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Estimated Characteristics and Employment of Essential Workers in California, from May 2020 to June 2021

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This fact sheet estimates the characteristics and employment numbers of workers in essential industries in California over the period from May 2020 to June 2021. Accurate estimates of essential workers in California are hard to produce for a number of reasons, including significant lags in data collection and reporting, and the instability of the labor market during the last 18 months. We therefore use multiple data sources to produce a range of estimates of the number of workers in California from May 2020 to June 2021 who meet the following three conditions: (1) working in essential industries, (2) not working from home, and (3) working for at least 1,000 hours cumulatively. We refer to workers meeting these three characteristics as active on-site essential workers.

Our method of producing these estimates is as follows. First, we use two worker surveys, the Current Population Survey (CPS) and the American Community Survey (ACS), to identify the proportion of workers in California meeting the above three conditions, by industry. We then apply those proportions to industry employment counts between May 2020 and June 2021, using Current Employment Statistics (CES) data. We then produce a range of final employment estimates.

Table 1 shows estimated characteristics for each industry: the proportion that were essential workers (column 1), the proportion not working from home (column 2), and the proportion working at least 1,000 hours (column 3). We estimate the proportion of essential workers with the monthly CPS, using California's list of "[Essential Critical Infrastructure Workers](#)."<sup>1</sup> We also use the CPS to identify the percent of workers who were working on-site -- that is, they were not working from home. We estimate the proportion of workers who worked at least 1,000 hours for all workers using 2019 ACS data. See Appendix for details on these three measures.

Table 2 shows the resulting employment estimates for active on-site essential workers in each industry. We arrive at these estimates by applying the proportions in Table 1 to the employment counts from the CES. We provide high, medium, and low estimates, given the extreme variability in employment during the past 13 months (May 2020 through June 2021). The "high" estimate uses the highest monthly employment count from the CES for each industry during this time span. The "low" estimate uses the lowest monthly count, and the "medium" estimate uses the average monthly employment across the 13 months.

**Table 1: Estimated Worker Characteristics by Industry, California**

<b>Industry</b>	<b>(1) Essential worker</b>	<b>(2) Working on-site</b>	<b>(3) Work at least 1000 hours in 2019</b>
Total Farm	1.00	0.95	0.87
Logging	1.00	1.00	0.73
Oil and Gas Extraction	1.00	0.67	0.94
Mining (except Oil and Gas)	<i>non-essential industry</i>		
Support Activities for Mining	1.00	0.94	0.95
Construction	1.00	0.90	0.93
Wood Product Manufacturing	1.00	0.94	0.95
Nonmetallic Mineral Product Manufacturing	1.00	0.88	0.95
Primary Metal Manufacturing	0.79	0.99	0.97
Fabricated Metal Product Manufacturing	0.97	0.91	0.94
Machinery Manufacturing	1.00	0.72	0.96
Computer and Electronic Product Manufacturing	0.17	0.33	0.97
Electrical Equipment, Appliance, and Component Manufacturing	<i>non-essential industry</i>		
Transportation Equipment Manufacturing	0.95	0.65	0.96
Furniture and Related Product Manufacturing	<i>non-essential industry</i>		
Miscellaneous durable goods manufacturing	0.50	0.72	0.94
Food Manufacturing	1.00	0.86	0.91
Beverage and Tobacco Product Manufacturing	1.00	0.80	0.91
Textile Mills	<i>non-essential industry</i>		
Textile Product Mills	<i>non-essential industry</i>		
Apparel Manufacturing	<i>non-essential industry</i>		
Paper Manufacturing	1.00	0.96	0.97
Printing and Related Support Activities	<i>non-essential industry</i>		
Petroleum and Coal Products Manufacturing	1.00	0.70	0.99
Chemical Manufacturing	1.00	0.61	0.95
Plastics and Rubber Products Manufacturing	1.00	0.92	0.96
Merchant Wholesalers, Durable Goods	0.67	0.67	0.95
Merchant Wholesalers, Nondurable Goods	0.75	0.80	0.92
Wholesale Electronic Markets and Agents and Brokers	<i>non-essential industry</i>		
Motor Vehicle and Parts Dealers	0.26	0.94	0.91
Furniture and Home Furnishings Stores	<i>non-essential industry</i>		
Electronics and Appliance Stores	0.01	0.66	0.91
Building Material and Garden Equipment and Supplies Dealers	0.83	0.92	0.89
Food and Beverage Stores	1.00	0.95	0.86
Health and Personal Care Stores	0.53	0.77	0.90
Gasoline Stations	1.00	0.93	0.87
Clothing and Clothing Accessories Stores	<i>non-essential industry</i>		
Sporting Goods, Hobby, Musical Instrument, and Book Stores	<i>non-essential industry</i>		
General Merchandise Stores	0.85	0.95	0.80
Miscellaneous Store Retailers	0.08	0.84	0.79

continued

**Table 1: Estimated Worker Characteristics by Industry, California**

<b>Industry</b>	<b>(1) Essential worker</b>	<b>(2) Working onsite</b>	<b>(3) Work at least 1000 hours in 2019</b>
Nonstore Retailers	0.04	0.78	0.84
Utilities	1.00	0.66	0.97
Air Transportation	1.00	0.93	0.93
Truck Transportation	1.00	0.95	0.95
Transit and Ground Passenger Transportation	0.98	0.79	0.89
Support Activities for Transportation	1.00	0.83	0.92
Couriers and Messengers	1.00	0.94	0.89
Warehousing and Storage	1.00	0.96	0.93
Publishing Industries (except Internet)	0.09	0.30	0.92
Motion Picture and Sound Recording Industries	<i>non-essential industry</i>		
Broadcasting (except Internet)	1.00	0.50	0.94
Telecommunications	1.00	0.56	0.96
Data Processing, Hosting, and Related Services	1.00	0.28	0.96
Other Information Services	0.84	0.11	0.91
Credit Intermediation and Related Activities including Monetary Authorities - Central Bank	1.00	0.42	0.95
Financial Investments and Related Activities including Financial Vehicles	1.00	0.30	0.94
Insurance Carriers and Related Activities	1.00	0.31	0.95
Real Estate	<i>non-essential industry</i>		
Rental and Leasing Services	<i>non-essential industry</i>		
Professional, Scientific, and Technical Services	0.12	0.34	0.93
Management of Companies and Enterprises	<i>non-essential industry</i>		
Administrative and Support Services	0.48	0.83	0.87
Waste Management and Remediation Services	1.00	0.90	0.95
Education	<i>non-essential industry</i>		
Ambulatory Health Care Services	0.98	0.78	0.89
Hospitals	1.00	0.82	0.94
Nursing and Residential Care Facilities	1.00	0.93	0.89
Social Assistance	0.77	0.75	0.83
Performing Arts, Spectator Sports, and Related Industries	<i>non-essential industry</i>		
Museums, Historical Sites, and Similar Institutions	<i>non-essential industry</i>		
Amusement, Gambling, and Recreation Industries	<i>non-essential industry</i>		
Accommodation	<i>non-essential industry</i>		
Food Services and Drinking Places	0.99	0.94	0.79
Repair and Maintenance	0.75	0.96	0.94
Personal and Laundry Services	0.07	0.90	0.84
Religious, Grantmaking, Civic, Professional, and Similar Organizations	<i>non-essential industry</i>		
Government	0.63	0.64	0.93
Department of Defense	<i>non-essential industry</i>		

Source: Authors's analysis of the IPUMS-Current Population Survey (CPS) Monthly Basic data from May 2020 to June 2021, 2019 IPUMS-American Community Survey (ACS), the Current Employment Statistics (CES), and California's list of "Essential Critical Infrastructure Workers." See Appendix for details.

**Table 2: Estimated Employment of Active On-Site Essential Workers, California**

<b>Industry</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
Total Farm	399,000	348,000	290,100
Logging	1,700	1,400	900
Oil and Gas Extraction	2,800	2,700	2,600
Mining (except Oil and Gas)	<i>non-essential industry</i>		
Support Activities for Mining	6,300	6,200	5,800
Construction	747,600	729,100	697,900
Wood Product Manufacturing	23,400	22,700	22,000
Nonmetallic Mineral Product Manufacturing	25,700	25,200	24,800
Primary Metal Manufacturing	11,900	11,700	11,600
Fabricated Metal Product Manufacturing	103,700	101,000	98,500
Machinery Manufacturing	50,900	50,100	48,200
Computer and Electronic Product Manufacturing	12,300	12,000	11,900
Electrical Equipment, Appliance, and Component Manufacturing	<i>non-essential industry</i>		
Transportation Equipment Manufacturing	75,000	73,500	71,900
Furniture and Related Product Manufacturing	<i>non-essential industry</i>		
Miscellaneous durable goods manufacturing	24,700	23,600	21,600
Food Manufacturing	126,300	118,000	113,500
Beverage and Tobacco Product Manufacturing	45,200	42,300	38,000
Textile Mills	<i>non-essential industry</i>		
Textile Product Mills	<i>non-essential industry</i>		
Apparel Manufacturing	<i>non-essential industry</i>		
Paper Manufacturing	18,400	17,700	16,900
Printing and Related Support Activities	<i>non-essential industry</i>		
Petroleum and Coal Products Manufacturing	8,700	8,500	8,300
Chemical Manufacturing	48,700	47,800	46,500
Plastics and Rubber Products Manufacturing	36,800	36,400	36,000
Merchant Wholesalers, Durable Goods	137,100	134,100	131,100
Merchant Wholesalers, Nondurable Goods	153,800	150,000	145,200
Wholesale Electronic Markets and Agents and Brokers	<i>non-essential industry</i>		
Motor Vehicle and Parts Dealers	41,600	39,700	36,000
Furniture and Home Furnishings Stores	<i>non-essential industry</i>		
Electronics and Appliance Stores	300	200	200
Building Material and Garden Equipment and Supplies Dealers	95,400	90,800	84,700
Food and Beverage Stores	305,200	299,800	294,800
Health and Personal Care Stores	40,400	39,200	35,100
Gasoline Stations	50,000	48,900	47,600
Clothing and Clothing Accessories Stores	<i>non-essential industry</i>		
Sporting Goods, Hobby, Musical Instrument, and Book Stores	<i>non-essential industry</i>		
General Merchandise Stores	195,800	174,600	148,500
Miscellaneous Store Retailers	4,400	4,200	3,200

continued

**Table 2: Estimated Employment of Active On-Site Essential Workers, California**

<b>Industry</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
Nonstore Retailers	1,900	1,800	1,600
Utilities	38,100	37,900	37,200
Air Transportation	44,900	43,000	41,800
Truck Transportation	132,400	125,200	116,100
Transit and Ground Passenger Transportation	27,100	23,500	21,900
Support Activities for Transportation	80,400	78,500	74,800
Couriers and Messengers	140,800	115,200	94,800
Warehousing and Storage	192,100	178,400	159,200
Publishing Industries (except Internet)	5,400	5,200	5,100
Motion Picture and Sound Recording Industries	<i>non-essential industry</i>		
Broadcasting (except Internet)	18,800	18,400	18,000
Telecommunications	33,200	32,500	31,700
Data Processing, Hosting, and Related Services	14,900	14,700	14,500
Other Information Services	9,400	8,800	8,400
Credit Intermediation and Related Activities including Monetary Authorities - Central Bank	96,900	95,800	94,500
Financial Investments and Related Activities including Financial Vehicles	27,800	27,400	26,900
Insurance Carriers and Related Activities	58,200	57,800	57,000
Real Estate	<i>non-essential industry</i>		
Rental and Leasing Services	<i>non-essential industry</i>		
Professional, Scientific, and Technical Services	64,000	62,300	60,700
Management of Companies and Enterprises	<i>non-essential industry</i>		
Administrative and Support Services	401,900	386,500	360,400
Waste Management and Remediation Services	45,400	44,200	43,000
Education	<i>non-essential industry</i>		
Ambulatory Health Care Services	599,200	581,400	526,400
Hospitals	311,800	309,800	308,000
Nursing and Residential Care Facilities	244,400	240,000	236,800
Social Assistance	386,000	374,400	363,000
Performing Arts, Spectator Sports, and Related Industries	<i>non-essential industry</i>		
Museums, Historical Sites, and Similar Institutions	<i>non-essential industry</i>		
Amusement, Gambling, and Recreation Industries	<i>non-essential industry</i>		
Accommodation	<i>non-essential industry</i>		
Food Services and Drinking Places	887,800	784,800	651,600
Repair and Maintenance	101,200	96,700	91,000
Personal and Laundry Services	7,000	6,000	4,600
Religious, Grantmaking, Civic, Professional, and Similar Organizations	<i>non-essential industry</i>		
Government	513,900	497,800	489,900
Department of Defense	<i>non-essential industry</i>		
<b>Total</b>	<b>7,278,000</b>	<b>6,907,400</b>	<b>6,432,300</b>

Source: Authors’s analysis of the IPUMS–Current Population Survey (CPS) Monthly Basic data from May 2020 to June 2021, 2019, IPUMS–American Community Survey (ACS), the Current Employment Statistics (CES), and California’s list of “Essential Critical Infrastructure Workers.” See Appendix for details.

## Appendix

We identify essential workers in the [IPUMS - Current Population Survey basic monthly datasets](#) following California's list of "[Essential Critical Infrastructure Workers](#)." We include all occupations in the essential industries. We also use the [Current Population Survey](#) (CPS) to identify workers not working from home; the CPS began asking respondents in May 2020 if the worker works remotely due to the pandemic. We then estimate the proportion of workers who are in essential industries and also not working from home over the period May 2020 to June 2021.<sup>2</sup>

We estimate annual number of hours worked using the [IPUMS - American Community Survey one-year sample for 2019](#) (ACS), and use this calculation to estimate the proportion of all workers working at least 1,000 hours across industries.

In analyzing the CPS and the ACS, we restrict our analysis to workers who are 18-64 year-olds, with non-zero working hours in the last week or non-zero earnings in the past year, who were not self-employed or unpaid family workers, and who were at work last week, or had a job but were not at work last week.

Our employment counts come from the [Current Employment Statistics](#) (CES), which provides detailed industry estimates of employment of nonfarm workers in California. We append the CES data with total farm sector employment estimates from California's Employment Development Department, and use this information to calculate high, medium, and low employment in each industry over the period May 2020 to June 2021.

To obtain our estimated employment counts of active on-site essential workers in California, we build a crosswalk to match the CPS/ACS industries with the CES industries. We multiply the high, medium, and low employment in each industry by two estimated proportions: 1) proportion of workers who are in essential industries and also not working from home, and 2) proportion of workers working at least 1000 hours.<sup>3</sup>

## Endnotes

1 Also see [Thomason & Bernhardt \(2020\)](#).

2 For readers' reference, in Table 1, we list the proportion of workers in essential industries and the proportion of workers not working from home separately.

3 By multiplying our employment counts and the combined proportion of onsite essential workers by the proportion of workers working at least 1,000 hours, which comes from the 2019 ACS, we are assuming that this proportion remains the same in the period of interest, and that this proportion is not related to essential industry status or not working from home status.

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## UC Berkeley Labor Center

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