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The Role of CalFresh in Stabilizing Family Incomes

Technical Appendices

CONTENTS

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Appendix A. Policy Context

One policy that has had the potential to impact adults in the focal group for this analysis is the time limit introduced for able-bodied adults without dependents (ABAWDs) by the Personal Responsibility and Work Opportunity Act of 1996 (PRWORA, commonly called welfare reform): this rule limits eligibility to 3 months of benefits in a 36-month period if not working at least 80 hours a month or otherwise exempt. In this context, disability status is conferred if a SNAP participant receives federal disability benefits, although this is not the only way to confer disability status, and dependents do not include noncustodial children. "Working" can include state-approved workfare programs and certain education and training activities. These waivers are based on economic conditions, but not necessarily the local labor markets that SNAP participants face.

A 2005 California law requires CDSS to seek waivers on behalf of all counties that may be eligible to rescind time limits for ABAWDs. California waived all time limits between 2009 and 2018, but time limits were reinstated in September 2018 for Santa Clara, San Mateo, and San Francisco Counties, and in September 2019 for Alameda, Contra Costa, and Marin Counties. In February 2019, the USDA began a process of changing regulations to restrict the number of areas that could qualify for a waiver. By USDA estimates, the proposed rule change could reduce the number of waived areas by 75 percent. This regulatory change has officially been rescinded.

In April 2020, federal law waived time limits for all ABAWDs, nationally and through the end of the COVID-19 pandemic public health emergency. Currently, the USDA FNS has approved California's statewide ABAWD time limit waiver request effective July 1, 2022 through June 30, 2023 (California Department of Social Services 2022a). The statewide waiver was approved based on California's qualifying for extended unemployment benefits based on Department of Labor metrics.

In June 2019, SSI/SSP recipients became eligible for CalFresh food assistance, provided all eligibility criteria are met (AB 1811). This California law reversed the "cash-out" policy, under which the state supported food nutrition through its SSP benefit. Under the cash-out policy, SSP included an additional $10 per month in lieu of individuals having CalFresh eligibility. Reversing this policy made about 1.3 million existing SSI recipients eligible for CalFresh. SSI/SSP provides assistance for individuals who are disabled, blind, or seniors with limited income and resources. In 2019, about 44 percent of SSI recipients were adults, ages 18 through 64.

In March 2020, CalWORKs and CalFresh paused eligibility reviews under executive order N-29-20, cancelling 6-month recertifications and pushing out 12-month recertifications by 6 months for CalFresh households with recertifications due in March, April, and May (ACWDL 27-20). In response to the pandemic, CDSS instructed county welfare departments to provide welfare-to-work (WTW) good cause and exemptions for CalWORKs participants, therefore suspending work requirements. These waivers, including the WTW "blanket good cause" are in effect until the state COVID-19 pandemic public health emergency ends.

Additionally, the USDA FNS has approved CalFresh emergency allotments (EA) each month in response to the pandemic (ACWDL 2-21). First issued in April 2020, the EAs initially increased the monthly allotment for CalFresh households up to the maximum monthly allotment for a household of that size. EAs were adjusted starting in April 2021 (which is outside the time period of our analysis) so that cases would receive a minimum additional allotment of $95—providing a boost for the lowest-income participants, who were income-eligible for the maximum CalFresh benefits for their household size. California can continue to seek federal funding for EAs so long as both federal and state declarations of emergency remain active. CalFresh benefit amounts were also increased by 15 percent between January and September 2021. In October 2021, as the 15 percent increase

expired, permanent revisions to the assumptions underlying benefit amount calculations (an update to the Thrifty Food Plan directed by the 2018 Farm Bill) took effect, lifting base benefit amounts by on average 27 percent.

The COVID-19 pandemic led to increases in the level of UI claims filed in California. The 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 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.

Appendix B. Literature Review

The research literature on income volatility broadly examines fluctuations in resources that, when involuntary, can disrupt individuals' abilities to meet their basic needs or plan for the future. A significant amount of work in this area has focused on changes between earnings in one year and those in the next, or year-on-year volatility (e.g. Gottschalk and Moffitt 2009; Dahl, DeLeire, and Schwabish 2011; Hardy and Ziliak 2014), but instability can also be measured at weekly, monthly, and quarterly levels, depending on data availability (e.g. Schneider and Harknett 2017; Ha et al. 2020; McKinney and Abowd 2020). Additionally, the field has a growing understanding that instability has multiple dimensions, among which family income volatility is one that influences and is influenced by instability in connection with safety net resources, and in household membership (Hill et al. 2017; Ha et al. 2020; Hardy, Hill, and Romich 2019; Morrissey et al 2020).

Scholars have not examined income volatility specifically in California. Nationally, evidence suggests that over the past few decades, family incomes have become increasingly volatile (Gottschalk and Moffitt 2009; Dynan et al. 2012; Hardy and Ziliak 2014, Carr and Wiemers 2018). Regarding individual incomes, trends differ for men and women, although nearly all research has focused exclusively on men. After conflicting evidence from survey and administrative datasets on changes in year-on-year earnings volatility for men starting in the 1980s, merging survey and administrative sets shows that men have not experienced rising volatility in these decades, although their earnings volatility has been countercyclical (Moffitt et al. 2021; Carr and Hardy 2022). The few studies that have explored volatility for women find that their earnings volatility has declined since the 1980s (Carr and Hardy 2022; Ziliak, Hardy, and Bollinger 2011).

Disaggregating these trends by race/ethnicity shows that although overall, the rate at which men experienced earnings volatility did not change between the 1980s and 2010s, Black men experienced rising income volatility during this time period, and Black women saw earnings volatility decrease by significantly less than women of other race/ethnicities did (Carr and Hardy 2022). This bigger picture of African Americans in particular experiencing higher rates of income volatility is consistent with the overrepresentation of Black and Latino people in sectors including agriculture, construction, service, and care that rely on variable and temporary employment schedules (Kim and Golden 2021; Schneider and Harknett 2021). Also see Employed persons by detailed industry, sex, race, and Hispanic or Latino ethnicity (bls.gov) for industry breakdowns.

Researchers have looked to trends in income volatility in part because structural labor market shifts since the 1980s that have resulted in reduced opportunity and economic mobility for less educated workers also point toward increasingly volatile incomes for lower-paid workers. Precarious jobs – those that are designed to be temporary, or variable in scheduling – have become more common, particularly among low-wage professions (Kalleberg and Vallas 2018; Lambert and Henly 2013). Income volatility also reflects trends in connection to the labor market. Carr and Hardy (2022) point out the connected trends of Black men seeing increased income volatility along the same timeline that they experienced rapid increases in both non-employment and part-year employment.

Earnings volatility has indeed increased more rapidly over time for low-income families and those with less education (Dynan et al. 2012; Western et al. 2016; Morduch and Schneider 2017). It has also been higher at any given point for the lowest income families (Western et al. 2016; Morduch and Schneider 2017; Wolf et al. 2014); although volatility can also be high for the highest earners, the highest earners are also those who have the ability to self-insure with savings or borrow to replace income (Hardy and Ziliak 2014).

A related strand of research approaches resource volatility in terms of consumption, exploring the extent to which families respond to income shocks with reduced spending, or effectively smooth spending in periods of reduced

income by dipping into savings or credit (Attanasio and Weber 2010). Consumption is highly sensitive to income, dropping sharply during unemployment spells when UI benefits end (Ganong and Noel 2019). Lower income families, people with lower education levels, and African Americans experience both lower consumption and higher within-year consumption volatility than others, particularly in spending on food and clothing (Fisher and Hardy 2022). The larger reduction of consumption by Black and Latino households than by white households in response to income shocks of similar magnitudes reflects the large wealth disparities between white and Black and Latino households (Ganong et al. 2020). There is some evidence that consumption volatility increased between the 1980s and 2000s (Dogra and Gorbachev 2015).

Related to our work on SNAP, there is some evidence that resources from SNAP in particular effectively stabilize resources (Gunderson and Ziliak 2003). The income-stabilizing effects of SNAP benefits have decreased over time, however, as program eligibility has been increasingly tied to employment, just as the safety net overall has become less responsive to unemployment (Hardy 2017; Bitler and Hoynes 2016). At the same time, others find SNAP benefits may mostly boost average income rather than stabilizing it, and that the tie between income volatility and program eligibility may have the effect of added safety net resources actually amplifying overall volatility (Morduch and Siwicki 2017). Earlier research found that volatility is associated with lower participation in SNAP, even among eligible families (Moffitt and Ribar 2008). Given the lengthening of intervals between required reporting and recertification that happened over the early 2000s, the tie is plausibly weaker now (Danielson et al. 2011).

Appendix C. Data

To conduct the analyses, we require longitudinal data on CalFresh participants' main cash and near-cash income sources. Using state administrative data sources, we are able to track monthly or quarterly amounts from the following sources: CalFresh food assistance, CalWORKs cash assistance, Unemployment insurance (UI)-covered earnings, and UI payments (for some adults). In addition, we impute amounts for Supplemental Security Income (SSI) / Supplementary State Payment (SSP) benefits to eligible disabled, blind and elderly individuals.

Individuals and families who access CalFresh do have other sources of income that we are unable to track. Table C1 provides a much longer list of income sources among cases with any adult age 25-54. These sources are tracked by the federal government for purposes of determining payment accuracy. Because these sources are tracked for a point-in-time sample, they are not fully representative of the adult CalFresh entrants who are the focus of this report.

However, we note that the most common single sources of income that we are not able to track among this sample are child support, self-employment, and Retirement, Survivors and Disability Insurance (RSDI), which each are a source of income for under 10 percent of the overall sample. In contrast, 28 percent of the sample has earnings from an employer and 18 percent has income from TANF/CalWORKs. On the one hand, our inability to track income from child support and self-employment could bias our findings either towards or away from instability, as these income sources may be intermittent. This is particularly relevant for single parent CalFresh cases, 21 percent of whom in cross-section had income from child support. It is also relevant for multiple adult cases with children, 14 percent of which had income from child support. On the other hand, RSDI is likely to be a constant source; not factoring it in biases our findings towards instability since RSDI likely contributes to stability.

The bottom two rows of the table also corroborate a takeaway from Figure 4 that at any given time, a substantial fraction of CalFresh cases have no source of income apart from CalFresh.

TABLE C1

Point-in-time characteristics of income among CalFresh cases with any adult age 25-54, FFY 2019

	Overall (%)	Single adults (%)	Single adults with child(ren) (%)	Multiple adults (%)	Multiple adults with child(ren) (%)
Any earnings (wages from employer)	28.2	11.2	35.1	28.3	52.9
Any TANF	18.2	n/a	36.7	n/a	27.2
Any self-employment	6.6	5.0	3.6	n/a	14.1
Any SSI/SSP	2.9	4.8	n/a	n/a	n/a
Any GA	4.8	10.6	n/a	n/a	n/a
Any child support	8.6	n/a	20.5	n/a	7.9
Any RSDI	5.9	7.4	3.9	n/a	n/a
Any other income sources	10.9	9.6	11.4	n/a	11.3
No earnings (wages from employer)	71.8	88.8	64.9	71.7	47.2
No income	33.3	56.1	17.4	n/a	11.0
N	2,831	1,132	1,009	114	576

SOURCES: Authors' analysis of FFY 2019 SNAP RADEP QC data.

NOTES: Sample includes cases with any adult age 25-54. N/A indicates sample size for the numerator is under 30. These percentages are weighted using the person weights in the SNAP RADEP QC data. Any other income sources includes: other earned income, energy assistance, wage supplementation, Veterans benefits, unemployment compensation, workmen's compensation, other government benefits, foster care income, contribution, deemed income, educational grants/scholarship/loans, other unearned income, state only diversion payment, interest income, and unknown.

Data sources

Our data on CalFresh participation come from the 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 Medi-Cal, CalFresh, and CalWORKs eligibility histories. Throughout, we use data spanning 2014-2020. In this report, we use three components of the LDB:

1. The eligibility file, which contains individual-level records of program receipt by month, as well as basic demographic variables
2. The case number file, which contains individual-level records of case numbers by month.
3. The county file, which contains individual-level records of county of participation by month.

We also use MEDS data stored in SSNSORT files[1], which are compiled each month with monthly data on county codes and aid codes (including those for CalWORKs, SSI/SSP, and In-Home Supportive Services) for the previous 12 months. These files are used to construct the SNAP and TANF LDBs; we use the SSNSORT files created in June and December of each year from 2014 to 2020.

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

[1] When SSNSORT files are created, files are sorted by Social Security Number, hence the name SSNSORT.

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, which we observe within the window of July 2014 to December 2020. 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 to June 2021. 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. See the discussion below.

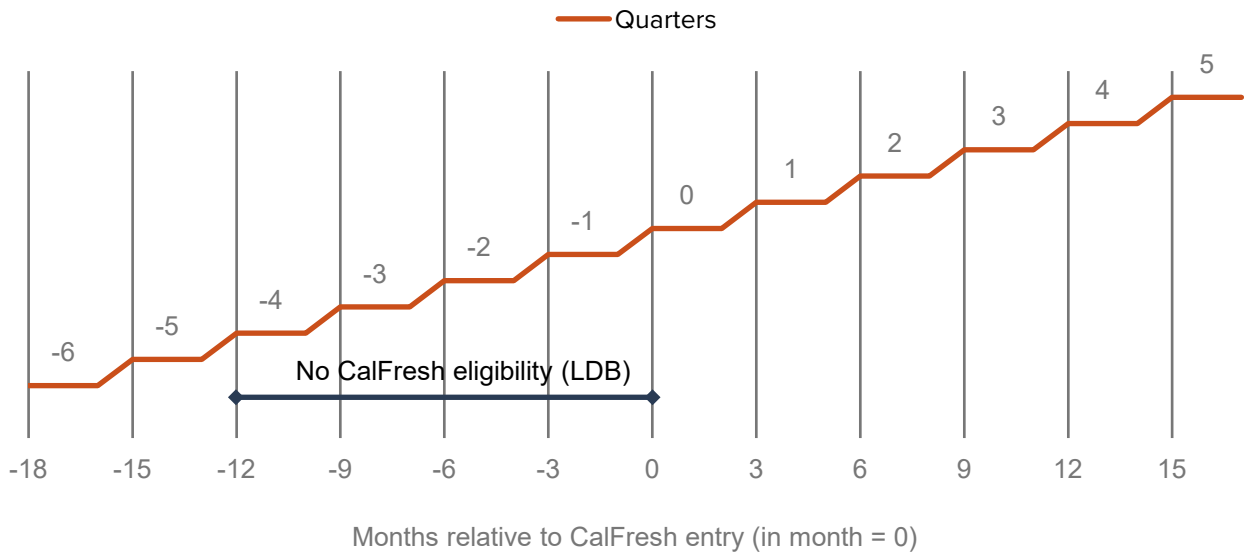
To incorporate information on CalFresh and CalWORKs benefit payments, we use monthly payment records from benefit issuance data, known as Electronic Benefits Transfer (EBT)/Statewide Automated Reconciliation Systems (SARS). We have data spanning from FFY 2012 through FFY 2020. Other benefit payment data are not available to us, so we impute amounts for those with SSI/SSP aid codes. This imputation is described below.

In a supplementary analysis summarized in Table C1, we leverage data from the Research and Development Enterprise Project (RADEP), a random sample of CalFresh cases sampled throughout the federal fiscal year and used to fulfill federal data reporting requirements. Data from the SNAP RADEP are point-in-time, but include more detailed information about household composition and income sources than do the longitudinal data sources that we access. We use data from FFY 2019.

Constructing the analysis cohort

This study focuses on working-age adults who start a new CalFresh spell between January 2016 and September 2020. This is their focal CalFresh spell. "Working age" refers to people ages 25 to 54 as of their first month of CalFresh. We define a spell as "new" when it begins after 12 or more months without CalFresh participation. Because the window available to us for tracking employment ranges from 18 months before a new CalFresh spell to up to 18 months after, we track adults in the analysis cohort for a broader span of dates: from July 2014 through December 2020 (when our data end). Figure C1 illustrates the time span in months and quarters that we capture relative to an individual's CalFresh entry month.

FIGURE C1
Schematic of longitudinal tracking of CalFresh adult sample



NOTES: MEDS and SARS data are at monthly intervals while EDD data are at quarterly intervals. See the text for additional details.

We drop 7,855 adults who have a record in the SNAP LDB, but only recorded income sources in the other data sources in the quarter of CalFresh entry. The final sample size is 753,445. Some adults do have relatively long stretches of no income, and we cannot rule out that some of these adults moved out of state or were incarcerated. Table D4 shows the share with no income during each quarter if we limit the sample to those who had at least one quarter of positive income in the 18 months prior to enrolling in CalFresh. While trends are similar, levels of earnings and income are substantially higher. We do not use this more restrictive sample definition because evidence from the RADEP shown in Table C1 above indicates that the less restrictive sample is not unrepresentative of the actual economic circumstances of CalFresh participants.

Adults in this age group make up less than half of all CalFresh participants: in January 2019, 44 percent of CalFresh participants were under age 18, 48 percent were ages 18-64, and 8 percent were age 65 or older. As described below, we do include income from other CalFresh case members in the focal adults' income.

Household concept

To calculate income, we also require information about who is in the household or family of the focal adult. We approximate the household by assuming that the CalFresh case that the adult is on at the start of their focal spell comprises the household, and that it does not change over the 18 quarters that we track the adult. We include sources of income from these case members in the tracked income sources for the focal adult.

The CalFresh case is not necessarily the family that shares resources. However, the concepts are substantially similar. According to Food and Nutrition Service rules for SNAP, "Everyone who lives together and purchases and prepares meals together is grouped together as one SNAP household." In addition, spouses and most children under age 22 are by regulation required to be in the same SNAP unit regardless of whether they shop and prepare meals together.[2]

We determine case size in the month of CalFresh entry. To the extent that household composition is changing over the course of the time we track these individuals, we are likely underestimating income volatility. However, using recent California responses from the Survey of Income and Program Participation (SIPP), we find that about 4.3 percent of households who ever have CalFresh benefits change household size within a year of beginning CalFresh participation. Less than 1.0 percent of households that start a CalFresh spell change household size in the same month, and this is similar in households ending a CalFresh spell.[3] Table C2 shows that, in our sample, about 10 percent of cases have CalFresh before the start of the focal spell. In many cases, this is due to other individuals having CalFresh (which we track as an income source), although a few focal adults did have CalFresh in the 5th or 6th quarter before their focal CalFresh start. Only 2.4% of focal adults have a different case in the 5th or 6th quarter before CalFresh start. About 1.9 percent of focal cases change size in the six quarters after the focal start, and 5.5 percent of focal adults change case numbers in the 6 quarters after they enroll. In sum, while cases do change composition, these changes are fairly uncommon over the course of the 12 quarters that we track the focal adults.

[2] For those with CalWORKs, we could instead track their CalWORKs case – but only a minority of focal adults ever access CalWORKs.
[3] SIPP 2018, covering calendar year 2018. We exclude January observations due to seam bias.

TABLE C2
Case changes

	Focal case active in 12 months before adult joins	Change in case number		Change in size of case
		Before start of focal spell	After start of focal spell	
Single person case at start	0.091	0.026	0.062	0.006
Multiple person case at start	0.109	0.022	0.047	0.033
Overall	0.100	0.024	0.055	0.019
Total N	753,445	753,445	753,445	753,445

SOURCES: Authors' analysis of SNAP LDB and SSNSORT 2014-2020.

NOTES: "Focal case active before CalFresh" column shows share of individuals whose case numbers are active in the year before they enroll (i.e. before quarter 0). "Change of case number" columns show share of individuals with a case number other than that of their focal CalFresh spell, out of those with any active case number in time period. "Change in size of case" column shows share of individuals whose focal case changes size while they are a member, after their first quarter enrolled (i.e. after quarter 0).

Other case and individual-level characteristics are also not time-varying and are determined in the month of CalFresh start. These include: race/ethnicity, gender, preferred language of written communication with the state and/or county, and county of residence. County of residence is determined in the month of CalFresh start.

For comparison purposes, we also construct income for the adult themselves by summing their own amounts earnings, UI, and SSI/SSP. For CalWORKs and CalFresh, which are provided to the entire case, we prorate based on the ratio of the maximum CalFresh benefit for a single person to the benefit for the actual case size. This case concept has the advantage that it does not require information about possibly shifting household membership. At the same time, it has the disadvantage that it is distinctly unrealistic for those in multi-member households.

Appendix Tables D7 through D9 provide some comparisons across the two concepts for ratios of earnings and income, average earnings and income, and changes in earnings and income. The levels and trends in income and earnings are similar. As expected, changes tend to be larger for the individual concept versus the case concept.

Data cleaning and summary variable construction

Employment at focal entry. We separate CalFresh entrants into three categories based on their employment in the quarter before entry: those who have no job in that quarter, those who leave their primary job, and those who hold a job that continues after they begin receiving benefits. The first category, "no job," simply flags those who have no recorded earnings in the quarter before their focal CalFresh spell begins. Some of these individuals gained a job in the quarter of entry, but most did not. The second, measuring primary job separations, captures a change in the employer from which a person earns the largest share of their quarterly earnings between the quarter prior to CalFresh entry and quarter of entry. This captures both complete and partial separations from the pre-CalFresh employer. The third category, measuring continuous jobs, captures all other cases: people who had one or more employer in the quarter before CalFresh entry, and continued to earn the largest share of their earnings from the same employer in their first quarter enrolled. Table C3 summarizes case-level earnings we observe in the quarter before entry and the quarter of entry across these three categories of employment.

TABLE C3

Share with earnings in the quarter prior to, and the quarter of, CalFresh entry across employment categories

	Quarter relative to CalFresh start	Continued a job (%)	Separated from a job (%)	No earnings (%)
Earliest cohort: Started CalFresh between 2016 Q1 – 2019 Q2	-1	100	99	13
	0	99	55	28
Early cohort after end of SSI cash-out: Started CalFresh between 2013 Q3 – 2020 Q1	-1	100	99	10
	0	99	56	21
Early COVID-19 pandemic period: Started CalFresh between 2020 Q2 – 2020 Q3	-1	100	99	18
	0	99	38	23

SOURCES: Authors' analysis of SNAP LDB and EDD base wages, 2014-2020.

NOTES: Earnings shown are from both the focal adult's record as well as any case members.

These categories have several limitations. We likely underestimate continuous employment, in the sense that a person who changes jobs late in one quarter and continues the new job into the next would be flagged as having left a primary job in the first quarter. Primary job changes do not fully translate to job loss, since those jobs can continue after the primary employer changes, and the measure does not capture loss of other jobs that generate important but not largest-share income. And finally, those with no recorded earnings may have informal or other work not captured in the base wages file.

Age and sex. For both age and sex, we use the responses most recently recorded in MEDS data. Age is constructed from birth date and is dated as of focal CalFresh entry. Note that CalFresh applications offer participants only two options for sex: male and female.

Race/ethnicity. We use the responses most recently recorded. MEDS allows for 18 categories for reporting race/ethnicity, including Latino. Only one response is allowed at a given point in time. We collapse these categories to 5 in this report: Latino (all race), white, Black, Asian/Pacific Islander, and other/no response. The last category includes Alaskan Native/American Indian, along with the MEDS categories "other" and "decline to state." Other is the largest category of the three. See Thorman and Danielson (2022) for additional discussion of race/ethnicity in MEDS data.

Language of case materials. Most CalFresh cases receive materials in English – 87 percent of participants, in our analysis cohort – although California Poverty Measure data show that English is the primary language spoken at home for a smaller share of households where anyone receives CalFresh (about 60 percent). A small minority receive materials in Spanish or another language. In this report, we use a binary variable to highlight differences for people who do not receive CalFresh materials in English.

Geography. Throughout, we describe geography in terms of the county in which a participant's new CalFresh spell begins, although some individuals move to other counties without interrupting their CalFresh spell, and others likely move either before or after that spell.

We largely discuss geography in terms of 9 regions of the state, delineated by counties. 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 Central Valley and Sierra 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. Los Angeles, Orange, and San Diego Counties are presented as individual regions.

Quarterly wages. We match the analysis sample to EDD wage records for up to 12 quarters. In quarters where there is no match, we assign $0 in earnings, although it is possible that some had earnings out of state, or had self-employment (discussed further below). We top code earnings to the 99th percentile and bottom code to $50. Calculations of "any" or "ever" earnings are therefore based on quarterly values of $50 or more.

UI-covered jobs do not encompass all employment in the U.S. The Bureau of Labor Statistics estimates that the Quarterly Census of Employment and Wages (originally the ES-202 wage data collection program) covers 95% of all jobs at the state or national level (BLS Handbook of Methods). However, the coverage among low-income adults may be worse. One source of concern as we examine earnings using quarterly wage data is the extent to which work that we cannot observe in UI-related data, particularly gig, informal, and other self-employment work, alters the picture of instability that we see. One approach we take to investigating this problem is to compare with annual SNAP Quality Control sample data. The California internal version of these data in 2019 (the RADEP data) contains a sample of 3,269 working adults age 25-54. In 2019, 5.4 percent of these adults had some income from self-employment. For this group, that income made up nearly all – 93 percent – of their earnings. This suggests that our analysis entirely misses a subset of the cohort, who are likely either among those for whom we have either no record of earnings, or among those who appear to have little or infrequent earnings. However, the share is in line with the overall estimate from the BLS.[4]

Unemployment Insurance benefits. Unlike the other data sources used in this project, UI payments are only complete for our analysis sample for July 2019 forwards. In addition, adults with selected aid codes were not matched to UI payment records. We remove these adults, who make up about a fifth of observations across the years of the study, from the denominator of the calculations shown in the report. These aid codes principally included the Work Incentive Nutritional Supplement (WINS) recipients (California Department of Social Services 2014). Because these adults have a substantial amount of work, excluding these aid codes implies we may be providing an underestimate of UI receipt.

UI benefits are paid weekly. We sum these payments to create a quarterly total for each adult in our cohort. We top code quarterly UI amounts to the 99th percentile and bottom code to $30. Calculations of "any" or "ever" UI benefits are therefore based on quarterly values of $30 or more.

CalFresh and CalWORKs benefit payments. We use benefit payments recorded in the EBT/SARS data. We top code monthly CalFresh and CalWORKs amounts to the 99th percentile and bottom code to $15. Calculations of "any" or "ever" CalFresh and CalWORKs benefits are therefore based on quarterly values of $15 or more.

These benefits payments are recorded at the case level, therefore we sum payments for each case number within quarters and matched these payments to individual level indicators of CalFresh and CalWORKs participation from the MEDs eligibility file using case numbers. There is a small amount of mismatch between the two sources, an example of which is shown in Table C4. Between 2016 and mid-2019, the mismatch at the point of CalFresh entry averaged 4 percent. Later in 2019 and in 2020 it average 1 percent or less.

[4] See also Technical Appendix A in Thorman and Danielson (2022).

TABLE C4

Comparison of LDB and SARS sources of CalFresh participation

	% with positive CalFresh amount (SARS) recorded in quarter of entry (LDB)
Earliest cohort: Started CalFresh between 2016 Q1 – 2019 Q2	95.6
Early cohort after end of SSI cash-out: Started CalFresh between 2013 Q3 – 2020 Q1	99.0
Early COVID-19 pandemic period: Started CalFresh between 2020 Q2 – 2020 Q3	99.6

SOURCES: Authors' analysis of SNAP LDB and SARS 2014-2020.

NOTES: SNAP LDB used to select the analysis sample and track CalFresh participation.

SSI/SSP benefit payments. While we have benefit amounts for CalFresh and CalWORKs, we have only aid codes for SSI/SSP. Therefore, we impute dollar amounts. We use aid code records from SSNSORT files to flag eligibility for SSI/SSP.

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 maximum benefit amounts for each year within our window from the SSI/SSP Budget Pre-Hearing in March 2021 (California Department of Social Services 2021b). In 2021, the most common SSI/SSP payment was $955 for individuals. During 2014-2021, SSI payments continued to increase, ranging from $721 to $794, while SSP payments remained at $156 until 2017 when SSP payments increased to $161. 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.

We top code total quarterly amounts to the 99th percentile, but do not bottom code. Calculations of "any" or "ever" SSI/SSP benefits are therefore based on any positive value.

All dollar values are adjusted for inflation to quarter 4 of 2020 using the Consumer Price Index retroactive series (R-CPI-U-RS). We also apply the three-factor adjustment used in the California Poverty Measure to adjust dollar amounts for differing family sizes (Bohn, et al. 2017). In other words, dollar amounts are adjusted to be per person on the focal case, with additional adults and children on the case weighted less than one.

Limitations

Other income sources. We do not track income from one-time payments like stimulus checks and tax credits. We also do not track WIC, school meals, or subsidized housing benefits.

Education levels. Another element not present in MEDS data that can be supplemented with the SNAP RADEP is education level. Inasmuch as education can be highly correlated with employment and earnings, it would be ideal to include in this analysis. Again looking in the 2019 RADEP data, we find that 81.5 percent of all CalFresh participants ages 25 to 54 have a high school education or less. Among that group 59.6 percent have a high school education. Thus, while individual information on level of education would doubtless contribute to our analysis, the low levels of education shared across this group suggest that missing this information is not as problematic as it would be in a population with more diverse education backgrounds.

Appendix D. Descriptive Statistics Tables

Tables D1 through D3 provide sample characteristics for adults across the main subgroups reported in the text by: 1. Cohort; 2. Employment status prior to CalFresh start; and 3. Quarter starting in July 2019. These tables also show average income and earnings for the year prior to CalFresh start and the year after start, along with shares ever having income from the cash-based safety net programs we consider.

Table D4 providers the share of sample adults with any income, any earnings, and any CalFresh relative to their CalFresh entry, providing additional detail related to Figure 4 in the report. The first two columns of this table present these statistics for the entire sample. For comparison purposes, the second two columns restrict the sample to those with at least one quarter of positive income in the 18 months before CalFresh start. Table D5 provides mean share of income from the sources tracked across groups characterized by ever receipt of CalWORKs or SSI/SSSP assistance. Table D6 shows differences in income trajectory across those who did and did not exit CalFresh at the six-month mark. This table is related to the discussion of Figures 5 and 7 in the text. Tables D7 through D9 provide additional detail on the ratio of income and earnings to adults' own mean incomes (a within measure), mean dollar amounts across adults within quarters (a between measure), and the quarter-to-quarter percent changes in income and earnings. We present these statistics for the main household concept used in this report, along with a comparison to an alternate concept that considers as much as possible only the focal adult's income sources. See Appendix C for the strengths and limitations of these two case concepts. Table D10 presents a comparison of selected pre-pandemic and early-pandemic entrants' wage history related to Figure 9 in the report.

TABLE D1

Summary statistics by cohort

	CalFresh start between 2016 Q1 and 2019 Q2	CalFresh start between 2019 Q3 and 2020 Q1	CalFresh start between 2020 Q1 and 2020 Q2
Total number of individuals	497,818	120,772	134,855
Mean age at CalFresh start	37	38	38
Number of children on case (at start)			
0	57.0%	61.0%	60.7%
1	17.2%	16.4%	16.5%
2	14.4%	12.3%	13.4%
3 or more	11.4%	10.3%	9.4%
Number of adults on case (at start)			
1	71.1%	74.2%	68.6%
2 or more	28.9%	25.8%	31.4%
Race/ethnicity			
White	28.1%	27.0%	23.9%
Hispanic	35.9%	32.4%	32.7%
Black	12.2%	15.4%	9.0%
Asian and Pacific Islander	6.0%	5.3%	6.8%
Other and decline to state	17.8%	20.0%	27.6%
Male	49.7%	47.2%	44.8%
Receiving non-English case materials	13.9%	11.1%	12.4%
Year before CalFresh			
Mean income	$2,818	$2,774	$4,449
Mean earnings	$2,707	$2,255	$4,271
Year after CalFresh			
Mean income	$3,116	$3,401	-
Mean earnings	$2,623	$1,861	-
Ever cash assistance program receipt			
CalWORKs	16.0%	10.0%	4.6%
SSI/SSP	3.1%	27.8%	7.0%
Neither	72.5%	57.5%	85.4%

SOURCES: Authors' analysis of SNAP LDB and SSNSORT 2014-2020.

NOTES: A "new" spell is one that begins after 12 or more months without CalFresh participation. Adults in the sample started a CalFresh spell in January, April, July or October. Race, age and case mix shown at the point of CalFresh start. Case adults are ages 18+. See Appendix A for details. "Asian/Pacific Islander" is used as an umbrella group here, but it is also the name of a more detailed category used in MEDS data. Other and decline to state combines the MEDS categories other, decline to state, and Alaskan Native or American Indian. Cash assistance program receipt refers to any record of a benefit over the 12 tracked quarters. Cash assistance categories are defined to be mutually exclusive, with first CalWORKs, then SSI/SSP receipt determined.

TABLE D2

Summary statistics by employment transition at CalFresh start

	Continued with an employer	Separated from primary employer	No employer in quarter prior to start
Total number of individuals	117,427	97,110	283,281
Mean age at CalFresh start	36	36	38
Number of children on case (at start)			
0	43.3%	59.6%	64.5%
1	22.0%	17.8%	14.4%
2	19.3%	13.7%	11.6%
3 or more	15.4%	9.0%	9.5%
Number of adults on case (at start)			
1	66.1%	74.6%	72.1%
2 or more	33.9%	25.4%	27.9%
Race/ethnicity			
White	22.1%	25.0%	30.1%
Hispanic	41.3%	37.0%	31.1%
Black	10.7%	12.6%	12.6%
Asian and Pacific Islander	6.3%	5.2%	6.2%
All other	19.6%	20.3%	20.0%
Male	40.5%	50.1%	51.3%
Receiving non-English case materials	14.1%	10.5%	13.8%
Year before CalFresh			
Mean income	$4,934	$5,220	$1,118
Mean earnings	$4,829	$5,151	$990
Year after CalFresh			
Mean income	$4,617	$4,017	$2,185
Mean earnings	$4,228	$3,590	$1,627
Ever cash assistance program receipt			
CalWORKs	12.1%	12.2%	13.7%
SSI/SSP	3.2%	2.4%	11.6%
Neither	82.1%	79.8%	65.6%

SOURCES: Authors' analysis of SNAP LDB and SSNSORT 2014-2020.

NOTES: Cohort shown includes adults ages 25-54 who started a new CalFresh spell between January 2016 and June 2019. A "new" spell is one that begins after 12 or more months without CalFresh participation. Adults in the sample started a CalFresh spell in January, April, July or October. Race, age and case mix shown at the point of CalFresh start. Case adults are ages 18+. See Appendix A for details. "Asian/Pacific Islander" is used as an umbrella group here, but it is also the name of a more detailed category used in MEDS data. Other and decline to state combines the MEDS categories other, decline to state, and Alaskan Native or American Indian. Cash assistance program receipt refers to any record of a benefit over the 12 tracked quarters. Cash assistance categories are defined to be mutually exclusive, with first CalWORKs, then SSI/SSP receipt determined.

TABLE D3

Summary statistics for entry quarters 2019 Q3 through 2020 Q3

	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3
Total number of individuals	49,072	36,693	34,131	104,587	28,385
Mean age at CalFresh start	39	38	37	38	37
Number of children on case (at start)					
0	61.7%	58.7%	62.4%	61.0%	59.7%
1	16.6%	17.1%	15.4%	16.7%	15.8%
2	11.8%	13.1%	12.1%	13.3%	13.5%
3 or more	9.9%	11.1%	10.1%	9.0%	11.0%
Number of adults on case (at start)					
1	73.6%	74.2%	75.0%	67.3%	73.1%
2 or more	26.4%	25.8%	25.0%	32.7%	26.9%
Race/ethnicity					
White	27.2%	26.9%	26.6%	24.2%	22.6%
Hispanic	30.6%	33.0%	34.3%	32.2%	34.6%
Black	17.4%	14.7%	13.2%	8.7%	9.9%
Asian and Pacific Islander	5.5%	5.3%	5.1%	6.9%	6.4%
All other	19.2%	20.1%	20.8%	28.0%	26.4%
Male	45.9%	46.5%	49.7%	44.6%	45.3%
Receiving non-English case materials	10.9%	11.3%	11.4%	12.3%	12.7%
Ever cash assistance program receipt					
CalWORKs	9.2%	10.4%	10.6%	4.2%	6.0%
SSI/SSP	38.1%	26.5%	14.3%	6.1%	10.4%
None	49.5%	58.6%	67.9%	87.1%	79.3%

SOURCES: Authors' analysis of SNAP LDB and SSNSORT 2014-2020.

NOTES: A "new" spell is one that begins after 12 or more months without CalFresh participation. Adults in the sample started a CalFresh spell in January, April, July or October. Race, age and case mix shown at the point of CalFresh start. Case adults are ages 18+. See Appendix A for details. "Asian/Pacific Islander" is used as an umbrella group here, but it is also the name of a more detailed category used in MEDS data. Other and decline to state combines the MEDS categories other, decline to state, and Alaskan Native or American Indian. Cash assistance categories are defined to be mutually exclusive, with first CalWORKs, then SSI/SSP receipt determined.

TABLE D4

Share with any income, any earnings, and any CalFresh by quarter relative to entry and cohort

Quarter relative to CalFresh start	All focal adults (preferred)			Focal adults with at least one quarter of positive income prior to CalFresh start (alternate)		
	Any income (%)	Any earnings (%)	Any CalFresh (%)	Any income (%)	Any earnings (%)	Any CalFresh (%)
Earliest cohort: Started CalFresh between 2016 Q1 and 2020 Q2						
-4	57	52	9	75	69	12
-3	56	52	9	75	69	12
-2	56	51	10	75	68	13
-1	57	50	12	75	67	16
0	98	50	96	99	61	96
1	97	52	91	98	62	91
2	84	53	59	89	63	58
3	84	54	59	88	64	58
4	79	53	47	84	63	47
Early period after end of SSI cash-out: Started CalFresh between 2019 Q3 and 2020 Q1						
-4	52	43	13	65	54	16
-3	56	43	13	70	54	17
-2	67	43	14	83	53	18
-1	67	42	15	84	52	18
0	100	42	99	100	48	99
1	99	41	95	99	46	95
2	90	40	73	93	45	74
3	89	39	72	92	43	73
4	83	37	57	88	40	59
COVID-19 pandemic period: Started CalFresh between 2020 Q2 and 2020 Q3						
-4	64	63	3	79	77	3
-3	68	63	3	83	78	3
-2	69	63	3	85	78	3
-1	69	62	3	85	76	3
0	100	50	100	100	61	100
1	98	49	89	99	58	88
2	85	53	48	90	62	47

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Adults in the most recent cohort cannot be tracked for 4 quarters after entry.

TABLE D5

Percent of income by source (quarter of CalFresh entry) by ever receipt of CalWORKs and SSI/SSP

Ever participated in	N	From CalFresh (%)	From earnings (%)	From CalWORKs (%)	From SSI/SSP (%)	From UI (%)
Earliest cohort: Started CalFresh between 2016 Q1 and 2020 Q2						
CalWORKs	79,692	23	55	21	0	-
SSI/SSP	15,571	16	32	5	44	-
None	360,677	28	69	0	0	-
Early period after end of SSI cash-out: Started CalFresh between 2019 Q3 and 2020 Q1						
CalWORKs	12,050	20	49	24	0	7
SSI/SSP	33,530	12	12	7	67	1
None	69,472	26	65	0	0	8
COVID-19 pandemic period: Started CalFresh between 2020 Q2 and 2020 Q3						
CalWORKs	6,166	18	49	22	0	11
SSI/SSP	9,464	8	20	1	69	2
None	115,143	18	69	0	0	12

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Rows may not sum to 100 due to rounding. Adults are grouped by ever having indicated cash assistance program as an income source over the quarters tracked. Categories are defined to be mutually exclusive, with first CalWORKs, then SSI/SSP receipt determined. UI data not available before July 2019.

TABLE D6

Mean ratio of income to own period mean by whether exited CalFresh 6 months after entry

Quarter relative to CalFresh start	Did not exit 6 months after entry	Did exit 6 months after entry
Earliest cohort: Started CalFresh between 2016 Q1 and 2020 Q2		
-4	71	74
-3	70	73
-2	68	71
-1	64	65
0	119	154
1	132	194
2	121	90
3	126	93
4	113	96
Early period after end of SSI cash-out: Started CalFresh between 2019 Q3 and 2020 Q1		
-4	53	72
-3	61	75
-2	85	76
-1	83	70
0	120	143
1	137	188
2	143	93
3	151	99
4	129	104

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Adults in the most recent cohort (COVID-19 pandemic period) not shown because they cannot be tracked for the full 3 year period.

TABLE D7

Mean ratio of income and earnings to own period mean by employment categories

	Household sources (preferred)		Focal adult sources (alternate)	
Quarter relative to CalFresh start	Ratio of income to own period income	Ratio of earnings to own period income	Ratio of income to own period income	Ratio of earnings to own period income
Continued a job				
-4	96	93	96	96
-3	100	97	100	100
-2	105	102	107	107
-1	114	111	121	121
0	101	86	105	94
1	100	83	99	87
2	97	85	95	88
3	99	87	97	89
4	97	87	95	88
Separated from a job				
-4	108	106	110	110
-3	114	111	117	117
-2	126	124	132	132
-1	117	114	124	124
0	65	41	60	39
1	88	62	83	61
2	87	71	83	71
3	91	75	87	74
4	88	75	84	74
No job				
-4	50	43	37	37
-3	44	36	30	28
-2	34	24	17	14
-1	25	12	3	0
0	163	31	209	24
1	193	51	214	45
2	127	56	130	49
3	132	60	134	53
4	120	65	120	59

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Table cells include adults who started CalFresh between January 2016 and June 2019. Adults are grouped by employment categories at entry (as described in Appendix C).

TABLE D8

Mean quarterly earnings and income by employment categories

	Household sources (preferred)		Focal adult sources (alternate)	
Quarter relative to CalFresh start	Mean income ($)	Mean earnings ($)	Mean income ($)	Mean earnings ($)
Continued a job				
-4	$4,771	$4,677	$4,092	$4,092
-3	$4,905	$4,805	$4,233	$4,228
-2	$4,998	$4,893	$4,350	$4,342
-1	$5,049	$4,942	$4,449	$4,441
0	$4,189	$3,733	$3,610	$3,371
1	$4,463	$3,964	$3,739	$3,477
2	$4,567	$4,225	$3,832	$3,661
3	$4,717	$4,357	$3,932	$3,746
4	$4,687	$4,364	$3,902	$3,731
Separated from a job				
-4	$5,194	$5,140	$4,676	$4,676
-3	$5,340	$5,283	$4,810	$4,806
-2	$5,544	$5,483	$5,009	$5,001
-1	$4,767	$4,699	$4,261	$4,254
0	$2,396	$1,830	$1,845	$1,488
1	$3,630	$3,042	$2,980	$2,607
2	$3,960	$3,597	$3,318	$3,104
3	$4,225	$3,853	$3,558	$3,332
4	$4,189	$3,867	$3,546	$3,347
No job				
-4	$1,521	$1,435	$913	$912
-3	$1,327	$1,225	$713	$699
-2	$952	$830	$348	$318
-1	$609	$471	$32	$0
0	$1,371	$708	$769	$341
1	$2,038	$1,326	$1,312	$853
2	$2,082	$1,592	$1,356	$1,059
3	$2,233	$1,744	$1,485	$1,181
4	$2,255	$1,845	$1,520	$1,269

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Table cells include adults who started CalFresh between January 2016 and June 2019. Adults are grouped by employment categories at entry (as described in Appendix C). Dollar amounts adjusted for case size and for inflation using the R-CPI-U-RS.

TABLE D9

Percent changes in earnings and income by quarter relative to entry and employment category

	Household sources (preferred concept)		Focal adult sources (alternate concept)	
Quarter relative to CalFresh start	Income (% change)	Earnings (% change)	Income (% change)	Earnings (% change)
Continued a job	0	1	0	1
-4	4	4	5	5
-3	5	6	7	8
-2	9	14	13	18
-1	-13	-29	-16	-29
0	-1	-6	-6	-10
1	-3	2	-4	0
2	2	2	1	1
3	-2	0	-2	-1
4	0	1	0	1
Separated from a job				
-4	-2	-2	-2	-2
-3	6	7	7	8
-2	12	17	15	20
-1	-9	4	-8	6
0	-52	-98	-64	-108
1	23	22	23	23
2	-1	9	0	9
3	4	4	4	4
4	-3	-1	-3	-1
No job				
-4	-11	-17	-15	-22
-3	-6	-14	-7	-19
-2	-10	-22	-12	-30
-1	-9	-27	-14	-37
0	137	55	205	75
1	30	36	6	41
2	-66	6	-84	5
3	6	6	4	6
4	-12	9	-14	11

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Table cells include adults who started CalFresh between January 2016 and June 2019. Adults are grouped by employment categories at entry (as described in Appendix C). Shown is the change from the previous quarter to the reference quarter divided by the period average.

TABLE D10

UI benefits and wage history

Quarter of CalFresh entry	N	Share with no UI-covered wage history	Mean quarterly UI amount
2019Q4	786	0.01	$2,882
2020Q1	1,129	0.01	$2,717
2020Q2	25,103	0.24	$3,218
2020Q3	5,404	0.37	$4,097

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Shown is sample of adults starting CalFresh in the quarter who also had both positive UI in the quarter and no UI in the previous quarter shown. Wage history calculated for the first 4 of the 5 quarters prior to CalFresh start. Dollar amounts adjusted for inflation using the R-CPI-U-RS.

Appendix E. Regression Tables

Table E1 provides a check on the sample selection of those who enter in the first month of a quarter. We regress demographic, region and year dummies, along with age and age squared, on an indicator for whether an adult entered in the first versus subsequent months of the quarter. We use a random sample of 10 percent of the entire group for computational tractability. Only one regression coefficient is significant, providing support to the hypothesis that adults who enter across months of a calendar quarter are similar.

Tables E2 through E7 focus on the early cohort – to steer clear of the compositional and policy changes that occurred with the end of SSI cash-out and with COVID-19 pandemic flexibilities. Particularly the pause in redeterminations in the early months of the pandemic should have reduced exits at the semi-annual reporting point and also churning.

Table E2 considers whether churning is seasonal—perhaps driven by tax credits that become available in the first quarter of each year after individuals file their taxes. Although lump sum tax credits are not generally counted in determining income eligibility for CalFresh, receiving a sizeable lump sum might create a disincentive to filing required paperwork to remain current with CalFresh program requirements. The first two columns of the table provide estimates for all adults.

We can use monthly observations for these models because they do not require wage data. The models include the adults in our sample who are "at risk" of churning, meaning that they entered CalFresh at least two months in the past and are currently on CalFresh. Churning is defined as being on CalFresh in the current month and in a recent month, but with a gap of up to 3 months prior to the current month. This is consistent with the 90 day churn definition used in the CDSS CalFresh Data Dashboard. It is defined for the individual (rather than the case), using information from the SNAP LDB.[5] Compared with January (the excluded month), churning is significantly different in most months (the exception being October). However, all of the coefficients are negative, indicating that January is a peak month of churning. The coefficients are also substantively small, ranging from -0.0021 to -0.0077 in column 2, which includes controls for number of months since focal CalFresh start. The takeaway is that returning to CalFresh after a brief lapse in benefits is most common in January and October, which does not track with the hypothesis that churning might be more common when tax credits are received (January-April). The pattern is no clearer if we run the models separately for adults without children on the case versus adults with children on their case (columns 3-6).

Table E3 shows coefficients from a linear probability model where the outcome is experiencing a large income change from the quarter prior to CalFresh entry to the quarter of CalFresh entry. The percent changes discussed in the text of the main report are obtained by dividing the coefficients in the model by the grand mean (shown at the bottom of the table). The first column includes all adults, while subsequent columns consider those who separated from a job, those who continued a job, and those who had no job separately. None of the coefficients on the regional indicators is significant, but many of the demographic variables are significant. As compared with Latinos, all other race/ethnic groups have a higher probability of a large change at CalFresh entry (column 1), and this is driven by the group that enters CalFresh without recent employment (column 4). Cases with children are less likely to see a large increase relative to cases with no children, and the same is true of cases with two adults versus one. These differences are driven by the group who continued a job (column 2) instead of the group with no recent job. Those receiving case materials in English see a small, lower probability of a large change at

[5] In contrast, CDSS defines churn at the case level.

CalFresh entry. Finally, females and those receiving case materials in English see essentially no difference from males.

Table E4 shows the same model comparing the quarter prior to semi-annual report to the quarter of semi-annual reporting. We see scattered differences across regions in the likelihood of large income change at the point semi-annual reports come due. Latinos, Asian/Pacific Islander, and other race adults see a lower probability of a large change relative to white and Black participants. Females, those receiving case materials in English, and cases with children and multiple adults are less likely to experience a large income change at the 6th month mark relative to males, those receiving materials in a non-English language, and cases with no children and one adult.

To further probe the results from Table E4, Table E5 considers whether adults experience a reduction or loss of benefits at each month after CalFresh entry—using again a 10 percent sample of the entire cohort for computational ease. Because CalFresh benefits make up a substantial share of incomes, the semi-annual reporting point could be a time where income drops because individuals are eligible for a smaller CalFresh benefit as their earnings or other sources of income rebound. The offsetting effects of higher non-CalFresh income and lower CalFresh income might be unlikely to trigger a large income change, but it is worth investigating.

The outcomes in these models are derived both from the SNAP LDB and from the SARS benefit amounts dataset. Adults who were on CalFresh in the previous month are included in the sample since they were "at risk" of benefit loss or reduction in the current month. Models include person, year, and calendar month fixed effects.

The excluded month is the 6th month—the point of semi-annual reporting. Column 1 shows clear evidence that benefit loss is substantively much lower in all months apart from month 6th after entry. The differences are still significant, but smaller, in the first and twelfth months after entry. While it is not clear why benefit loss would be more common the first month after entry, the twelfth month is another point of reporting. The probability of benefits decreasing by more than 25 percent (but not to the point of loss of benefits) is also higher in the 6th month after entry as compared with all other months, with the exception of the first month after entry. However, the constant in column 2 is negative, indicating that benefits increase rather than decrease in the 6th month for those who remain on CalFresh. In sum, the evidence from Table E5 indicates that benefits loss is driving the results we see at the semi-annual reporting point.

Finally, Table E6 looks at differences in the probability of ever churning off and back on CalFresh over the 16 months after the adult's focal CalFresh start. We again see no regional differences in ever experiencing a disruption in CalFresh benefits. Across race/ethnic groups, Asian/Pacific Islander adults are less likely to ever churn relative to white, Latino, Black, and other race participants. Females, those with non-English case materials, and those with two or more children, those with two adults on the case are less likely to churn than males, those with English case materials, those with none or one child, and those with one adult. Looking by categories of recent employment experience, the vast majority of the differences appear among the subgroup without recent employment at CalFresh start.

TABLE E1

Differences in characteristics of those who enter CalFresh in the first versus the second and third months of the quarter

	(1)		(1) (continued)
White	-0.013	Age squared	-0.00005
	(0.009)		(0.000)
Black	-0.015	Northern region	0.052
	(0.012)		(0.039)
Asian and Pacific Islander	-0.039	Sacramento region	0.069
	(0.017)		(0.036)
Other and decline to state	-0.032	Bay Area region	0.03
	(0.016)**		(0.025)
Female	0.015	Central Valley region	0.017
	(0.01)		(0.024)
English language case materials	-0.0038	Central Coast region	0.043
	(0.011)		(0.037)
1 child	-0.015	Inland Empire region	0.029
	(0.010)		(0.024)
2 children	0.0042	Orange county	0.0039
	(0.011)		(0.034)
3 or more children	-0.014	San Diego county	0.039
	(0.015)		(0.029)
2 or more adults on case	0.013	Constant	0.28
	(0.009)		(0.078)***
Age	0.0033		
	(0.004)		
N	2,189,098		
R-squared	0.009		

* p<0.05, ** p<0.01, *** p<0.001

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Robust standard errors in parentheses. Observations are monthly, and include data from January 2016 through September 2020. Models also include indicators for year of entry.

TABLE E2

Seasonality of churning

	All		No children on case		Children on case	
	(1)	(2)	(3)	(4)	(5)	(6)
February	-0.0036	-0.0052	-0.0057	-0.008	-0.0009	-0.0019
	(0.00063)***	(0.00063)***	(0.00090)***	(0.00090)***	(0.00084)	(0.00084)
March	-0.003	-0.0052	-0.0032	-0.006	-0.0027	-0.0043
	(0.00066)***	(0.00066)***	(0.00098)**	(0.00097)***	(0.00086)**	(0.00086)***
April	-0.0022	-0.0039	-0.0043	-0.0062	0.00043	-0.00086
	(0.00070)**	(0.00069)***	(0.0010)***	(0.00100)***	(0.00094)	(0.00094)
May	-0.0043	-0.0044	-0.0071	-0.0068	-0.00092	-0.0013
	(0.00074)***	(0.00075)***	(0.0011)***	(0.0011)***	(0.00100)	(0.00100)
June	-0.0057	-0.005	-0.0084	-0.0073	-0.0022	-0.002
	(0.00071)***	(0.00071)***	(0.0010)***	(0.0010)***	(0.00096)	(0.00097)
July	-0.0028	-0.0021	-0.0057	-0.0047	0.0007	0.0011
	(0.00074)***	(0.00074)**	(0.0011)***	(0.0011)***	(0.00100)	(0.00100)
August	-0.005	-0.0062	-0.0083	-0.01	-0.001	-0.0016
	(0.00072)***	(0.00072)***	(0.0010)***	(0.0010)***	(0.00098)	(0.00098)
September	-0.0062	-0.0077	-0.0095	-0.012	-0.0023	-0.003
	(0.00071)***	(0.00071)***	(0.0010)***	(0.0010)***	(0.00096)	(0.00096)**
October	-0.0015	-0.0028	-0.0038	-0.0056	0.0013	0.00059
	(0.00073)	(0.00073)***	(0.0011)***	(0.0010)***	(0.00099)	(0.00099)
November	-0.0041	-0.0045	-0.006	-0.0065	-0.0018	-0.002
	(0.00067)***	(0.00067)***	(0.00098)***	(0.00097)***	(0.00090)	(0.00090)
December	-0.0057	-0.0057	-0.007	-0.0071	-0.0041	-0.004
	(0.00062)***	(0.00061)***	(0.00090)***	(0.00090)***	(0.00081)***	(0.00081)***
Constant	0.019	0.018	0.023	0.021	0.014	0.015
	(0.00050)***	(0.00067)***	(0.00073)***	(0.00095)***	(0.00065)***	(0.00093)***
Indicators for months since focal start		X		X		X
N	907,933	907,933	507,648	507,648	400,285	400,285
R-squared	0.116	0.125	0.114	0.126	0.121	0.126

* p<.01, ** p<.005, *** p<.001

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Robust standard errors in parentheses. Observations are monthly, and include the period January 2016 through June 2019. Sample includes those on CalFresh in the month two or more months after CalFresh start. Models also include person and year fixed effects.

TABLE E3

Probability of having at least a 25 percent change in tracked income sources, quarter prior to CalFresh entry compared with quarter of CalFresh entry

	(1) All	(2) Continued a job	(3) Separated from a job	(4) No job
White	0.054	0.035	0.0033	0.056
	(0.0054)***	(0.013)*	(0.01)	(0.0067)***
Black	0.027	0.024	0.001	0.029
	(0.0070)***	(0.02)	(0.02)	(0.0088)***
Asian and Pacific Islander	0.027	-0.0035	0.0037	0.036
	(0.0092)**	(0.02)	(0.02)	(0.011)**
Other and decline to state	0.047	0.021	0.004	0.057
	(0.0063)***	(0.02)	(0.01)	(0.0078)***
Female	-0.010	0.0025	-0.0043	-0.0027
	(0.004)	(0.010)	(0.009)	(0.005)
English language case materials	-0.003	0.021	-0.001	-0.006
	(0.007)	(0.014)	(0.015)	(0.008)
1 child	-0.048	-0.079	-0.009	0.015
	(0.0064)***	(0.013)***	(0.01)	(0.01)
2 children	-0.072	-0.100	-0.003	-0.013
	(0.0071)***	(0.014)***	(0.02)	(0.01)
3 or more children	-0.110	-0.130	-0.067	-0.037
	(0.0080)***	(0.016)***	(0.018)***	(0.010)***
2 or more adults on case	-0.075	-0.031	-0.046	-0.110
	(0.0053)***	(0.011)**	(0.012)***	(0.0067)***
Northern region	0.030	-0.045	-0.058	0.077
	(0.037)	(0.095)	(0.100)	(0.038)
Sacramento region	0.050	0.096	-0.046	0.054
	(0.030)	(0.078)	(0.076)	(0.034)
Bay Area region	-0.013	0.004	0.012	-0.037
	(0.025)	(0.062)	(0.054)	(0.031)
Central Valley region	-0.005	0.070	-0.016	-0.030
	(0.023)	(0.052)	(0.052)	(0.029)
Central Coast region	0.017	0.075	0.036	-0.020
	(0.035)	(0.084)	(0.070)	(0.045)
Inland Empire region	0.039	0.056	-0.018	0.053
	(0.023)	(0.055)	(0.054)	(0.027)
Orange county	-0.020	-0.014	-0.077	-0.003
	(0.033)	(0.077)	(0.083)	(0.038)
San Diego county	-0.027	0.039	-0.022	-0.044
	(0.030)	(0.066)	(0.068)	(0.036)
Constant	0.800	0.600	0.680	1.000
	(0.048)***	(0.11)***	(0.10)***	(0.058)***
Observations	497,818	117,427	97,110	283,281
R-squared	0.031	0.028	0.022	0.044
Dependent variable mean	0.72	0.55	0.76	0.77

* p<0.05, ** p<0.01, *** p<0.001

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Robust standard errors in parentheses. Regressions include one observation for adults in the early cohort (January 2016-June 2019). Models also include age, age squared, whether income sources ever included CalWORKs or SSI/SSP, and indicators for calendar quarter of entry. Latino is the comparison race/ethnic category, and Los Angeles County is the comparison region.

TABLE E4

Probability of having at least a 25 percent change in tracked income sources, second quarter after CalFresh entry compared with first quarter after

	(1) All	(2) Continued a job	(3) Separated from a job	(4) No job
White	0.024	-0.0100	-0.0055	0.028
	(0.0061)***	(0.01)	(0.01)	(0.0080)***
Black	0.036	-0.0019	0.031	0.048
	(0.0078)***	(0.02)	(0.02)	(0.010)***
Asian and Pacific Islander	-0.000082	-0.022	-0.014	0.0024
	(0.01)	(0.02)	(0.02)	(0.01)
Other and decline to state	0.027	-0.0048	0.008	0.035
	(0.0070)***	(0.02)	(0.02)	(0.0092)***
Female	-0.015	0.0046	0.0037	-0.027
	(0.0047)**	(0.010)	(0.011)	(0.0062)***
English language case materials	-0.04	0.0049	-0.083	-0.034
	(0.0071)***	(0.014)	(0.018)***	(0.0094)***
1 child	-0.049	-0.075	-0.029	-0.0012
	(0.0070)***	(0.013)***	(0.02)	(0.01)
2 children	-0.072	-0.077	-0.066	-0.031
	(0.0076)***	(0.014)***	(0.017)***	(0.011)**
3 or more children	-0.095	-0.12	-0.073	-0.04
	(0.0085)***	(0.015)***	(0.020)***	(0.012)***
2 or more adults on case	-0.025	-0.012	-0.014	-0.041
	(0.0056)***	(0.01)	(0.01)	(0.0077)***
Northern region	0.074	0.0027	0.13	0.089
	(0.045)	(0.094)	(0.110)	(0.056)
Sacramento region	0.12	0.12	0.055	0.14
	(0.035)***	(0.080)	(0.084)	(0.045)**
Bay Area region	0.077	0.021	0.12	0.078
	(0.028)*	(0.061)	(0.063)	(0.037)
Central Valley region	0.078	0.019	0.17	0.068
	(0.026)**	(0.051)	(0.058)**	(0.035)
Central Coast region	0.052	0.11	-0.059	0.078
	(0.040)	(0.086)	(0.081)	(0.054)
Inland Empire region	0.04	0.098	-0.031	0.038
	(0.027)	(0.054)	(0.061)	(0.035)
Orange county	0.05	0.013	0.12	0.042
	(0.037)	(0.074)	(0.086)	(0.048)
San Diego county	0.078	0.26	0.053	0.014
	(0.033)	(0.065)***	(0.076)	(0.043)
Constant	0.56	0.47	0.67	0.64
	(0.053)***	(0.11)***	(0.12)***	(0.070)***
Observations	497,818	117,427	97,110	283,281
R-squared	0.017	0.025	0.024	0.025
Dependent variable mean	0.52	0.44	0.49	0.57

* p<0.05, ** p<0.01, *** p<0.001

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Robust standard errors in parentheses. Regressions include one observation for adults in the early cohort (January 2016-June 2019). Models also include age, age squared, whether income sources ever included CalWORKs or SSI/SSP, and indicators for calendar quarter of entry. Latino is the comparison race/ethnic category, and Los Angeles County is the comparison region.

TABLE E5

Loss vs. reduction in benefit by month of spell

	(1) Benefit loss	(2) Benefit decrease by at least 25%
1st month	-0.15	-0.039
	(0.0022)***	(0.0011)***
2nd month	-0.36	0.068
	(0.0016)***	(0.0015)***
3rd month	-0.38	-0.046
	(0.0016)***	(0.0011)***
4th month	-0.37	-0.055
	(0.0016)***	(0.0010)***
5th month	-0.36	-0.058
	(0.0016)***	(0.0010)***
7th month	-0.28	-0.034
	(0.0017)***	(0.0014)***
8th month	-0.29	-0.049
	(0.0017)***	(0.0013)***
9th month	-0.29	-0.057
	(0.0017)***	(0.0013)***
10th month	-0.29	-0.062
	(0.0017)***	(0.0013)***
11th month	-0.29	-0.061
	(0.0018)***	(0.0013)***
12th month	-0.057	0.00039
	(0.0026)***	(0.0017)
13th and higher months	-0.27	-0.059
	(0.0021)***	(0.0015)***
Constant	0.085	0.36
	(0.0014)***	(0.0019)***
N	1,087,105	1,087,105
R-squared	0.143	0.415

* p<0.05, ** p<0.01, *** p<0.001

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Robust standard errors in parentheses. Omitted category is the 6th month after entry. Observations are monthly and include adults with any benefit in the prior month among those in the early cohort (January 2016-June 2019). Models also include calendar month and year fixed effects, interactions between month and year, and person fixed effects.

TABLE E6

Probability of ever churning off and back on CalFresh

	(1) All	(2) Continued a job	(3) Separated from a job	(4) No job
white	-0.0090	-0.011	-0.014	-0.0074
	(0.004)	(0.008)	(0.010)	(0.006)
Black	-0.0079	0.012	-0.017	-0.011
	(0.005)	(0.011)	(0.012)	(0.007)
Asian and Pacific Islander	-0.04	-0.032	-0.0300	-0.044
	(0.0059)***	(0.011)*	(0.015)	(0.0078)***
Other and decline to state	-0.011	-0.011	-0.028	-0.005
	(0.005)	(0.009)	(0.011)*	(0.007)
Female	-0.0100	-0.0015	-0.017	-0.0092
	(0.0031)***	(0.0062)	(0.0072)	(0.0042)
English language case materials	0.024	0.015	0.012	0.032
	(0.0044)***	(0.008)	(0.011)	(0.0059)***
1 child	-0.026	-0.0200	-0.026	-0.023
	(0.0044)***	(0.0083)	(0.0099)*	(0.0063)***
2 children	-0.025	-0.018	-0.025	-0.023
	(0.0049)***	(0.0089)	(0.0110)	(0.0070)***
3 or more children	-0.026	-0.016	-0.033	-0.023
	(0.0054)***	(0.0099)	(0.013)*	(0.0076)**
2 or more adults on case	-0.02	-0.011	-0.024	-0.023
	(0.0035)***	(0.0068)	(0.0084)**	(0.0049)***
Northern region	0.017	-0.014	0.016	0.027
	(0.032)	(0.066)	(0.076)	(0.041)
Sacramento region	-0.026	-0.082	-0.022	-0.0089
	(0.022)	(0.043)	(0.047)	(0.030)
Bay Area region	-0.012	-0.0058	-0.029	-0.0054
	(0.018)	(0.043)	(0.036)	(0.025)
Central Valley region	-0.012	-0.037	0.03	-0.017
	(0.017)	(0.035)	(0.039)	(0.023)
Central Coast region	-0.00053	-0.047	-0.058	0.047
	(0.026)	(0.052)	(0.039)	(0.040)
Inland Empire region	-0.00025	-0.018	0.012	0.0027
	(0.018)	(0.038)	(0.040)	(0.024)
Orange county	-0.0059	0.0083	-0.026	-0.0066
	(0.024)	(0.055)	(0.050)	(0.031)
San Diego county	0.0046	-0.027	0.016	0.014
	(0.022)	(0.044)	(0.049)	(0.030)
Constant	0.18	0.26	0.17	0.16
	(0.036)***	(0.073)***	(0.08)	(0.048)**
Observations	497,818	117,427	97,110	283,281
R-squared	0.0090	0.020	0.019	0.011
Dependent variable mean	0.13	0.11	0.13	0.13

* p<0.05, ** p<0.01, *** p<0.001

SOURCE: Author calculations from CDSS and EDD administrative data.

NOTE: Robust standard errors in parentheses. Regressions include one observation on adults in the early cohort (January 2016-June 2019). Models also include age, age squared, whether income sources ever included CalWORKs or SSI/SSP, and indicators for calendar quarter of entry. Latino is the comparison race/ethnic category, and Los Angeles County is the comparison region.

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