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Technical Appendices

The Great Recession and Distribution of Income in California

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Appendix A: Data Sources

In this appendix we describe the various data sources we used to study California’s distribution of income. We rely most heavily on a single source—the Current Population Survey (CPS). We supplement these data with three key pieces of information: Census Bureau poverty thresholds, an index of inflation, and housing value estimates. We describe each in turn. In Appendix B we outline how these sources of data are used in tandem to achieve a robust analysis of income.

Current Population Survey: Annual Social and Economic Supplement

The primary data source for our calculations is the Annual Social and Economic (ASEC) Supplement of the Current Population Survey (CPS), commonly known as the March Supplement, which is administered by the U.S. Census Bureau and the Bureau of Labor Statistics (BLS). The CPS is a representative sample of the noninstitutionalized civilian population. Although administered only once per year, the ASEC includes relatively detailed questions focusing on annual income and labor market experiences. It is administered between February and April of each year, and the results are released toward the end of the same calendar year. We access the CPS via the Integrated Public Use Microdata Series CPS data (IPUMS CPS) published by the Minnesota Population Center at the University of Minnesota.¹ These data are harmonized CPS data to be consistent over time. We use the CPS-ASEC for 1980–2011.

It is important to note that CPS samples are designed to be cross-sectional, rather than longitudinal. Thus, in the basic sample, we are unable to follow individuals or families over time. For this reason, we cannot make direct references as to how individuals or families fared over time; we can only make inferences based on representative populations or cohorts across the cross-sections of the CPS.

The CPS is designed to be representative of state-level populations. Note that although the sample allows for this precision, it is not designed to be representative at lower levels of geography or population groups. We are fortunate in that the California sample is sufficiently large that we can make precise measures of certain subpopulations that would not be possible in smaller states. Thus, in much of the analysis, we group samples across time or across counties or define large enough demographic subgroups of interest, creating subsamples large enough to generate accurate measures. Larger samples are available in the American Community Survey (ACS), another population survey available from the U.S. Census Bureau. However, since these surveys are available only from 2005 to 2010 and refer to income in the year before, the ACS are not yet useful for studying the first two years of the Great Recession.

For our analyses, CPS questions generally fall into two categories: variables relating to an individual’s current circumstances and variables related to the individual’s circumstances in the previous calendar year. The current variables relate to point-in-time indicators, such as employment status, industry of employment, educational background, and other demographic indicators.² Variables focusing on the previous calendar

¹ King et al (2010).

² Note that although these variables can generally be thought of as point-in-time indicators, there are time components to certain variables, though at very small intervals. For instance, employment status indicators are determined by an individual’s employment in the preceding week.

year generally pertain to topics that occur over time, such as income from the previous year and number of weeks worked in the previous year.

Census Bureau Poverty Thresholds

Eligibility for many federal and state programs is determined by a family's income relative to the poverty threshold, frequently referred to as the Federal Poverty Level (FPL). Poverty thresholds are designed by the Census Bureau to determine at what level of annual pretax income a family, based on its size, structure, and age, needs to be out of poverty. In other words, each family size, based on the number of children, will have a different poverty threshold.³ Note that families are distinct from households; a household can be made up of multiple families. Noncash income, such as food stamps and public housing, are not considered income for determining poverty status. Poverty thresholds are calculated at the national level. Many programs use multiples of the poverty threshold to determine eligibility. For example, the income limit for Medi-Cal Section 1931(b) is 100 percent of the FPL.

The FPL is arguably too simplistic a measure of economic well-being, as it refers only to monetary income. Nonmonetary sources of income in the form of worker benefits and food stamps, for example, supplement income for many families. Indeed, the Census Bureau in tandem with other agencies and researchers has developed a new supplemental measure of poverty that takes into account nonmonetary income. Until recently, it has not been feasible to use the Census Bureau's supplemental measure of poverty to create poverty thresholds. Whereas the nonmonetary component of poverty is important, particularly in understanding the full scope of the experience of the poor, that topic is beyond the scope of this report.

HUD Fair Market Rents

The U.S. Department of Housing and Urban Development (HUD) publishes data on Fair Market Rents (FMR) at various levels of geography, including the county level. The FMR data represent the 40th percentile of rents for a given area. Occupant-paid basic utilities are included in the rental prices.⁴ The data exclude rental properties with identifiable deficiencies, such as a lack of a kitchen. The data are reported based on the number of bedrooms of the rental property. The sources for FMR data are the Decennial Censuses,⁵ with adjustments being made using the American Community Survey and random telephone surveys. The FMR data were first published in 1983 and have been published annually since 1985.⁶ We use these data in adjusting income estimates to account for cost of living. This is discussed further below.

Consumer Price Indices

The Consumer Price Index (CPI) is published by the BLS and is used to measure inflation. It is calculated by tracking the changes in price of a fixed basket of goods over time. Several different indices can be used depending on the types of goods being tracked. For all income calculations that are not reported in

³ For example, in 2010, for a family of four with two children under the age of 18, the poverty threshold is \$22,113. As described below, this value is the default family size for our normalized income calculations, making this value our baseline poverty threshold.

⁴ Telephone, television, and the Internet services are not included.

⁵ There is a lag between the Decennial Census and when the basis is calculated. For example, the 2000 Census is used as the basis for the FMR data beginning in 2005.

⁶ FMR data for 1984 are not available.

normalized terms, we use the “Consumer Price Index Research Series Using Current Methods,” (CPI-U-RS) because this set has been consistently calculated since 1978. Whereas the CPI-U-RS has historically shown less inflation over time, since the relevant time period for this analysis is relatively short (2006–2010), the effect of using different CPI series is minimal. For a detailed description of the methods used in the CPI-U-RS, see Stewart and Reed (1999). Since the CPI-U-RS is reported monthly, we take the calendar year average to create annual figures. We use this series for all income-related calculations.

Appendix B: Methods

This appendix details four methods key to our analysis of the distribution of income. First, we describe our method for making income comparable across family size and across time. Next, we outline our method for dealing with top-coded income data. Third, we describe how we adjust family income to account for cost-of-living disparities across regions. Fourth, we outline our method for measuring income from various sources. We then describe the two key measures used to describe changes in family income over time, namely defining income categories and percentiles of the income distribution. We conclude with a discussion of how to measure recessions and expansions.

Normalizing Family Income

Our analysis of income centers on one unit of the population: the family. CPS data measure households, families, and individuals. Whereas various reports examine individual or household income, we find the study of family income most relevant here. Households are composed of one or more families, and families are composed of one or more individuals. A single person living alone, for example, would be a family and household of one. For many, a family and household are the same, for example, a nuclear family living alone. Both households and families pool resources in many ways. For example, if an adult family member becomes unemployed, another adult in the family unit may choose to enter the workforce or to work more hours. We assume that the family is the primary unit across which income is shared and that nonrelated individuals in a household do not share income. This assumption is in line with the way most federal programs award aid: on the family level.

Families and households vary substantially in size and composition. A key benefit of the choice to examine family—rather than household—income is that there is a natural method for adjusting family income to be comparable across various sizes. We use official poverty thresholds that vary by family size and structure. To make families of varying size comparable, we normalize family income to be representative of a common family size: four. Because California families are on average larger than families in the rest of the country (2.39 persons compared to 2.23, respectively), not adjusting for family size can understate income differences. This is especially true for median-income families and below, where the size differences between families in California and elsewhere are largest. We calculate the ratio of family income to the correct poverty threshold for the given family (in given year dollars, adjusted for inflation using the CPI-U-RS. This ratio is thus a measure of family income irrespective of family size and structure, i.e., it is normalized. To obtain a dollar value for this normalized family income, we multiply by the 2010 dollar value poverty threshold for a family of four with two children (which was \$22,113). The dollar value for normalized family income used throughout the study represents the total family income for a family of four with two children in 2010 dollars.

We thus obtain a measure of family income that is a measure of real income rather than inflation or differences in family size. We refer to this adjusted family income as normalized. Within each family, a family head is identified, along with characteristics of the family including family size, number of children, age of the family head, and other characteristics. We calculate total income, wages, and other work-related measures at the family level. We then append these family-level values onto individual-level data, so that we

can use person weights for the analysis. These methods for calculating normalized family income are based on previous work by PPIC.⁷

Dealing with Top-Coded Income Values

Extremely high-income values in the CPS are recoded by the Census Bureau to preserve the privacy of respondents. The IPUMS version of the CPS uses BLS-published replacement values for top-coded values in the original CPS. To put this into context, the 2010 CPS top-coded 2009 earnings values above \$200,000, which affected less than 2 percent of wage earners.⁸ Nonetheless, this prevents us from analyzing the very highest levels of the income distribution. Since top-coding rules for the CPS have changed over time, we cap all earnings values at the 96th percentile to create a consistent income distribution over time.⁹ Total income is then recalculated as the sum of the recalculated earnings values and all other sources of income. Since these data are distorted at the high end, throughout this analysis we look at percentiles of income and wages below the 96th percentile.

Cost-of-Living Adjustments

Since the cost of living can vary so greatly between geographical areas throughout the United States and even within California, our estimates of family economic well-being can be improved by taking geographic differences into account when comparing across regions. We follow a method used in previous PPIC publications, which is recommended by a National Academy of Sciences study.¹⁰ Using this method, we essentially adjust income to account for differential cost of housing. Although housing costs are not the sole driver of differences in overall cost of living, they are the largest difference. National estimates suggest that poor families spend 44 percent of their budget on housing.¹¹ Therefore, we adjust the federal poverty threshold by calculating the ratio of the fair market rents for a given area to the national average and apply this ratio to 44 percent of the poverty threshold for each family size and structure. We use the HUD Fair Market Rents data to calculate county-level ratios relative to the national average. Functionally, the Cost of Living Adjustment to the poverty thresholds is as follows:

$$COLA\ Threshold_{ijk} = 0.56FPL_{ij} + (0.44FPL_{ij})\left(\frac{FMR_k}{FMR_{national}}\right)$$

Note that since the FPL is a national measure, these are national cutoffs with no geographic distinction. This is an obvious limitation to these income groups, which we tackle by adjusting them based on cost of living across geography, as described below.

Percentiles of the income distribution are essentially snapshots of the distribution in a given year. Percentile X gives the income level at which X percent of the distribution falls below in the given year. The CPS is a cross-sectional survey, not longitudinal, so income changes at a given percentile over time do not represent changes for given individuals over time; instead, these represent changes in the ranked incomes for two separate samples of individuals.

⁷ See Reed (1999, 2002, 2004, and 2006) and Reed, Haber, and Mameesh (1996).

⁸ Note that this figure is for individuals; family income is our primary measure and can consist of multiple wage earners, making total family income greater than the top-coded value.

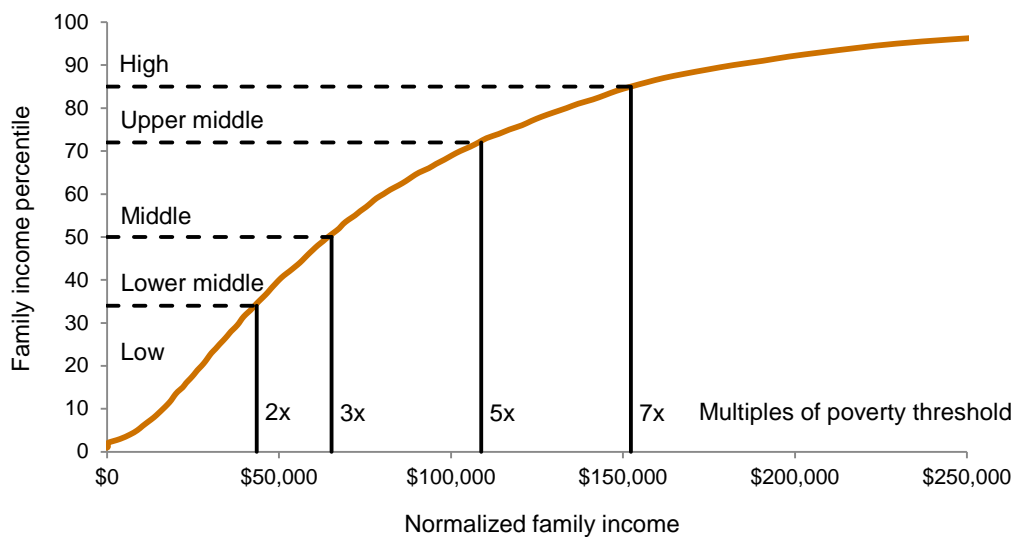
⁹ Earnings consist of wage and salary income, plus farm and nonfarm business income. We cap each separately.

¹⁰ For example, see Reed (2006) and Citro and Michael (1995).

¹¹ Citro and Michael (1995).

Figure B1 highlights the difference between percentile and income category definitions. This figure shows the cumulative income distribution of normalized family income, pooled for 2008 and 2009 for California. Income groups are defined by fixed multiples of the poverty thresholds on the horizontal axis. Family income percentiles are defined by the distribution of income (here, the density function), which changes over time. Thus, the difference between any two dotted lines—i.e. the difference between any two percentiles—will change over time. For example, a family with a normalized income of \$50,000, which is between two and three times the poverty threshold, would fall into the lower-middle-income group and at the same time represent roughly the 35th percentile. If in another year the distribution of income skewed toward the low end of income (i.e., the density function was steeper), the same family with the same level of income would remain in the lower-middle-income group but would then represent a higher percentile in the distribution.

FIGURE B1
2008–2009 family income distribution: income category example



Measuring Recessions and Expansions

A few caveats about measuring recessions are warranted. First, we use peaks and troughs in income levels to define recessions in addition to those defined by the National Bureau of Economic Research. The NBER dates the beginning and end of each boom and bust cycle in the U.S. economy based on a variety of economic indicators. According to the NBER, the Great Recession began in December 2007 and ended in June 2009. Family income rises and falls with business cycles, but often the peaks and troughs of family income do not precisely match the official dates. For example, despite the fact that NBER dates the Great Recession as having ended over two years ago, unemployment rates remain high and are projected to decline only slowly over the next few years. Thus, the recession’s effect on the distribution of income is likely to persist beyond the official “end date” and for this reason we also use observed peaks and troughs in income to define boom and bust periods.

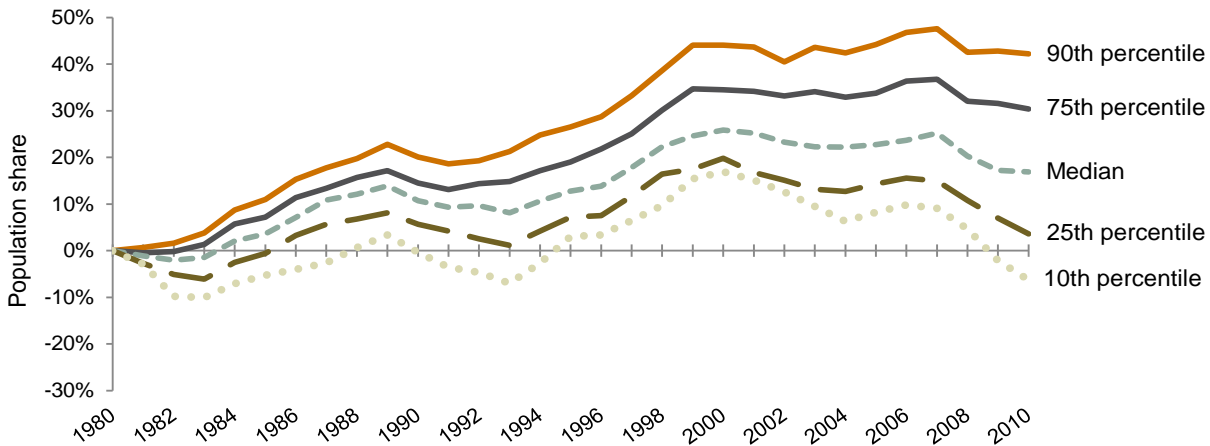
Second and related, in this report, we observe the Great Recession’s effect through its two official years, 2008 and 2009, as well as in the first year after, 2010. It remains to be seen when income will reach its trough. Suitable data for looking at income trends comprehensively is not yet available for 2011.

Third, given that recessions vary in length and we may as yet have not observed the trough in income in the Great Recession, one must interpret differences across recessions carefully. One approach is to compare two points in time—peaks in income to peaks and troughs to troughs. This sheds light on the absolute changes in the income distribution. To understand the full severity of a given recession, however, we need to compare the changes in income from peak to trough. One way is to compare the first two years of the Great Recession to the first two years of previous recessions; however, this does not capture the full severity of some previous recessions. Another is to compare the first two years of the Great Recession to the full recessionary periods before. We use this latter method, and other research suggests that the findings are not drastically different. If the income distribution does not trough until well beyond 2010, then the findings here will have understated the Great Recession’s effect on the distribution. However, if incomes actually recovered soon after 2010, then the findings here reflect closer the full true effect of the Great Recession.

Appendix C: Supplemental Tables and Figures

Figure C1 presents the trend in distribution of income from 1980–2010, for all U.S. states except California. This figure is comparable to Figure 1 in the main report. Comparing the two, we note that income growth in the rest of the United States has been higher than in California across the distribution. Notably, the 10th percentile of income for the United States has seen positive growth over most of the period whereas for California, the 10th percentile has remained below 1980 levels. Recall that despite this higher *growth* pattern in income outside California, the *level* of income outside California tends to be lower, at least for the upper half of the distribution.

FIGURE C1
Changes in family income in the rest of the United States, compared to 1980

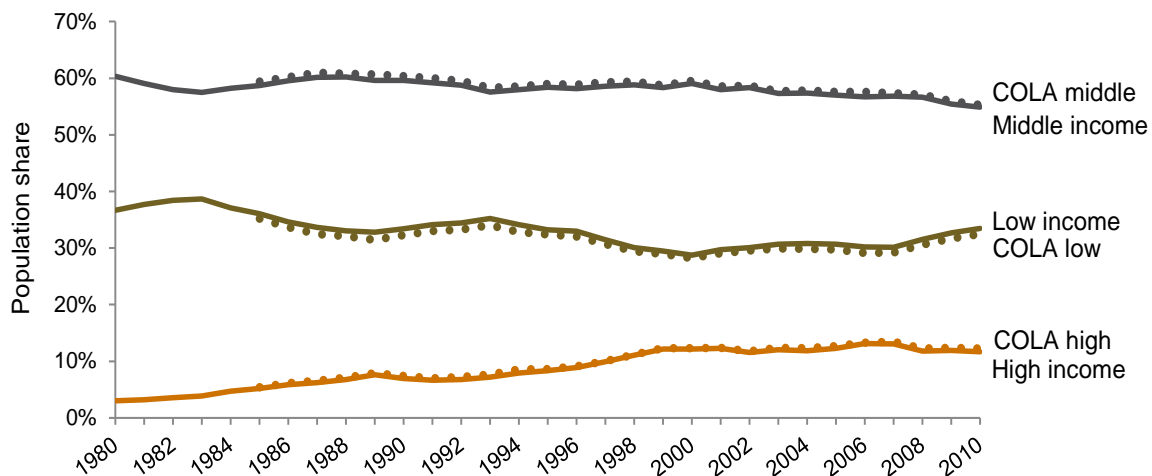


SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTE: Family income is adjusted to 2009 dollars and normalized to account for family size.

Figure C2 shows the long-term trends in income category shares in the United States excluding California. This figure is complementary to Figure 3 of the main report. Outside California, there is a consistently higher share of families in the middle-income category and fewer in the high-income category.

FIGURE C2
Share of families, by income category, United States (excluding California)

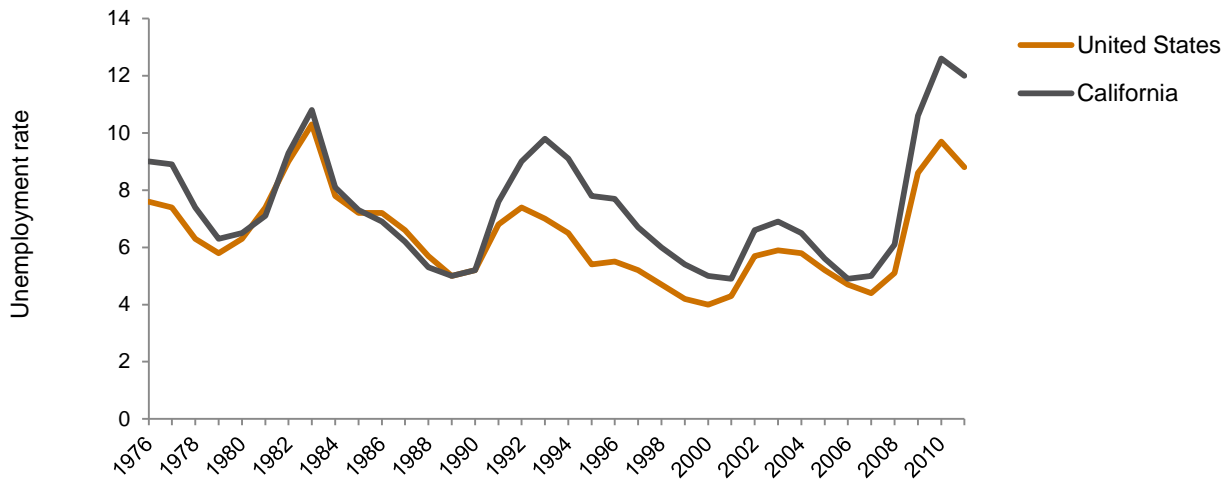


SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTE: Family income is adjusted to 2010 dollars and normalized to account for family size.

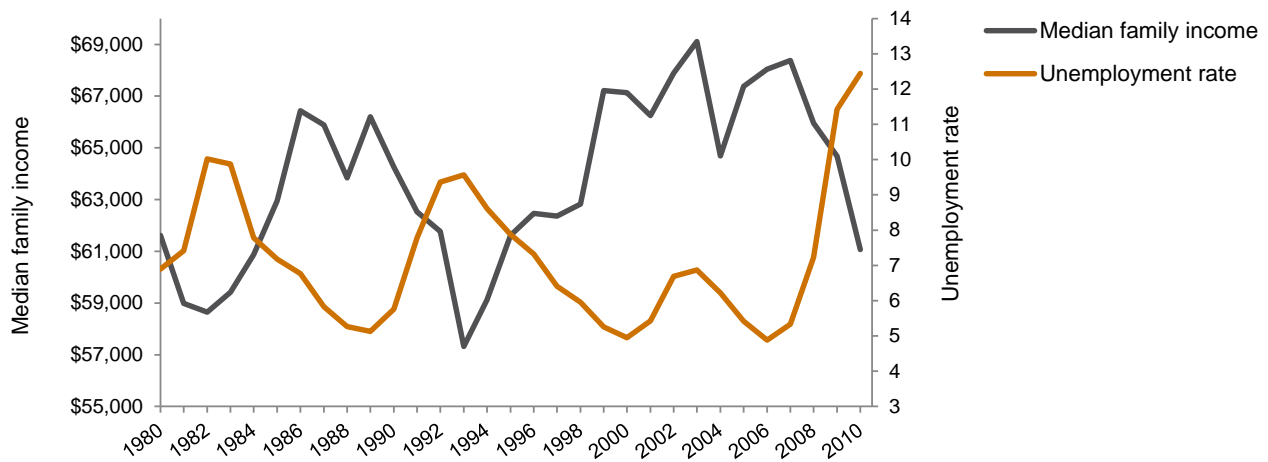
Figures C3 and C4 show the unemployment rate for California and the United States over the past three decades. The unemployment rate has been higher in California relative to the rest of the nation since the early 1990s, reaching record levels during the Great Recession. The first sign of a turnaround in unemployment came in 2011, nearly two full years after the Great Recession officially ended. Figure C4 overlays California's unemployment rate with the trend in median income. Since employment is the main source of income for most Californians, the unemployment rate is typically highly correlated with changes in income: Troughs in median family income are usually coincident with peaks in the unemployment rate. Coming out of recessionary periods, we typically see decreases in the unemployment rate and concurrent increases in median family income.

FIGURE C3
Unemployment rate in California and the United States



SOURCES: Bureau of Labor Statistics, CPS for U.S. series; LAUS for California series, March, seasonally adjusted for age 16 and over.

FIGURE C4
Median family income generally rises and falls with unemployment

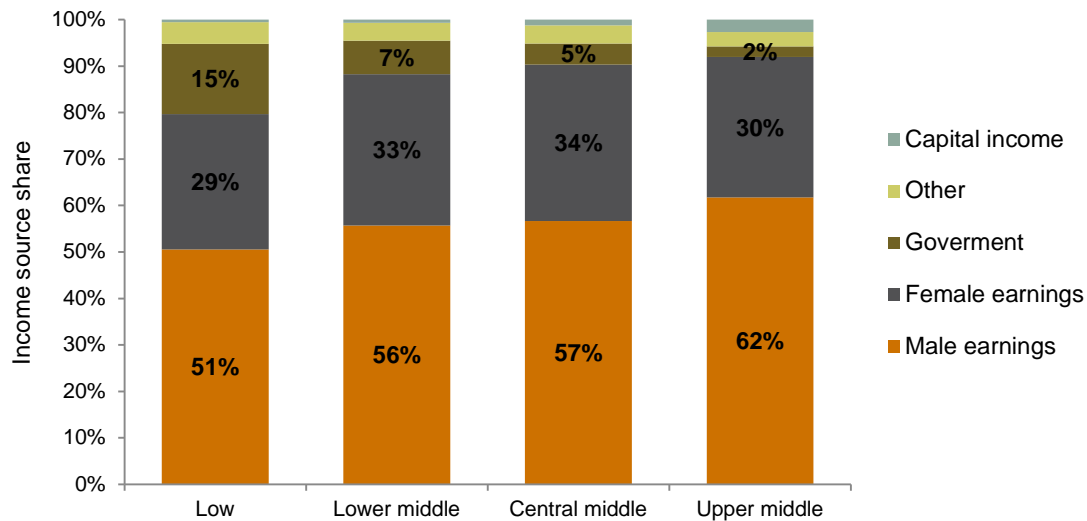


SOURCES: Authors' calculations from the Current Population Survey of the U.S. Census Bureau; Bureau of Labor Statistics, LAUS annual averages.

NOTE: Family income is adjusted to 2010 dollars and normalized to account for family size. See Technical Appendix A for details.

Figure C5 provides the breakdown of income sources for low- and middle-income families in 2010 in California. The figure complements Figure 4 of the main report. Compared to the average over 2008 and 2009, the sources of family income in California did not shift drastically in 2010. Figure C6 then provides the complementary statistics on sources of family income for families outside California. Note that compared to California’s low-income families, low-income families in the rest of the United States depend more on income from female earnings and more on government sources. Middle-income families’ sources of income are roughly similar in California and the rest of the United States, especially during the years of the Great Recession.

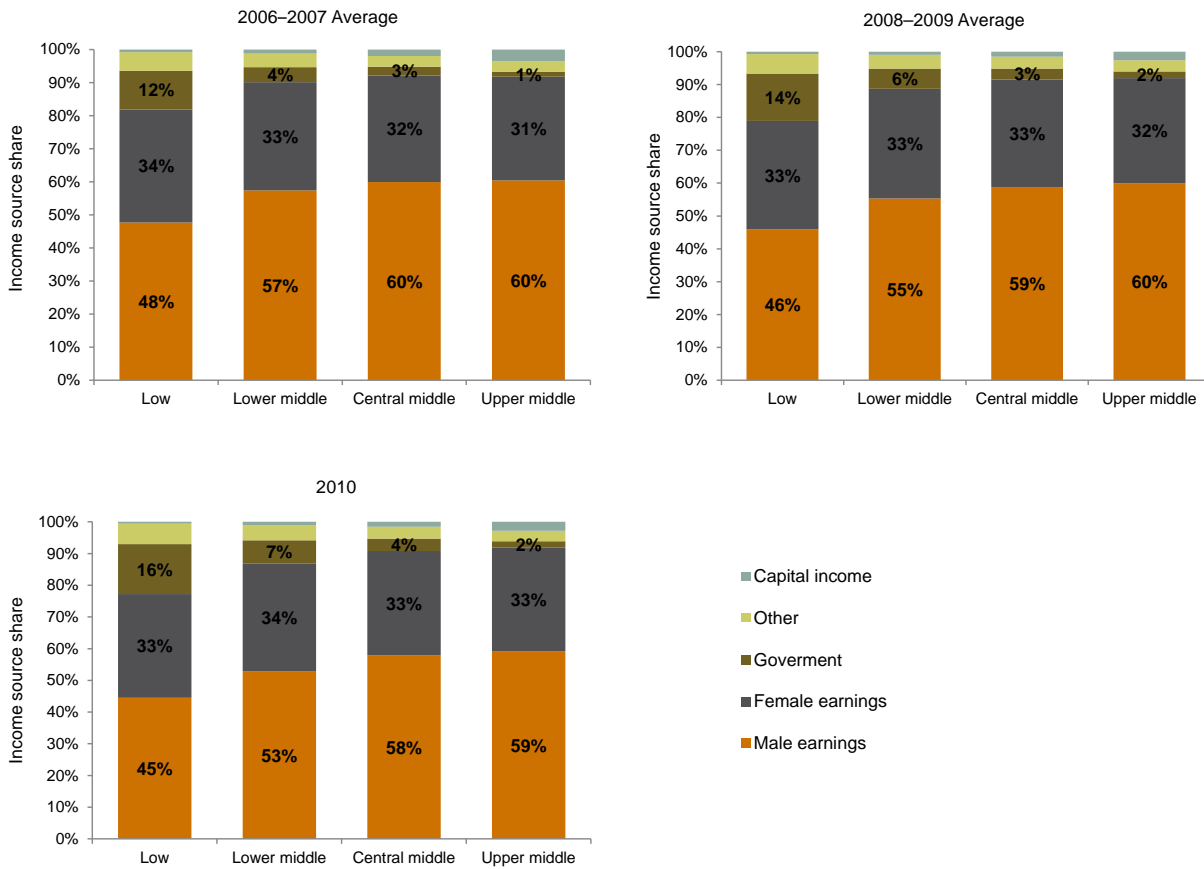
Figure C5.
Sources of family income in California, 2010



SOURCE: Authors’ calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: Whereas income category definitions are based on normalized family income, income shares are based on inflation-adjusted income and are not normalized for family size. The high-income group is not included here because shares are heavily affected by top-coding.

FIGURE C6
Sources of family income in the rest of the United States, 2006–2010

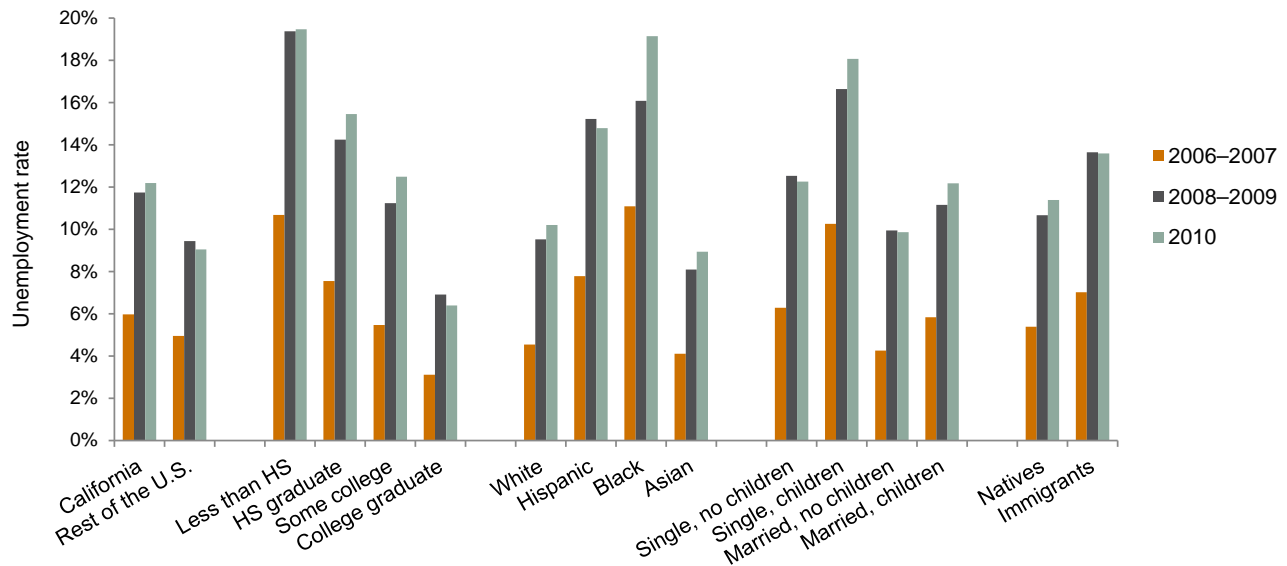


SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: Income shares represent the averages across each two-year period. Although income category definitions are based on normalized family income, income shares are based on inflation-adjusted income and are not normalized for family size. The high-income group is not included here because shares are heavily affected by top-coding.

Figures C7 and C8 provide complements to Figures 6 and 7 of the main report, using statistics also reported in Tables C5 and C6.

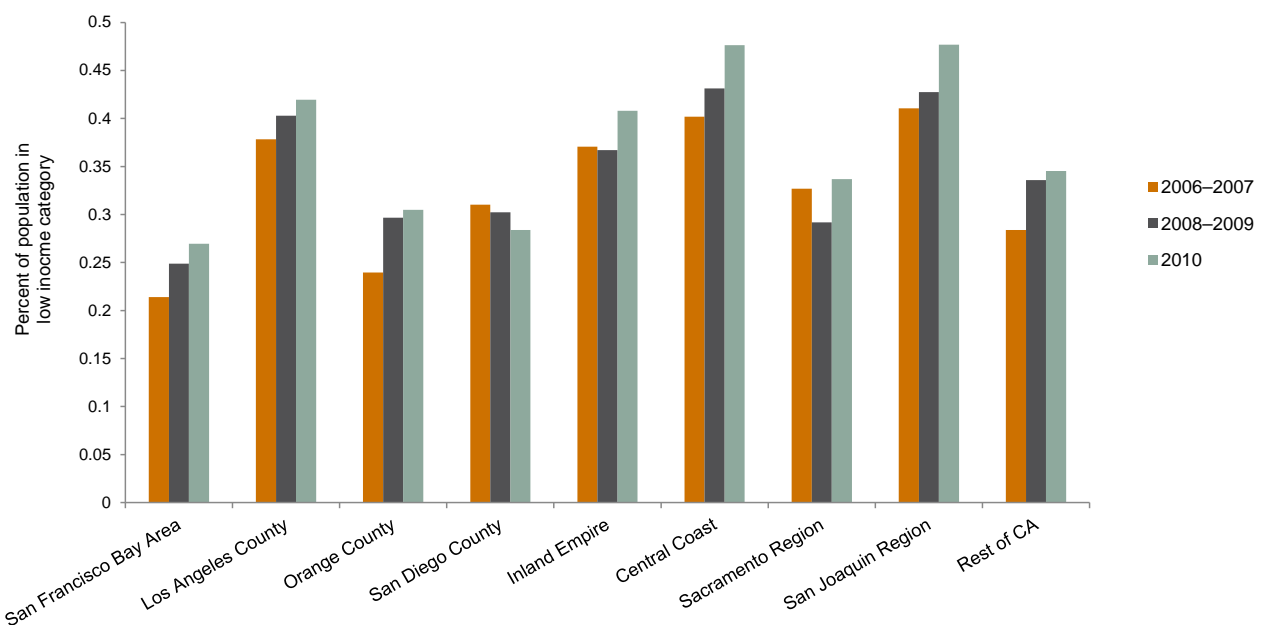
FIGURE C7
Unemployment jumped across all California’s demographic groups during the recession



SOURCE: Authors’ calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: Characteristics are defined by head of family and outcomes pertain to family or labor force participants in the family. The race/ethnicity groups are mutually exclusive.

FIGURE C8
The percentage of families considered low income grew during the recession across most of California



SOURCE: Authors’ calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: Sample size for cells, as well as further detail on calculations, is available in Technical Appendix Table C7.

Tables C1 and C2 provide full statistics on unemployment rate and duration, by income category.

TABLE C1
Unemployment rate, by income groups, 1990–2011

Year	California (%)						Rest of the United States (%)					
	All	Low income	Lower middle	Central middle	Upper middle	High income	All	Low income	Lower middle	Central middle	Upper middle	High income
1990	5.3	11.9	4.2	3.6	3.3	2.3	5.6	12.1	5.7	3.9	2.5	2.0
1991	7.8	15.5	9.2	5.6	4.3	2.6	7.1	14.1	7.4	5.0	3.8	2.8
1992	8.8	17.1	9.7	6.0	4.7	4.0	7.6	15.7	7.6	5.3	3.7	2.5
1993	9.9	20.7	10.4	5.8	5.7	3.4	7.1	14.8	6.9	5.0	3.5	2.6
1994	9.4	18.4	9.2	6.0	4.7	3.8	6.7	14.0	6.4	4.4	3.4	2.3
1995	8.1	17.3	7.9	5.6	3.3	2.2	5.6	11.8	5.7	3.5	2.8	2.5
1996	7.9	16.0	7.4	5.7	4.6	2.6	5.7	12.3	5.8	3.8	3.0	1.8
1997	6.8	14.7	6.3	4.3	2.9	2.8	5.4	12.1	5.6	3.6	2.6	1.9
1998	6.6	15.0	5.7	4.3	3.8	1.1	4.9	11.2	4.9	3.2	2.6	1.8
1999	6.3	13.8	5.9	3.7	3.4	2.9	4.4	10.1	4.5	3.1	2.3	2.0
2000	5.5	12.0	4.2	4.0	3.2	2.6	4.2	9.8	4.4	3.0	2.2	1.8
2001	5.3	11.3	5.7	3.8	3.1	1.8	4.6	10.5	5.1	3.5	2.5	1.9
2002	7.1	14.4	7.8	5.3	3.4	3.5	6.1	12.8	6.6	4.7	3.7	3.0
2003	7.2	14.5	8.3	6.0	3.6	3.0	6.3	13.6	6.9	4.7	3.9	2.7
2004	7.3	14.9	8.2	5.5	4.5	3.2	5.9	12.9	6.6	4.4	3.3	2.4
2005	5.7	11.8	5.9	4.0	3.7	2.1	5.5	12.5	5.9	4.0	3.1	2.3
2006	5.3	10.2	7.0	3.4	3.0	2.6	5.0	11.3	5.2	3.6	2.6	2.0
2007	5.3	10.4	6.2	4.5	3.5	2.1	4.6	10.7	4.6	3.5	2.7	1.9
2008	6.6	12.8	8.1	5.9	3.9	2.1	5.3	12.2	5.8	3.9	2.8	2.2
2009	11.2	20.3	13.3	9.2	6.1	5.1	8.9	17.8	10.0	7.2	4.8	4.1
2010	12.3	22.9	14.4	9.8	5.8	4.9	9.9	20.8	11.0	7.4	5.1	3.6
2011	12.2	23.2	15.4	8.8	4.9	4.0	9.0	19.8	9.6	6.3	4.2	3.4

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

TABLE C2
Unemployment duration for unemployed persons, by income group, 1990–2011

Year	California (average number of weeks)						Rest of the United States (average number of weeks)					
	All	Low income	Lower middle	Central middle	Upper middle	High income	All	Low income	Lower middle	Central middle	Upper middle	High income
1990	10.36	11.11	9.45	10.36	9.95	7.32	12.62	14.29	11.59	11.37	9.24	10.91
1991	12.99	12.39	13.72	14.13	11.99	12.99	13.57	15.09	12.97	12.17	11.89	11.43
1992	17.20	16.29	18.85	17.44	17.48	18.27	17.93	19.07	17.98	15.88	17.39	16.37
1993	20.55	22.31	22.06	19.85	12.21	14.73	18.12	19.37	17.23	17.36	16.50	14.35
1994	23.58	25.13	29.22	17.92	17.18	18.33	19.27	22.23	17.67	15.15	15.33	18.61
1995	22.59	23.62	17.36	18.85	29.14	33.24	17.38	19.71	16.78	14.42	13.53	14.76
1996	22.30	24.98	26.04	16.22	17.74	17.23	17.33	21.12	15.18	12.93	13.94	11.84
1997	17.21	17.74	18.27	15.37	17.50	14.95	16.11	18.65	15.31	13.15	12.59	11.81
1998	16.68	18.01	13.90	15.42	17.44	7.99	14.80	17.41	12.08	12.20	14.20	11.48
1999	16.23	16.62	18.40	14.87	16.08	12.42	14.00	16.40	12.58	11.69	12.48	11.53
2000	12.68	14.52	13.39	8.96	9.01	13.75	13.96	16.80	13.42	10.28	12.23	9.90
2001	14.22	16.63	11.66	10.68	15.32	12.18	12.92	15.43	11.42	11.66	9.48	10.76
2002	15.99	17.92	15.06	15.36	9.67	14.65	15.71	17.30	15.46	13.98	13.48	16.14
2003	19.43	21.87	13.15	22.31	19.23	13.47	18.68	21.00	17.38	18.03	14.50	16.84
2004	22.58	26.44	18.53	19.71	18.02	21.42	19.79	22.15	19.25	18.24	17.15	15.15
2005	20.73	23.31	21.48	18.77	16.47	12.75	19.54	22.70	18.37	17.81	14.86	13.95
2006	18.22	21.91	19.34	13.80	9.59	14.65	17.61	20.69	15.76	14.97	12.68	16.13
2007	18.25	19.63	16.50	19.36	15.71	15.83	17.59	19.91	16.54	15.95	13.95	15.18
2008	15.81	16.00	15.77	17.82	12.26	13.03	16.88	19.27	16.30	13.73	15.74	14.29
2009	21.69	22.72	21.67	20.49	20.52	20.38	20.66	24.54	19.69	17.79	16.21	16.28
2010	34.02	34.57	35.40	33.59	30.42	31.77	31.06	35.16	28.79	28.98	23.92	23.83
2011	37.37	39.97	37.49	35.09	28.99	30.46	34.63	38.32	34.13	30.79	27.43	27.86

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: Universe includes unemployed persons looking for work at time during the survey.

Tables C3 and C4 present full statistics related to underemployment in California and the rest of the U.S., respectively.

TABLE C3
Changes in California workers' underemployment during and after the recession, 2006–2010

During the recession (from 2006–2007 to 2008–2009)									
Income	Share of workers (%)			Median total income (\$)			Median income from wages and salary (\$)		
	2006–2007	2008–2009	Change	2006–2007	2008–2009	% change	2006–2007	2008–2009	% change
Low	20.9	23.0	2.1	15,980	15,192	–4.9	15,575	13,167	–15.5
Lower middle	15.8	16.1	0.3	27,041	26,428	–2.3	26,293	25,320	–3.7
Middle	25.4	24.8	–0.6	39,676	39,604	–0.2	37,857	36,592	–3.3
Upper middle	16.4	15.7	–0.7	57,016	58,052	1.8	52,585	52,856	0.5
High	21.5	20.3	–1.2	86,890	86,190	–0.8	78,878	79,283	0.5

	Employed full time (%)			Average hours worked			Median hourly wage (\$)		
	2006–2007	2008–2009	Change	2006–2007	2008–2009	% change	2006–2007	2008–2009	% change
Low	69.8	59.7	–10.1	1,586	1,419	–10.5	9.44	9.24	–2.1
Lower middle	81.0	74.6	–6.4	1,823	1,712	–6.1	13.45	14.12	5.0
Middle	81.3	80.9	–0.4	1,867	1,839	–1.5	18.72	19.33	3.2
Upper middle	83.4	82.9	–0.5	1,935	1,923	–0.6	25.08	25.97	3.6
High	84.4	83.7	–0.8	2,028	2,009	–1.0	37.44	37.01	–1.2

After the recession (from 2008–2009 to 2010)									
	Share of workers (%)			Median total income (\$)			Median income from wages and salary (\$)		
	2008–2009	2010	Change	2008–2009	2010	% change	2008–2009	2010	% change
Low	23.0	23.9	0.9	15,192	15,000	–1.3	13,167	13,000	–1.3
Lower middle	16.1	17.1	1.0	26,428	27,000	2.2	25,320	25,000	–1.3
Middle	24.8	24.5	–0.3	39,604	40,000	1.0	36,592	37,000	1.1
Upper middle	15.7	15.2	–0.5	58,052	59,584	2.6	52,856	55,000	4.1
High	20.3	19.2	–1.1	86,190	89,178	3.5	79,283	81,952	3.4

	Employed full time (%)			Average hours worked			Median hourly wage (\$)		
	2008–2009	2010	Change	2008–2009	2010	% change	2008–2009	2010	% change
Low	59.7	61.1	1.4	1,419	1,388	–2.1	9.24	9.62	4.0
Lower middle	74.6	78.1	3.5	1,712	1,719	0.4	14.12	13.94	–1.3
Middle	80.9	83.1	2.2	1,839	1,840	0.1	19.33	19.23	–0.5
Upper middle	82.9	85.3	2.4	1,923	1,924	0.1	25.97	26.44	1.8
High	83.7	86.9	3.2	2,009	2,033	1.2	37.01	38.46	3.9

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: All statistics pertain to those who worked at least one week in the given year. Although income category is defined based on normalized family income, the per worker income statistics are adjusted only for inflation and are not normalized for family size. Self-employed persons are excluded.

TABLE C4

Changes in underemployment for workers in the rest of the United States during and after the recession, 2006–2010

During the recession (from 2006–2007 to 2008–2009)									
Income	Share of workers (%)			Median total income (\$)			Median income from wages and salary (\$)		
	2006–2007	2008–2009	Change	2006–2007	2008–2009	% change	2006–2007	2008–2009	% change
Low	19.0	20.0	1.1	15,776	15,192	–3.7	14,061	13,167	–6.4
Lower middle	16.7	17.0	0.3	27,043	26,548	–1.8	26,293	25,411	–3.4
Middle	29.0	28.9	–0.1	37,857	38,039	0.5	36,775	35,576	–3.3
Upper middle	17.7	17.4	–0.3	52,256	51,858	–0.8	47,327	48,790	3.1
High	17.7	16.6	–1.1	78,562	79,426	1.1	68,143	70,897	4.0

	Employed full time (%)			Average hours worked			Median hourly wage (\$)		
	2006–2007	2008–2009	Change	2006–2007	2008–2009	% change	2006–2007	2008–2009	% change
Low	66.1	61.4	–4.7	35.5	34.6	–2.5	9.10	9.25	1.7
Lower middle	79.5	77.2	–2.3	38.2	37.7	–1.2	13.15	13.29	1.1
Middle	81.8	80.8	–1.0	39.2	38.9	–0.8	17.68	17.59	–0.5
Upper middle	82.8	82.4	–0.4	39.9	39.6	–0.8	22.75	23.37	2.7
High	85.4	85.2	–0.2	41.3	41.2	–0.3	31.37	32.58	3.9

After the recession (from 2008–2009 to 2010)									
	Share of workers (%)			Median total income (\$)			Median income from wages and salary (\$)		
	2008–2009	2010	Change	2008–2009	2010	% change	2008–2009	2010	% change
Low	20.0	20.6	0.5	15,192	15,000	–1.3	13,167	13,000	–1.3
Lower middle	17.0	16.6	–0.4	26,548	27,000	1.7	25,411	25,000	–1.6
Middle	28.9	28.8	–0.1	38,039	38,830	2.1	35,576	36,000	1.2
Upper middle	17.4	17.3	–0.2	51,858	54,086	4.3	48,790	50,000	2.5
High	16.6	16.7	0.1	79,426	80,002	0.7	70,897	72,000	1.6

	Employed full time (%)			Average hours worked			Median hourly wage (\$)		
	2008–2009	2010	Change	2008–2009	2010	% change	2008–2009	2010	% change
Low	61.4	64.7	3.3	34.6	34.3	–1.1	9.25	9.29	0.4
Lower middle	77.2	79.1	1.9	37.7	37.5	–0.5	13.29	13.46	1.3
Middle	80.8	82.2	1.4	38.9	38.8	–0.1	17.59	17.86	1.5
Upper middle	82.4	84.0	1.6	39.6	39.9	0.7	23.37	23.81	1.9
High	85.2	86.5	1.4	41.2	41.5	0.6	32.58	33.33	2.3

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: All statistics pertain to those who worked at least one week in the given year. Although income category is defined based on normalized family income, the per worker income statistics are adjusted only for inflation and are not normalized for family size. Self-employed persons are excluded.

Table C5 presents statistics for demographic groups in California, which form the basis for Figure 6 in the main report.

TABLE C5
Income characteristics, by demographic group, in California

	Median family income (\$)			Share with low income (%)			Share with middle income (%)			Unemployment rate (%)			Percent of population		
	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010
California	68,135	65,336	61,072	32.3	34.4	36.6	51.8	50.6	49.7	6.0	11.7	12.2	12.2	12.1	12.2
Rest of the United States	70,110	66,883	65,845	30.2	32.1	33.4	56.8	56.0	54.9	5.0	9.4	9.0	87.8	87.9	87.8
Education															
Less than high school	33,315	31,900	30,172	66.3	68.7	70.1	32.6	30.0	28.6	10.7	19.4	19.5	20.8	20.2	19.6
High school graduate	54,575	52,484	49,902	39.3	40.2	43.5	54.0	53.4	51.8	7.6	14.2	15.5	21.9	21.4	22.7
Some college	74,815	69,769	64,842	24.6	29.1	31.7	62.0	59.5	57.4	5.5	11.2	12.5	28.2	28.3	28.3
College graduate	125,080	121,892	114,908	10.2	12.2	13.8	53.9	54.0	54.7	3.1	6.9	6.4	29.2	30.1	29.4
Race/ethnicity															
White	94,460	91,779	86,627	19.5	21.2	23.4	55.9	55.2	55.3	4.5	9.5	10.2	45.2	44.5	43.6
Hispanic	44,070	42,281	40,507	50.2	51.9	53.9	45.2	44.0	41.7	7.8	15.2	14.8	36.2	37.6	37.9
Black	58,968	54,251	44,141	39.3	42.7	50.5	51.0	49.0	42.3	11.1	16.1	19.2	6.5	6.0	5.8
Asian	83,707	83,574	80,919	23.6	25.3	25.3	55.7	54.2	57.0	4.1	8.1	8.9	12.1	11.9	12.7
Family structure															
Single, no children	63,042	58,177	57,276	35.9	40.0	40.3	50.4	47.5	47.5	6.3	12.5	12.3	22.1	22.7	23.1
Single, children	37,528	39,501	34,611	57.5	54.8	60.9	39.3	42.0	36.4	10.3	16.6	18.1	12.9	12.7	13.9
Married, no children	108,655	105,813	97,935	15.4	16.8	18.0	52.8	52.0	53.7	4.3	9.9	9.9	21.4	21.8	21.2
Married, children	66,250	64,277	60,570	31.3	34.3	36.0	55.7	54.0	53.3	5.8	11.2	12.2	43.6	42.8	41.7
Nativity															
Native	83,811	79,428	71,842	24.2	25.7	30.0	55.4	55.2	53.4	5.4	10.7	11.4	61.8	62.0	62.7
Immigrant	49,030	45,635	46,429	45.3	48.5	47.8	46.0	43.2	43.4	7.0	13.6	13.6	38.2	38.0	37.3

SOURCE: Authors' calculations from Current Population Survey of the U.S. Census Bureau.

NOTES: Characteristics are defined by the head of family and outcomes pertain to family or labor force participants in the family (unemployment rate). Percent of population statistics give the percentage of people in a given type of family (rather than the percentage of families of a given type). The race/ethnicity groups are mutually exclusive.

Similarly, Table C6 provides statistics on California regions related to Figure 7.

TABLE C6
Income and employment characteristics, by region of California

	Median family income (\$)			Unemployment rate (%)			Percent of population		
	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010
San Francisco Bay Area	93,456	88,892	82,142	5.1	10.9	11.4	19.0	19.0	19.3
Los Angeles County	58,628	55,941	52,000	6.1	11.2	12.2	27.1	26.7	26.8
Orange County	83,084	73,236	72,503	3.3	9.3	8.3	9.0	8.9	8.8
San Diego County	69,301	74,088	72,599	5.0	8.4	7.9	8.0	7.9	7.5
Inland Empire	60,967	61,248	55,032	6.5	13.5	14.4	11.4	10.4	10.4
Central Coast	56,973	52,205	46,783	9.3	16.3	16.0	3.0	3.0	2.8
Sacramento region	72,071	70,363	60,588	8.0	12.6	17.9	5.1	5.5	5.6
San Joaquin region	55,147	52,499	46,565	9.0	16.4	16.4	10.5	10.5	10.9
Rest of California	74,593	66,532	64,165	4.5	11.6	10.0	7.0	8.0	7.9

	Share with low income (%)			Share with middle income (%)			Adjusted for cost of living					
							Share with low income (%)			Share with middle income (%)		
	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010	2006–2007	2008–2009	2010
San Francisco Bay Area	21.4	24.9	26.9	53.9	51.2	49.4	28.6	31.4	33.2	55.8	52.3	51.1
Los Angeles County	37.8	40.3	42.0	49.1	48.3	46.1	47.2	48.5	52.4	45.1	44.3	40.3
Orange County	23.8	29.5	30.5	55.3	51.7	54.9	34.8	40.6	40.7	55.1	50.2	52.1
San Diego County	31.0	30.2	28.4	52.9	52.6	56.1	37.4	37.7	34.9	51.7	52.9	54.9
Inland Empire	37.1	36.6	40.8	53.3	53.4	51.8	39.7	41.7	43.7	52.8	50.9	50.2
Central Coast	40.2	43.1	47.6	46.5	46.2	47.4	44.3	49.1	51.4	46.3	43.6	44.5
Sacramento region	32.7	29.2	33.7	47.6	55.9	53.8	35.1	31.7	35.4	48.4	55.3	54.3
San Joaquin region	41.0	42.6	47.7	50.1	48.4	44.9	38.3	40.9	46.4	51.9	48.6	45.4
Rest of California	28.2	33.6	34.5	56.3	51.1	52.6	35.2	39.8	40.7	56.0	50.1	51.0

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTE: Family income is normalized for family size and represented in 2010 dollars.

Table C7 presents the sample size for the demographic and geographic subgroup analyses conducted.

TABLE C7
Sample size for demographic and geographic subgroup analyses

	2006–2007	2008–2009	2010
Los Angeles County	10,845	11,627	5,585
San Francisco Bay Area	6,964	7,167	3,669
San Joaquin region	4,121	4,143	2,139
Inland Empire	4,598	4,123	2,083
Orange County	3,589	3,567	1,786
San Diego County	3,185	3,136	1,464
Sacramento region	1,907	1,999	1,041
Central Coast	1,187	1,114	531
Rest of California	2,694	3,050	1,485
California	39,090	39,926	19,783
Rest of the United States	372,968	376,845	184,629
California residents only	2006–2007	2008–2009	2010
Family head education			
Less than high school	9,260	9,101	4,340
High school graduate	8,545	8,671	4,605
Some college	10,738	10,976	5,433
College graduate	10,547	11,178	5,405
Race/ethnicity			
White	14,705	14,693	6,997
Hispanic	16,918	17,624	8,865
Black	2,382	2,153	1,022
Asian	4,463	4,851	2,561
Family structure			
Single, no children	6,920	7,449	3,860
Single, children	5,582	5,536	3,006
Married, no children	7,119	7,505	3,631
Married, children	19,469	19,436	9,286
Nativity			
Native	22,659	22,983	11,501
Immigrant	16,431	16,943	8,282

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

Table C8 reports the changes in income across the distribution during economic expansions and recessions for the rest of the United States, excluding California. This chart is comparable to Table 4 in the main report, which shows the same statistics for California alone.

TABLE C8
Family income in recessions and expansions, United States (excluding California)

	Economic growth (%)			Economic decline (%)			
	1983–1989	1993–2001	2004–2007	1980–1983	1989–1993	2001–2004	2007–2010
10th percentile	15	24	3	-10	-10	-8	-14
25th percentile	15	15	2	-6	-6	-3	-10
Median	16	16	2	-1	-5	-2	-7
75th percentile	16	17	3	1	-2	-1	-5
90th percentile	18	19	4	4	-1	-1	-4
95th percentile	19	21	5	5	-1	-2	-4

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTE: Family income is adjusted to 2010 dollars and normalized to account for family size. These business cycle dates derive from peaks and troughs in the income distribution; for changes in income based on the official business cycle dates see the following tables.

Tables C9 and C10 present the changes in family income across the distribution in California and the rest of the United States, respectively, during business cycles as measured by official peak and trough dates from the NBER.

TABLE C9
Family income in official recessions and expansions, California

	Economic expansion (%)				Economic recession (%)			
	1983–1990	1991–2001	2002–2007	2009–2010	1980–1983	1990–1991	2001–2002	2007–2009
10th percentile	7	17	2	-7	-18	-7	0	-15
25th percentile	6	15	0	-4	-11	-7	-2	-6
Median	8	6	1	-6	-4	-3	2	-5
75th percentile	12	14	2	-3	0	-6	4	-5
90th percentile	17	16	7	-2	0	-1	-1	-2
95th percentile	18	17	11	-4	4	-1	-1	-4

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: Family income is adjusted to 2010 dollars and normalized to account for family size. These business cycle dates represent the official business cycle dates identified by NBER.

TABLE C10
Family income in official recessions and expansions, rest of the United States

	Economic expansion (%)				Economic recession (%)			
	1983–1990	1991–2001	2002–2007	2009–2010	1980–1983	1990–1991	2001–2002	2007–2009
10th percentile	11	19	-3	-4	-10	-3	-2	-10
25th percentile	13	12	0	-3	-6	-1	-1	-7
Median	12	15	2	0	-1	-1	-2	-6
75th percentile	13	19	3	-1	1	-1	-1	-4
90th percentile	16	21	5	0	4	-1	-2	-3
95th percentile	17	23	5	0	5	-1	-2	-4

SOURCE: Authors' calculations from the Current Population Survey of the U.S. Census Bureau.

NOTES: Family income is adjusted to 2010 dollars and normalized to account for family size. These business cycle dates represent the official business cycle dates identified by NBER.

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