



**PPIC**

PUBLIC POLICY  
INSTITUTE OF CALIFORNIA

**30 YEARS**

# Learning from CalFresh Pandemic Boosts

## Technical Appendices

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# Appendix A. Data and Methodology

## Data sources

Our data on CalFresh participation come from the Supplemental Nutrition Assistance Program (SNAP) Longitudinal Data Base (LDB), produced by the California Department of Social Services (CDSS) from the Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF). MEDS is a Department of Health Care Services data hub for storing eligibility histories for Medi-Cal, CalFresh, and CalWORKs (California Work Opportunity and Responsibility to Kids). Throughout, we use data spanning 2019-2022. In this report, we use individual-level records of program receipt, case numbers by month, as well as basic demographic variables from the SNAP LDB.

We also use MEDS data stored in SSNSORT files, which are compiled each month with monthly data on county codes and aid codes (including those for CalWORKs and Supplemental Security Income/State Supplementary Payment (SSI/SSP)) for the previous 12 months.<sup>1</sup> These files are used to construct the SNAP LDB; we use the SSNSORT files created in June and December of each year from 2019 to 2022.

Quarterly wage data are requested by CDSS from the California Employment Development Department (EDD) Base Wage file, and are available for each quarter for each individual for each employer. CDSS requests records of UI-covered earnings amounts (i.e., excluding earnings from gig, informal, and other self-employment work) for individuals in the six quarters before and after CalFresh, as well as during program participation. Unemployment insurance (UI) payment data are maintained by the EDD and are available for each month for each individual. Unlike the MEDS and Base Wage files, we have UI payment data only from July 2019 (quarter 3) to June 2022 (quarter 2). Further, while adults with the most common CalFresh aid codes were matched to UI payment records, a minority had aid codes that were not matched.

We also match quarterly wage data to records of employer industry (in terms of NAICS code) from the Quarterly Census of Employment and Wages (QCEW), requested by CDSS from EDD.

To incorporate information on CalFresh and CalWORKs benefit payments, we use monthly payment records from benefit issuance data, known as Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS). We have data spanning from FFY 2012 through FFY 2022. Other benefit payment data are unavailable to us, so we impute amounts for those with SSI/SSP aid codes.<sup>2</sup> This imputation is described below.

In regressions, we account for monthly, county-level unemployment rates using publicly available data from EDD's collaboration with the federal Bureau of Labor Statistics on the [Local Area Unemployment Statistics](#) program, and monthly, county-level counts of COVID-19 deaths from the [California Department of Public Health](#).

## Key concepts: data cleaning and definitions

### Characteristics

This analysis is conducted at the case level—meaning we examine changes in resources and in CalFresh participation for cases (groups of people who live and prepare food together), rather than individuals.

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<sup>1</sup> When SSNSORT files are created, files are sorted by Social Security Number (SSN), hence the name SSNSORT.

<sup>2</sup> GA payments are part of the same EBT system, but these are county-run programs and our data agreement includes only programs overseen by the California Department of Social Services. WIC payments are provided on EBT cards separate from CalFresh, CalWORKs, and GA/GR, although this system was only fully rolled out in 2020. The WIC EBT is also a separate system. Pandemic EBT (P-EBT) payments are provided on a third, separate EBT card.

Where relevant, we draw demographic characteristics like race/ethnicity and gender from the eldest member of the case, relying on their most recently recorded response. This is similar to the approach used by CDSS in compiling annual snapshots of **CalFresh household demographic statistics** (although CDSS uses the race/ethnicity of the case member who is the “household contact,” or applicant, who we are unable to identify in the data we access). See Technical Appendix Table D1 for characteristics of households enrolled in February 2020 and March 2021.

Note that for race/ethnicity, this is a simple approach to a concept that has not been constant over time—many participants have changing responses for race/ethnicity over time, which likely reflects caseworker practices rather than individual preferences. See Technical Appendix to Thorman and Danielson (2022) for detailed description.

**Household composition.** To look at household resources over time, we aggregate individual incomes from earnings and other safety net programs even when CalFresh cases are inactive. We assume that prior to the first appearance of a case in our data, the household composition is that of the case in its first month of benefits. When a case becomes inactive, we assume that the household keeps the membership it had in the last month of benefits, until the case re-enrolls or the dataset ends.

About 10 percent of cases are made up of children only, typically because their households include adults who are ineligible for CalFresh and CFAP based on their immigration status. We are unable to observe complete resources for households of child-only cases, because earnings data are only available for CalFresh participants; this requires focusing on households that include at least one adult in analyses that include measures of employment.

One challenge in our approach to summarizing household resources is that cases may include infants. Further, a small number of cases have unknown compositions in terms of the ages of case members in any given month because some members have recorded birth dates that appear to be in the future. In looking at changes in case resources over time, we add to this error by assuming that cases with infants were larger prior to the infant’s birth than they actually were. This impacts dollar value adjustments that correct incomes to pertain to a case size of one—meaning prior to an infant’s birth and the case’s enrollment in CalFresh, we would incorrectly deflate the value of the case’s income. This has a relatively small impact on our analysis because the share of cases with infants is small, and the vast majority of cases consist of one adult.

**Language of case materials.** We identify whether cases most recently requested CalFresh materials from the county in English or in another language. See Thorman and Danielson (2022) for detailed description of language variable.

## Resources

In discussing resources throughout this report, we look at CalFresh and CalWORKs benefits, earnings from UI-covered wages, UI payments, and SSI/SSP benefits. These are by no means the only income sources that households have—for example, we cannot observe income from self-employment or gig work, from Social Security/SSDI, or county General Assistance/General Relief programs. See Danielson and Thorman (2022) for detailed description of the extent to which we believe this research underestimates total household resources. Notably, we also do not observe Economic Impact Payments (stimulus) during the pandemic, and are unable to match P-EBT payments to individual CalFresh households.

Where relevant, we adjust dollar values for inflation to quarter 4 of 2022, and put them in terms of a one-person case using the ratio between maximum CalFresh benefit amount for current (or imputed, when inactive) case size and maximum CalFresh benefit amount for a one person case.

**CalFresh and CalWORKs benefits.** We match records of CalFresh and CalWORKs benefits to months in which cases were eligible for benefits based on the month in which benefits were intended to be issued (the “benefit month”). This allows us to identify which cases were, by design, impacted by policy changes, but obscures the reality that cases may receive benefits at different points throughout the month or with a delay or in arrears such that they receive benefits after the month for which the benefits were issued (in the “issuance month”).

CalFresh benefits are typically issued to EBT cards in the first ten days of the month, and we find that for any given month between 2019 and 2022, at least 97% of cases had their core CalFresh benefits issued in the intended month (the “benefit month”). Emergency Allotments, however, were initially authorized for March 2020 at the end of that month, and issued for March in April, and this practice continued. Allotments were also often issued in the middle of the month, on a different day than core CalFresh benefits (which participants would have seen either on a receipt after using their EBT cards, or by proactively checking their benefit balances). Throughout the life of the policy, we see in the data that allotments calculated to boost benefits for a specific month were issued the following month. Households actually received a smaller benefit in their first month of Emergency Allotments and in the month following their last month. In the intervening months, benefits would have been the maximum (after March 2020) or up to \$95 more than the maximum (after April 2021).

**Earnings from UI-covered jobs.** Calculations of “any” earnings are based on quarterly values of \$50 or more.

The major challenge of using quarterly earnings data is that to best assess changes in resources, we must examine data at the quarterly level – but jobs can change more rapidly, and the COVID-19 pandemic unfolded mid-calendar quarter (March 2020). Households with quarterly earnings might experience job loss or instability within a quarter, so our estimates of employment are conservative; looking at earnings changes may provide additional context.

**SSI/SSP.** We do not have benefit amounts for SSI/SSP, only aid codes that flag whether an individual received SSI/SSP. Therefore, we impute dollar amounts. The SSI program is a federally funded program that provides income support to eligible individuals who are age 65 or older, blind or disabled. The SSP program is the state program that supplements SSI, and both programs are administered by the Social Security Administration (SSA). We assigned county average benefit amounts for each year within our window from the SSA annual statistical report. The SSI/SSP program serves about 1.3 million Californians across several different categorical eligibility classifications (California Department of Social Services 2021b). However, we did not assign SSI/SSP benefit amounts according to categorical eligibility because the aid codes from the SSNSORT files do not specify categorical eligibility.

**Unemployment Insurance** benefits are available in our data for July 2019 through June 2022. UI benefits are paid weekly; we sum these payments to create monthly and quarterly totals for each case in our cohort – in order to compare with CalFresh participation that we observe at the monthly level, and earned income that we observe at the quarterly level.

## Participation

**Churn.** In this report, we define churn, or brief periods without CalFresh, as a case re-entering CalFresh after 30 to 90 days of being discontinued (we also test this using up to 60 days of discontinuance); when relevant, we compare it to the number of cases entering CalFresh after at least 30 days of being discontinued. We use the eligibility file of the SNAP LDB to determine periods when households had benefits restored or discontinued. This is similar to how CDSS defines churn in the CalFresh Data Dashboard, although we do not have access to information about application timing, or a direct record of recertification timing. According to the [CalFresh Data](#)

**Dashboard methodology**, CDSS defines *recertification churn* as defined as total cases that were up for recertification within 30 or 60 days divided by the total number of applications received, while *total churn* is defined as total cases that received benefits within 30 or 90 days divided by total applications received. The **CF 18: CF churn monthly report** provides data on *caseload churn* in any given month. It includes a total number of cases due for recertification (Semi-Annual Renewal (SAR 7) and Recertification (RRR)) and whether their application was submitted or not renewed.

## Methods

### Identifying cases that received Emergency Allotments

In several parts of the report, we narrow the focus to cases most and least affected by Emergency Allotments. To construct these groups, we focus on the month before and after benefits changed in 2020, and 2021.

For the March 2020 change, we select cases enrolled in CalFresh in both February and March 2020 that had no changes in case size between the two months (which could explain a change in CalFresh benefits). Cases that were least affected by the policy change had the maximum benefit in February 2020 and saw no change in March. All other cases should have seen an increase in benefits to the maximum amount for their case size; to allow for small errors in reporting, we define “maximum” as at least 90 percent of the maximum amount for their case size. We drop about 33,000 cases that appear to see benefits increase, but to an amount of less than 90 percent of the maximum, interpreting this as a large error in reporting on case membership. We also drop about 2,000 cases that appear to see benefits decrease, interpreting this as either an error or a change outside the bounds of the new policy. We identify a subset that saw large impacts from the policy change: those with less than 20% of the maximum possible benefits in February 2020.

For the April 2021 change, we again select cases enrolled in CalFresh in both March and April 2021 that had no changes in case size between the two months. Cases that were unaffected had maximum (or at least 90% of maximum) benefits and saw no change in benefits between the two months; those that were most affected saw their benefits change by \$95. A subset of cases saw smaller impacts from the policy change and had benefits increase by less than \$95. We drop about 21,000 cases that saw benefits increase but appeared to have less than 90 percent of the maximum for their case size. We also drop about 8,000 that saw benefit increases of more than \$95, and 12,000 cases that saw benefits decrease, interpreting this as either an error or a change outside the bounds of the new policy. See Technical Appendix Table D1 for final cohort sizes and demographic characteristics.

One limitation of this approach is that although cases might be affected in the month that the policy changes, they might experience income changes at any time that would make them more or less “treated”—that is, they might become eligible for or lose eligibility for maximum benefits. Because benefits are calculated based on both income and a series of deductions that we cannot estimate in the available data, we do not know the extent of this issue. However, we estimate that at least 70 percent of cases that saw a boost in March 2020 would not have seen their benefits change that month absent Emergency Allotments, as outlined below:

### Most cases that saw an initial boost in March 2020 got assistance they would not have received otherwise

Although February 2020 benefit amounts indicate that a majority of CalFresh households should have seen a boost in March, the public health emergency was highly disruptive to employment. Some households likely lost enough income in March 2020 that they would have become eligible for maximum benefits even without emergency allotments.

How did income change quarter to quarter before the pandemic? Although large changes in earned income are common among cases with working-age members (Danielson and Thorman 2022), in any time period, most CalFresh cases have no observable changes in earned income between one quarter and the next because as many as two-thirds of those that include any adults have no earnings from UI-covered jobs in either quarter. Of this group, as many as one in three receive SSI/SSP, reflecting health-related barriers to work; these cases see little change in total income from quarter to quarter since SSI/SSP is a fixed, long-term benefit (they are also the vast majority of CalFresh cases with SSI/SSP income: only about 8% of such cases have any earned income).

To understand what share of cases would likely have seen benefits rise even without allotments in March 2020, we focus on those who were more likely to see changes in earned income: those who had some income from UI-covered jobs in 2019, and who never enrolled in SSI/SSP or CalWORKs. Those receiving SSI/SSP, in particular, would not have seen benefits change without allotments but were especially likely to receive that boost because differences in how earned and unearned income (like SSI/SSP) are counted for the purpose of calculating CalFresh benefits mean SSI/SSP recipients see smaller CalFresh than others with similar amounts of earned income. One in three cases that saw a boost in March 2020 had SSI/SSP income, compared to 9 percent of those that saw no change in benefits.

We find that among those who saw a boost in March 2020 and were more vulnerable to changes in earned income, 29 percent saw their quarterly income fall by half or more between the first and second quarters of 2020, up from just under 20 percent in quarters before the pandemic. About half of this group saw quarterly earnings disappear entirely (Technical Appendix Table D4). Because we only observe quarterly income, this estimate likely understates the share who lost all income for less than 3 months at the start of the pandemic—including periods of unemployment that might have spanned quarters, such as March and April 2020.

In other words, although at least 15 percent of cases that might have been vulnerable to income loss at the start of the pandemic and saw benefits boosted in March would have seen their benefits increase to the maximum regardless, the other at least 70 percent saw a benefit increase that they would not have had otherwise.

Income losses at the start of the pandemic of 50 to 100 percent were similar among cases that already had the maximum CalFresh amount in February 2020 but also had some recent work history. However, this share losing substantial income was largely unchanged from before the pandemic, consistent with the group being eligible for the maximum benefit based on their relatively lower incomes.

## Appendix B. Policy Background

We track participants from July 2019 to September 2022. During this period, safety net programs and policies had the potential to impact participants in the focal group for this analysis.

In March 2020, the state began to shut down due to the COVID-19 pandemic. COVID-19 related deaths peaked in January 2021, at 18,674 deaths, according to the [CDPH Respiratory Virus State Dashboard](#). The pandemic also heavily impacted California's economy. The **unemployment rate** rose quickly at the onset of the pandemic, reaching 16.1% in April 2020 and not declining to pre-pandemic levels until September 2022 (4.0%, comparable to July 2019). Some business owners were able to stay afloat during this time with help from the federal **Paycheck Protection Program (PPP)**, which was established in the CARES Act to loan resources to pay employees, hire back employees, and cover other expenses. Recipients of these loans could qualify to have their debt forgiven if they met certain criteria; in California, about **92% of 600,000 loans were forgiven**.

The pandemic also impacted supply chains, resulting in higher prices for food, utilities, and other areas for families. Between 2019 and 2021, the price of **food and beverages increased 12%**. The pandemic also led school districts to close schools and invest resources to support remote learning.

As a response, and to cushion the impacts of the pandemic on individuals, state and federal governments expanded safety net program eligibility and/or benefits, described below. Key points below are also highlighted in Technical Appendix Figure C1.

### CalFresh

In June 2019, SSI/SSP recipients became eligible for CalFresh, provided they met all eligibility criteria (AB 1811). SSI/SSP provides assistance for individuals who are disabled, blind, or older adults (age 65+) with limited income and resources. AB 1811 reversed California's "cash-out" policy, under which the state supported food nutrition through its SSP benefit. Under the cash-out policy, California gave participants an additional \$10 per month in benefits in lieu of them having CalFresh eligibility. Reversing this policy made about 1.3 million existing SSI/SSP recipients eligible for CalFresh.

With the onset of the pandemic, the federal government augmented CalFresh benefits with Emergency Allotments each month from March 2020 to February 2023. California also **paused eligibility review** for cases who would have need to recertify between March and May 2020, pushing them off until September 2020. College students, too, saw **temporarily expanded eligibility**; they became eligible for CalFresh if they were eligible to participate in work study or their expected family contribution was \$0 dollars. Prior to this expansion, individuals defined as college students under CalFresh needed to be working a certain number of hours or meet another exemption to be eligible.

In April 2020, federal law waived time limits for all **able-bodied adults without dependents (ABAWDs)**. Ordinarily, participants deemed ABAWDs have a time limit on their eligibility: they can only receive 3 months of CalFresh benefits in a 36-month period where they are not working at least 80 hours a month or otherwise exempt. This limit can be waived when local unemployment rates are high, and California has a policy of seeking the waivers when they are available; only a few California counties had time limits before the pandemic, in effect only since 2019. In April 2020, federal law waived time limits for all ABAWDs, nationally and through the end of the pandemic public health emergency. Currently, the USDA FNS has approved California's statewide ABAWD time limit waiver request effective November 1, 2022 through October 31, 2024 ([California Department of Social Services](#)). The statewide waiver was approved based on California's qualifying for extended unemployment benefits based on Department of Labor metrics.

California also applied during the pandemic for waivers to federal rules to participate in a federal pilot program in which CalFresh participants could purchase groceries online. Participants can [purchase groceries online](#) through Walmart and Amazon but delivery may not be paid using CalFresh benefits. The state is working to expand online purchasing to more stores. During the pandemic, California also saw [increases in EBT theft](#).

Finally, CalFresh benefit amounts were also increased by [15 percent](#) between January and September 2021. In October 2021 the 15% benefit increase expired, but the US Department of Agriculture increased CalFresh amounts after reevaluating the [Thrifty Food Plan](#).

## Other safety net programs

Other nutrition programs also supported school-aged and young children during the pandemic, including **Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)**. WIC is a federal program that provides healthy food and other support services to low-income individuals who are eligible and at nutritional risk. There were temporary [increases to the monthly Fruits and Vegetables benefit](#) (from \$26 to \$78 depending on categorical eligibility) that were extended to September 2024.

**Pandemic EBT**, or **P-EBT**, helped address food insecurity after childcare and school closures due to COVID-19. Families of students eligible for free or reduced-price meals under pre-pandemic rules (or who met another eligibility requirement) could receive P-EBT debit cards to replace missed meals without seeing reductions to any CalFresh benefits. The P-EBT program offered four rounds of P-EBT benefits to eligible children:

- The 2019-20 school year (**P-EBT 1.0**, with benefits of up to \$365) and an extension for the months of August and September 2020 (P-EBT Extension; on average \$190). These benefits were primarily issued at the start of May and in late September. This initial round reached 95% of eligible families.
- The 2020-21 school year (**P-EBT 2.0**), starting with which children under age 6 on CalFresh were eligible. This round reached 87% of eligible families: \$6.1 billion total benefits were issued but only \$5.1 billion total benefits were used. Starting in summer 2021, P-EBT included summer benefits. Families with children who received CalFresh and P-EBT received as much as \$375 in Summer EBT. On average, the state issued \$1,300 in P-EBT per school-aged child. These benefits were primarily issued in mid-June and early September.
- The 2021-22 school year (P-EBT 3.0). Eligible school-aged children could receive \$60 a month during the school year; summer benefits were \$391. These benefits were primarily issued in September.
- The 2022-23 school year (P-EBT 4.0), for which children in private and other nonpublic schools were newly eligible. School-year assistance for school-aged children changed to be calculated by days missed, and were reimbursed at a rate of \$8.18 per day. Summer benefits were \$120.

At the same time, the federal government began allowing states to apply for [waivers](#) early in the pandemic to allow for schools to serve free, federally-funded **school meals** to all students. As these ended, the California launched for the 2022-23 school year a first-in-nation [Universal Meals Program](#), which supplements federal funding for meals for low-income students with state dollars to make breakfast and lunch free to all students.

In March 2021, **CalWORKs** families received a one-time payment of \$600, known as the [Golden State Grant](#), and a second one-time payment of \$640, known as the Pandemic Emergency Fund payment, in July 2021. SSI/SSP and CAPI recipients [also received the one-time payment](#) of \$600 in spring 2021.

The COVID-19 pandemic led to increased **Unemployment Insurance** claims filed in California, as well as program expansions. Starting in April 2020, Pandemic Unemployment Assistance (PUA) benefits were available



to workers who did not qualify for regular UI benefits and were unemployed as a result of the pandemic, including self-employed workers, part-time workers, and contractors. The Federal Pandemic Unemployment Compensation (FPUC) increased unemployment benefits and the Pandemic Emergency Unemployment (PEU) program extended the benefits to people who had exhausted their regular UI. As of April 2020, **UI payments are considered unearned income** for SNAP eligibility purposes. All federal unemployment benefit programs related to the pandemic expired in September 2021.

Tax credits were also an important source of aid for families during the pandemic. The federal government issued three rounds of federal stimulus payments, known as **Economic Impact Payments (EIPs)**. Families had to file taxes and have a social security number to receive the payment. Individuals who did not file taxes or met other eligibility criteria claimed their EIPs using the **Get My Payment** tool, which launched in April 2021. The EIPs were sent by **direct deposit or mail as a check or debit card**.

- The CARES Act authorized the **first round of EIPs** of up to \$1,200 per adult and \$500 per qualifying child in March 2020.
- Under the COVID-related Tax Relief Act of 2020 in December 2020, the **second round of EIPs** of up to \$600 per adult and \$600 per qualifying child went out to families in December 2020 and January 2021.
- The American Rescue Plan Act (ARPA), enacted in March 2021, provided a **third round of EIPs** of up to \$1,400 for individuals, \$2,800 for married couples filing jointly, and \$1,400 for qualifying dependents. These payments began to be issued in March 2021, and were issued throughout the year.

The ARPA temporarily **expanded the federal Child Tax Credit (CTC)**. The **expanded CTC** provided advanced monthly payments in 2021 of up to half the value of the credit; the second half was paid out in a lump sum at tax time. The CTC provided \$3,000 for children under 18 and \$3,600 for children under age 6. ARPA also federal **Earned Income Tax Credit (EITC) for tax year 2021** for single, childless adults.

California also responded with **state tax credits**, including two rounds of the **Golden State Stimulus** to low- or middle-income tax filers and ITIN filers who filed a tax return in 2021. The first GSS provided a \$600 or \$1,200 payment based on the eligibility category. The second GSS provided a payment of \$500, \$600, or \$1,100 for low-income tax filers and \$1,000 for ITIN filers.

**Other programs** that helped individuals during this time included the **General Assistance or General Relief**. The state enacted a statewide **evictions moratorium in March 2020** to support households and **expanded California's rent relief program in June 2021**. The eviction moratorium ended in September 2021 and was extended until June 2022 for households who applied for rent relief earlier that year. As of July 1, 2022, the **eviction moratorium ended**.

In April 2023, California re-started annual eligibility reviews for the **Medi-Cal** program (the state's implementation of Medicaid) after a three-year pause mandated by the federal government (in March of 2020) to help people during the pandemic.

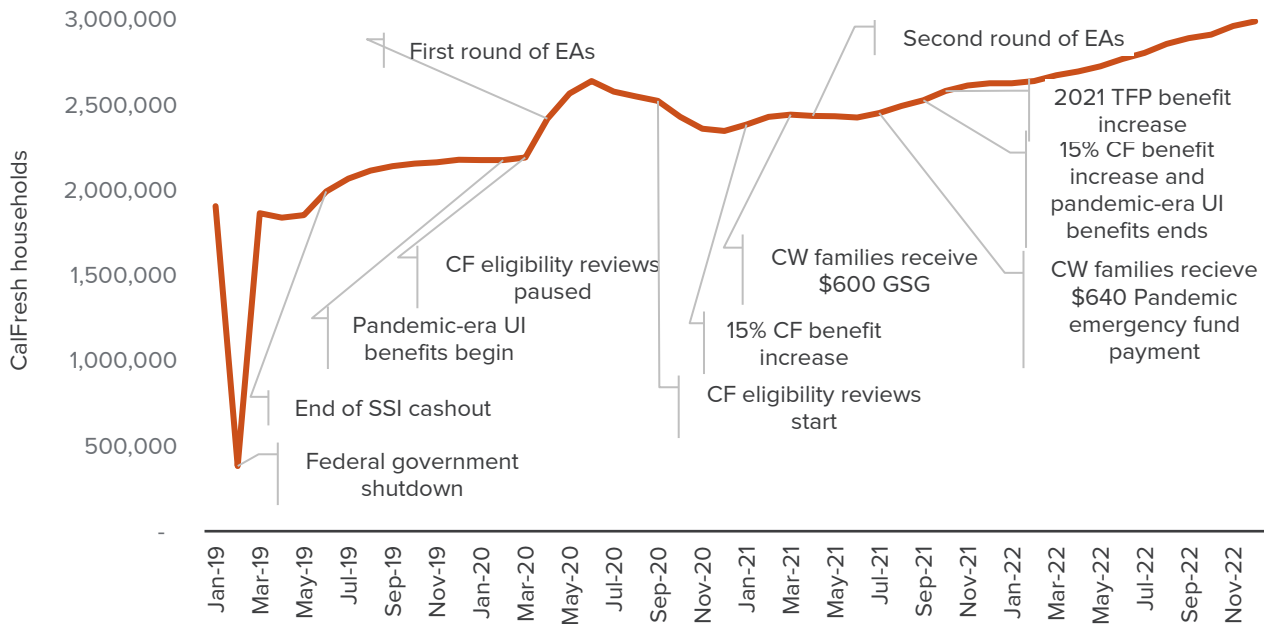
Most of the expansions to safety net programs ended with the end of the federal public health emergency (PHE) in May 2023. Under the Consolidated Appropriations Act, the government ended SNAP emergency allotments and ended the temporarily expanded college student eligibility with the end of the federal PHE. This Act also marked the end of P-EBT, and a permanent **summer EBT** was established to begin in the summer of 2024 for states who decided to opt-in.

# Appendix C. Figures

**FIGURE C1**

Changes in the CalFresh caseload between 2019 and 2022 tracked alongside changing policies

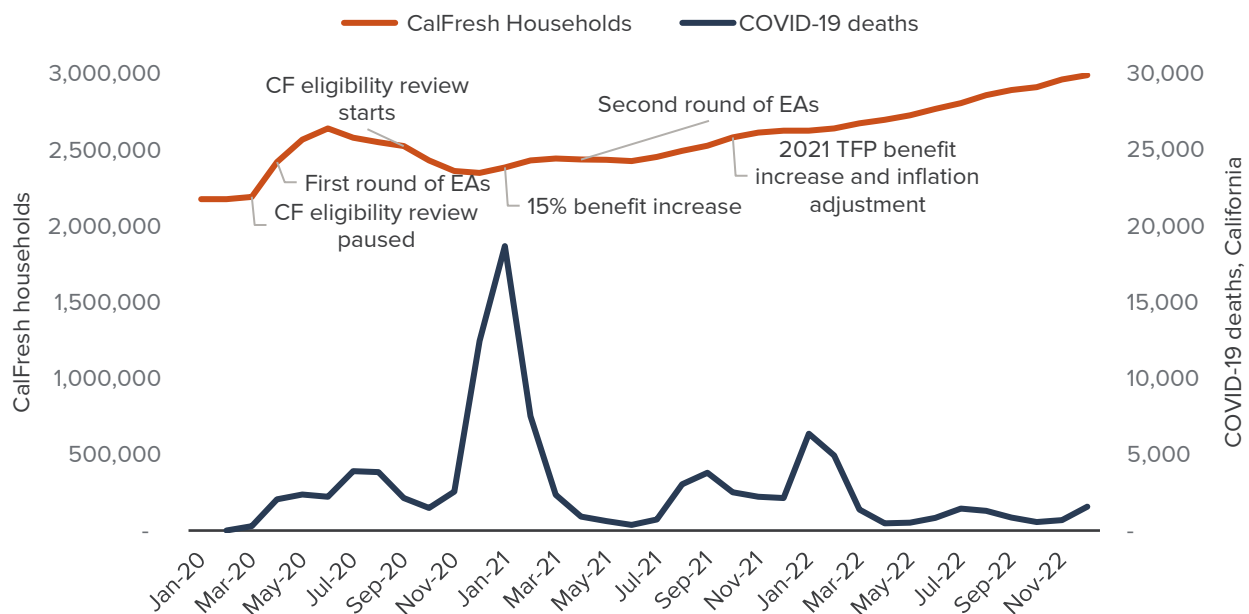
**Panel A**



SOURCES: [CalFresh Data Dashboard](#) 2019-2022

Changes in CalFresh policy and caseload, in context of deaths related to the COVID-19 pandemic

**Panel B**

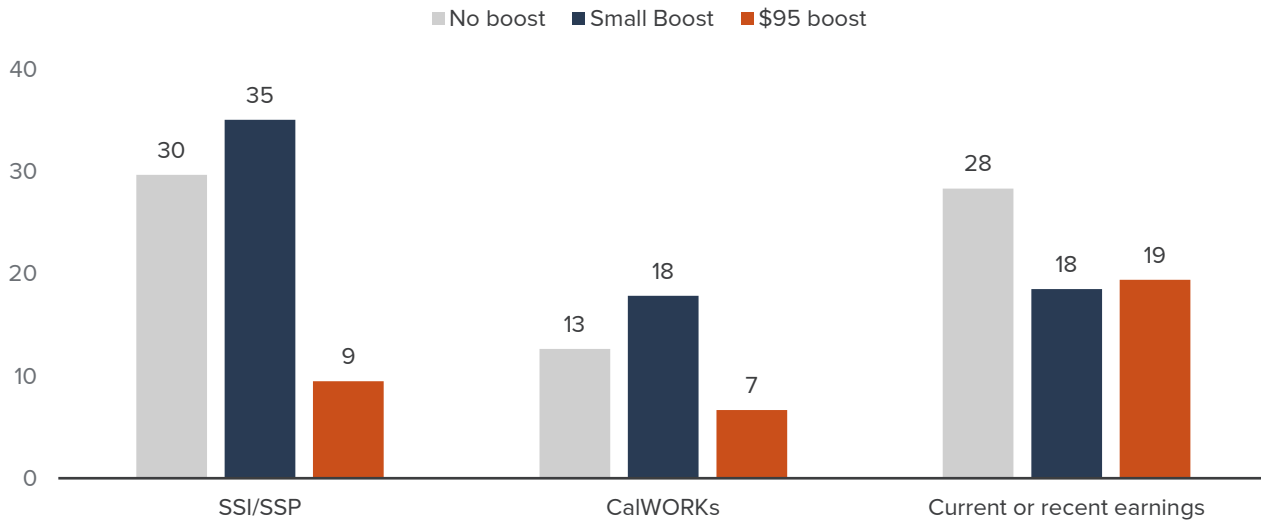


SOURCES: [CalFresh Data Dashboard](#) 2019-2022, [California Department of Public Health \(CDPH\) Respiratory Virus State Dashboard](#)

NOTES: There is a potential lag between the date the COVID-19 death occurred to the date the death was reported on the death certificate.

**FIGURE C2**

Income sources among cases active in spring 2021, by size of change in benefits  
% with income source



SOURCES: Authors’ analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file data.

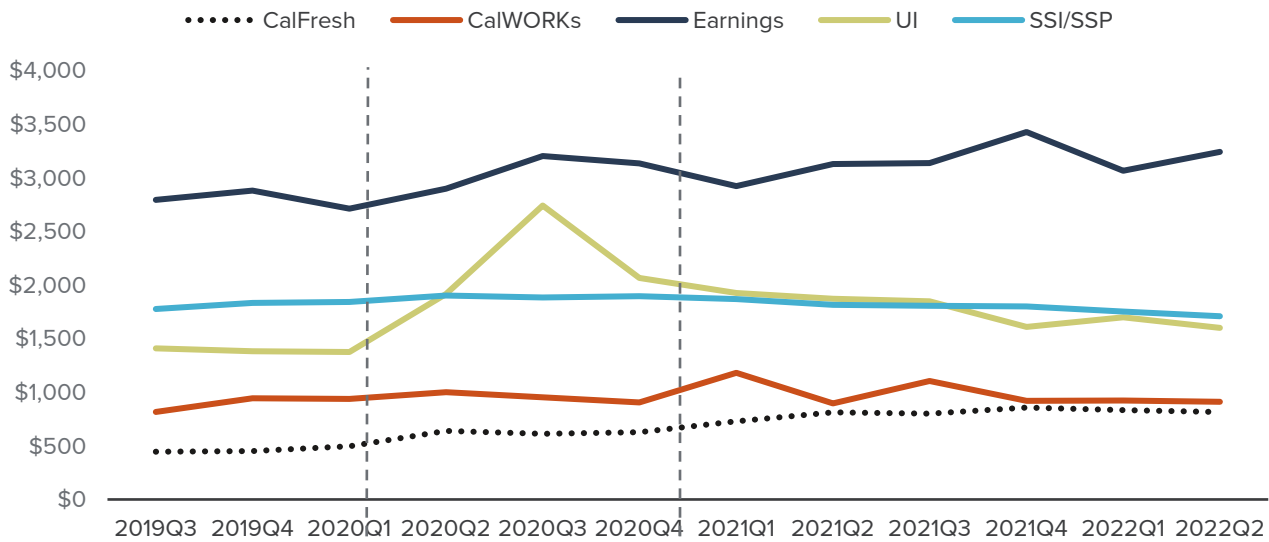
NOTES: Chart shows share of households with income from each source, among those with no, small, or large changes in CalFresh benefits between March and April 2021. “Small” means benefits increase by less than \$95. SSI/SSP and CalWORKs income refer to March 2021, and “current or recent earnings” refers to the 18 months before April 2021. Households could have had income from multiple sources, other sources (not shown), or not recorded (not shown).

cash income (not shown).

**FIGURE C3**

CalFresh households’ average quarterly resource amounts changed during the pandemic

Average quarterly amount



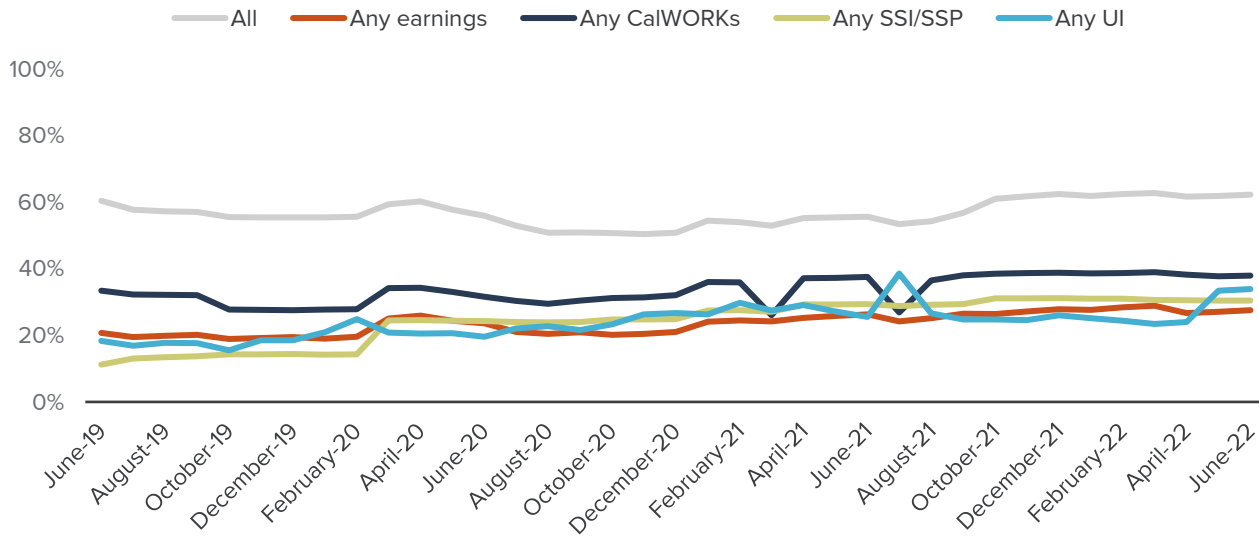
SOURCE: Authors’ analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file and UI payments data.

NOTES: Chart shows inflation-adjusted amount of average quarterly resources from each source among households with any resources from that source in the calendar quarter. Dollar amounts are adjusted to represent a household size of 1. See Technical Appendix A for approach to normalizing dollar amounts to reflect a household size of one.

**FIGURE C4**

CalFresh as a share of total observed household resources, for enrolled households

CalFresh as share of resources

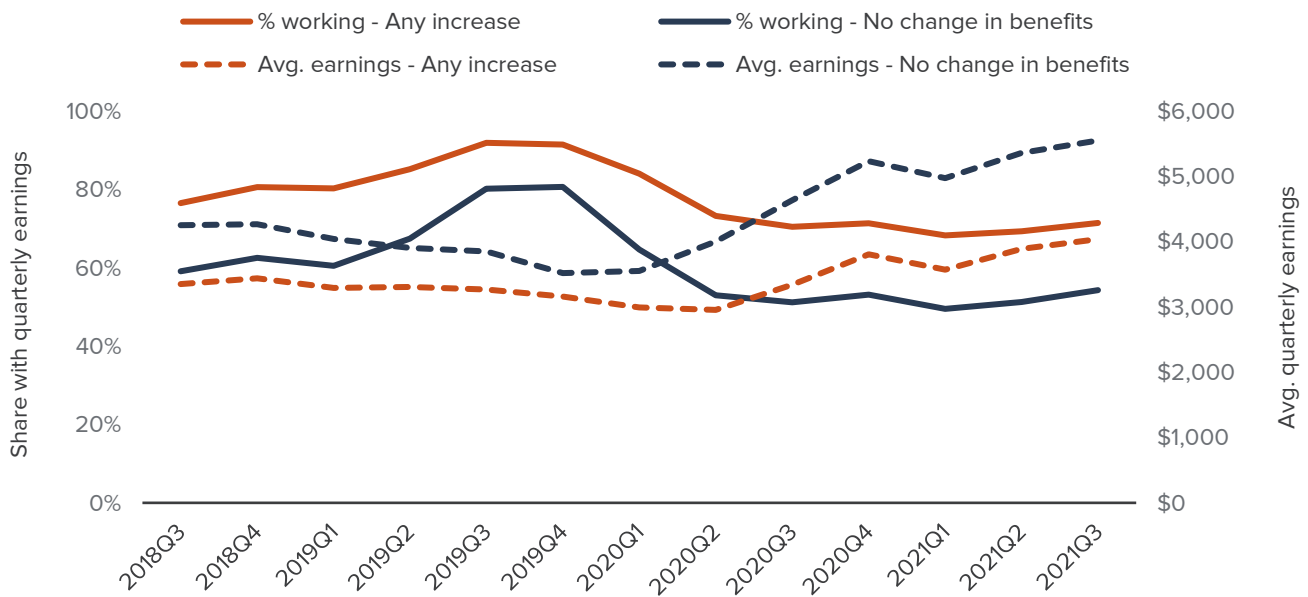


SOURCES: Authors’ analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file and UI payments data.

NOTES: Lines show households with any income from source in month, except for earnings, which are observed at the calendar quarter level. “Earnings” refers to income from jobs covered by UI, and so excludes income from self-employment, gig, and informal work. Not all household income sources can be observed in CDSS and EDD wage data; see Technical Appendix A for details.

**FIGURE C5**

Employment among spring 2020 CalFresh households with recent work history, and earnings for those employed



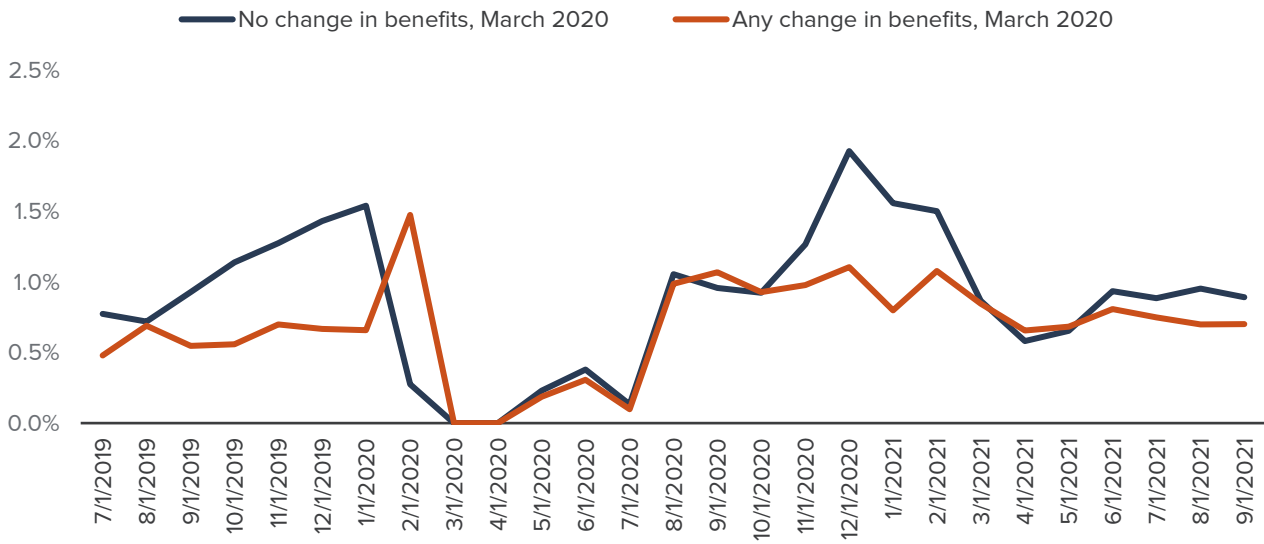
SOURCES: Authors’ analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file data.

NOTES: Solid lines show share of households in each category where any members had earnings in calendar quarter, among those who were active in February and March 2020, had some earnings between 2018q3 and 2019q4, and were never enrolled in SSI/SSP or CalWORKs. Dotted lines show average, inflation-adjusted quarterly earnings of cases active in February and March 2020 that had any members with earnings from UI-covered jobs in the calendar quarter. Dollar values adjusted to pertain to a case size of one person. See Technical Appendix A for details on data and methodology.

**FIGURE C6**

Churning on among spring 2020 households

% of cohort churning on

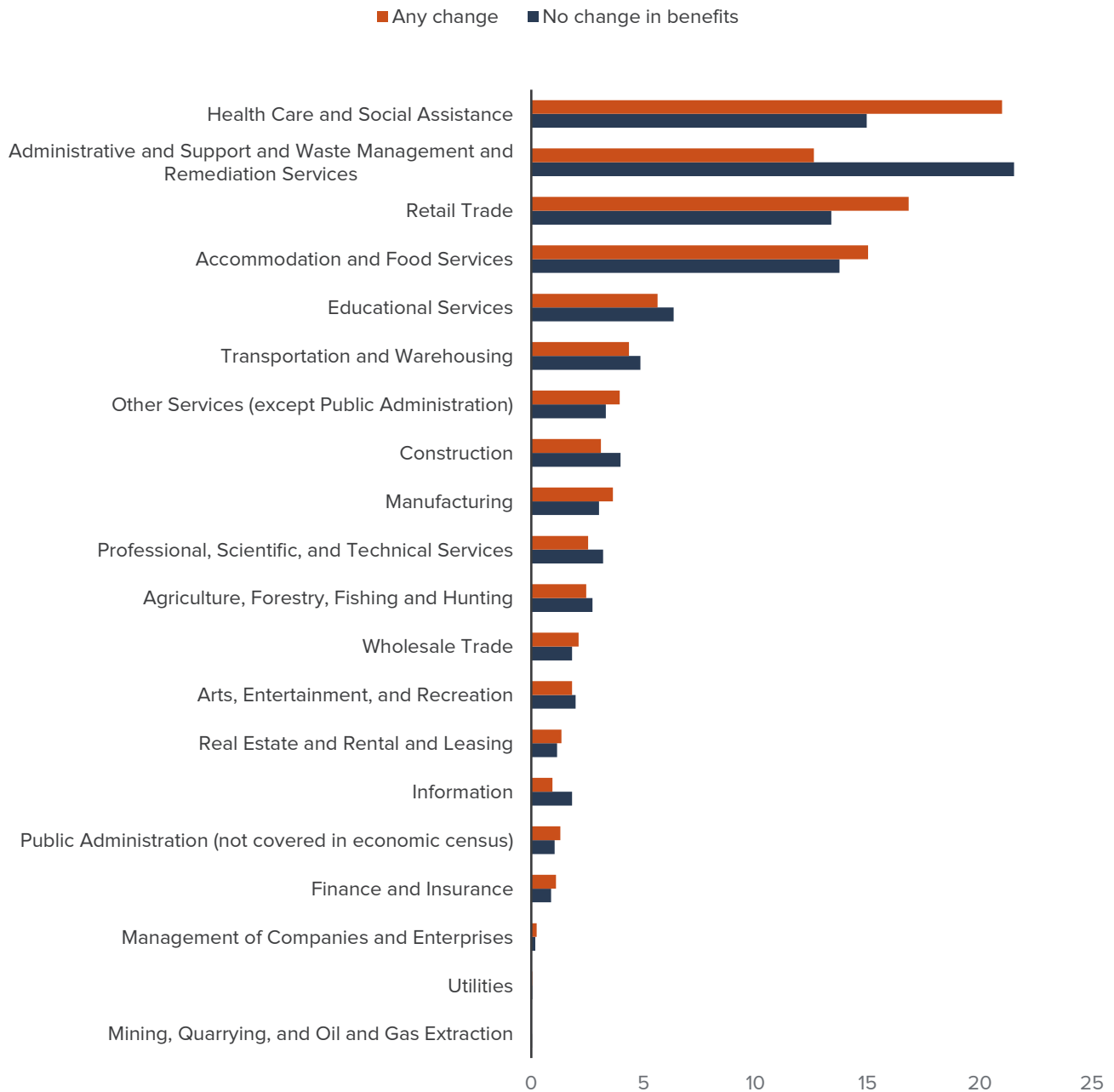


SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF) and Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS).

NOTES: Chart shows monthly share of cases in cohort entering CalFresh after between 30 and 90 days without benefits. Since sample is cases active in February and March 2020, "churn on" was by definition not possible in March and April for this group (see Technical Appendix A for details).

**FIGURE C7**

Spring 2020 households with earnings from UI-covered jobs, by industry of employment and March allotment receipt %

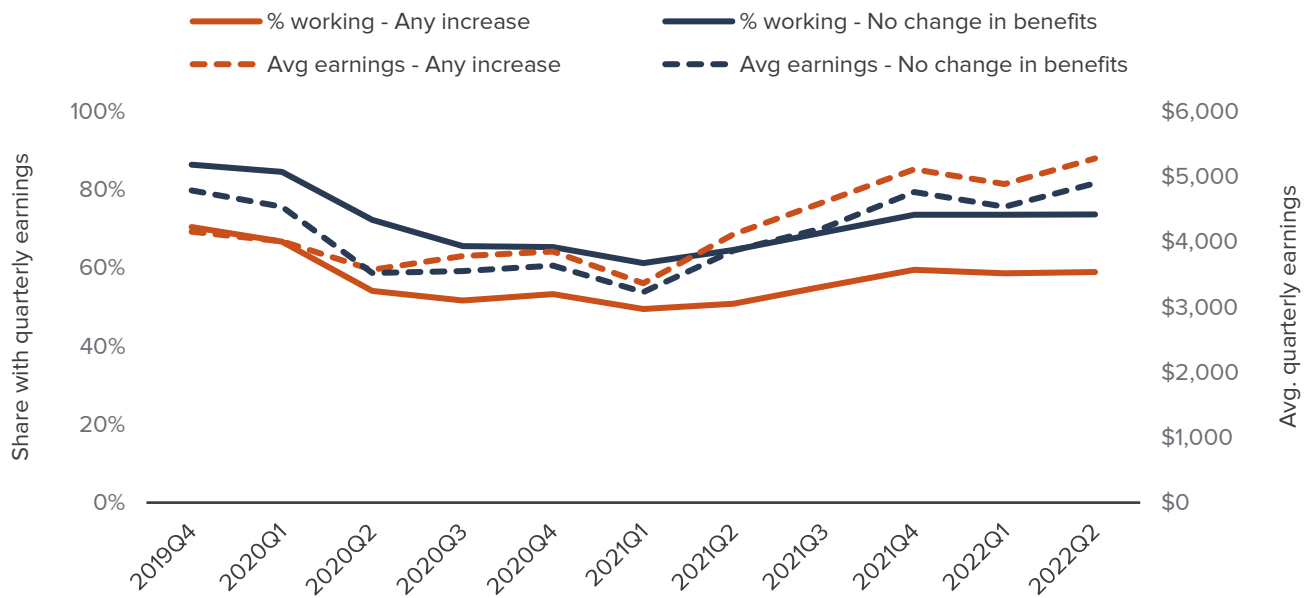


SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file and QCEW data.

NOTES: Chart shows 2-digit NAICS code of employer of highest-earning person in the household, from the job at which they earned the largest share of their income in the first quarter of 2020. Sample is cases active in February and March 2020 (see Technical Appendix A for details), and that had any earnings in the first quarter of 2020.

**FIGURE C8**

Employment among spring 2021 CalFresh households with recent work history, and earnings for those employed



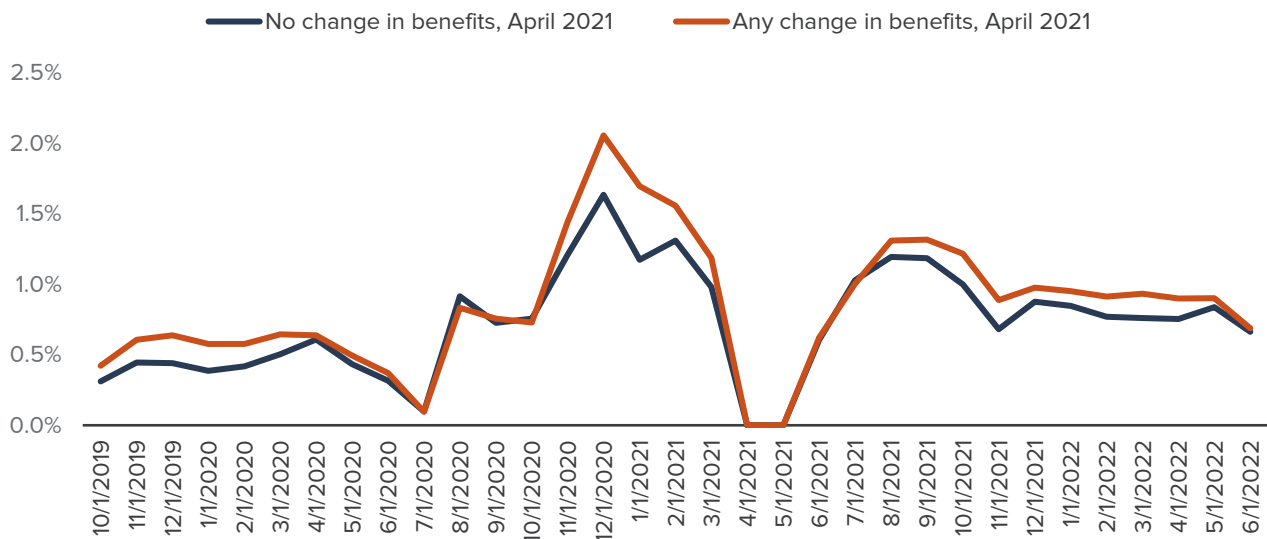
SOURCES: Authors’ analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file data.

NOTES: Solid lines show share of households in each category where any members had earnings in calendar quarter, among those who were active in March and April 2021, had some earnings between 2019q4 and 2021q1, and were never enrolled in SSI/SSP or CalWORKs. Dotted lines show average, inflation-adjusted quarterly earnings of cases active in March and April 2021 that had any members with earnings from UI-covered jobs in the calendar quarter. Dollar values adjusted to pertain to a case size of one person. See Technical Appendix A for details on data and methodology.

**FIGURE C9**

Churning on among spring 2021 households

% of cohort churning on

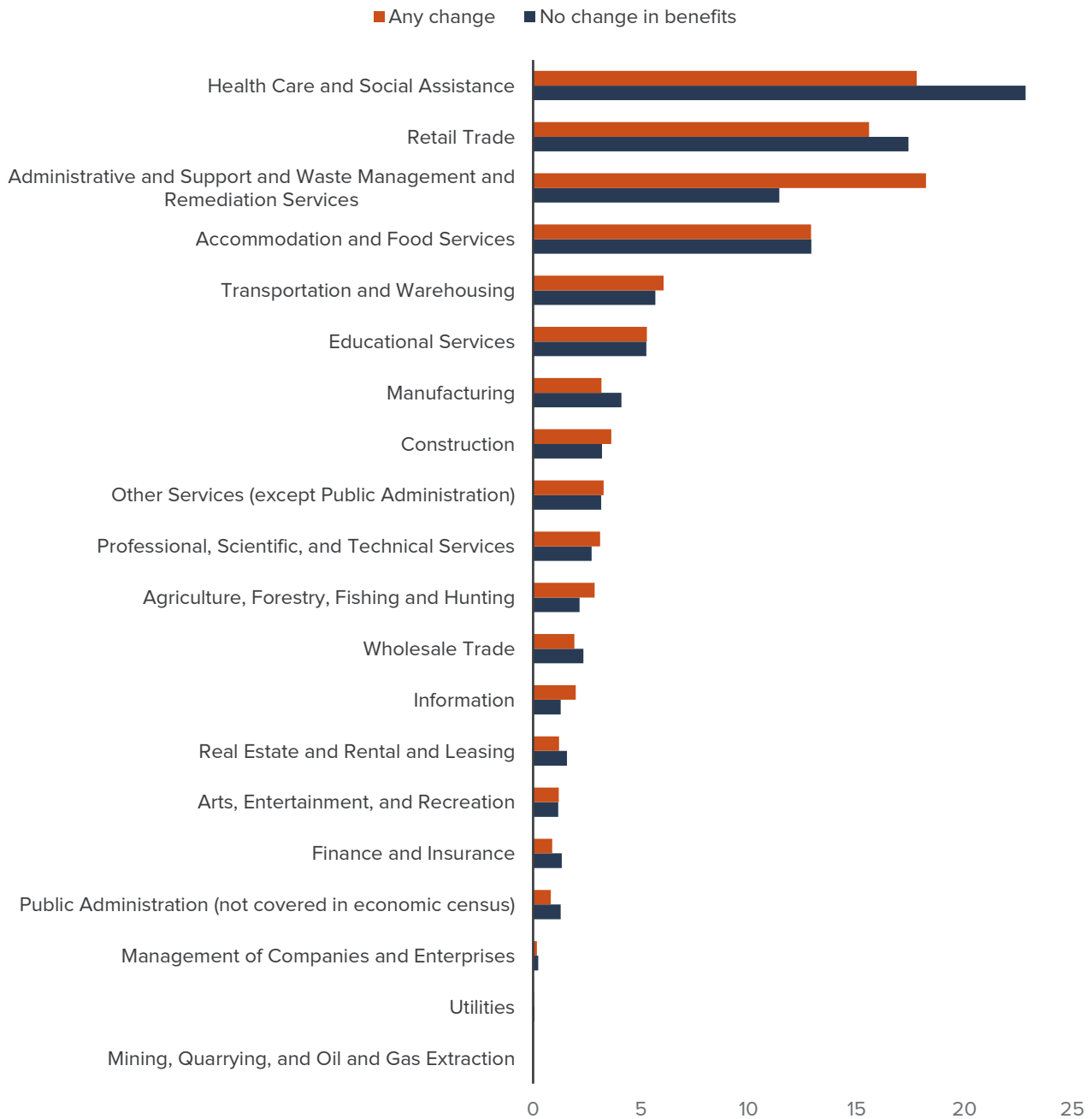


SOURCES: Authors’ analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file and QCEW data.

NOTES: Chart shows monthly share of cases in cohort entering CalFresh after between 30 and 90 days without benefits. Since sample is cases active in March and April 2021, “churn on” was by definition not possible in April and May for this group (see Technical Appendix A for details).

**FIGURE C10**

Spring 2021 households with earnings from UI-covered jobs, by industry of employment and April allotment receipt %



SOURCES: Authors’ analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT) / Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file and QCEW data.

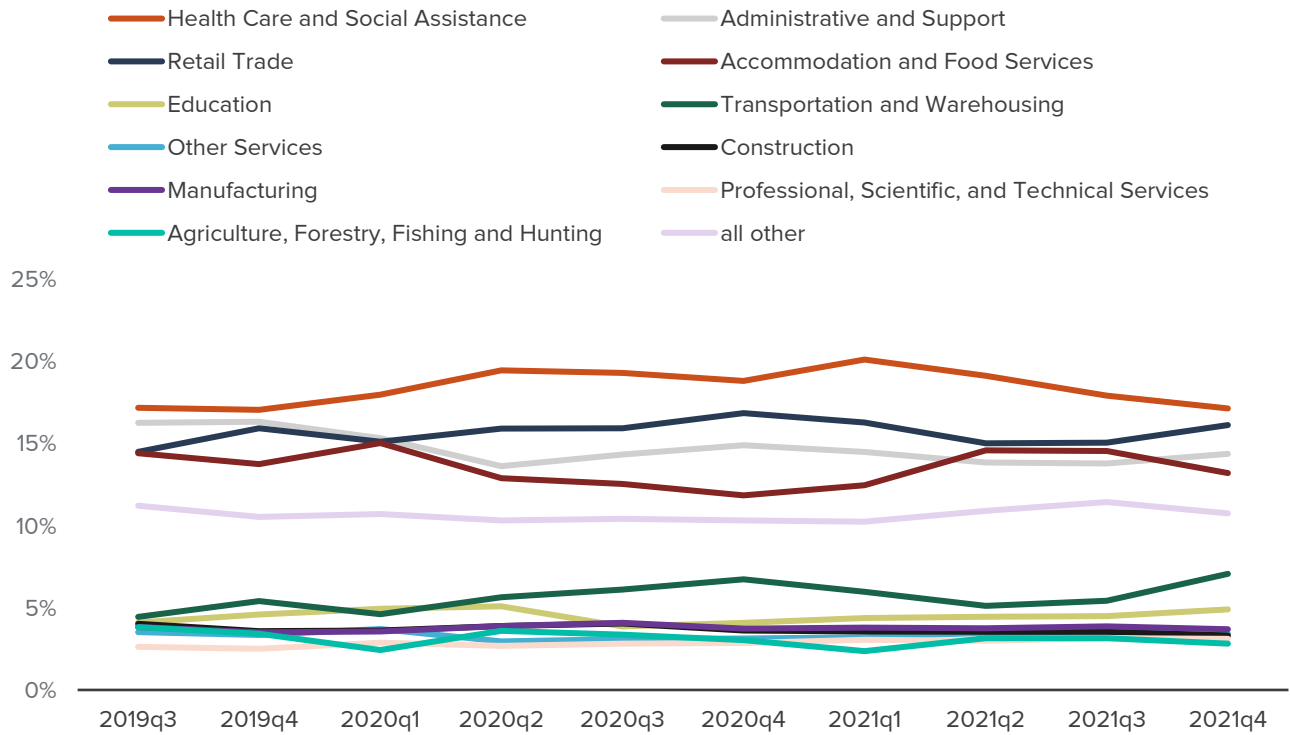
NOTES: Chart shows 2-digit NAICS code of employer of highest-earning person in the household, from the job at which they earned the largest share of their income in the first quarter of 2021. Sample is cases enrolled in March and April 2021 with any earnings in the first quarter of 2021 (see Technical Appendix A for details).



**FIGURE C12**

Industry of employment among enrolled CalFresh households with any earnings from UI-covered jobs

% of households



SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF) and Employment Development Department base wage file and QCEW data.

NOTES: Chart shows 2-digit NAICS code of employer of highest-earning person in the household, from the job at which they earned the largest share of their income that calendar quarter, for quarters in which the household was actively enrolled in CalFresh. Sample is all cases enrolled in CalFresh in quarter with any earnings.

## Appendix D. Descriptive Tables

**TABLE D1**

Descriptive statistics for households active in spring 2020 or spring 2021

	March 2020 boost				April 2021 boost			
	No change	Any change	Small change (from benefit of $\geq 20\%$ of max)	Large change (from benefit of $< 20\%$ of max)	No change	Any change	Small change ( $< \$95$ )	Maximum ( $\$95$ ) change
N cases	858,377	1,205,445	943,798	261,647	990,375	1,256,584	426,911	829,673
%								
Case includes women	56%	49%	52%	40%	53%	51%	43%	55%
White	27%	25%	23%	31%	24%	24%	24%	25%
Latino	36%	38%	40%	29%	36%	37%	38%	37%
Black	16%	14%	14%	14%	13%	14%	14%	14%
Asian/Pacific Islander	6%	10%	9%	11%	11%	8%	11%	7%
Other race/ethnicity	10%	9%	9%	10%	12%	11%	10%	12%
No response (race/eth.)	5%	5%	4%	6%	5%	5%	5%	5%
Non-English case materials	18%	29%	31%	24%	28%	24%	32%	21%
Case includes children	23%	43%	50%	18%	39%	28%	34%	24%
Case of single adult	66%	29%	26%	39%	31%	55%	38%	63%
Case size: 1	76%	49%	44%	65%	49%	71%	64%	75%
Case size: 2	14%	21%	20%	25%	22%	15%	16%	14%
Case size: 3+	10%	30%	36%	9%	29%	14%	20%	10%
Child-only cases	7%	8%	10%	2%	6%	8%	9%	8%
Adult-only cases	69%	32%	29%	43%	35%	57%	40%	66%
Seniors-only cases	7%	23%	20%	36%	24%	14%	25%	9%
Mixed age group cases	17%	37%	42%	19%	35%	20%	26%	17%
% any earnings (18 months before policy change)	32%	35%	36%	31%	41%	31%	28%	32%

	March 2020 boost				April 2021 boost			
	No change	Any change	Small change (from benefit of >=20% of max)	Large change (from benefit of <20% of max)	No change	Any change	Small change (<\$95)	Maximum (\$95) change
Northern region	4%	4%	3%	5%	4%	3%	3%	4%
Sacramento area	6%	7%	7%	7%	6%	6%	7%	6%
Bay Area	11%	13%	13%	16%	15%	13%	13%	13%
San Joaquin Valley and Sierras	16%	17%	17%	15%	15%	14%	15%	14%
Central Coast	4%	4%	4%	4%	4%	4%	3%	4%
Inland Empire	14%	13%	13%	12%	11%	12%	12%	12%
Los Angeles County	33%	30%	31%	27%	31%	35%	34%	35%
Orange County	5%	5%	5%	5%	5%	5%	6%	5%
San Diego County	6%	7%	7%	9%	9%	7%	7%	7%
<b>CalFresh characteristics</b>								
CalFresh % of resources before policy change	74%	50%	50%	51%	52%	61%	50%	67%
Median spell length at policy change (mos)	13	11	13	9	8	11	14	7
Avg. CalFresh, pre-policy	\$255	\$201	\$250	\$25	\$443	\$329	\$365	\$311
Avg. CalFresh, post-policy	\$254	\$369	\$394	\$278	\$443	\$407	\$410	\$406
Avg. \$ change from EA	\$0	\$167	\$144	\$253	\$0	\$78	\$45	\$95
Avg. % change from EA	0%	356%	92%	1310%	0%	29%	15%	35%
Median % change from EA	0%	85%	53%	1113%	0%	40%	13%	41%

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file and UI payments data.

NOTES: Table shows characteristics of cohort named in column heading. "March 2020 boost" columns show subsets of cases that were enrolled in both February and March 2020, and had no case size changes between the two months. "April 2021 boost" columns show subsets of cases that were enrolled in both March and April 2021, and had no case size changes between the two months. Older adult-only households include adults age 65+. Dollar values shown in nominal amounts.

**TABLE D2**

Descriptive statistics for households active in spring 2020 or spring 2021 with recent work history

	March 2020 boost				April 2021 boost			
	No change	Any change	Small change (from benefit of >=20% of max)	Large change (from benefit of <20% of max)	No change	Any change	Small change (<\$95)	Maximum (\$95) change
N cases	204,023	235,545	174,755	60,790	294,098	337,400	77,800	259,600
%								
Case includes women	54%	48%	49%	45%	67%	63%	68%	61%
White	22%	21%	20%	24%	20%	21%	21%	22%
Latino	36%	43%	44%	39%	37%	40%	36%	38%
Black	19%	11%	10%	12%	14%	10%	14%	12%
Asian/Pacific Islander	5%	8%	8%	6%	7%	8%	6%	8%
Other race/ethnicity	12%	13%	13%	13%	12%	16%	16%	16%
No response (race/eth.)	6%	5%	5%	6%	5%	6%	6%	6%
Non-English case materials	10%	20%	22%	15%	21%	18%	14%	19%
Case includes children	17%	53%	59%	35%	48%	22%	34%	18%
Case of single adult	77%	37%	32%	50%	40%	70%	55%	75%
Case size: 1	78%	39%	34%	55%	43%	73%	59%	77%
Case size: 2	11%	19%	17%	24%	20%	13%	17%	12%
Case size: 3+	11%	42%	49%	21%	37%	14%	23%	11%
Child-only cases	1%	2%	2%	1%	1%	1%	2%	1%
Adult-only cases	81%	43%	38%	58%	48%	75%	60%	79%
Seniors-only cases	1%	3%	2%	6%	4%	2%	4%	2%
Mixed age group cases	17%	52%	58%	36%	48%	21%	33%	18%
Median # quarters of employment in 18 months before policy change	2	2	2	2	2	2	2	2
Northern region	4%	4%	4%	4%	3%	4%	3%	4%
Sacramento area	7%	7%	7%	7%	5%	6%	6%	6%
Bay Area	11%	12%	12%	12%	14%	14%	13%	14%

	March 2020 boost				April 2021 boost			
	No change	Any change	Small change (from benefit of >=20% of max)	Large change (from benefit of <20% of max)	No change	Any change	Small change (<\$95)	Maximum (\$95) change
San Joaquin Valley and Sierras	16%	18%	18%	18%	15%	14%	14%	14%
Central Coast	5%	5%	5%	5%	4%	4%	4%	4%
Inland Empire	14%	14%	15%	14%	12%	12%	12%	12%
Los Angeles County	33%	25%	25%	26%	35%	30%	32%	31%
Orange County	4%	6%	6%	5%	5%	6%	5%	6%
San Diego County	6%	9%	9%	9%	7%	11%	8%	10%
<b>CalFresh characteristics</b>								
CalFresh % of resources before policy change	54%	40%	45%	27%	42%	51%	45%	53%
Median spell length at policy change (mos)	8	11	14	7	6	6	8	5
Avg. CalFresh, pre-policy	\$254	\$205	\$265	\$32	\$478	\$328	\$386	\$310
Avg. CalFresh, post-policy	\$254	\$421	\$452	\$333	\$477	\$411	\$431	\$405
Avg. \$ change from EA	\$0	\$216	\$187	\$302	\$0	\$83	\$45	\$95
Avg. % change from EA	0%	425%	98%	1364%	0%	31%	15%	36%
Median % change from EA	0%	113%	66%	1113%	0%	41%	12%	41%

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file and UI payments data.

NOTES: Table shows characteristics of cohort named in column heading. "March 2020 boost" columns show subsets of cases that were enrolled in both February and March 2020, and had no case size changes between the two months. "April 2021 boost" columns show subsets of cases that were enrolled in both March and April 2021, and had no case size changes between the two months. Older adult-only households include adults age 65+. Dollar values shown in nominal amounts.

**TABLE D3**

Characteristics of enrolled households by region, February 2020 and March 2021

	Latino	White	Asian/ Pacific Islander	Black	Other, no response, race/ ethnicity	Non- English case materials	Single adult (18+)	Any children	Any earnings in last 18 months	SSI/SSP, pre-EA	CalFresh as % of resources, pre-EA
<b>February 2020</b>											
Northern	12%	71%	2%	3%	13%	4%	55%	27%	33%	23%	63%
Sacramento	16%	33%	9%	16%	28%	15%	49%	33%	37%	24%	58%
Bay Area	21%	20%	19%	17%	25%	29%	44%	27%	30%	28%	59%
San Joaquin Valley and Sierras	45%	26%	5%	9%	15%	19%	42%	43%	38%	18%	61%
Central Coast	41%	31%	3%	3%	22%	27%	44%	39%	35%	14%	66%
Inland Empire	49%	26%	3%	16%	7%	17%	43%	40%	38%	17%	62%
Los Angeles County	45%	19%	8%	22%	6%	31%	44%	32%	31%	24%	59%
Orange County	35%	23%	20%	3%	22%	37%	38%	35%	31%	21%	63%
San Diego County	27%	24%	7%	9%	34%	26%	45%	32%	35%	19%	63%
<b>March 2021</b>											
Northern	12%	71%	2%	2%	12%	4%	55%	26%	32%	25%	60%
Sacramento	15%	32%	9%	15%	29%	17%	48%	31%	36%	27%	55%
Bay Area	20%	18%	19%	15%	28%	30%	44%	27%	33%	27%	57%
San Joaquin Valley and Sierras	45%	26%	5%	9%	15%	20%	41%	42%	38%	21%	58%
Central Coast	40%	30%	3%	2%	24%	27%	44%	38%	36%	15%	64%
Inland Empire	50%	25%	3%	15%	7%	18%	42%	39%	38%	19%	58%
Los Angeles County	45%	20%	9%	20%	6%	32%	44%	30%	33%	25%	55%
Orange County	32%	21%	22%	3%	22%	38%	39%	33%	33%	23%	59%
San Diego County	24%	22%	7%	7%	40%	26%	48%	29%	39%	19%	59%

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file data.

NOTES: Table shows share of group in each category, where February 2020 indicates households with benefits in February and March 2020 with no compositional changes between the two months, and March 2021 indicates households with benefits in March and April 2021 and no compositional changes. "Pre-EA" refers to February 2020 and March 2021, respectively. The Northern region includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity counties. The Sacramento area includes El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties. The Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma counties. The San Joaquin Valley and Sierras region includes Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, and Tuolumne counties. The Central Coast region includes Monterey, San Benito, San Luis Obispo, Santa Barbara, and Ventura counties. The Inland Empire includes Imperial, Riverside, and San Bernardino counties.

**TABLE D4**

Changes in income quarter to quarter for cases active at the start of the pandemic

	100% decrease	-100% to -50%	-49% to -1%	0%	1% to 49%	50% to 99%	100 to 149%	150% or more
Boost in March 2020								
2018Q4	4%	10%	25%	15%	29%	5%	10%	5%
2019Q1	5%	12%	34%	14%	26%	4%	7%	4%
2019Q2	3%	8%	29%	12%	31%	5%	10%	5%
2019Q3	2%	11%	31%	6%	30%	5%	11%	6%
2019Q4	8%	17%	31%	0%	29%	6%	10%	7%
2020Q1	10%	19%	35%	6%	27%	4%	4%	4%
2020Q2	14%	29%	23%	13%	23%	4%	5%	4%
2020Q3	9%	15%	22%	21%	21%	5%	9%	7%
2020Q4	6%	10%	18%	23%	27%	6%	9%	6%
2021Q1	7%	13%	34%	25%	17%	3%	5%	3%
2021Q2	5%	8%	21%	26%	28%	5%	8%	4%
2021Q3	4%	9%	25%	24%	24%	5%	8%	5%
No boost in March 2020								
2018Q4	8%	15%	16%	30%	16%	4%	13%	6%
2019Q1	10%	18%	21%	30%	14%	3%	9%	4%
2019Q2	6%	13%	18%	26%	16%	4%	15%	7%
2019Q3	5%	17%	20%	15%	15%	5%	20%	9%
2019Q4	19%	33%	19%	0%	13%	4%	22%	8%
2020Q1	21%	34%	18%	14%	13%	5%	7%	9%
2020Q2	18%	29%	12%	29%	12%	4%	8%	6%
2020Q3	11%	17%	12%	38%	11%	4%	11%	7%
2020Q4	7%	13%	12%	39%	14%	4%	11%	6%
2021Q1	9%	16%	20%	41%	10%	2%	7%	3%
2021Q2	6%	11%	13%	42%	16%	4%	10%	5%
2021Q3	6%	11%	15%	40%	14%	4%	10%	5%

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file data.

NOTES: Table shows distribution of cases by change in UI-covered quarterly wages from quarter to quarter, among those active in February and March 2020 with no case size changes between months, who had some UI-covered wages between 2018q3 and 2019q4, and who from 2019 through 2022 never received benefits from SSI/SSP or CalWORKs.

## Appendix E. Regression Tables

Two sets of regressions follow. The first looks at changes for cases actively enrolled in CalFresh at the county/month level. The second looks at changes for cases that were enrolled in CalFresh when the March 2020 allotment (EA1) or April 2021 adjustment (EA2) rolled out, at the case/month or case/quarter level. All regressions include dummy variables for each quarter or month to absorb common trends, including pandemic-induced changes.

### Caseload county/month regressions

The purpose of the OLS regressions shown in Table E1 is to demonstrate that variation in case size and income sources largely drive systematic differences in CalFresh benefit amounts, as expected. The regressions use county/month observations from July 2019 to June 2022. In other words, each observation is a snapshot of the CalFresh caseload in a county-month. The dependent variable is the average CalFresh case benefit, which is adjusted for inflation and for case size. The independent variables include county and month dummy variables along with case income sources, case size, and demographics. Case characteristics are operationalized as the percent of the county-month caseload with a given characteristic and are in all cases interacted with the first and second Emergency Allotments to provide estimates of the change in case benefit amount associated with each of the characteristics once EA1 and EA2 were in effect. Robust standard errors are clustered on county.

Column 1 of Table E1 provides a basic model showing the main effects of EA1 and EA2, which increased case benefits by \$70 and \$85 per month, respectively. Column 2 includes only main effects of and interactions with allotment with income-source and case size variables while column 3 includes only main effects of and interactions with sex, race/ethnicity, language of case materials, and age composition of cases. Column 4 includes both sets of main effects and interactions. Variables are multiplied by 100, so coefficients reflect the predicted change in the average CalFresh benefit if a given characteristic increases from 0 percent to 100 percent of the caseload.

After adjusting for different mixes of income sources and case sizes across counties, many of the significant interactions on demographic characteristics become insignificant. For EA1, coefficients on the share of female-headed cases and share of cases with only members age 65+ are still positive and significant. For EA2, coefficients on female-headed cases are positive and significant. Coefficients on shares by race/ethnicity are also significant in three of five cases. Due to correlations between these demographic variables (e.g., the correlation between percent female-headed and percent mixed age case is 0.48), it is difficult to interpret any one coefficient.

Table E2 shows associations for CalFresh entrants in February 2020 (those who had just experienced a break of one or more months in benefits) between various factors and churning on, or returning after two to three months or fewer without benefits. This is a logistic model, and table shows odds ratios.

### Cohort case-level regressions

Tables E3 through E6 show parameter estimates from OLS (linear probability model) regressions where the dependent variable is one of a series of outcomes: continued CalFresh participation, churn on, any earnings from UI-covered jobs in quarter, and amount of quarterly earnings. Three of the four outcomes are binary, and we compare coefficients on interactions to the dependent variable means. All models include household (a.k.a. case) and calendar quarter or month fixed effects. Models also include county average unemployment rates in the quarter or month. For ease of computation, we run all models on a sample: 5 percent for regressions using monthly data, and 10 percent for those using quarterly data. For example, for quarter-level models examining March 2020 allotments, we keep 10 percent of cases that were active in February and March 2020 and had no



changes in household size, and for the April 2021 allotments, we keep 10 percent of cases that were active in March and April 2021 and had no changes in household size.

The modelling approach uses an event study set-up to compare trends before and after the onset of the COVID-19 pandemic among CalFresh cases that experienced the 2020 (or 2021) allotments versus those that did not.

Equation 1 provides a representative model:

$$(1) Y_{it} = \beta_0 + X_{ct}\beta + case_i + EA + Z + \theta \sum EA * Z * quarter + \gamma \sum (EA * quarter + Z * quarter) + \varepsilon_{ict}$$

Observations are for cases ( $i$ ) in quarter or month ( $t$ ). (CalFresh participation models use monthly observations while employment and earnings models use quarterly observations.) The vector  $\beta$  represents time-varying, county-level controls (the unemployment rate, COVID-19 deaths), and all models include case and time fixed effects, along with main effects of the 2020 or 2021 allotments. The set of coefficients  $\theta$  are our primary interest. For participation regressions they provide estimates of the interaction between  $Z$  (participation in CalFresh), initially experiencing an allotment, and time dummies; for employment regressions they provide estimates of the interaction between  $Z$  (employment), participating in CalFresh, initially experiencing the March 2020 allotments (or April 2021), and time dummies. For churn, they provide estimates of the interaction between  $Z$  (churning on), entering CalFresh, initially experiencing an allotment, and time dummies; for earnings levels, the interaction is between  $Z$  (earned income), employment, participating in CalFresh, initially receiving an allotment, and time dummies. As described below, we limit the sample for the employment regressions both to achieve greater comparability across the groups treated and not treated by Emergency Allotments and to focus the analysis on a subset of adults whose employment decisions might have been altered by the policy change. Because we include case fixed effects, these models capture the change in each outcome after the policy was implemented for the group that saw the change relative to the group that did not.

We also show models just for cases that include children, and those that do not. Models comparing large benefit changes to no benefit change (as opposed to any vs. none), and those scaling benefit change rather than any vs. no change (that is, the dependent variable is percent change in benefits from policy) provide similar results and are not shown.

Tables E3 and E4 show associations between various factors – including calendar month – and continuing in CalFresh or churning on, among cases potentially affected by each allotment policy. In both, we account for whether cases had any earnings from UI-covered jobs in the calendar quarter and any UI payments in the calendar month. For models predicting churn, we account for whether the case was entering CalFresh in the quarter (after one or more months without benefits). Table E4 also includes results for churn defined as returning after two months or fewer. For causal interpretation of the results, a key assumption of the difference-in-difference modeling approach that we take is that the treated and untreated groups' outcomes would be parallel in the absence of the policy change. Looking at the pre-trend dummy variables for year-month in Tables E3 and E4, we see that this assumption is typically violated in our sample. Therefore, we interpret the post-policy change coefficients narrowly as capturing the differential change across the two groups.

Table E5 shows associations between factors and whether households had any earnings from UI-covered jobs in each quarter while enrolled in CalFresh. The sample for these models focuses on cases that were more likely to see changes in employment because they had a labor market history—those that had some earnings in the 18 months before each allotment, and never had SSI/SSP or CalWORKs. While we limit the sample for the

employment regressions, in both Table E5 and E6 we see some evidence of pre-trends, although this is evident for the sample used in the April 2021 emergency allotments policy change and not for the March 2020 change.

Table E6 shows associations with average quarterly income from UI-covered jobs while enrolled in CalFresh, adjusted to pertain to a case size of one person (the most common size). These models also focus on cases with labor market history, and include interactions with whether cases had any CalFresh benefits, and whether cases had any earnings in the quarter, to capture change on the intensive rather than extensive margin.

**TABLE E1**  
OLS models of county-level average CalFresh benefit

	(1)	(2)	(3)	(4)
EA1 (March 2020)	70.13***			
EA2 (April 2021)	85.48***			
Interactions of EA1 share with:				
Share with earnings		62.86***		21.76
Share with SSI/SSP		168.98***		109.87***
Share with CalWORKs		-170.62***		-52.02
Share with UI		46.19		68.55
Share 2 person case		84.89		5.83
Share 3+ person case		106.38**		107.93
Share female-headed case			36.69*	37.03*
Share white case			23.42***	6.44
Share Black case			-14.68	-22.34
Share API case			24.19	-24.04
Share other race/ethnicity case			17.33*	14.95
Share no race/ethnic response case			-1.72	-19.65
Share non-English materials			6.02	-20.63
Share age 65+ only case			101.53***	103.66***
Share age <18 only case			-11.3	-14.67
Share mixed age case			74.32***	-19.17
Interactions of EA2 with:				
Share with earnings		107.86***		25.71
Share with SSI/SSP		43.43*		-29.57
Share with CalWORKs		6.52		57.66*
Share with UI		102.04***		31.62
Share 2 person case		146.87**		175.42**
Share 3+ person case		-64.05		0.02
Share female-headed case			95.63***	90.18***
Share white case			32.16***	24.55**
Share Black case			38.38*	21.54

	(1)	(2)	(3)	(4)
Share API case			6.71	0.41
Share other race/ethnicity case			22.93**	19.84**
Share no race/ethnic response case			66.69*	45.05*
Share non-English materials			44.08**	28.49
Share age 65+ only case			-33.06	-41.83
Share age <18 only case			15.7	-41.36
Share mixed age case			-17.12	-101.3
County dummies	X	X	X	X
Month-year dummies	X	X	X	X
Income sources and case size main effects	X	X		X
Demographic controls main effects	X		X	X
N	2,088	2,088	2,088	2,088

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file, employment, and unemployment insurance data.

NOTES: OLS models computed using a balanced sample of 58 county observations for the period July 2019 – June 2022. Dollar amounts adjusted for inflation and to one-person case size. Sex and race/ethnicity of case determined by oldest person on the case. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001.

**TABLE E2**

Churning onto CalFresh in February 2020 (among entrants)

	Odds ratios
Unemployment rate	0.92
Any earnings in calendar quarter	1.00***
Any UI in month	0.74***
Any SSI/SSP in month	0.72***
Any CalWORKs in month	1.28**
Case size 2	1.34***
Case size 3+	1.81***
Non-English case materials	0.95
CalFresh benefit as % of maximum possible	2.14***
County fixed effects	X
N	106,054

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file, employment, and unemployment insurance data.

NOTES: Logistic model; table shows odds ratios. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001. "Entrants" are cases that had no CalFresh benefits in the last 30 days. Churn refers to having spent 60 days or fewer off CalFresh.

**TABLE E3**

Associations with continued enrollment in CalFresh

	(1)	(2)	(3)		(4)	(5)	(6)
	All	No children	Any children		All	No children	Any children
Unemployment rate	0.18*** (0.032)	0.15*** (0.038)	0.053 (0.058)		0.017 (0.034)	-0.036 (0.041)	0.17** (0.062)
Earnings (\$)	-0.000010 (7.7e-06)	-7.6e-06 (6.2e-06)	-0.000058*** (2.6e-06)		-0.000045*** (6.7e-06)	-0.000047*** (2.7e-06)	-0.000039 (0.000021)
UI (\$)	0.000016*** (1.0e-06)	0.000015*** (9.5e-07)	0.000026*** (1.9e-06)		0.000020*** (1.6e-06)	0.000019*** (9.4e-07)	0.000030*** (5.6e-06)
CalWORKs (\$)	0.00015*** (2.9e-06)	0.00011*** (8.7e-06)	0.00015*** (2.9e-06)		0.00013*** (3.4e-06)	0.000093*** (0.000013)	0.00014*** (3.6e-06)
SSI/SSP (\$)	0.00034*** (6.8e-06)	0.00035*** (7.2e-06)	0.00034*** (0.000023)		0.00042*** (6.1e-06)	0.00042*** (6.3e-06)	0.00029*** (0.000027)
County-level COVID deaths	3.8e-06*** (4.0e-07)	4.1e-06*** (4.7e-07)	2.7e-06*** (7.6e-07)		-7.6e-06* (3.4e-06)	-4.6e-06 (4.2e-06)	-0.000010 (5.7e-06)
Any boost x month							
2019m7	0.010*** (0.0029)	-0.031*** (0.0035)	0.044*** (0.0055)	2019m10	-0.0062* (0.0031)	-0.0049 (0.0036)	0.027*** (0.0056)
2019m8	0.032*** (0.0028)	0.0028 (0.0034)	0.043*** (0.0053)	2019m11	-0.0064* (0.0031)	-0.0064 (0.0036)	0.029*** (0.0056)
2019m9	0.032*** (0.0027)	0.0099** (0.0032)	0.036*** (0.0051)	2019m12	-0.0062* (0.0031)	-0.0080* (0.0035)	0.031*** (0.0055)
2019m10	0.013*** (0.0025)	-0.0019 (0.0030)	0.017*** (0.0047)	2020m1	-0.00019 (0.0031)	-0.00080 (0.0036)	0.034*** (0.0055)
2019m11	0.000065 (0.0022)	-0.015*** (0.0027)	0.0095* (0.0041)	2020m2	0.0011 (0.0031)	-0.00054 (0.0036)	0.037*** (0.0055)
2019m12	-0.023*** (0.0019)	-0.039*** (0.0023)	-0.0036 (0.0035)	2020m3	0.0028 (0.0030)	0.0011 (0.0035)	0.038*** (0.0054)
2020m1	-0.066*** (0.0012)	-0.082*** (0.0016)	-0.038*** (0.0019)	2020m4	-0.0020 (0.0029)	-0.0059 (0.0034)	0.036*** (0.0051)
2020m6	0.0051***	0.0067***	0.016***	2020m5	-0.0061*	-0.012***	0.033***

	(1)	(2)	(3)		(4)	(5)	(6)
	All	No children	Any children		All	No children	Any children
	(0.0013)	(0.0013)	(0.0032)		(0.0028)	(0.0033)	(0.0049)
2020m7	0.042***	0.055***	0.029***	2020m6	-0.0046	-0.011***	0.031***
	(0.0021)	(0.0023)	(0.0047)		(0.0027)	(0.0032)	(0.0048)
2020m8	0.024***	0.029***	0.018***	2020m7	-0.0090***	-0.017***	0.024***
	(0.0024)	(0.0027)	(0.0050)		(0.0027)	(0.0033)	(0.0050)
2020m9	0.036***	0.042***	0.026***	2020m8	-0.016***	-0.022***	0.014**
	(0.0025)	(0.0029)	(0.0052)		(0.0026)	(0.0032)	(0.0048)
2020m10	0.083***	0.099***	0.034***	2020m9	-0.019***	-0.025***	0.012**
	(0.0028)	(0.0032)	(0.0057)		(0.0026)	(0.0031)	(0.0047)
2020m11	0.11***	0.14***	0.041***	2020m10	-0.028***	-0.037***	0.0088
	(0.0029)	(0.0034)	(0.0059)		(0.0026)	(0.0031)	(0.0047)
2020m12	0.14***	0.17***	0.048***	2020m11	-0.032***	-0.040***	0.0075
	(0.0030)	(0.0035)	(0.0061)		(0.0025)	(0.0030)	(0.0045)
2021m1	0.14***	0.16***	0.061***	2020m12	-0.032***	-0.043***	0.0057
	(0.0030)	(0.0035)	(0.0062)		(0.0022)	(0.0026)	(0.0040)
2021m2	0.12***	0.14***	0.061***	2021m1	-0.022***	-0.029***	0.0026
	(0.0030)	(0.0035)	(0.0062)		(0.0018)	(0.0022)	(0.0034)
2021m3	0.11***	0.14***	0.047***	2021m2	-0.012***	-0.012***	-0.0057*
	(0.0030)	(0.0035)	(0.0061)		(0.0014)	(0.0016)	(0.0025)
2021m4	0.12***	0.14***	0.062***	2021m3	0.0052***	0.0015***	-0.0059***
	(0.0031)	(0.0036)	(0.0064)		(0.00035)	(0.00030)	(0.00097)
2021m5	0.13***	0.15***	0.067***	2021m5	0.0016	-0.00011	0.0086***
	(0.0031)	(0.0036)	(0.0064)		(0.0014)	(0.0016)	(0.0025)
2021m6	0.13***	0.15***	0.066***	2021m6	0.00097	-0.00049	0.017***
	(0.0032)	(0.0037)	(0.0064)		(0.0019)	(0.0023)	(0.0033)
2021m7	0.13***	0.16***	0.057***	2021m7	-0.0042	-0.012***	0.0091*
	(0.0032)	(0.0037)	(0.0063)		(0.0021)	(0.0025)	(0.0038)
2021m8	0.13***	0.15***	0.067***	2021m8	-0.013***	-0.022***	0.017***
	(0.0032)	(0.0037)	(0.0065)		(0.0023)	(0.0027)	(0.0042)
2021m9	0.13***	0.15***	0.067***	2021m9	-0.019***	-0.029***	0.014**

	(1)	(2)	(3)		(4)	(5)	(6)
	All	No children	Any children		All	No children	Any children
	(0.0032)	(0.0037)	(0.0065)		(0.0024)	(0.0029)	(0.0045)
				2021m10	-0.014***	-0.025***	0.018***
					(0.0025)	(0.0029)	(0.0047)
				2021m11	-0.012***	-0.026***	0.020***
					(0.0025)	(0.0030)	(0.0048)
				2021m12	-0.012***	-0.027***	0.021***
					(0.0026)	(0.0031)	(0.0049)
				2022m1	-0.011***	-0.028***	0.027***
					(0.0026)	(0.0031)	(0.0050)
				2022m2	-0.013***	-0.031***	0.030***
					(0.0027)	(0.0032)	(0.0051)
				2022m3	-0.014***	-0.032***	0.030***
					(0.0027)	(0.0032)	(0.0052)
				2022m4	-0.012***	-0.030***	0.031***
					(0.0027)	(0.0032)	(0.0052)
				2022m5	-0.012***	-0.030***	0.031***
					(0.0027)	(0.0032)	(0.0052)
				2022m6	-0.012***	-0.029***	0.029***
					(0.0028)	(0.0033)	(0.0053)
Constant	0.92***	0.93***	0.94***		0.93***	0.93***	0.94***
	(0.0034)	(0.0031)	(0.0038)		(0.0042)	(0.0040)	(0.013)
Observations	2,290,032	1,618,104	671,928		3,433,155	2,494,569	938,586
R-squared	0.129	0.130	0.147		0.133	0.140	0.119
Number of cases	95,418	67,421	27,997		104,035	75,593	28,442
Month FE	X	X	X		X	X	X
Any boost x Month	X	X	X		X	X	X
Dependent variable mean	0.78	0.78	0.80		0.77	0.77	0.79

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file, employment, and unemployment insurance data.

NOTES: Models also include case fixed effects. Column headings indicate sample. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . Robust standard errors in parentheses. Shaded rows indicate months the allotment policies were in effect.

**TABLE E4**

Panel A – Associations with churning off and on CalFresh, for March 2020 cohort

	March 2020, all		No children		Children	
	(1)	(2)	(3)	(4)	(5)	(6)
	90-day churn	60-day churn	90-day churn	60-day churn	90-day churn	60-day churn
Unemployment rate	0.0077*	0.0030	0.011*	0.0063	-0.0076	-0.011
	(0.0035)	(0.0033)	(0.0041)	(0.0039)	(0.0063)	(0.0062)
UI (\$)	1.3e-07	1.4e-07	8.2e-08	8.5e-08	1.3e-06***	1.2e-06***
	(1.1e-07)	(1.1e-07)	(6.9e-08)	(7.2e-08)	(2.0e-07)	(1.9e-07)
CalWORKs (\$)	-6.5e-07***	-5.3e-07***	-6.2e-07***	-4.9e-07***	-4.8e-07	-4.7e-07
	(8.4e-08)	(8.7e-08)	(8.9e-08)	(9.1e-08)	(2.5e-07)	(2.6e-07)
SSI/SSP (\$)	-1.1e-06***	-8.4e-07***	4.0e-07	7.8e-07	-1.4e-06***	-1.0e-06***
	(2.2e-07)	(2.2e-07)	(9.1e-07)	(9.3e-07)	(2.2e-07)	(2.2e-07)
Earnings (\$)	-3.7e-06***	-3.2e-06***	-2.9e-06***	-2.5e-06***	-5.7e-07	-5.7e-07
	(4.6e-07)	(4.3e-07)	(4.8e-07)	(4.4e-07)	(1.7e-06)	(1.6e-06)
County-level COVID deaths	3.6e-07***	3.7e-07***	2.8e-07***	3.0e-07***	5.6e-07***	5.4e-07***
	(5.7e-08)	(6.1e-08)	(6.8e-08)	(7.1e-08)	(1.0e-07)	(1.1e-07)
Boost x Entering CalFresh	-0.16***	-0.15***	-0.16***	-0.14***	-0.17*	-0.20**
	(0.032)	(0.031)	(0.036)	(0.034)	(0.070)	(0.070)
Boost x Entering CalFresh x Month						
2019m7	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)
2019m8	0.10**	0.10**	0.064	0.056	0.21**	0.24**
	(0.034)	(0.033)	(0.038)	(0.036)	(0.077)	(0.077)
2019m9	0.080*	0.096**	0.024	0.036	0.24**	0.27***
	(0.035)	(0.033)	(0.038)	(0.036)	(0.078)	(0.077)
2019m10	0.099**	0.10**	0.058	0.059	0.19*	0.21**
	(0.034)	(0.032)	(0.037)	(0.035)	(0.074)	(0.074)
2019m11	0.11**	0.12***	0.046	0.056	0.19*	0.23**
	(0.034)	(0.033)	(0.038)	(0.036)	(0.076)	(0.075)
2019m12	0.081*	0.096**	0.024	0.033	0.19*	0.25**
	(0.034)	(0.033)	(0.038)	(0.036)	(0.076)	(0.075)
2020m1	0.12***	0.11***	0.070	0.066	0.20**	0.21**
	(0.034)	(0.033)	(0.038)	(0.036)	(0.075)	(0.074)
2020m6	0.16***	0.15***	0.16***	0.14***	0.16*	0.20**
	(0.032)	(0.031)	(0.036)	(0.034)	(0.070)	(0.070)
2020m7	0.16***	0.17*	0.16***	0.048	0.16*	0.26*
	(0.032)	(0.088)	(0.036)	(0.14)	(0.070)	(0.12)
2020m8	0.15***	0.14***	0.13***	0.14***	0.17*	0.19**
	(0.033)	(0.034)	(0.039)	(0.039)	(0.072)	(0.073)
2020m9	0.17***	0.14***	0.17***	0.16***	0.18*	0.15*
	(0.034)	(0.036)	(0.039)	(0.040)	(0.074)	(0.078)
2020m10	0.19***	0.26***	0.18***	0.26***	0.30***	0.39***



	March 2020, all		No children		Children	
	(1)	(2)	(3)	(4)	(5)	(6)
	90-day churn	60-day churn	90-day churn	60-day churn	90-day churn	60-day churn
	(0.038)	(0.044)	(0.042)	(0.051)	(0.084)	(0.089)
2020m11	0.22***	0.043	0.25***	-0.037	0.19*	0.15
	(0.039)	(0.041)	(0.046)	(0.049)	(0.083)	(0.086)
2020m12	0.063	0.049	0.015	-0.014	0.18*	0.20*
	(0.038)	(0.038)	(0.045)	(0.044)	(0.082)	(0.083)
2021m1	0.096*	0.13**	0.016	0.034	0.14	0.21*
	(0.040)	(0.040)	(0.048)	(0.046)	(0.085)	(0.088)
2021m2	0.16***	0.20***	0.16***	0.18***	0.11	0.17*
	(0.039)	(0.039)	(0.045)	(0.045)	(0.081)	(0.083)
2021m3	0.27***	0.31***	0.34***	0.37***	0.088	0.12
	(0.041)	(0.040)	(0.047)	(0.046)	(0.089)	(0.090)
2021m4	0.27***	0.28***	0.31***	0.33***	0.17	0.17
	(0.043)	(0.042)	(0.050)	(0.048)	(0.089)	(0.089)
2021m5	0.32***	0.24***	0.34***	0.21***	0.26**	0.27**
	(0.042)	(0.042)	(0.049)	(0.048)	(0.091)	(0.091)
2021m6	0.22***	0.21***	0.28***	0.26***	0.097	0.14
	(0.040)	(0.039)	(0.046)	(0.045)	(0.085)	(0.084)
2021m7	0.21***	0.18***	0.27***	0.23***	0.16	0.15
	(0.041)	(0.040)	(0.046)	(0.045)	(0.090)	(0.089)
2021m8	0.16***	0.15***	0.18***	0.14**	0.19*	0.21*
	(0.041)	(0.040)	(0.047)	(0.046)	(0.086)	(0.085)
2021m9	0.20***	0.21***	0.18***	0.18***	0.24**	0.26**
	(0.040)	(0.038)	(0.046)	(0.044)	(0.085)	(0.084)
Constant	0.00024	0.00037	-0.000024	0.00011	0.00046	0.00055
	(0.00020)	(0.00019)	(0.00023)	(0.00021)	(0.00038)	(0.00037)
Observations	2,290,032	2,290,032	1,618,104	1,618,104	671,928	671,928
R-squared	0.515	0.440	0.499	0.424	0.563	0.490
Number of cases	95,418	95,418	67,421	67,421	27,997	27,997
Month FE	X	X	X	X	X	X
Entering in CF x Month	X	X	X	X	X	X
Any boost from EA x Month	X	X	X	X	X	X
Dependent variable mean	0.0086	0.0071	0.0081	0.0066	0.0099	0.0084

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file, employment, and unemployment insurance data.

NOTES: Models also include case fixed effects. Column headings indicate sample. Quarter 2 of 2020 omitted. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001. Robust standard errors in parentheses. Regressions run on a 5% sample of cohort; standard errors would be smaller with the entire sample. Shaded rows indicate months the allotment policy was in effect.

Panel B - Associations with churning off and on CalFresh, for April 2021 cohort

	April 2021, all		No children		Children	
	(1)	(2)	(3)	(4)	(5)	(6)
	90-day churn	60-day churn	90-day churn	60-day churn	90-day churn	60-day churn
Unemployment rate	-0.0097*	-0.0072	-0.010*	-0.0085	-0.0021	0.0012
	(0.0044)	(0.0041)	(0.0049)	(0.0046)	(0.0090)	(0.0085)
UI (\$)	5.6e-07***	5.0e-07***	5.1e-07***	4.6e-07***	5.1e-07	4.3e-07
	(9.0e-08)	(8.1e-08)	(5.6e-08)	(5.2e-08)	(2.6e-07)	(2.2e-07)
CalWORKs (\$)	-5.1e-07***	-4.2e-07***	-2.4e-07*	-1.6e-07	-1.3e-06***	-1.1e-06***
	(1.0e-07)	(9.6e-08)	(1.1e-07)	(1.0e-07)	(2.6e-07)	(2.5e-07)
SSI/SSP (\$)	-1.8e-06***	-1.5e-06***	-1.4e-06*	-2.0e-06	-1.7e-06***	-1.3e-06***
	(1.9e-07)	(2.2e-07)	(5.9e-07)	(1.1e-06)	(2.0e-07)	(2.0e-07)
Earnings (\$)	-4.9e-06***	-4.2e-06***	-4.3e-06***	-3.6e-06***	1.2e-06	-4.2e-07
	(3.1e-07)	(2.9e-07)	(3.0e-07)	(2.9e-07)	(1.8e-06)	(1.7e-06)
County-level COVID deaths	1.4e-06	8.3e-07	1.4e-06	6.6e-07	1.1e-06	8.6e-07
	(8.9e-07)	(8.5e-07)	(1.1e-06)	(9.6e-07)	(1.6e-06)	(1.7e-06)
Boost x Entering CalFresh	-0.019	-0.020	-0.048	-0.048	0.0087	0.047
	(0.027)	(0.025)	(0.033)	(0.032)	(0.048)	(0.046)
Boost x Entering CalFresh x Month						
2019m10	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)
2019m11	0.073*	0.067*	0.15***	0.14***	0.022	-0.015
	(0.031)	(0.030)	(0.037)	(0.036)	(0.059)	(0.057)
2019m12	0.091**	0.080**	0.16***	0.14***	0.011	-0.030
	(0.031)	(0.030)	(0.038)	(0.036)	(0.059)	(0.056)
2020m1	0.053	0.045	0.12**	0.10**	0.0010	-0.044
	(0.031)	(0.029)	(0.037)	(0.036)	(0.058)	(0.056)
2020m2	0.062	0.046	0.13**	0.098**	0.0025	-0.026
	(0.032)	(0.031)	(0.039)	(0.037)	(0.062)	(0.060)
2020m3	0.073*	0.058*	0.13***	0.11**	0.039	-0.015
	(0.030)	(0.029)	(0.037)	(0.035)	(0.057)	(0.054)
2020m4	0.057*	0.050	0.090**	0.076*	0.044	-0.00018
	(0.028)	(0.027)	(0.035)	(0.033)	(0.053)	(0.050)
2020m5	0.034	0.037	0.077*	0.080*	0.032	-0.012
	(0.028)	(0.027)	(0.035)	(0.033)	(0.055)	(0.053)
2020m6	0.041	0.044	0.080*	0.078*	-0.0044	-0.022
	(0.030)	(0.028)	(0.036)	(0.034)	(0.056)	(0.053)
2020m7	0.017	0.021	0.052	0.050	0.011	-0.013
	(0.028)	(0.026)	(0.034)	(0.033)	(0.055)	(0.053)
2020m8	0.053	0.054	0.13***	0.12***	0.065	0.027
	(0.030)	(0.029)	(0.037)	(0.036)	(0.055)	(0.054)
2020m9	0.062*	0.060*	0.10**	0.11**	0.095	0.027
	(0.031)	(0.030)	(0.038)	(0.037)	(0.059)	(0.057)

	April 2021, all		No children		Children	
	(1)	(2)	(3)	(4)	(5)	(6)
	90-day churn	60-day churn	90-day churn	60-day churn	90-day churn	60-day churn
2020m10	0.011	0.0067	0.072	0.060	-0.015	-0.064
	(0.032)	(0.030)	(0.039)	(0.036)	(0.059)	(0.057)
2020m11	0.067*	0.059*	0.14***	0.12***	0.0069	-0.030
	(0.030)	(0.028)	(0.037)	(0.035)	(0.054)	(0.053)
2020m12	0.089**	0.080**	0.15***	0.14***	0.042	-0.0069
	(0.029)	(0.027)	(0.035)	(0.034)	(0.053)	(0.052)
2021m1	0.054	0.047	0.12***	0.11**	0.0085	-0.036
	(0.029)	(0.027)	(0.036)	(0.034)	(0.054)	(0.051)
2021m2	-0.0094	-0.0066	0.064	0.059	-0.027	-0.066
	(0.029)	(0.028)	(0.036)	(0.035)	(0.054)	(0.052)
2021m3	-7.8e-06	-0.0095	0.047	0.033	-0.032	-0.074
	(0.029)	(0.028)	(0.036)	(0.034)	(0.054)	(0.052)
2021m5	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)
2021m6	0.019	0.020	0.047	0.046	-0.0066	-0.044
	(0.027)	(0.025)	(0.033)	(0.032)	(0.048)	(0.046)
2021m7	0.019	0.020	0.047	0.048	-0.0082	-0.046
	(0.027)	(0.025)	(0.033)	(0.032)	(0.048)	(0.046)
2021m8	0.017	0.090**	0.046	0.15***	-0.011	-0.015
	(0.027)	(0.034)	(0.033)	(0.042)	(0.048)	(0.062)
2021m9	0.055	0.074*	0.083*	0.14**	0.017	-0.020
	(0.032)	(0.035)	(0.040)	(0.044)	(0.060)	(0.066)
2021m10	0.081*	0.059	0.11*	0.083	0.10	0.037
	(0.035)	(0.035)	(0.043)	(0.044)	(0.063)	(0.067)
2021m11	0.061	0.066	0.12**	0.12**	-0.022	-0.052
	(0.038)	(0.037)	(0.046)	(0.046)	(0.069)	(0.070)
2021m12	-0.0053	-0.027	0.085	0.019	-0.056	-0.081
	(0.037)	(0.037)	(0.047)	(0.046)	(0.062)	(0.065)
2022m1	0.013	0.043	0.038	0.094*	0.031	-0.033
	(0.037)	(0.036)	(0.045)	(0.045)	(0.066)	(0.066)
2022m2	0.040	0.058	0.072	0.086	0.025	-0.0050
	(0.037)	(0.037)	(0.047)	(0.046)	(0.066)	(0.067)
2022m3	0.060	0.056	0.12**	0.12**	-0.018	-0.076
	(0.036)	(0.035)	(0.046)	(0.045)	(0.064)	(0.062)
2022m4	0.035	0.038	0.083	0.078	-0.055	-0.083
	(0.037)	(0.036)	(0.046)	(0.046)	(0.066)	(0.065)
2022m5	0.036	0.011	0.057	0.036	-0.013	-0.091
	(0.037)	(0.036)	(0.045)	(0.044)	(0.067)	(0.065)
Constant	0.0016***	0.0013***	0.0016***	0.0013***	0.00066	0.00031

	April 2021, all		No children		Children	
	(1)	(2)	(3)	(4)	(5)	(6)
	90-day churn	60-day churn	90-day churn	60-day churn	90-day churn	60-day churn
	(0.00038)	(0.00035)	(0.00042)	(0.00040)	(0.00078)	(0.00073)
Observations	3,433,155	3,433,155	2,494,569	2,494,569	938,586	938,586
R-squared	0.462	0.385	0.464	0.387	0.479	0.402
Number of cases	104,035	104,035	75,593	75,593	28,442	28,442
Month FE	X	X	X	X	X	X
Entering in CF x Month	X	X	X	X	X	X
Any boost from EA x Month	X	X	X	X	X	X
Dependent variable mean	0.0080	0.0064	0.0074	0.0059	0.0096	0.0078

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file, employment, and unemployment insurance data.

NOTES: Models also include case fixed effects. Column headings indicate sample. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001. Robust standard errors in parentheses. Regressions run on a 5% sample of cohort; standard errors would be smaller if the entire sample was used. Shaded rows indicate months the allotment policy was in effect.

**TABLE E5**

Associations with having any earnings from UI-covered jobs

	March 2020 boost			April 2021 boost			
	(1) All	(3) No children	(5) Children		All	No children	Children
Unemployment rate	-0.011*** (0.001)	-0.011*** (0.001)	-0.009*** (0.001)		-0.013*** (0.001)	-0.014*** (0.001)	-0.012*** (0.001)
County-level COVID deaths	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)		0.000* (0.000)	0.000* (0.000)	0.000*** (0.000)
Any boost x Enrolled in CalFresh	0.029 (0.029)	0.007 (0.038)	0.012 (0.057)		0.011 (0.007)	0.034*** (0.006)	-0.009 (0.009)
Any boost x Enrolled in CalFresh x Quarter							
2018q3	-0.022 (0.031)	-0.017 (0.040)	0.074 (0.059)	2019q4	0.114*** (0.010)	0.110*** (0.012)	0.040* (0.016)
2018q4	-0.044 (0.031)	-0.040 (0.040)	0.043 (0.059)	2020q1	0.091*** (0.010)	0.076*** (0.011)	0.057*** (0.016)
2019q1	-0.035 (0.031)	-0.024 (0.040)	0.052 (0.059)	2020q2	0.031** (0.010)	0.023* (0.011)	0.019 (0.016)
2019q2	-0.037 (0.031)	-0.020 (0.040)	0.024 (0.059)	2020q3	-0.017 (0.010)	-0.019 (0.011)	-0.031 (0.017)
2019q3	-0.053 (0.031)	-0.032 (0.040)	0.031 (0.059)	2020q4	-0.002 (0.010)	-0.011 (0.012)	0.001 (0.018)
2019q4	-0.079* (0.031)	-0.037 (0.040)	-0.045 (0.062)	2021q3	-0.019* (0.009)	-0.020* (0.010)	-0.029 (0.015)
2020q3	-0.032 (0.029)	-0.014 (0.038)	-0.007 (0.058)	2021q4	-0.001 (0.007)	-0.006 (0.008)	0.008 (0.011)
2020q4	-0.010 (0.030)	-0.008 (0.039)	0.009 (0.058)	2022q1	-0.010 (0.006)		
2021q1	-0.007 (0.030)	-0.006 (0.039)	0.012 (0.058)				
2021q2	-0.006 (0.030)	-0.014 (0.039)	0.033 (0.059)				

	March 2020 boost			April 2021 boost		
	(1) All	(3) No children	(5) Children	All	No children	Children
2021q3	0.001 (0.030)	-0.006 (0.039)	0.034 (0.059)			
Constant	0.880*** (0.018)	0.830*** (0.024)	0.952*** (0.026)	0.756*** (0.006)	0.712*** (0.004)	0.861*** (0.005)
Observations	589,095	371,917	217,178	694,298	459,580	234,718
R-squared	0.062	0.072	0.044	0.041	0.050	0.027
Number of cases	45,315	28,609	16,706	63,118	41,780	21,338
Quarter FE	X	X	X	X	X	X
Enrolled in CF x Quarter	X	X	X	X	X	X
Any boost x Quarter	X	X	X	X	X	X
Dependent variable mean	0.698	0.631	0.813	0.641	0.580	0.759

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file, employment, and unemployment insurance data.

NOTES: Models also include case fixed effects. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001. Robust standard errors in parentheses. Column headings indicate sample. Shaded rows indicate quarters the allotment policy was in effect.

**TABLE E6**

Associations with changes in amount of earnings from UI-covered jobs

	March 2020 boost			April 2021 boost			
	(1)	(3)	(5)				
	All	No children	Children	All	No children	Children	
Unemployment rate	-12.53**	-17.8**	-11.4*	-32.2***	-30.5***	-17.1***	
	(4.42)	(6.4)	(4.8)	(4.2)	(5.9)	(4.4)	
Any UI benefits	-1,014.26***	-1,155.1***	-841.6***	-1,246.8***	-1,390.5***	-895.9***	
	(20.24)	(28.9)	(20.2)	(18.1)	(22.5)	(28.0)	
County-level COVID deaths	0.00	0.0	0.0	-0.0	0.0	0.0	
	(0.00)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	
Any boost x Enrolled in CalFresh	126.86	67.8	554.7*	-387.9***	-352.6***	-186.9*	
	(243.60)	(312.4)	(220.0)	(64.4)	(79.5)	(77.7)	
Any boost x Employed in quarter	-778.13	48.3	-120.1	-488.5***	-1,541.9***	-466.5***	
	(424.49)	(581.3)	(432.1)	(123.3)	(170.9)	(136.9)	
Enrolled in CalFresh x Employed	-1,604.12***	-1,755.3***	-812.6*	-2,914.2***	-3,549.6***	-1,495.5***	
	(349.97)	(417.0)	(396.7)	(79.1)	(121.0)	(76.8)	
Any boost x Enrolled in CF x Employed x Quarter							
2018q3	-82.87	63.1	387.2	2019q4	980.3***	1,269.7***	-119.5
	(438.58)	(600.8)	(461.7)		(143.3)	(204.1)	(162.4)
2018q4	-200.74	-135.3	599.6	2020q1	612.2***	579.3**	-66.0
	(439.84)	(601.8)	(464.6)		(151.3)	(195.1)	(244.5)
2019q1	-128.58	57.3	278.2	2020q2	9.5	-153.1	-248.4
	(439.14)	(601.4)	(454.8)		(149.3)	(199.6)	(213.6)
2019q2	-139.62	21.1	252.7	2020q3	-20.9	-249.1	-478.1**
	(441.14)	(601.8)	(458.0)		(145.2)	(200.7)	(175.9)
2019q3	-119.30	79.9	677.2	2020q4	-435.5**	-742.5***	-628.0**
	(445.60)	(604.6)	(497.0)		(159.4)	(215.1)	(191.3)
2019q4	-163.73	392.1	-42.3	2021q3	-241.4	-500.7*	-384.4*
	(470.08)	(627.6)	(577.8)		(160.7)	(208.8)	(194.2)
2020q3	-416.51	-342.6	287.4	2021q4	-225.2	-267.9	-346.0**

	March 2020 boost				April 2021 boost		
	(1)	(3)	(5)		All	No children	Children
	All	No children	Children		All	No children	Children
	(430.09)	(590.5)	(468.8)		(123.9)	(175.9)	(134.2)
2020q4	-93.96	131.9	361.6	2022q1	-187.4	-197.6	-318.2**
	(431.87)	(590.7)	(471.7)		(98.9)	(143.9)	(110.5)
2021q1	38.17	190.6	149.1				
	(431.16)	(593.6)	(454.9)				
2021q2	54.66	24.2	210.8				
	(440.53)	(603.3)	(465.3)				
2021q3	220.36	304.9	208.5				
	(434.46)	(596.4)	(452.2)				
Constant	540.11***	710.1***	829.5***		798.6***	1,124.2***	805.0***
	(138.88)	(174.8)	(122.7)		(49.8)	(63.7)	(60.5)
Observations	575,835	366,548	209,287		694,298	459,580	234,718
R-squared	0.29	0.3	0.3		0.3	0.3	0.2
Number of cases	44,295	28,196	16,099		63,118	41,780	21,338
Quarter FE	X	X	X		X	X	X
Enrolled in CF x Quarter	X	X	X		X	X	X
Any boost x Quarter	X	X	X		X	X	X
Employed x Quarter	X	X	X		X	X	X
Enrolled in CF x Boost x Quarter	X	X	X		X	X	X
Enrolled in CF x Employed x Quarter	X	X	X		X	X	X
Employed x Boost x Quarter	X	X	X		X	X	X
Dependent variable mean	2994	3590	6927		3085	3710	6737

SOURCES: Authors' analysis of Monthly Medi-Cal Eligibility Data System Eligibility Files (MEDS MEF), Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS), and Employment Development Department base wage file, employment, and unemployment insurance data.

NOTES: Models also include case fixed effects, . \* p<0.05; \*\* p<0.01; \*\*\* p<0.001. Robust standard errors in parentheses. Column headings indicate sample. Dollar values adjusted for inflation and to pertain to a case size of one. Shaded rows indicate quarters the allotment policy was in effect.





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