74)	-0.0877 (-0.30)	dropped	-0.0498 (-0.10)
Construction and Extraction	-0.2170 (-1.81)	-0.2651 (-2.73)	0.0952 (0.21)	-0.0882 (-0.82)	-0.169 (-1.80)	0.3153 (0.76)
Maintenance and Repair	-0.1456 (-1.73)	-0.1774 (-2.64)	-0.0273 (-0.08)	-0.0838 (-1.10)	-0.1097 (-1.69)	0.0531 (0.16)
Production	-0.3643 (-5.55)	-0.3547 (-6.84)	-0.4134 (-1.34)	-0.2532 (-4.27)	-0.2964 (-5.92)	-0.0622 (-0.22)
Transportation	-0.4769 (-7.08)	-0.4115 (-7.60)	-0.5394 (-1.74)	-0.3675 (-6.05)	-0.3801 (-7.28)	-0.2428 (-0.86)
constant	4.1452 (25.48)	5.0419 (31.96)	4.7386 (9.12)	1.3142 (8.95)	1.5501 (10.17)	1.6643 (3.50)
Adjusted R <sup>2</sup>	0.4426	0.4414	0.3253	0.3529	0.4033	0.2507
Observations	2369	1722	647	2369	1722	647



## Appendix C4: Full Regression Results, San Bernardino County

County of Residence:	San Bernardino			San Bernardino		
	All Employees	Full Time	Part Time	All Employees	Full Time	Part Time
Male	0.3722 (10.65)	0.3164 (10.04)	0.3246 (3.10)	0.2245 (7.11)	0.2562 (8.70)	0.1185 (1.23)
Married	0.2473 (5.47)	0.2624 (6.74)	0.2129 (1.40)	0.2266 (5.54)	0.2525 (6.94)	0.1708 (1.23)
Separated, Divorced, Widowed	0.1762 (3.01)	0.1551 (3.07)	0.1591 (0.83)	0.1390 (2.63)	0.1595 (3.38)	0.0067 (0.04)
High School Diploma	0.1778 (3.97)	0.1359 (3.36)	0.1912 (1.49)	0.0916 (2.26)	0.1129 (2.99)	-0.0218 (-0.19)
Some College	0.2293 (4.83)	0.1955 (4.58)	0.2634 (1.92)	0.2047 (4.70)	0.1909 (4.79)	0.1658 (1.31)
Associate's Degree	0.2434 (3.52)	0.2448 (4.08)	0.0238 (0.10)	0.2018 (3.23)	0.2293 (4.09)	0.0939 (0.45)
College Degree	0.4734 (6.51)	0.4444 (7.06)	0.4873 (1.95)	0.4349 (6.61)	0.4177 (7.10)	0.5146 (2.24)
Graduate Degree	0.6769 (6.62)	0.6205 (7.31)	0.6919 (1.58)	0.527 (5.70)	0.5563 (7.02)	0.2968 (0.74)
Age	0.1002 (10.82)	0.0729 (8.09)	0.0771 (2.83)	0.0556 (6.64)	0.0587 (6.98)	0.0414 (1.66)
Age-squared	-0.0011 (-9.65)	-0.0008 (-7.37)	-0.0008 (-2.36)	-0.0006 (-5.59)	-0.0006 (-6.25)	-0.0003 (-1.09)
Hispanic	-0.0867 (-1.91)	-0.1287 (-3.18)	-0.0247 (-0.18)	-0.093 (-2.27)	-0.0913 (-2.41)	-0.1202 (-0.97)
Native American	-0.0136 (-0.12)	-0.0386 (-0.37)	0.2052 (0.57)	-0.055 (-0.52)	-0.0723 (-0.75)	0.1016 (0.31)
Asian	-0.1813 (-2.46)	-0.2652 (-4.13)	0.0954 (0.41)	-0.1144 (-1.72)	-0.2448 (-4.08)	0.2687 (1.25)
Black	-0.1602 (-2.32)	-0.219 (-3.46)	0.1364 (0.73)	-0.0559 (-0.89)	-0.1734 (-2.93)	0.2343 (1.37)
Pacific Islander	-0.2213 (-0.98)	-0.1569 (-0.79)	-0.5298 (-0.78)	-0.0407 (-0.20)	-0.1683 (-0.91)	0.194 (0.31)
Other	0.0115 (0.26)	-0.0249 (-0.65)	0.1356 (0.98)	0.0278 (0.70)	-0.0326 (-0.91)	0.2092 (1.64)
Born in US	0.116 (2.66)	0.1433 (3.79)	-0.0281 (-0.20)	0.1097 (2.78)	0.147 (4.16)	-0.0713 (-0.54)
Work OC	-0.0201 (-0.28)	0.0431 (0.73)	-0.3302 (-1.02)	-0.0283 (-0.43)	0.0464 (0.84)	-0.4966 (-1.67)
Work RC	-0.1094 (-1.80)	-0.1074 (-2.19)	-0.4288 (-1.43)	-0.1581 (-2.88)	-0.1266 (-2.76)	-0.5783 (-2.11)
Work SB	-0.1843 (-4.31)	-0.1804 (-5.12)	-0.2647 (-1.46)	-0.2051 (-5.31)	-0.1952 (-5.94)	-0.3555 (-2.14)
Work elsewhere	-0.3167 (-5.68)	-0.1939 (-3.49)	-0.3782 (-2.02)	-0.2555 (-5.07)	-0.1727 (-3.32)	-0.5212 (-3.03)

Wholesale trade	-0.0016 (-0.03)	-0.0828 (-1.82)	0.2092 -1.07	-0.0149 -0.31	-0.0661 (-1.55)	0.263 -1.47
Retail trade	-0.2445 (-5.35)	-0.17 (-4.35)	-0.4388 (-2.78)	-0.1392 (-3.37)	-0.1307 (-3.58)	-0.181 (-1.25)
Transportation and warehousing	0.0211 (0.39)	0.0914 (1.99)	-0.3561 (-1.82)	0.0067 (0.14)	0.054 (1.26)	-0.2604 (-1.45)
Business and Finance	-0.3906 (-3.31)	-0.3659 (-3.87)	-0.9288 (-1.31)	-0.2962 (-2.77)	-0.3004 (-3.40)	-0.6387 (-0.98)
Professional	-0.2623 (-2.97)	-0.2197 (-3.07)	-0.5614 (-0.95)	-0.1445 (-1.81)	-0.1311 (-1.96)	-0.341 (-0.63)
Service	-0.6984 (-6.31)	-0.4816 (-4.91)	-1.2152 (-2.06)	-0.4684 (-4.68)	-0.3750 (-4.09)	-0.7460 (-1.38)
Sales	-0.3873 (-5.22)	-0.3115 (-5.19)	-0.5124 (-0.91)	-0.2745 (-4.09)	-0.2545 (-4.54)	-0.3293 (-0.64)
Office	-0.4275 (-5.71)	-0.3792 (-6.24)	-0.5072 (-0.91)	-0.334 (-4.93)	-0.2862 (-5.04)	-0.4015 (-0.79)
Farming and Forestry	-1.771 (-2.79)	dropped	-2.106 (-1.96)	-1.4117 (-2.45)	dropped	-1.8043 (-1.83)
Construction and Extraction	-0.1324 (-1.07)	-0.2528 (-2.52)	0.6568 (0.92)	-0.0344 (-0.31)	-0.1464 (-1.56)	0.7646 (1.17)
Maintenance and Repair	-0.2602 (-2.76)	-0.3183 (-4.19)	0.0992 (0.16)	-0.1689 (-1.98)	-0.2371 (-3.34)	0.1472 (0.26)
Production	-0.4481 (-5.81)	-0.4676 (-7.55)	-0.3359 (-0.59)	-0.3614 (-5.18)	-0.3971 (-6.86)	-0.2022 (-0.39)
Transportation	-0.5195 (-6.95)	-0.4656 (-7.70)	-0.6669 (-1.21)	-0.3999 (-5.92)	-0.4143 (-7.34)	-0.4089 (-0.81)
constant	4.2389 (21.31)	4.8861 (24.97)	4.7768 (6.51)	1.4648 (8.15)	1.3854 (7.58)	2.0761 (3.08)
Adjusted R <sup>2</sup>	0.4281	0.4322	0.2678	0.3359	0.4114	0.1959
Observations	1751	1356	395	1751	1356	395

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