PPIC | PUBLIC POLICY INSTITUTE OF CALIFORNIA

30 YEARS

Labor Force Participation in California

Technical Appendices

CONTENTS

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Appendix A. Data Sources and Methodology

American Community Survey

This report uses the American Community Survey (ACS) Public Use Microdata Samples (PUMS) via IPUMS (Ruggles et al.). ACS is an annual survey from the U.S Census Bureau that provides information on the American population and housing characteristics of the population. Estimates from the ACS are based on survey data from a sample of housing units and not the full population. This report uses data up until 2022 (the latest year data was available). The ACS samples approximately 3.54 million housing unit addresses. We restrict our dataset to the 16-years-old and older, non-institutional civilian population, excluding those in both institutional and non-institutional group quarters; group quarters is defined as people who live in college dormitories, nursing facilities, military barracks, and correctional facilities. We also exclude those who are employed through the Armed Forces, whether they are at work or with a job but not at work.

Years: Because this report looks at current gaps, we focus primarily on the 2022 ACS one-year estimates, the latest available data year. For analyses of recent trends, we used one-year PUMS files starting from 2006.

Variables of Interest:

- In labor Force: We use LABFORCE in IPUMS-USA, which is a dichotomous variable indicating whether a person participated in the labor force.
- Attending School: We use SCHOOL in IPUMS-USA, which indicates whether the respondent attended school during a specified period.

Variable definitions:

- Race Category:
    - Latino: We used HISPAN in IPUMS-USA which identifies persons of Hispanic/Spanish/Latino origin. This includes Mexican, Puerto Rican, Cuban and Other decent.
    - White: We used RACE in IPUMS-USA where White is defined as the White major race group.
    - Black: We used RACE in IPUMS-USA where Black is defined as Black/African American major race group
    - Native American: We used RACE in IPUMS-USA where Native American is defined as American Indian/Alaska Native in the major race group.
    - Asian: We used RACE in IPUMS-USA where Asian is defined as Chinese, Japanese, and Other Asian or Pacific Islander in the major race group.
    - Other & multi-race: We used RACE in IPUMS-USA where Other & multi-race is defined as Other race, two major races, and three or more major races in the major race group.
- Educational attainment:
    - Less than High School: Educational attainment up to the 12th grade, no diploma
    - High School: Educational attainment for high school graduate or GED
    - Some College: 1 or more years of college credit, no degree or associate degree
    - Bachelor's +: bachelor's degree, master's degree, professional degree beyond bachelor's, doctorate

- Foreign-born: We do not count Americans born abroad to American parents as foreign born as they can still receive American citizenship and be eligible to work in the United States. We define foreign-born as anyone who is a naturalized citizen or anyone who is not a citizen.
- Married partner: Defined as married or cohabitating.
- Region: We split counties in California into 9 regions, and show the three largest counties (Los Angeles, Orange and San Diego) individually.
    - The Northern Region contains 18 counties: Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity, Sutter, Yuba.
    - Sacramento area contains 4 counties: El Dorado, Placer, Sacramento, Yolo
    - Bay Area contains 10 counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma
    - San Joaquin Valley and Sierras contains 15 counties: Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, Tuolomne
    - Central Coast region contains 4 counties: Monterey/San Benito, San Luis Obispo, Santa Barbara, Ventura
    - Inland Empire region contains 3 counties: Imperial, Riverside, San Bernardino
    - Los Angeles contains Los Angeles County
    - Orange contains Orange County
    - San Diego contains San Diego County

Weights: We use PERWT in all ACS analyses.

Current Population Survey

This report uses the current population survey CPS via IPUMS (Flood et al. 2023) to examine longer-term trends and more closely match aggregate labor force participation numbers regularly reported by the Bureau of Labor Statistics and California Employment Development Department. This report uses the CPS Basic Monthly Sample which includes information about all members of surveyed households. IPUMS-CPS provides information about the U.S. non-institutionalized population; institutionalized persons, such as inmates in old age homes, prisons, and mental health institutions, are excluded from the survey. We restrict our analysis to those who are 16-years-old and above and exclude those who are considered armed forces.

Variables of Interest:

- Hours Worked: We use *AHRSWORK1* in IPUMS-CPS (Flood et al., 2023) which is the actual number of hours the respondent reported working at their main job last week.
- Employment Status: We use *EMPSTAT* in IPUMS-CPS (Flood et al., 2023). We include anyone who is employed at work or has a job but not at work last week (this may be due to sick leave or vacation).

Weights: To align to reported BLS labor force estimates, we use *COMPWT* for analyses that consider only periods from 1998 and onwards. However, *COMPWT* is not available prior to 1998; for analyses of long-term labor force trends, we use the *WTFINL* final basic weight.

Intensive/Extensive margins: To decompose hours worked into the extensive—whether one works or not—and intensive—how much one works, *conditional* on working—we follow the procedure used in Blundell et al. 2011.

- **Extensive hours margin of labor supply**: Calculated as the change in the employment rate multiplied by the average hours worked of those who worked in the current year.
- **Intensive hours margin of labor supply**: Calculated as the change in the average hours worked of those who worked, multiplied by the employment rate in the previous year.

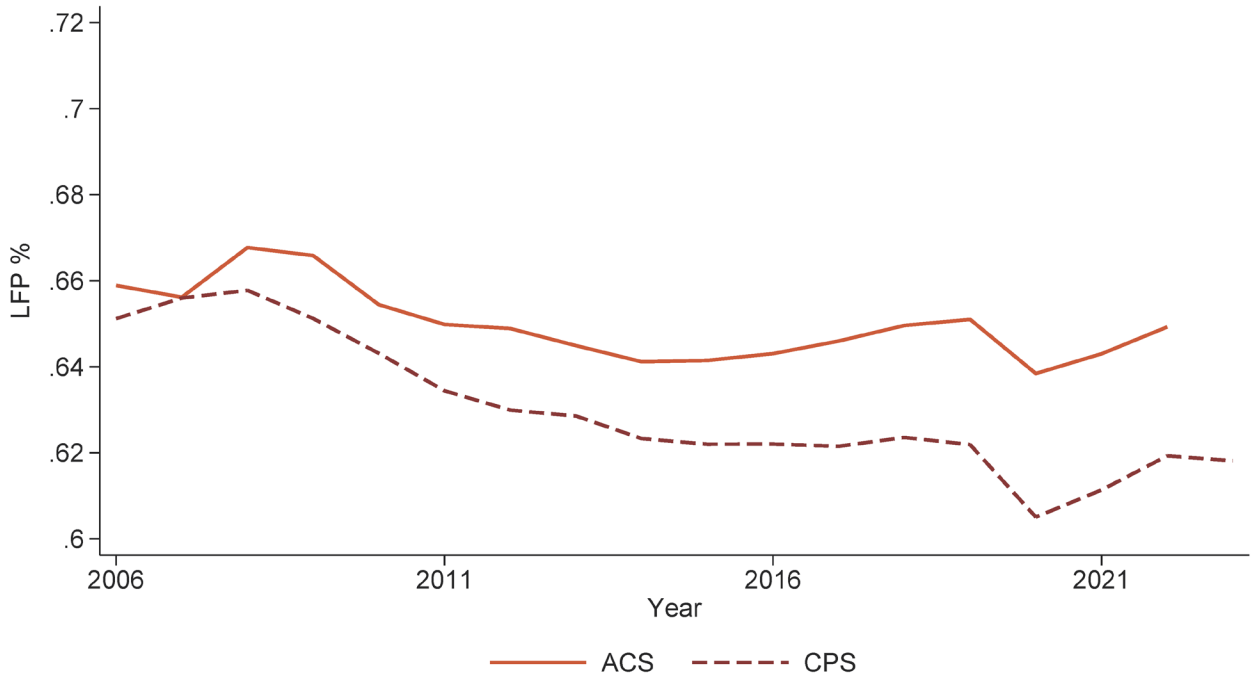
Comparing ACS and CPS Trends

Overall levels of labor force participation are generally similar but have shown diverging trends over the past decade (Figure A1). Different sampling procedures, participation questions, and sampling time periods may explain some of these differences. For example, CPS sampling has excluded college dormitories since 2017, while these are included in ACS samples. However, as mentioned above, we exclude group quarters in our ACS sample, which makes it more consistent with the CPS sample post-2017 than pre-2017.

For our report, we focus on CPS data for long-term trends, for greater consistency with statistics reported by the Bureau of Labor Statistics (BLS) and the California Employment Development Department (EDD). For more recent analyses by demographic subgroups, we rely on annual ACS data, which has a larger sample size, and allows for greater coverage of smaller demographic groups.

FIGURE A1

CPS and ACS participation trends for California



SOURCE: American Community Survey and Current Population Survey; Authors' calculations

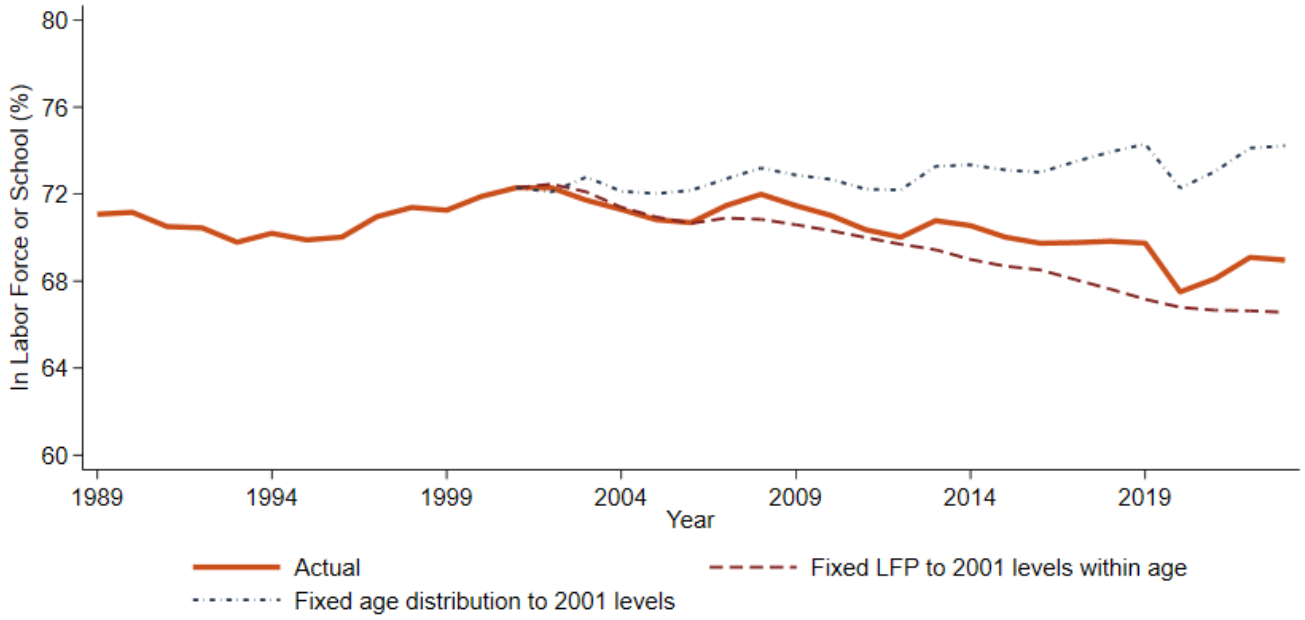
NOTE: CPS estimates shown are annual weighted averages of monthly participation.

Decomposing Labor Force Trends Due to Changing Population Structure

In Figure 3 we report decompositions of labor force participation into counterfactuals based on changes in population structure and changes within demographic groups. We follow Krueger (2017) and construct two counterfactuals, using age-gender specific (e.g. age 25–34 men) population shares and participation rates over time. First, we can hold California's population age-gender structure constant and calculate what participation would have been had this distribution stayed constant and the only changes were those within age-gender groups. Second, we can hold the participation rates within age-gender groups constant and calculate what participation would have been if only the age-gender shares of the population had changed. We also decompose changes for the share working and/or in school (Figure A2), and using the 1989 peak in labor force participation instead of comparing changes since 2001 (Figure A3).

FIGURE A2

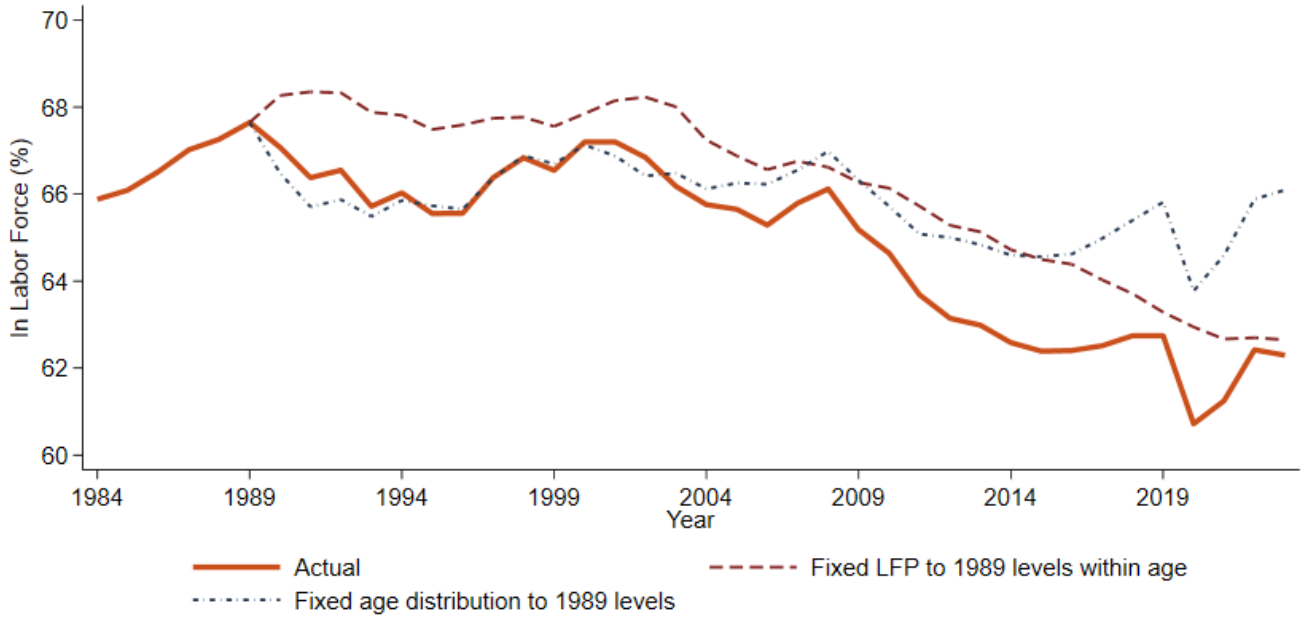
Age decomposition since 2001, for share in labor force and/or school



SOURCE: Current Population Survey; Authors' calculations.

NOTE: Y-axis shows share in labor force or in school by year. Annual averages computed over all months in year, except for 2023 (thru November). "Fixed LFP" counterfactual shows hypothetical labor force participation rate if age-by-gender group specific participation rates are fixed to 2001 levels, and only the age-gender population structure varies. "Fixed age" counterfactual shows hypothetical labor force participation rate if age-by-gender group population shares are fixed to 2001 levels, and only the age-gender specific participation rate varies.

FIGURE A3
Age decomposition since 1989



SOURCE: Current Population Survey; Authors' calculations.

NOTE: Y-axis shows share in labor force by year. Annual averages computed over all months in year, except for 2023 (thru November). "Fixed LFP" counterfactual shows hypothetical labor force participation rate if age-by-gender group specific participation rates are fixed to 1989 levels, and only the age-gender population structure varies. "Fixed age" counterfactual shows hypothetical labor force participation rate if age-by-gender group population shares are fixed to 1989 levels, and only the age-gender specific participation rate varies.

Measuring Disability

Measuring the extent or level of disability and its impacts on a person's ability to work is no easy task. A host of factors contribute to the gaps between an individual's capabilities and the demands created by social and physical environments, including work (Jette and Badly, 2000).

In 2009, the Bureau of Labor Statistics revised its methodology for identifying workers with disabilities. Rather than asking whether people have a "work-limiting" disability, they shifted to a sequence of six questions that asks directly about certain types of sensory (e.g. vision or hearing), activity (e.g. self-care, mobility), and cognitive (e.g. concentration, memory) difficulties people may have. The presence of any of these types of limitations is used to identify people with a disability in official labor market statistics.[1]

Lower levels of labor force participation may also be related to differences in other characteristics – like education, income, and health status – among prime-age adults with different types of limitations. Indeed, when we look at the prime-age population that reports any disability we do see much lower levels of education, which as documented in the previous section has major implications on labor force participation. Nearly half (46%) of prime-age California adults with a disability have no more than a high school education and just over one in five (21%) have a bachelor's degree or more (Appendix Table B3). There are few differences across gender and racial/ethnic groups, though Black and White Californians have higher disability prevalence compared to Latinos

[1] The same sequence of questions used to assess disability is asked in both the CPS and ACS. We use the ACS in the report and discussion because of larger sample sizes that allow us to look more closely at more detailed demographic groups and types of disabilities. Other research has found the CPS reports the lowest prevalence of any disability across four large household surveys; ACS estimates of disability fell between the CPS and the National Health Interview Survey and the Survey on Income and Program Participation (Lauer & Houtenville 2017).

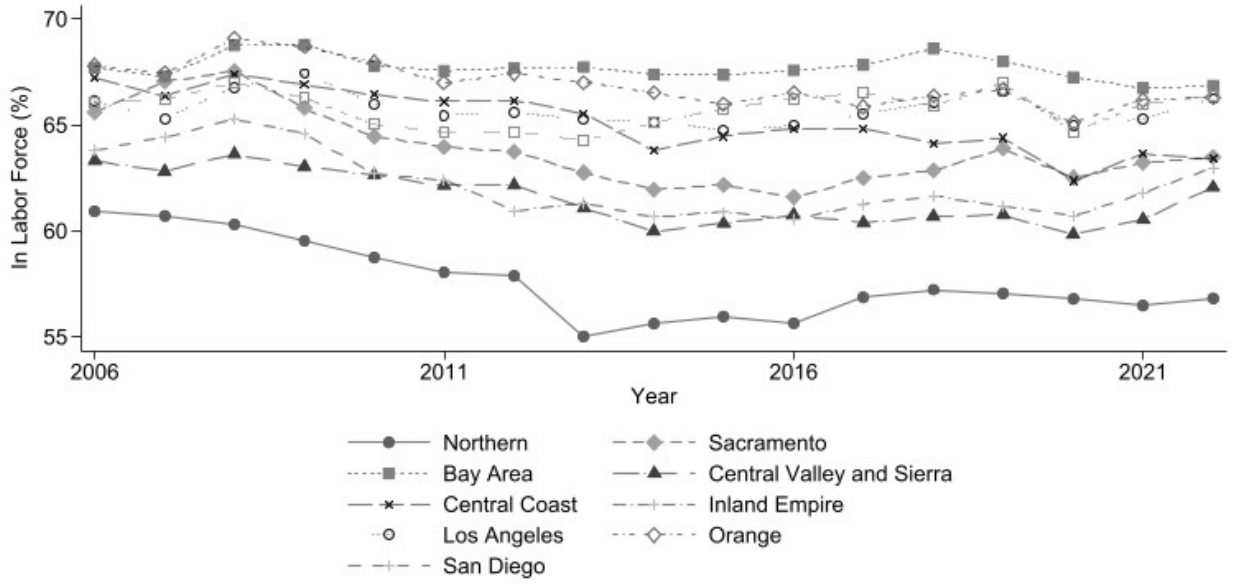
and Asians. People with disabilities are also much more likely to report they are in fair or poor health and other research has implicated increased use of pain medication and worsening mental health as drivers of declining labor force participation, especially among men (Krueger 2017; Frank et al. 2019).

Regional Differences

Our region-level analysis of labor force participation utilizes ACS data through 2022, since the more up-to-date CPS data does not include geographic detail for most respondents due to sample size. The 9 regions are defined above.

FIGURE A4

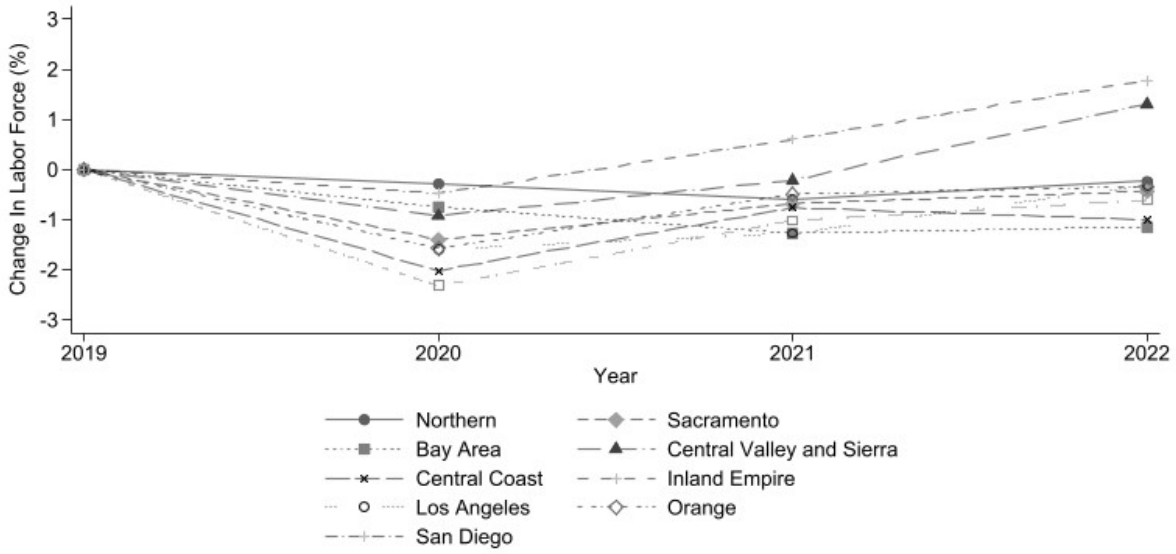
Regional differences in participation are persistent across the state



SOURCE: American Community Survey; Authors' calculations

NOTE: Includes adults aged 16+. Regional definitions are given in Appendix A.

FIGURE A5
Change in participation since 2019, by region



SOURCE: American Community Survey; Authors' calculations
NOTE: Includes adults aged 16+. Regional definitions are given in Appendix A.

To quantify how much demographic factors drive observed labor force participation differences across regions, we estimate a series of simple regression models. Looking simply at the most recent data (2022), we create categorical variables capturing the region, age, gender, educational attainment, and race/ethnicity of the age 16+ population in California. We regress labor force participation on region, capturing in the coefficients the regional differences shown in Figure A4. We then calculate how much regional coefficients change when we sequentially add sets of demographic variables. If differences in regional coefficients shrink after adding age variables, for instance, this would indicate that age differences across regions explain participation differences, in proportion to the change in regional coefficients. For simplicity we add demographics one by one and then all together.

This analysis accounts for the extent to which age, gender, race/ethnicity, and education affects labor force participation statewide. These demographic factors might affect participation in more complex ways – for example, older workers might be systematically less likely to work in the far north of the state vs the Bay Area. Exploring this complexity could be the subject of future research.

Table A1 provides regression results. We present 95% confidence intervals around the coefficient estimates in order to incorporate sample variation. We find that the basic regional differences in participation shown in Figure A4 are attenuated when accounting for the age distribution in each region; the other demographic factors do little to explain regional participation disparities.

TABLE A1

Regression estimates of labor force participation, 2022

	Raw		Age		Gender		Education		Race		All	
	Lower bound	Upper bound	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Northern	55.6%	58.1%	80.0%	82.2%	61.6%	64.2%	53.6%	56.3%	53.8%	56.3%	78.8%	81.2%
Sacramento	62.6%	64.3%	83.3%	84.9%	68.8%	70.5%	59.7%	61.6%	60.1%	61.8%	81.4%	83.2%
Bay Area	66.4%	67.3%	86.5%	87.5%	72.4%	73.4%	62.2%	63.4%	63.4%	64.5%	83.4%	84.8%
Central Valley	61.4%	62.7%	80.5%	81.9%	67.4%	68.8%	62.1%	63.7%	57.2%	58.7%	80.3%	81.9%
Central Coast	62.5%	64.3%	84.5%	86.2%	68.6%	70.4%	60.9%	62.9%	58.9%	60.8%	82.3%	84.3%
Inland Empire	62.3%	63.6%	81.5%	82.8%	68.4%	69.7%	62.2%	63.6%	57.9%	59.3%	80.3%	82.0%
Los Angeles	65.9%	66.7%	84.7%	85.7%	71.9%	72.8%	64.7%	65.8%	61.5%	62.6%	83.1%	84.5%
Orange County	65.6%	67.1%	85.8%	87.2%	71.7%	73.1%	62.7%	64.4%	62.3%	63.9%	83.3%	85.0%
San Diego	65.7%	67.1%	85.2%	86.6%	71.7%	73.2%	62.2%	63.9%	62.5%	64.0%	82.2%	83.9%
Min vs Max	10.1		5.9		10		10.3		9		4.1	

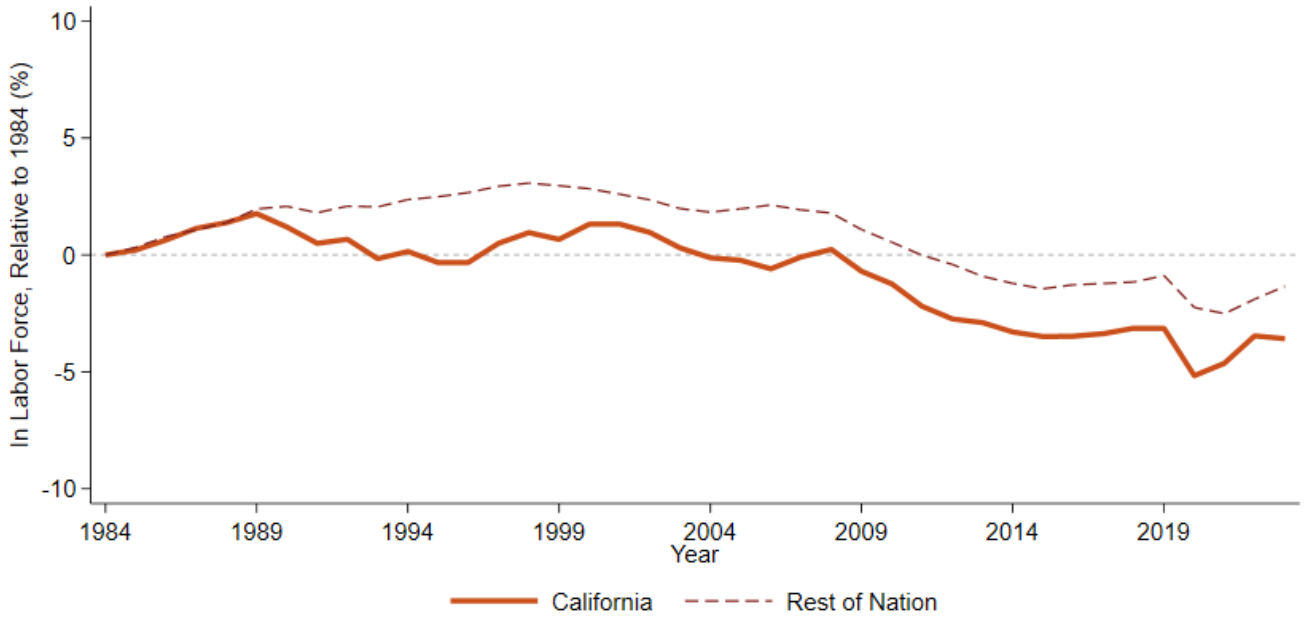
SOURCES: American Community Survey; Authors' calculations

NOTES: Each pair of columns represents a single, simple regression model on individual labor market participation in 2022. 95% confidence intervals are shown, as "Lower bound" to "Upper bound". The "Raw" regression includes dummies for each region; "Age", "Gender", "Education", "Race" each add categorical variables for the given demographic characteristic to the model with region dummies. "All" estimates the model with all preceding variables

Appendix B. Additional Tables and Figures

FIGURE B1

Change in LFP relative to 1984, CA and rest of nation

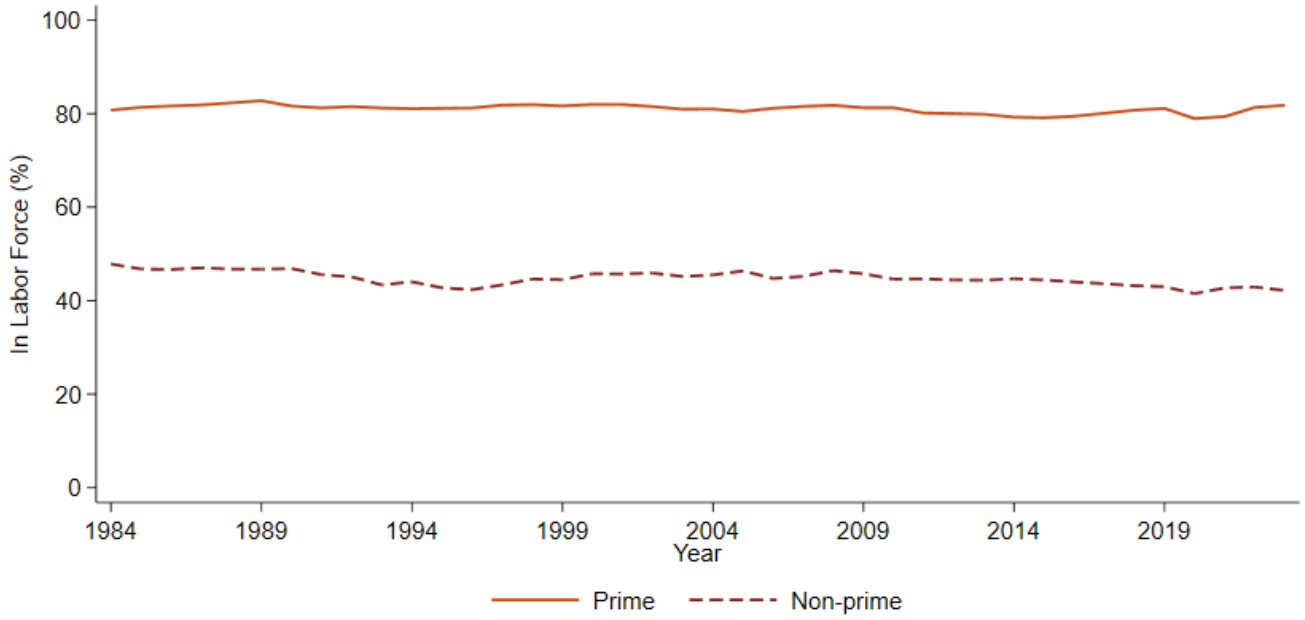


SOURCE: Current Population Survey; Authors' calculations.

NOTE: Y-axis shows share in labor force by year. Annual averages computed over all months in year, except for 2023 (through November).

FIGURE B2

Prime age vs non-prime age LFP

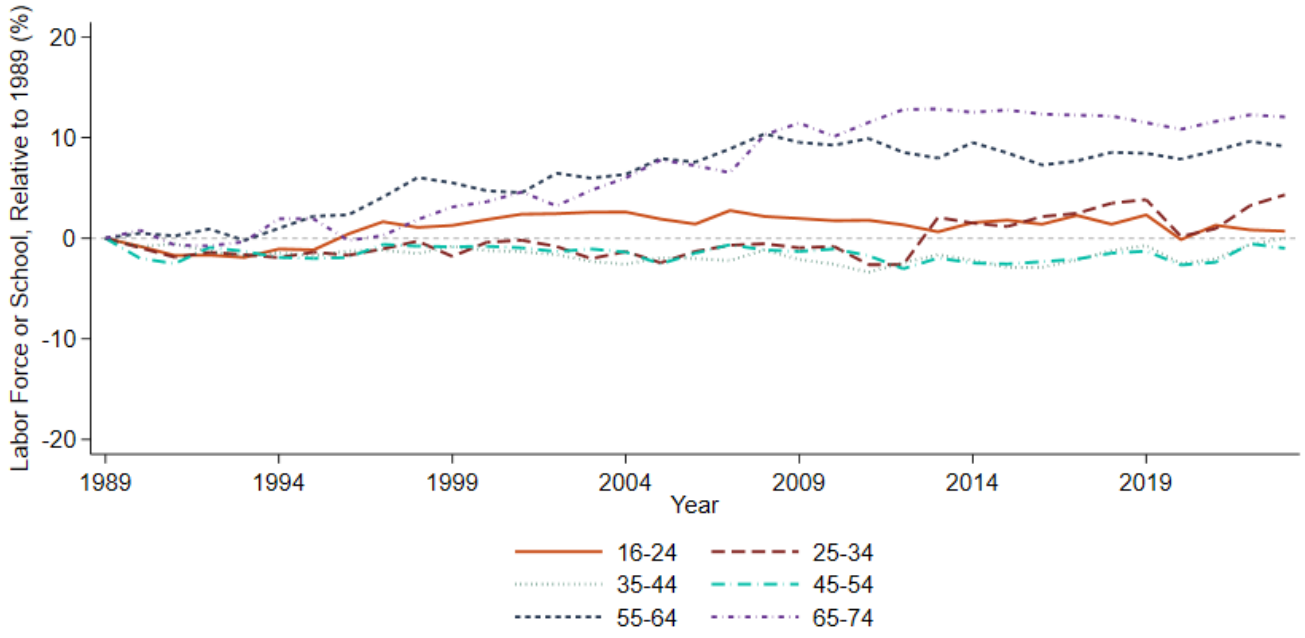


SOURCE: Current Population Survey; Authors' calculations.

NOTE: Y-axis shows share in labor force by year. Prime-age includes 25-54, non-prime includes 16-24 and 55+. Annual averages computed over all months in year, except for 2023 (thru November).

FIGURE B3

Change in share in LF or in school, relative to 1989

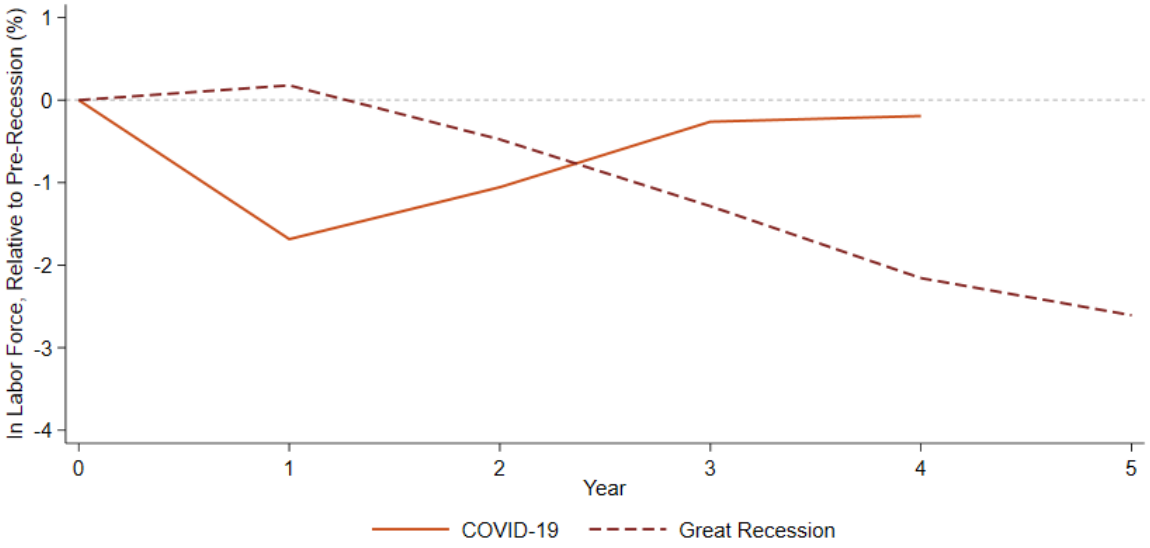


SOURCE: Current Population Survey; Authors' calculations.

NOTE: Y-axis shows share in labor force and/or in school by year. Annual averages computed over all months in year, except for 2023 (thru November).

FIGURE B4

Participation declined and recovered more quickly following COVID-19 than the Great Recession

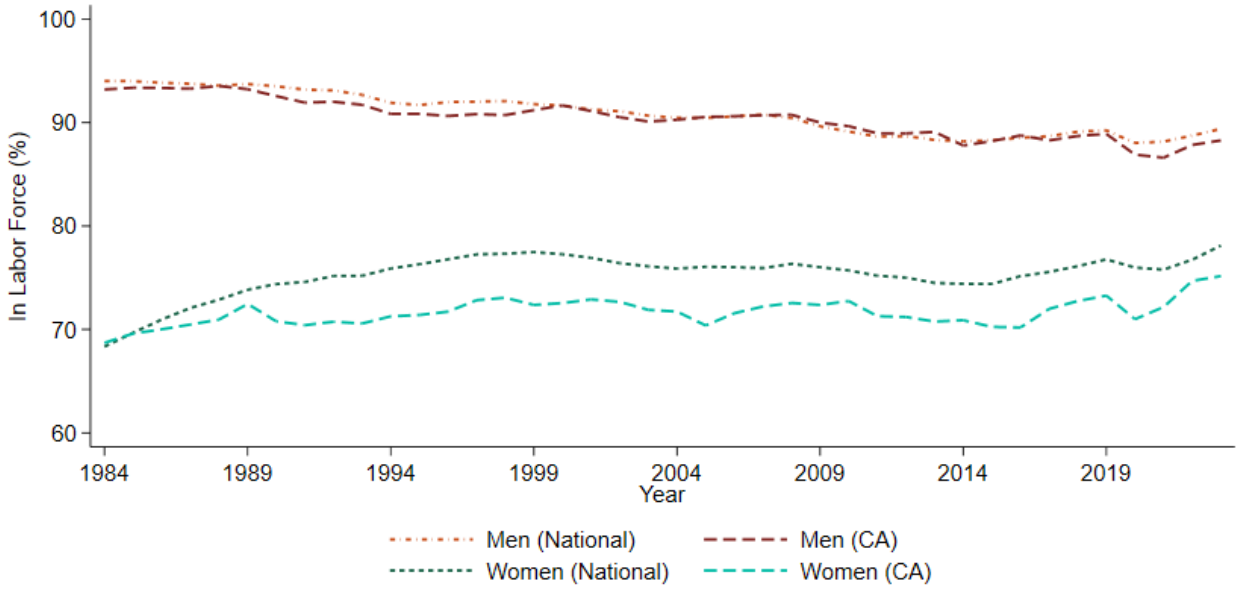


SOURCE: Current Population Survey; Authors' calculations.

NOTE: Year "0" is the year prior to the recession (2019 for COVID-19, 2007 for the Great Recession).

FIGURE B5

Prime-age LFP by gender, CA vs rest of nation



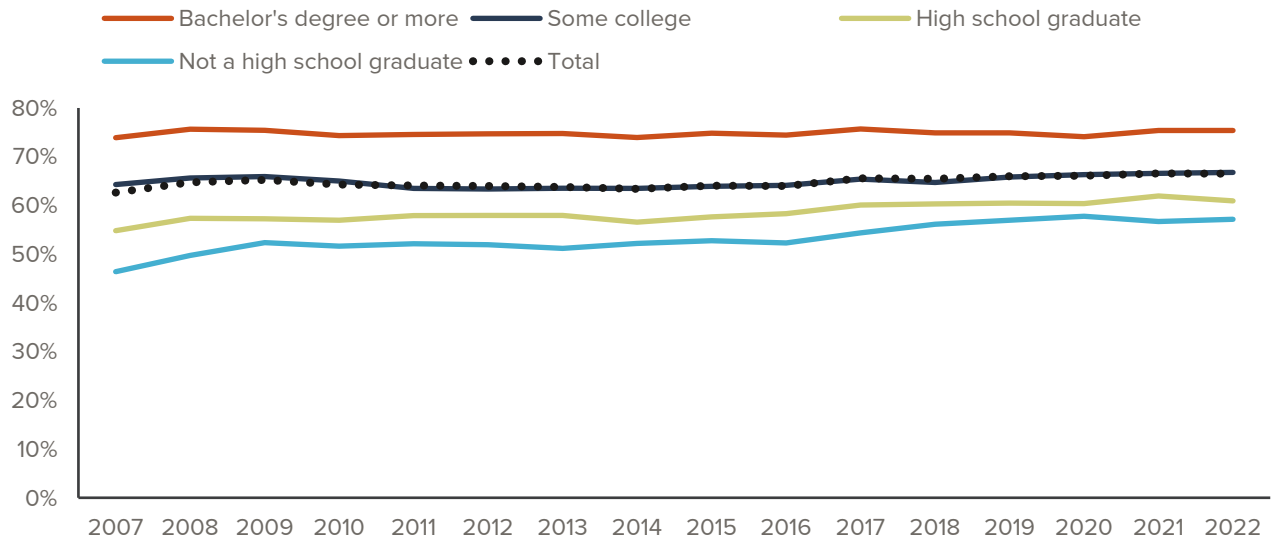
SOURCE: Current Population Survey; Authors' calculations.

NOTE: Y-axis shows share in labor force by year. Annual averages computed over all months in year, except for 2023 (thru November).

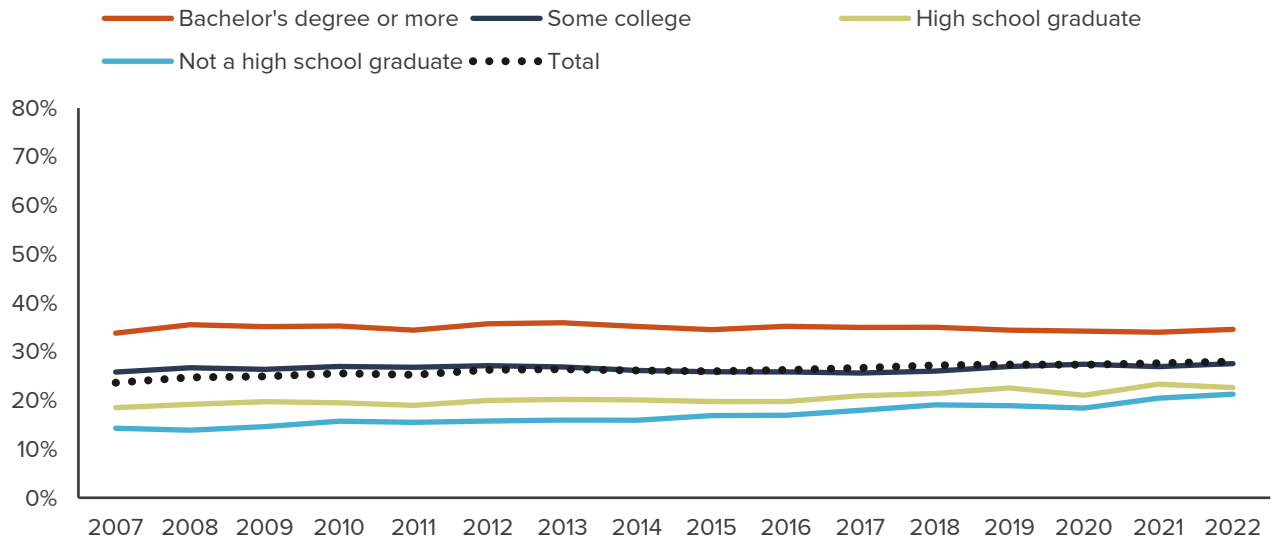
FIGURE B6

Increase in labor force participation among older Californians driven by those without a Bachelor's degree

Panel A: 55-64 year olds



Panel b: 65-74 year olds

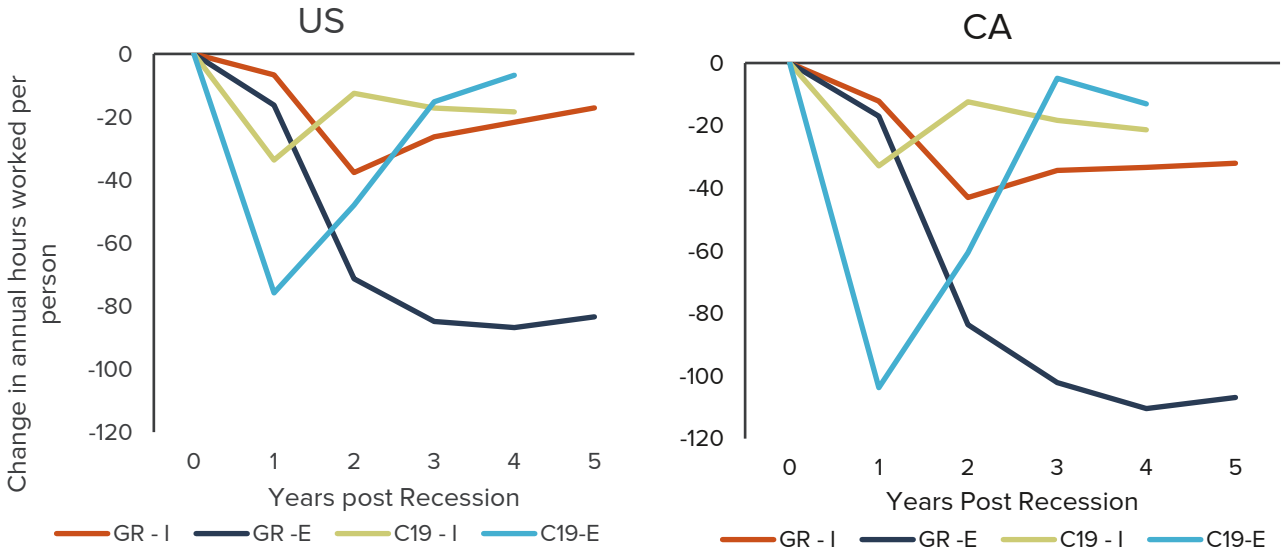


SOURCE: American Community Survey; authors' calculations

NOTE: Vertical axis reports labor force participation rate among civilian non-institutional adults: aged 55-64 (top panel) and aged 65-74 (bottom panel).

FIGURE B7

California and US changes in intensive (I) and extensive (E) margin, for COVID-19 Recession (C19) and Great Recession (GR)

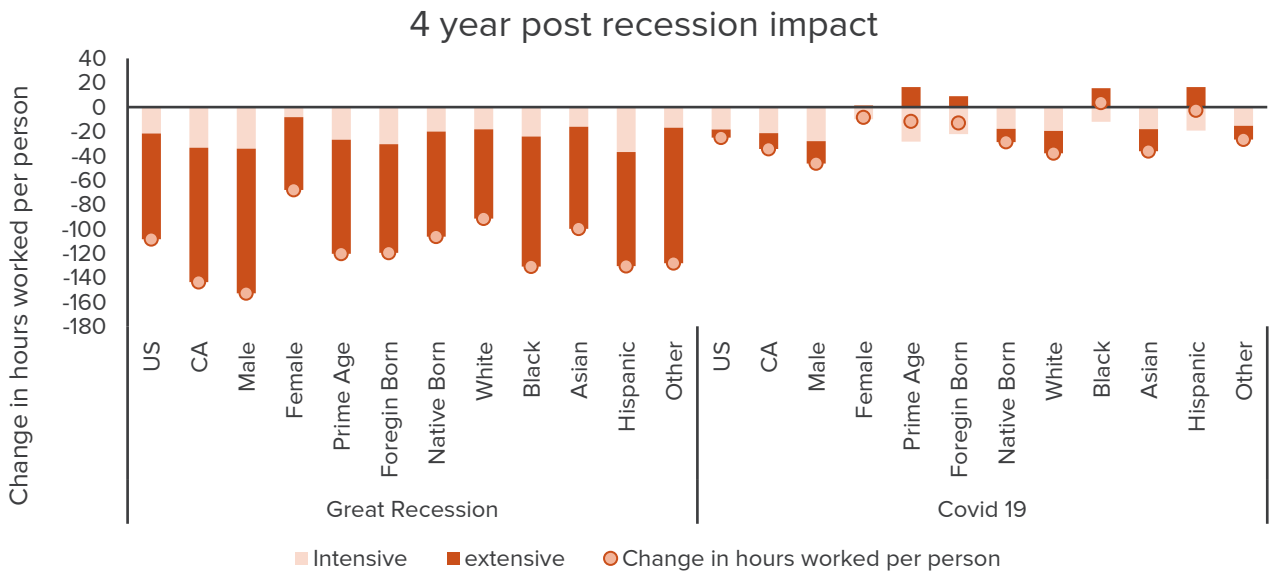


SOURCE: Current Population Survey monthly data until November 2023, author's Calculations

NOTE: Follows Blundell et al. 2011. GR-I is the intensive margin post great recession. GR-E is the extensive margin post great recession. C19-I is the intensive margin post Covid-19 recession and C19-E is the extensive post Covid-19 recession. Intensive Hours Margin: Calculated as the change in the average hours worked of those who worked, multiplied by the employment rate in the previous year. Extensive Hours Margin: Calculated as the change in the employment rate multiplied by the average hours worked of those who worked in the current year. We take data until November 2023 and calculate the share of total hours in the first 11 months compared to the last year (2022) and aggregate up those hours to get yearly hours for 2023.

FIGURE B8

Intensive and extensive margin changes by demographic group, 4 years post Great Recession and Post-COVID

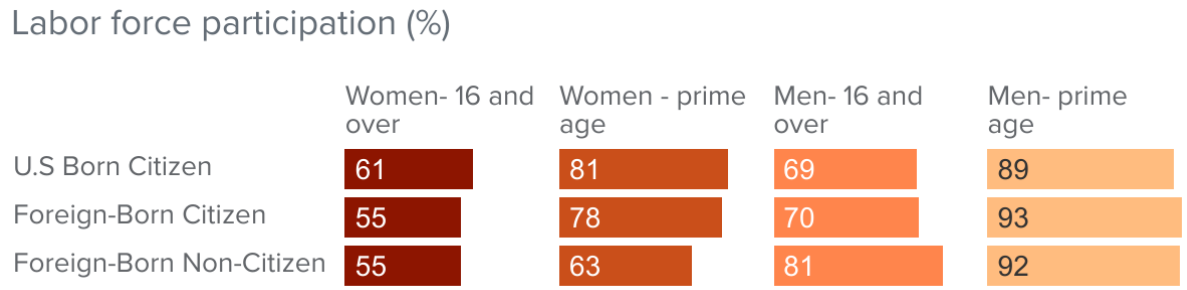


SOURCE: Current Population Survey monthly data until November 2023, author's Calculations

NOTE: 4 years post the great recession is from 2008-2012, 4 years post covid is from 2019-2023. Follows Blundell et al. 2011. Intensive Hours Margin: Calculated as the change in the average hours worked of those who worked, multiplied by the employment rate in the previous year. Extensive Hours Margin: Calculated as the change in the employment rate multiplied by the average hours worked of those who worked in the current year. We take data until November 2023 and calculate the share of total hours in the first 11 months compared to the last year (2022) and aggregate up those hours to get yearly hours for 2023.

FIGURE B9

Nativity gaps in participation vary by gender—and between prime-age and full population

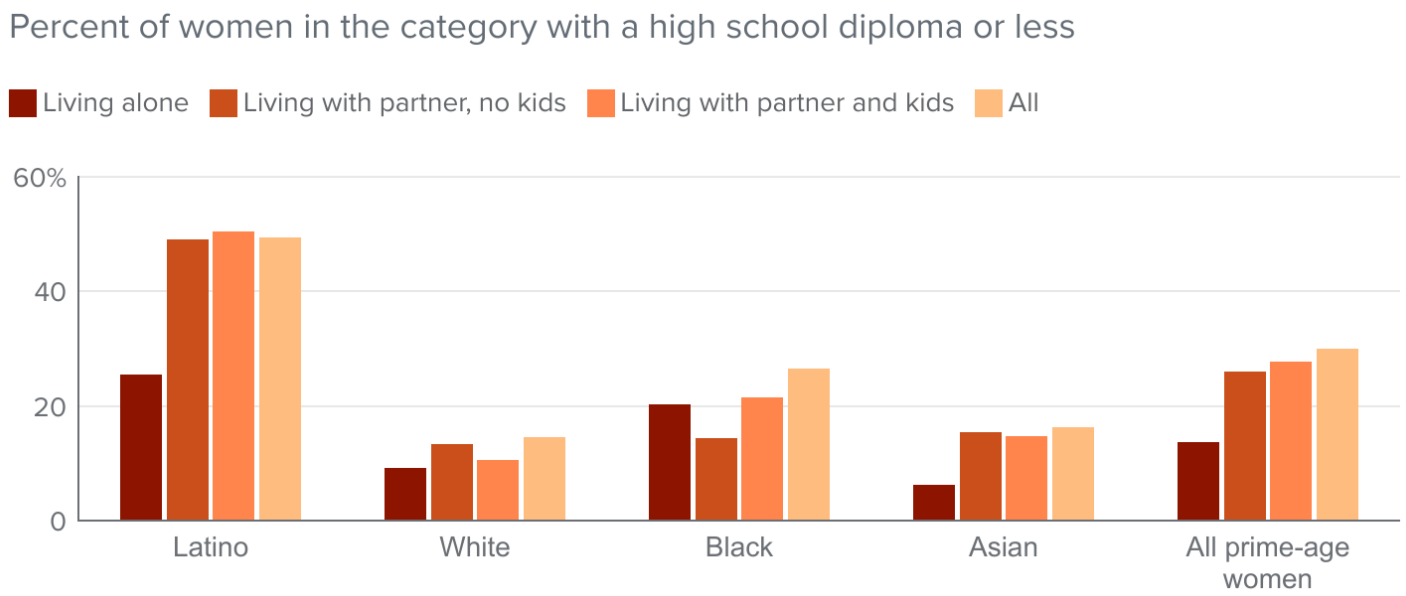


SOURES: 2022 American Community Survey; Authors' calculations.

NOTES: Restricted to prime-age adults (25-54).

FIGURE B10

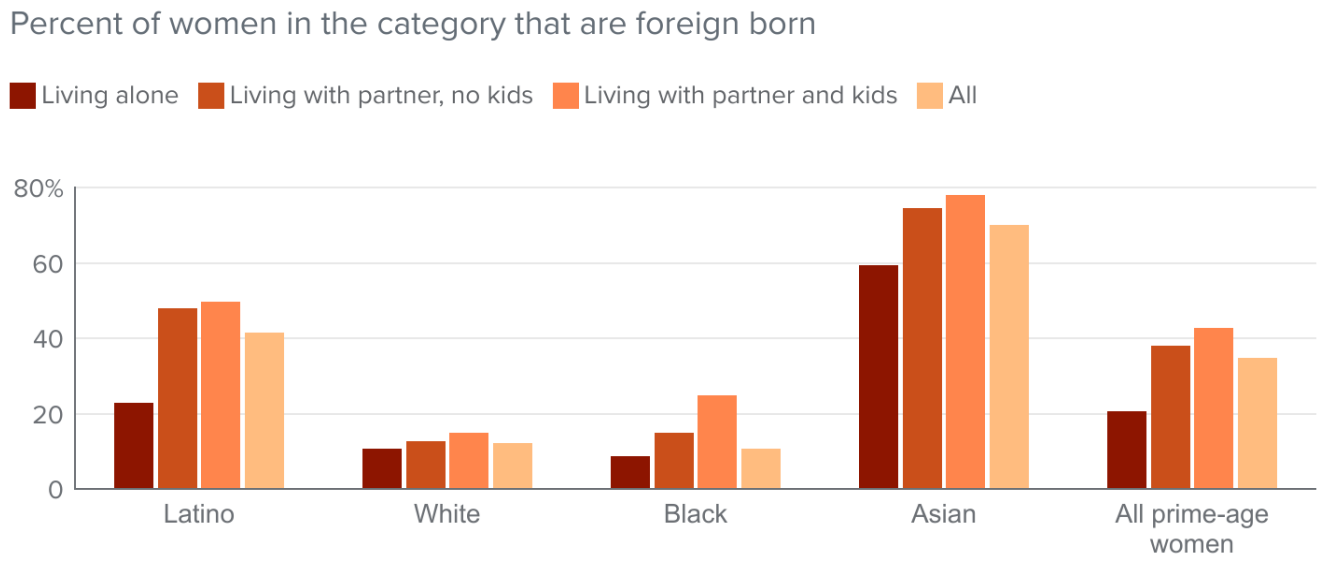
High share of partnered Latina women have a high school education or less



SOURCE: 2022 American Community Survey 1-Year Estimates; Authors' calculations.

NOTE: Restricted to prime-age adults (25-54).

FIGURE B11



SOURCE: 2022 American Community Survey 1-Year Estimates; Authors' calculations.

NOTE: Restricted to prime-age adults (25-54).

TABLE B1

Prime-age women's labor force participation rate (%)

	Living alone	Living with partner, no kids	Living with partner and kids	All prime-age women
All prime-age women	90	82	70	77
Latino	89	75	64	74
White	92	86	73	81
Asian	92	83	74	80
Black	85	87	79	79
Native born	91	87	75	81
Foreign born	89	73	63	71
Non college graduate	83	74	62	71
College graduate	95	89	79	86

SOURCE: 2022 American Community Survey; Authors' calculations.

NOTE: Restricted to prime-age adults (25-54).

TABLE B2

Percent of prime-age women in each family structure category

	Living alone	Lone parents	Living with partner, no kids	Living with partner and kids	All
Foreign born	21	34	38	43	35
Native born	79	66	62	57	65
Latino	22	52	34	40	41
White	43	23	37	32	31
Black	12	11	3	3	5
Asian	16	9	21	21	18
HS diploma or less	14	38	26	28	30
Some college / Associate degree	25	36	25	25	27
Bachelor's degree or more	61	26	49	47	43
N	555,050	560,985	1,460,418	2,618,473	7,734,559
Share	7	7	19	34	100

SOURCE: 2022 American Community Survey; Authors' calculations.

NOTE: Restricted to prime-age adults (25-54).

TABLE B3

Demographic characteristics by disability status and age group, Californians age 16 and older, 2022

	Total population, Age 16+		Prime-age, 25 - 54		Older adults, Age 55+	
	Any disability	No disability	Any disability	No disability	Any disability	No disability
Total population	4,045,916	26,521,194	1,116,490	14,527,280	2,645,785	7,931,413
Gender						
Male	46.5%	49.8%	50.9%	50.5%	43.8%	47.8%
Female	53.5%	50.2%	49.1%	49.5%	56.2%	52.2%
Age categories						
16-24	7.0%	15.3%	N/A	N/A	N/A	N/A
25 - 34	8.9%	19.6%	32.3%	35.8%	N/A	N/A
35 - 44	8.3%	18.7%	29.9%	34.2%	N/A	N/A
45 - 54	10.4%	16.5%	37.7%	30.1%	N/A	N/A
55 - 64	16.8%	14.7%	N/A	N/A	25.7%	49.3%
65 - 74	19.5%	10.2%	N/A	N/A	29.9%	34.3%
75 - 84	17.8%	4.1%	N/A	N/A	27.3%	13.9%
85+	11.2%	0.8%	N/A	N/A	17.1%	2.5%
Race/ethnicity						
Latino	32.4%	38.6%	41.5%	41.6%	26.7%	26.1%
White	42.3%	35.3%	33.2%	31.1%	47.8%	48.4%
Black	7.1%	4.8%	8.4%	4.9%	6.5%	4.8%
Asian	13.1%	16.8%	10.0%	17.7%	14.8%	17.5%
Other/Multi	4.7%	4.2%	6.4%	4.5%	3.7%	3.0%
Nativity						
US Born	69.1%	67.3%	76.4%	64.6%	63.6%	61.7%
Foreign-born, citizen	21.1%	17.6%	12.0%	16.1%	26.8%	27.6%
Foreign-born, noncitizen	9.8%	15.1%	11.6%	19.4%	9.6%	10.7%
Education level						
Less than HS	23.1%	16.1%	17.7%	12.4%	24.3%	16.2%
HS graduate	24.8%	21.0%	26.6%	20.0%	23.4%	18.9%
Some college	29.7%	27.6%	32.0%	26.1%	28.7%	28.1%
BA+	22.4%	35.4%	23.8%	41.5%	23.5%	36.8%

SOURCES: American Community survey, 1-Year PUMS; authors' calculations.

NOTES: Some college includes those with an Associate degree. Any disability includes people reporting at least one difficulty with vision or hearing, self-care, mobility, concentration/memory, or physical movement.

TABLE B4

Demographic groups of prime working ages (25-54) with low labor force participation rates

Gender	Ethnicity	Marital status	Educational attainment	Immigrant status	Labor force participation rate	Number not in labor force
Female	White	Never married/single	Not a high school graduate	US born	41.2%	16,596
Male	Black	Never married/single	Not a high school graduate	US born	46.1%	11,709
Female	Latino	Married, spouse present	Not a high school graduate	Foreign born	47.4%	196,558
Male	White	Never married/single	Not a high school graduate	US born	50.3%	24,369
Female	Latino	Married, spouse present	Not a high school graduate	US born	51.4%	31,622
Female	White	Married, spouse present	High school graduate	Foreign born	52.8%	12,067
Female	White	Married, spouse present	Not a high school graduate	US born	53.3%	10,286
Female	Latino	Married, spouse present	High school graduate	Foreign born	55.0%	98,344
Female	Latino	Never married/single	Not a high school graduate	US born	56.4%	32,489
Female	Asian	Married, spouse present	Not a high school graduate	Foreign born	58.3%	21,093

SOURCE: 2018-2022 American Community Survey 1-year PUMS; authors' calculations.

NOTES: Average over 5 years from 2018 to 2022. Restricted to demographic groups with an unweighted sample of at least 1,000 respondents at least 100,000 individuals over the 5-year period from 2018-2022 (20,000 per year on average). *These numbers were updated on 02/26/2024, after initial publication.*

Appendix C: Hypothetical Participation Scenarios

In this section we simulate the hypothetical impact of changing the labor force participation rates of different groups of adults on aggregate labor supply and aggregate labor force participation. We consider three distinct categories of changes: gender gaps, educational attainment gaps by race, and participation increases among older works.

Defining hypothetical scenarios

"Maximum" free early childcare impact ("Young Child Gap"): Here, we give both married and single women who have children under five the same participation rate as married and single women who have children between the ages of six to eighteen (second row). This likely gives an upper bound on the potential impact of fully free and available childcare for children under five years old. In other words, this would be consistent with full take up of early childhood care, so that participation is the same for women with children of any age up to 18.

Give married women the same participation as single ("Marriage gap"): Earlier in the report we discussed the gap between married men and married women—the "marriage gap"—wherein married women have lower participation rates than single women. Here, we give married women the same participation rates as single women.

Eliminate gender gap in marriage: Married women also have lower participation rates than married men. Here, we give married women the same participation rates as married men, assuming no decrease in participation among married men.

Eliminate Education Attainment Gaps: Amongst the different racial groups, Asian Californians have the highest share with a bachelor's degree or higher, followed by white Californians. In this scenario we give all racial groups the same educational attainment distribution as Asian Californians (the highest share in the highest educational attainment group).

Eliminate Half the Educational Attainment Gap with Asians: We also consider changes in the education attainment distribution so wherein the differences between the educational levels of Asian and other race adults are reduced by half (rather than fully, as in the prior scenario). In other words, what would happen if we were to close *half* of the education gaps?

Make 55–64 "prime age": Participation drops from around 80 percent to 65 percent, depending on the year, comparing Californians aged 45–54 vs. 55–64. Here, we consider what labor force participation would look like in aggregate if those aged 55–64 participated at the same rates as those a decade younger—at rates similar to the rest of prime age adults.

Double increase in 55–74 LFP since 1990: As shown earlier in Figure 2, participation among 55–64 and 65–74 year-olds increased substantially in recent decades. Here, we benchmark how much a further increase for both groups—another 8 percent increase for 55–64 and another 10 percent increase for 65–74—would affect overall labor supply.

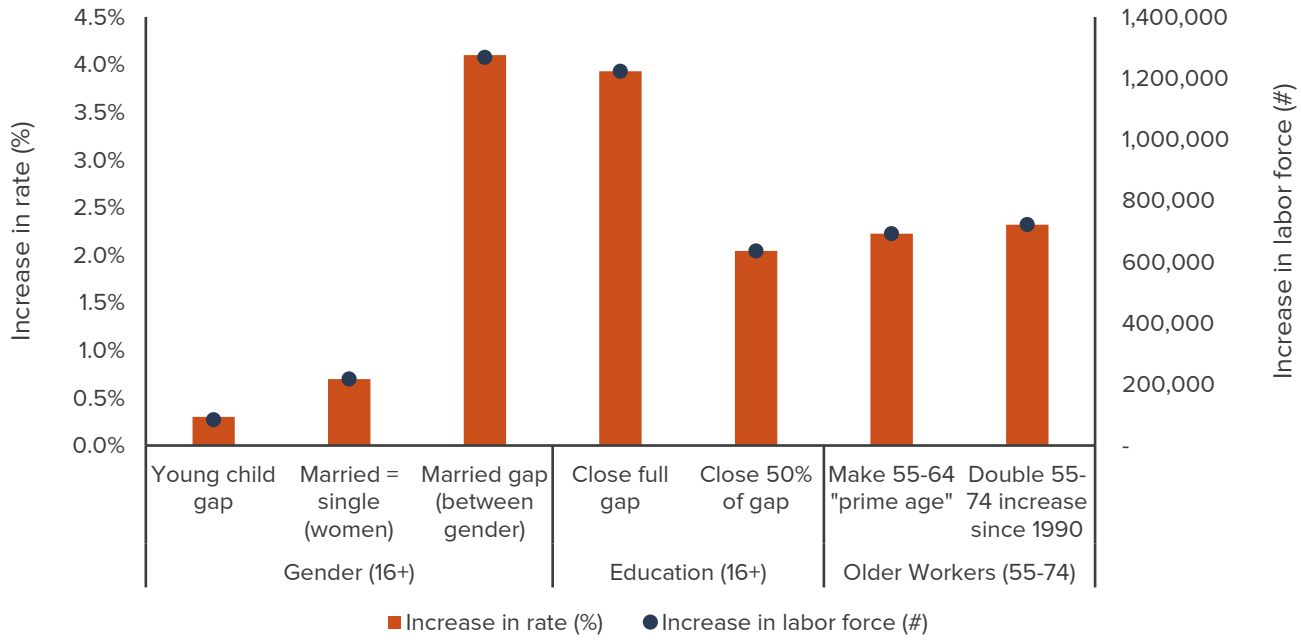
Results from hypothetical scenarios

Figure C1 displays results from these hypothetical scenarios, using data from the 2023 CPS. These results correspond to those reported in the main text. Figure C2 reports analogous simulations using 2022 ACS data. While aggregate participation numbers differ in the CPS and ACS (see Technical Appendix A), the overall conclusions from these simulation exercises are similar whether using CPS or ACS data.

Tables C1 and C2 show the two hypotheticals for older adults, using 2023 CPS and 2022 ACS data, respectively. Tables C3-C6 provide more detail on gender-based and race-by-education hypotheticals using both CPS (C3, C4) and ACS (C5, C6). Tables C7-C10 show analogous results to those in C3-C6, except restricted to prime-age adults.

FIGURE C1

Hypothetical impact on aggregate labor force participation in from closing gaps by gender, education, age (2023 CPS)

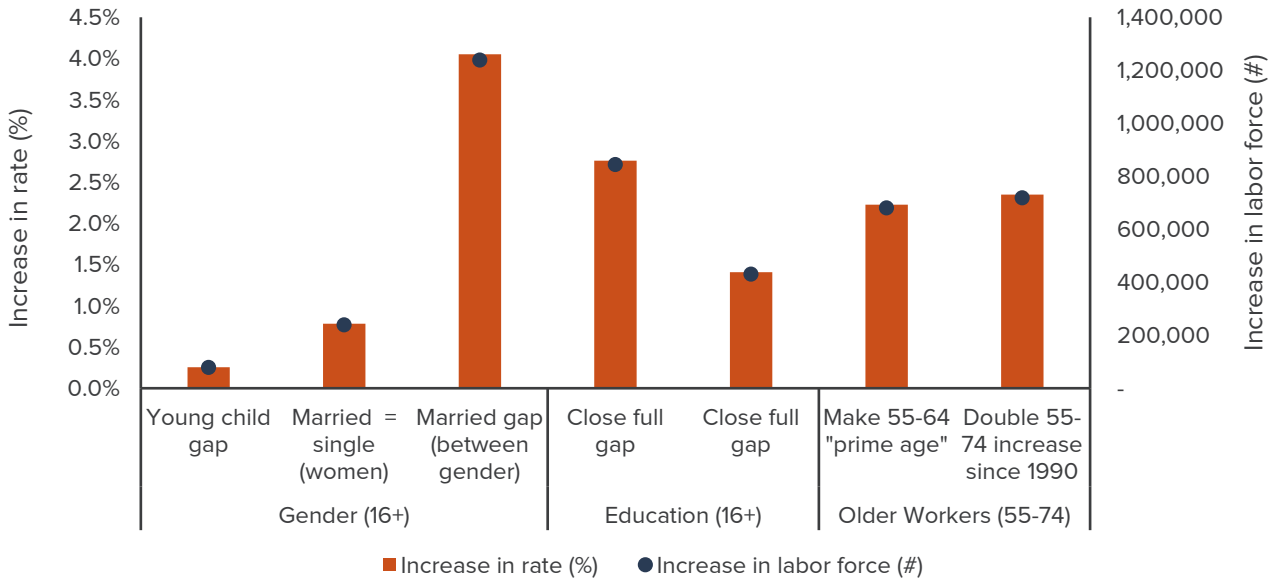


SOURCE: 2023 Current Population Survey; Authors' calculations.

NOTE: Left axis shows increase in labor force participation rate; right axis shows increase in total number of workers (age 16+). Only includes CPS data through November 2023.

FIGURE C2

Hypothetical impact on aggregate labor force participation from closing gaps by gender, education, age (2022 ACS)



SOURCE: 2022 American Community Survey; Authors' calculations.

NOTE: Left axis shows increase in labor force participation rate; right axis shows increase in total number of workers (age 16+).

TABLE C1

Hypothetical impact on aggregate labor force participation from increasing participation rates for older adults, (2023 CPS)

	LFP (%)	Labor Force (N)	Increase in LFP (pp)	Increase in Labor Force (N)
Current (2023 avg)	62.3%	19,378,739		
Counterfactual scenarios:				
Double recent participation increases	64.6%	20,100,022	2.3	721,283
Make 55-64 "prime age"	64.5%	20,070,645	2.2	691,906

SOURCES: 2023 Current Population Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those 16+. Annual average of all 2023 months thru November.

TABLE C2

Hypothetical impact on aggregate labor force participation from increasing participation rates for older adults, (2022 ACS)

	LFP (%)	Labor Force (N)	Increase in LFP (pp)	Increase in Labor Force (N)
Current (2023 avg)	64.9%	19,845,357		
Counterfactual scenarios:				
Double recent participation increases	67.3%	20,563,659	2.3	718,303
Make 55-64 "prime age"	67.1%	20,525,750	2.2	680,393

SOURCES: 2022 American Community Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those 16+.

TABLE C3

Hypothetical participation rates for gender scenarios (2023 CPS, 16+)

	LFP Women	LFP Gender Gap	Aggregate Labor Supply Women	Aggregate Labor Supply Men	Total Workers	Gender Gap Aggregate Labor Supply	Increase in Women supply	Total LFP	PP Increase in LFP
Overall	55.9%	13.0%	8,790,797	10,587,942	19,378,738	1,797,145	-	62.3%	-
Counterfactual scenarios:									
Young Children Free Care	56.4%	12.5%	8,874,545	10,587,942	19,462,486	1,713,397	83,748	62.6%	0.3%
Married Women=Single Women	57.3%	11.6%	9,007,800	10,587,942	19,595,742	1,580,141	217,003	63.0%	0.7%
Married Women = Married Men	63.9%	4.9%	10,058,516	10,587,942	20,646,457	529,426	1,267,719	66.4%	4.1%

SOURCES: 2023 Current Population Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those 16+. Annual average of all 2023 months thru November.

TABLE C4

Hypothetical participation rates for race/education scenarios (2023 CPS, 16+)

	Current LFP	Labor Supply	Everyone same distribution of education attainment Asian (LFP)	Labor Supply	Everyone 50% distribution of education attainment Asian (LFP)	Labor Supply
Asian	62.5%	3,487,346	62.5%	3,487,346	62.5%	3,487,346
Black	57.3%	987,727	62.7%	1,079,691	60.0%	1,033,709
White	59.6%	6,870,324	59.8%	6,887,671	59.7%	6,878,998
Latino	65.7%	7,574,032	74.9%	8,638,222	70.3%	8,106,127
Other	61.5%	459,310	68.0%	508,101	68.0%	508,101
Total	62.3%	19,378,739	66.2%	20,601,031	64.3%	20,014,280

SOURCES: 2023 Current Population Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those 16+. Annual average of all 2023 months thru November.

TABLE C5

Hypothetical participation rates for gender scenarios (2022 ACS, 16+)

	LFP Women	LFP Gender Gap	Aggregate Labor Supply Women	Aggregate Labor Supply Men	Total Workers	Gender Gap Aggregate Labor Supply	Increase in Women supply	Total LFP	PP Increase in LFP
Overall	59.0%	12.0%	9,133,888	10,711,469	19,845,357	1,577,581	-	64.9%	-
Counterfactual scenarios:									
Young Children Free Care	59.5%	11.5%	9,211,987	10,711,469	19,923,456	1,499,482	78,099	65.2%	0.3%
Married Women=Single Women	60.6%	10.4%	9,373,035	10,711,469	20,084,504	1,338,434	239,147	65.7%	0.8%
Married Women = Married Men	67.0%	4.0%	10,372,288	10,711,469	21,083,757	1,238,400	1,238,400	69.0%	4.1%

SOURCES: 2022 American Community Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those 16+.

TABLE C6

Hypothetical participation rates for race/education scenarios (2022 ACS, 16+)

	Current LFP	Labor Supply	Everyone same distribution of education attainment Asian (LFP)	Labor Supply	Everyone 50% distribution of education attainment Asian (LFP)	Labor Supply
Asian	65.3%	3,263,229	65.3%	3,263,229	65.3%	3,263,229
Black	64.0%	997,749	66.3%	1,040,205	64.9%	1,018,977
White	61.0%	6,781,724	60.8%	6,735,143	61.1%	6,758,433
Latino	69.0%	8,001,049	76.4%	8,830,340	72.8%	8,415,694
Native American	55.0%	40,669	57.1%	42,267	56.0%	41,468
Other	68.0%	887,685	69.7%	904,676	69.7%	904,676

SOURCES: 2022 American Community Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those 16+.

TABLE C7

Hypothetical participation rates for gender scenarios (2023 CPS, prime-age 25-54)

	LFP Women	LFP Gender Gap	Aggregate Labor Supply Women	Aggregate Labor Supply Men	Total Workers	Gender Gap Aggregate Labor Supply	Increase in Women supply	Total LFP	PP Increase in LFP
Overall	75.2%	13.1%	5,870,296	7,044,117	12,914,413	1,173,821		81.8%	
Counterfactual scenarios:									
Young Children Free Care	75.9%	12.4%	5,929,889	7,044,117	12,974,006	1,114,228	59,593	82.2%	0.4%
Married Women=Single Women	78.3%	11.6%	6,117,308	7,044,117	13,161,426	926,809	247,012	83.4%	1.6%
Married Gender Gap	87.3%	4.9%	6,821,986	7,044,117	13,866,104	951,690	951,690	87.8%	6.0%

SOURCES: 2023 Current Population Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those prime-age (25-54). Annual average of all 2023 months thru November.

TABLE C8

Hypothetical participation rates for race/education scenarios (2023 CPS, prime-age 25-54)

	Current LFP	Labor Supply	Everyone same distribution of education attainment Asian (LFP)	Labor Supply	Everyone 50% distribution of education attainment Asian (LFP)	Labor Supply
Asian	83.8%	2,475,235	83.8%	2,475,235	83.8%	2,475,235
Black	76.4%	636,032	82.2%	684,620	79.3%	660,326
White	83.5%	4,311,812	84.3%	4,353,760	83.9%	4,332,786
Latino	80.4%	5,170,008	86.0%	5,532,407	83.2%	5,351,208
Other	79.0%	321,326	83.4%	339,369	83.4%	339,369
Total	81.8%	12,914,414	84.8%	13,385,391	83.3%	13,158,923

SOURCES: 2023 Current Population Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those prime-age (25-54). Annual average of all 2023 months thru November.

TABLE C9

Hypothetical participation rates for gender scenarios (2022 ACS, prime-age 25-54)

	LFP Women	LFP Gender Gap	Aggregate Labor Supply Women	Aggregate Labor Supply Men	Total Workers	Gender Gap Aggregate Labor Supply	Increase in Women supply	Total LFP	PP Increase in Total LFP
Overall	77.5%	12.7%	5,993,374	7,130,323	13,123,697	1,136,949	-	83.9%	
Counterfactual scenarios:									
Young Children Free Care	78.9%	11.3%	6,099,116	7,130,323	13,229,439	1,031,207	105,742	84.6%	0.7%
Married Women=Single Women	81.6%	8.5%	6,312,104	7,130,323	13,442,427	818,218	318,730	85.9%	2.0%
Married Gender Gap	89.8%	0.4%	6,943,506	7,130,323	14,073,829	950,132	950,132	90.0%	6.1%

SOURCES: 2022 American Community Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those who are prime-age (25-54).

TABLE C10

Hypothetical participation rates for race/education scenarios (2022 ACS, prime-age 25-54)

	Current LFP	Labor Supply	Everyone same distribution of education attainment Asian (LFP)	Labor Supply	Everyone 50% distribution of education attainment Asian (LFP)	Labor Supply
Asian	85.3%	2,294,398	85.3%	2,294,398	85.3%	2,294,398
Black	81.0%	658,044	85.0%	688,529	83.1%	673,287
White	86.0%	4,184,451	86.3%	4,216,075	86.0%	4,200,263
Latino	82.0%	5,346,574	88.1%	5,726,303	85.2%	5,536,438
Native American	72.0%	25,926	77.3%	27,648	74.9%	26,787
Other	85.0%	614,304	86.3%	623,782	86.3%	623,782

SOURCES: 2022 American Community Survey; Authors' calculations.

NOTES: See description of scenarios in text above. Labor force restricted to those who are prime-age (25-54).

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