The economic effects of ending emergency allotments for CalFresh participants

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Executive summary

During the COVID-19 pandemic, Congress relied on the Supplemental Nutrition Assistance Program (SNAP) to deliver economic relief to millions of low-income Americans. When these temporary "emergency allotments" (EAs) expired in March 2023, people enrolled in CalFresh (as SNAP is known in California) lost 38 percent of their monthly benefits on average — the most significant contraction in the program's history.

We examine how CalFresh participants responded to the end of pandemic-era EAs. Our analysis focuses on their economic stability, using a combination of administrative employment and consumer credit data from 2022 and 2023. Through descriptive and causal analyses, we ask whether CalFresh participants were more likely to be employed or to show signs of financial distress after EAs expired. We use differences in the size of the EAs that CalFresh participants lost to see whether effects were concentrated among households whose benefits decreased the most when the EAs expired, or if instead the effects were concentrated among households with the greatest demonstrated economic need, whose benefits decreased the least.

Our findings provide new insights into the relationship between SNAP benefit generosity, work, and financial stability.

Key findings

- **Employment and earnings rose after EAs ended: Between late 2022 and late 2023, the employment rate among working-age CalFresh participants increased from 41 percent to 43 percent.** This shift represents roughly 25,000 people becoming employed. At the same time, average quarterly wage earnings for CalFresh participants grew by 34 percent ($900).
- **After EAs ended, CalFresh participants with the highest demonstrated economic need had the largest increase in earnings, even though they lost the fewest benefits.** This pattern runs counter to the idea that larger benefits per se discourage recipients from seeking work. Rather, economic need, more than any disincentive effects of welfare programs, appeared to drive the employment response to losing EAs.
- **Most CalFresh participants remained non-employed, saw their household income drop, and continued to receive CalFresh benefits.** Although employment rates rose when EAs expired, majorities of working-age CalFresh participants were non-employed both when EAs were being

issued and their benefits were higher, as well as after EAs ended and their benefits were lower. As such, with less support from CalFresh and no additional earnings, most saw a net decline in household income after EAs expired. Three in four participants continued to receive CalFresh benefits in late 2023, suggesting that ending the EAs did not improve CalFresh participants' economic self-sufficiency, at least in the short term.

- **CalFresh participants showed few signs of rising financial distress after EAs ended:** Credit records show no evidence of a surge in debt or a drop in credit worthiness after EAs expired. While the data exclude some common types of debt (e.g., payday loans), they suggest that losing pandemic-era benefits caused little immediate financial distress for CalFresh participants.

I. Introduction

The Supplemental Nutrition Assistance Program (SNAP) — known as CalFresh in California — is a cornerstone of the U.S. social safety net. The program serves 41 million Americans, including 5 million Californians (USDA 2025; CDSS 2025). Most eligible participants live at or below the poverty line[1]; many have disabilities, childcare responsibilities, or other limitations that prevent them from working. CalFresh supports these low-income Californians with monthly payments that can be used for groceries, freeing up resources to cover other essentials like housing and healthcare.

Research has shown that SNAP payments increase recipients' food security (Swann 2017), their overall spending power (Kim 2016), and their children's welfare (Bronchetti, Christensen, and Hoynes 2019). Based on this evidence, some advocates support expanding SNAP benefit amounts, arguing that these payments help low-income families afford basic needs. But SNAP payments may also discourage recipients from working (Hoynes and Schanzenbach 2012). For this reason, policies meant to make SNAP more generous remain contentious, despite their potential to improve recipients' overall economic wellbeing. The tension between these perspectives has spurred a long-running policy debate over the appropriate size of SNAP benefits.

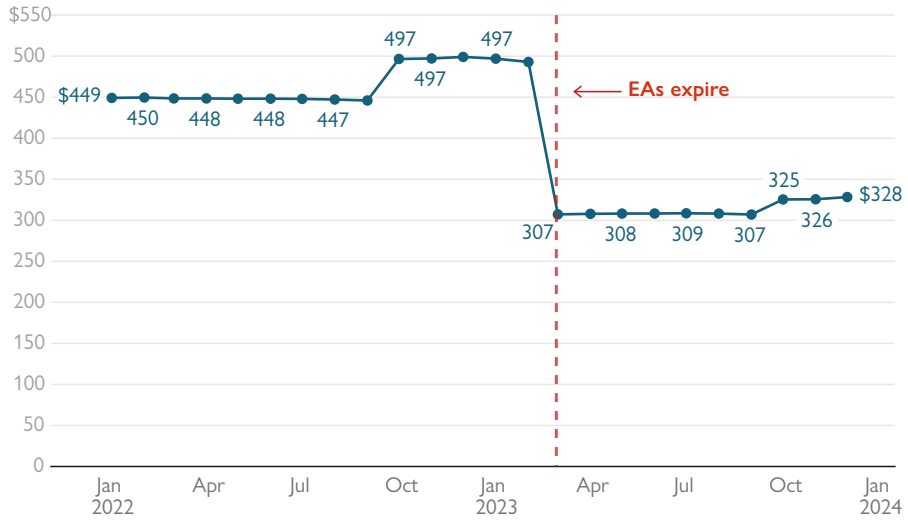
This debate took on new urgency during and after the COVID-19 pandemic. At the onset of the public health emergency, Congress expanded SNAP to better support low-income Americans, who bore the brunt of pandemic-related job losses (Bateman and Ross 2021; ASPE 2021). Eligibility rules remained mostly unchanged: households still had to be low-income to qualify for SNAP during the pandemic. But policy tweaks — including suspensions of work requirements and in-person certification interviews — made the program more accessible, while benefit levels were increased across the board. In particular, the Families First Coronavirus Response Act of 2020 (FFCRA) temporarily rewrote the traditional rules for determining how much a SNAP-eligible family could receive in monthly benefits. Before the pandemic, household benefits were reduced for each dollar of earnings or payments from other transfer programs like Social Security. But under the FFCRA, all SNAP households of the same size received the same benefit.

1 Benefits eligibility is based on the assets, total income, and certain expenses of all people in a CalFresh case. CalFresh cases may not correspond to traditional family units. We refer to cases as "households" or "families" even though case members do not need to live at the same address or be related. Most cases qualify for CalFresh only if their total income is less than 130 percent of the federal poverty line. In 2022, the federal poverty line for a family of three was $23,030.

This policy change marked a notable break from the complex pre-pandemic formula that provided more SNAP benefits to households with greater economic need. In effect, the FFCRA-funded "emergency allotments" (EAs) raised all recipients' benefits, with SNAP participants who were employed or had other sources of income seeing the largest increases over their pre-FFCRA benefits. The size and scope of EAs grew over the course of the pandemic, and by 2022 the average household received about $200 per month in EAs — a considerable supplement to their standard benefits of around $300 per month. These EAs may have kept more than a million Californians out of poverty during the pandemic (Thorman, Malagon, and Danielson 2024).

In March 2023, Congress stopped funding emergency allotments and CalFresh families lost access to EAs. CalFresh benefits were once again means-tested, so families that had higher earnings received lower monthly payments. The removal of EAs thus amounted to a large benefit cut, particularly for families with other sources of income. Between February and March 2023, the average CalFresh household saw their benefits fall by 38 percent, or $190 per month (Figure 1).

FIGURE 1: Average monthly CalFresh allotments



Notes: The figure describes average household (CalFresh case) allotments by month. The sample includes all households enrolled in the given month. A federal policy that took effect in October 2022 increased CalFresh monthly benefits by 15 percent.

Source: California Policy Lab analysis of California Department of Social Services data.

Consequently, CalFresh households faced tighter budgets once EAs expired. Existing evidence suggests that SNAP recipients nationwide may have relied more on food banks or tried to make do with less when their EAs expired, resulting in greater food insecurity (Dasgupta and Plum 2023; Hatton et al. 2025; Wells et al. 2024).[2] But there is comparatively little evidence about how losing EAs affected CalFresh households' economic decision-making. In particular, one might expect that some CalFresh participants responded to the end of pandemic-era assistance by working more. Alternatively, if disabilities or other limitations prevented them from earning more, CalFresh participants might have used other resources (like food banks), cut back on their spending, or borrowed more to balance their budgets.

These predictions speak to contrasting views of what EAs achieved. Some observers, concerned that safety-net programs disincentivize employment, expected that eliminating pandemic EAs would generate a net benefit in the form of higher earnings and greater economic self-sufficiency (e.g., Rachidi and O'Rourke 2023). From this perspective, the relatively generous pandemic-era safety net may have discouraged people from working. Other voices, though, were more concerned that SNAP participants would not be able to work enough to compensate for the EAs they lost, leaving them worse off. These safety-net advocates warned of a "hunger cliff" in which SNAP recipients might no longer be able make ends meet (e.g., Rosenbaum, Berg, and Hall 2023; Saucedo 2023).

Even though the pandemic has ended, understanding how SNAP benefit generosity affects employment and financial wellbeing remains important. Federal policymaking in 2025 shifted towards reducing program costs and promoting employment among participants; a brief lapse in SNAP funding in November 2025 as a result of a government shutdown reminded many of how pivotal the program is for many families. By analyzing the end of pandemic EAs, we hope to deepen our understanding of the role that CalFresh plays in the lives of low-income Californians and broaden the evidence base on the relationship between SNAP, work, and economic wellbeing.

2 In California, emergency allotments expired in March 2023. However, other states stopped distributing pandemic-era benefits much earlier. The studies cited here include data from states that ended their EA programs between 2021 and 2023.

II. Data and sample construction

Our study focuses on individual-level outcomes that can be difficult to observe in common data sources — which helps explain why there is scant evidence tying economic and financial health outcomes to changes in CalFresh benefit levels. We overcome this challenge by assembling a unique linked administrative dataset that contains anonymized data on all CalFresh participants enrolled during the pandemic alongside their employment, earnings, and credit records. Together, these data provide a holistic picture of CalFresh participants' economic wellbeing and labor market experiences around the time that they lost access to pandemic EAs.

Data sources

In partnership with the California Department of Social Services (CDSS), the California Policy Lab (CPL) compiled a dataset drawing on three sources of information about CalFresh participants, which we summarize in Table 1. The core dataset consists of person-quarter-level CalFresh enrollment records maintained by CDSS. These data also include self-reported demographic information such as age, sex, and race and ethnicity. We use these data points to construct household-level (that is, CalFresh case-level) characteristics, such as the number of household members. While we observe each household's monthly allotment, we do not observe all of the factors that determine their benefit levels, such as income from other safety-net programs. In the same vein, we do not directly observe the amount of EAs that families receive, though as we discuss in the next section we can infer them from the change in the family's benefits when EAs were eliminated.

CDSS matches the CalFresh quarterly enrollment records to quarterly earnings data from the Employment Development Department (EDD). We observe a person's earnings from formal employment for the entirety of their CalFresh enrollment period, as well as the six quarters before and after any quarter in which they enroll in CalFresh. We define a person as employed in a given quarter if they had any reported earnings during that quarter.[3] An important caveat is that the EDD data only capture earnings from formal employment and do not include, for example, gig economy work or informal jobs transacted in cash. That said, existing evidence suggests that fewer than one in five Californians earn income from these sources (see Bernhardt et al. 2021), implying that our data capture the vast majority of CalFresh participants' paid employment.

3 Following best practices in the literature, we cap quarterly earnings at the 99th percentile. We do the same for credit outcomes denominated in dollars (e.g., credit card balances and auto debt). This process, known as "winsorization," ensures that extreme and possibly inaccurate values do not sway our results.

Finally, we incorporate CalFresh participants' credit records from the University of California Consumer Credit Panel (UC-CCP), which draws on data from one of the three major credit bureaus. The UC-CCP includes quarterly snapshots of information commonly found on credit reports, such as credit scores, outstanding loans, and credit card balances. We successfully link approximately 90 percent of CalFresh adults to the UC-CCP. Using these anonymized data, we aggregate a person's total credit card debt across all of their open cards to capture their total credit card borrowing, and define their credit card utilization as the ratio of their total card balances to total borrowing limits.

TABLE 1: Data sources

SOURCE	SHORT DESCRIPTION
California Department of Social Services	Quarterly CalFresh enrollment, benefits, and demographics
Employment Development Department	Quarterly earnings and employment
University of California Consumer Credit Panel	Quarterly credit records

Sample construction

We focus on CalFresh participants who were enrolled in the program at some point in 2022 as well as the first quarter of 2023 (2023Q1) — the time that EAs ended. This criterion ensures we have a sample of people who were actually impacted when EAs expired and experienced a change in their benefit levels. To focus on people who could plausibly have worked more to increase their income after losing access to EAs, we further limit our sample to working-age CalFresh participants between 25 and 54 years old in 2023Q1.[4] Finally, we exclude CalFresh participants whom we could not match to a valid credit score in most of the study period. These individuals have limited engagement with the credit system and likely could not borrow more from traditional sources after EAs expired.

After applying these criteria, our sample includes 1,270,732 unique people. Because most CalFresh participants are not working-age, this sample represents about 37 percent of all adults who were enrolled in CalFresh in 2023Q1. We follow these CalFresh participants from 2022Q1 (four quarters before EAs expired) through 2023Q4 (three quarters after EAs expired), even if they stopped receiving CalFresh benefits at some point during this window.

4 Note that our sample definition includes, but is not limited to, able-bodied adults without dependents (ABAWDs), a population often studied in SNAP research because they face federally-mandated work requirements. During our study period, California had a statewide waiver for ABAWD work requirements, meaning that no CalFresh participants in our sample had to be employed as a condition of receiving benefits.

III. Empirical framework

The public debate around the size of SNAP benefits often boils down to a simple question: do larger payments crowd out employment or do they help address real economic need? Answering that question is challenging because SNAP is designed to provide more support to people who have greater demonstrated need and lower household earnings. That structure makes it difficult to determine whether larger benefits lead recipients to work less or if instead lower earnings are just a consequence of the reason why people qualified for larger benefits in the first place. Our empirical approach uses the end of pandemic emergency allotments to overcome this hurdle and shed light on how benefit generosity affects employment and financial outcomes.

Households received smaller or larger EAs

EAs drastically simplified the CalFresh benefits formula, providing families with supplemental assistance so that they received a fixed monthly allotment based on their household size. As a result, the amount of EAs that households received varied substantially, and so losing access to EAs meant different things to different households. Those differences can help us assess how more or less generous benefits affect people's economic outcomes.

Specifically, the design of the emergency allotments policy created two groups of CalFresh households, one of whom lost substantially more benefits than the other when EAs expired. To identify these groups, we compare each household's CalFresh allotments in 2022 to the maximum allowable benefits they could have received under pre-pandemic rules.[5] This comparison allows us to approximate the size of a household's EA and their underlying economic need, even though we cannot directly observe either in the data. We then divide households into "larger EA" and "smaller EA" groups based on this approximate EA.

5 The EA formula provided $95 per month in EAs to households who were eligible for the most benefits under pre-pandemic rules. Families who were eligible for less than the maximum benefit under pre-pandemic rules generally received larger EAs, enough to bring them up to the maximum benefit level, meaning they still wound up with lower total benefits (including EAs) than those who received smaller EAs. As such, we infer that a family qualified for smaller EAs and had greater demonstrated need if in 2022 their average monthly benefits were roughly $95 more than the maximum level we would expect to see for a household of their size under the regular (non-EA) benefit formula. By the same token, we infer that families qualified for larger EAs and had less demonstrated need if their monthly benefits in 2022 were roughly equal to the maximum benefit we would expect under pre-pandemic rules for a household of their size.

These groups have several distinguishing features that inform our analytic approach:

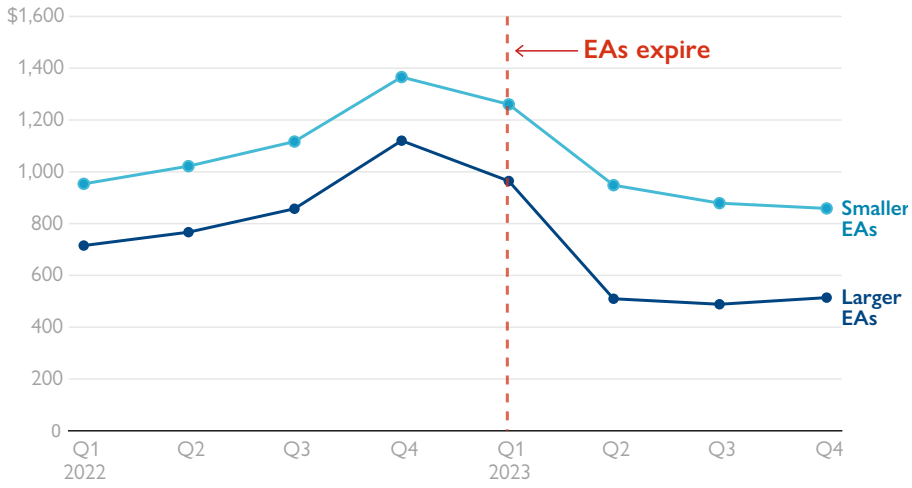
1. **Households with relatively less economic need received (and lost) larger EAs.** Families with outside income sources — including wage earnings — were not eligible for the highest levels of CalFresh benefits under pre-pandemic rules. However, during the pandemic, their monthly payment was based just on their household size. This updated monthly payment was generally much larger than their benefits would have been under pre-pandemic rules. When EAs ended in March 2023, these households lost an average of $1,060 in quarterly benefits.

2. **Households with greater economic need received (and lost) smaller EAs.** Families with little or no outside income qualified for the highest levels of CalFresh benefits (which depended on their household size) under pre-pandemic rules. They did not qualify for EAs under the initial pandemic rules, but in 2022 the rules were modified to give them a fixed monthly EA of $95 (in addition to their regular monthly benefit). These CalFresh participants lost, on average, $380 in quarterly benefits when their EAs ended in March 2023. Given their limited outside income, these families had fewer total resources than households that qualified for larger EAs (Table 2).

Table 2 compares the characteristics of CalFresh participants in the "smaller EA" and "larger EA" groups, while Figure 2 shows the evolution of their benefits over time. Because households that received larger EAs tend to have more people in them, we reweight quarterly allotments so that the average household size in the two groups is similar. That way, we highlight how CalFresh participants in these groups were impacted by the end of EAs, independent of household size.[6] These data demonstrate how families that received smaller EAs were already receiving relatively generous CalFresh benefits and lost relatively fewer benefits when EAs ended.

6 In the Appendix, we provide unweighted quarterly allotments data. Those data show that households that qualified for larger EAs received larger benefit amounts, on average. That pattern stems from the fact that these households are bigger and CalFresh provides more benefits to bigger households. Crucially, though, the unweighted allotments still show that in early 2023 benefits declined more for those who received larger EAs, as do the weighted data we show in Figure 2. The EA losses cited in the text ($1,060 per quarter for the larger EA group and $380 per quarter for the smaller EA group) refer to the unweighted data presented in the Appendix.

FIGURE 2: CalFresh quarterly allotments (adjusted for household size)



Notes: The figure shows average quarterly household CalFresh allotments. The data are weighted using exact matching so that the average household size in the weighted data is the same in the smaller EAs and larger EAs groups. The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in 2022; and could be assigned a weight (N=760,484).

Source: California Policy Lab analysis of California Department of Social Services data.

TABLE 2: Characteristics of CalFresh participants in 2022, by size of EAs received

	RECEIVED SMALLER EAs	RECEIVED LARGER EAs
Household income (quarterly)	$2,971	$7,079
Employment rate (quarterly)	30%	52%
Earnings (quarterly)	$1,600	$3,995
Credit score	601	623

Notes: The table shows average quarterly outcomes in 2022. The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; and could be classified in terms of the size of their EAs in 2022 (N=760,538). Those who qualified for smaller EAs (N=413,729) received about $95 per month in EAs in late 2022. Those who qualified for larger EAs (N=346,809) received about $240 on average in EAs in late 2022. "Household" refers to a CalFresh case. Household income includes the quarterly CalFresh allotment plus any wage earnings among all people in the household.

Source: California Policy Lab analysis of California Department of Social Services, Employment Development Department, and University of California Consumer Credit Panel data

We base most of our analysis on the full sample of 1.27 million working-age CalFresh participants. However, when we turn to evaluating the causal impact of losing relatively larger EAs by comparing larger- and smaller-EA participants, we limit ourselves to the 760,538 CalFresh adults whom we can confidently categorize into one of these groups based on their average allotments in 2022. In particular, we exclude households whose allotments changed a great deal over the course of 2022, for example because they moved in and out of employment. As we show in the Appendix, the individuals we exclude from this analysis closely resemble those we include.

Identifying the causal effect of losing more benefits

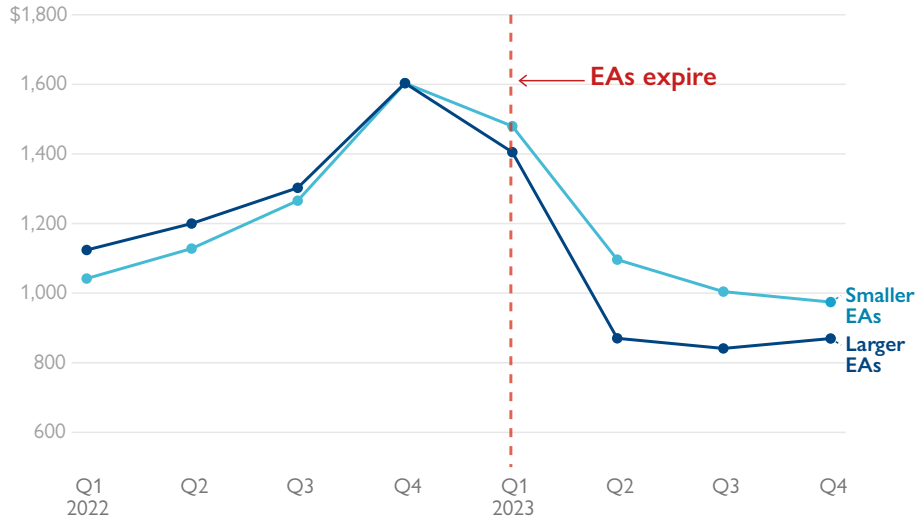
By comparing those who lost smaller and larger EAs in early 2023 — or, equivalently, people from households with more or less demonstrated economic need — we can estimate the impact of losing relatively more CalFresh benefits. However, a simple comparison of outcomes after EAs expired might not be very informative: these groups differ in terms of their employment and credit histories (see Table 2), which likely shaped their earnings and financial stability after EAs expired. We therefore take two steps to avoid mistaking these preexisting differences for the impact of losing relatively more EAs.

First, rather than comparing CalFresh participants at a single point in time, we estimate how their outcomes changed over time between 2022 (when EAs were still distributed) and 2023 (after EAs expired). We look at the relative change in outcomes for the larger-EA and smaller-EA groups in what is known as a difference-in-differences comparison. In effect, this approach adjusts for person-level characteristics (e.g., age) as well as unrelated developments over time (e.g., a strengthening post-pandemic labor market) that might taint our estimates.

Second, we use statistical weights to further ensure that we compare CalFresh participants who had similar household sizes, demographics, employment histories, earnings in 2022, and credit access. After applying our weights, the only observable distinction between the average person in each of these groups is the amount of CalFresh benefits they lost when EAs expired, making it more plausible that any differences in their outcomes represent the relative causal effect of losing pandemic EAs. We provide more technical details about our weighting scheme, as well as the regression specification that we use to estimate effects, in the Appendix.

As expected, our design helps narrow the gap in 2022 CalFresh benefits that is visible in Figure 2. In other words, our empirical approach gives us two groups of CalFresh participants that received similar benefit levels throughout 2022 but saw markedly different changes in benefits in early 2023 (Figure 3). Our motivating question, in effect, is whether this differential decline in benefits translated into differential impacts on employment and credit outcomes.

FIGURE 3: Estimated differences in quarterly CalFresh allotments



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in 2022; and could be assigned an appropriate statistical weight (N=669,618). The figure shows predicted values based on a difference-in-differences regression with inverse propensity weights. The regression specification appears in the Appendix.

Source: California Policy Lab analysis of California Department of Social Services data.

It is worth emphasizing that this approach will only describe the effect of losing larger EAs relative to losing smaller EAs, not the effect of losing EAs relative to losing no EAs at all. Nonetheless, it provides insight into the relative importance of benefit generosity and economic need in driving CalFresh participants' outcomes after they lost access to EAs — which speaks directly to concerns about the size of SNAP benefits that animates the policy discourse around the program.

What we can learn from this comparison

To see how our empirical approach ties into the policy conversation around SNAP, consider the two potential effects of pandemic-era EAs that we highlighted in Section 2. If SNAP assistance makes recipients less willing to work, then ending pandemic-era EAs might have weakened that disincentive, raising employment rates, particularly among CalFresh participants who got the largest EAs. On the other hand, if EAs mainly helped households cope with rising costs for essentials, then losing those EAs might have increased employment among those with the fewest resources, who would struggle the most to plug this hole in their budget.

These perspectives offer contrasting predictions of which CalFresh participants would have responded more strongly to losing access to EAs:

- If larger benefits discourage people from working, then we expect to see that those who received (and lost) larger EAs would see bigger increases in their employment and earnings when EAs ended.
- If, instead, EAs primarily helped the most disadvantaged CalFresh families make ends meet, then those with the greatest demonstrated need would have been more likely to become employed and show signs of financial distress after EAs ended, despite having lost fewer benefits.

These are testable predictions that we can take to the data.

THE ECONOMICS OF SNAP

Concerns that SNAP encourages people to work less have long shaped public perceptions of the program. And to many economists, the idea that SNAP assistance leads to lower employment rates makes sense, at least in theory.

By design, SNAP ensures that families with no earnings receive at least a modest income to afford groceries. For some, this SNAP income guarantee acknowledges economic reality: many working Americans need assistance to pay for essentials. For others, these unconditional payments give people an incentive not to work. Each of these perspectives speaks to a core economic principle:

1. When people become richer, they can afford to work less, which economists refer to as an income effect. For instance, with additional assistance from SNAP, a person can work fewer hours and still have the same amount of income as they had before. Likewise, after losing SNAP benefits (like when pandemic EAs expired), the income effect would lead someone to work more in order to make up for that lost income.

2. When people do not bear the full consequences of their actions, they often make costlier choices. This phenomenon is known in economics as a moral hazard effect. In the case of SNAP, the program provides recipients with an income even if they have no earnings, shifting some of the cost of non-employment from the individual to the public. Moreover, if they find a job, their benefits will be reduced (or even lost entirely), which may reduce their incentive to find work. Cutting SNAP benefits could reduce this moral hazard effect by placing more of the burden of non- or under-employment onto individuals, which would spur greater employment.

While both theories predict that greater SNAP benefits will lead recipients to work less, they have different implications for the efficacy of the program. Income effects represent people determining how much they need to earn to make ends meet, given their SNAP benefits. This sort of decision is common in the labor market: pay raises generate similar income effects and are signs of a healthy economy. By contrast, moral hazard effects represent people choosing to work less in order to maintain their SNAP benefits. Programs dominated by moral hazard tend to be inefficient because they encourage similar costly behavior with little social benefit.

Naturally, we would like to know the extent to which moral hazard drives non-employment among SNAP participants, but the evidence is scant. Our report offers a novel framework for thinking about the income and moral hazard effects of receiving SNAP benefits. If income effects govern CalFresh participants' employment, then we should see that ending EAs led to a bigger employment and earnings response among people with the greatest economic need — those who relied the most on CalFresh EAs to make ends meet. Conversely, if moral hazard effects dominate, then we expect to find a bigger effect among those who received larger EAs, who had a greater incentive to work less during the pandemic and stay below the SNAP income limit.

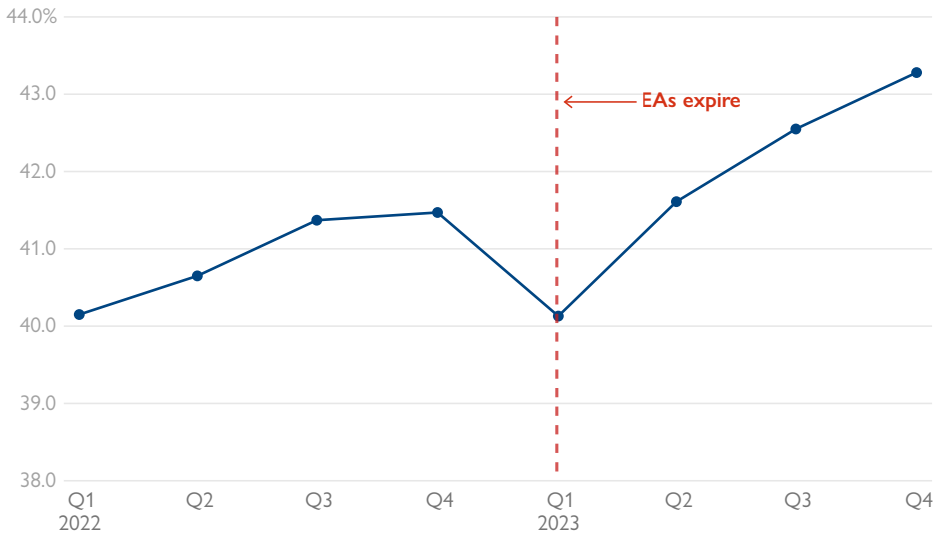
IV. How did losing access to EAs affect employment?

We examine how CalFresh participants' average employment and earnings evolved across 2022 and 2023, before and after the pandemic EAs expired. We then provide causal evidence of how these effects varied between those who lost larger and smaller EAs. Finally, we contextualize these changes in employment and earnings by providing a sense of how overall economic wellbeing shifted among CalFresh families after EAs expired.

Changes in employment and earnings after EAs expired

Throughout 2022, about 41 percent of the roughly 1.2 million working-age CalFresh participants in our sample were employed. **Employment among CalFresh participants began to rise in the second quarter of 2023, just after EAs expired** (Figure 4). By the fourth quarter of 2023 (2023Q4), around 43 percent were employed, meaning that around 25,000 additional CalFresh participants were working.

FIGURE 4: Employment rate among CalFresh participants

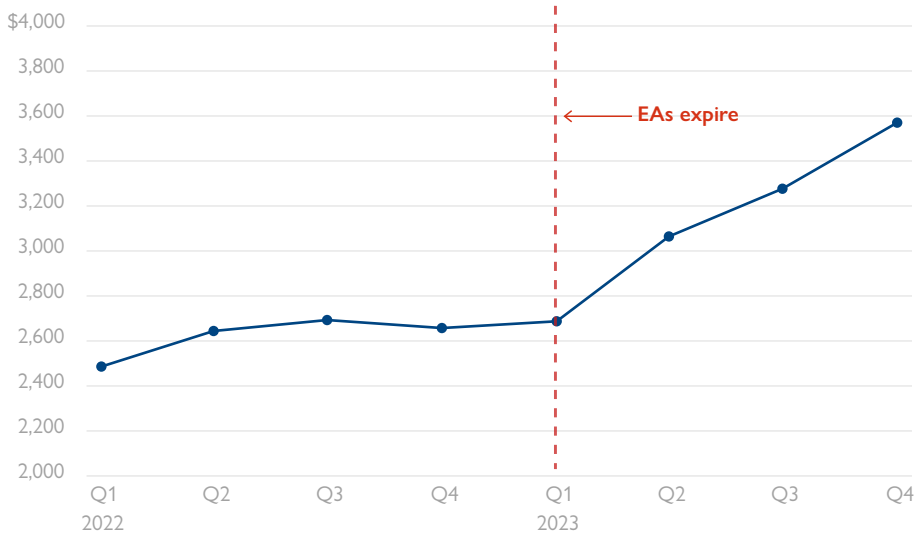


Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; and had a valid credit score in at least half of the quarters shown (N=1,270,732). A person is employed in a given quarter if they have any wage earnings in that quarter.

Source: California Policy Lab analysis of California Department of Social Services and Employment Development Department data.

More strikingly, **between 2022Q4 and 2023Q4, average quarterly wage earnings among CalFresh participants rose by $900, or 35 percent** (Figure 5a). This trend captures the fact that some people became newly employed, raising their earnings above zero, but the size of the increase is too large to be explained entirely by people entering work. Some of the upward trend, then, reflects increased earnings among those who were already employed. Over the same period, average earnings among all workers statewide remained flat (Figure 5b).

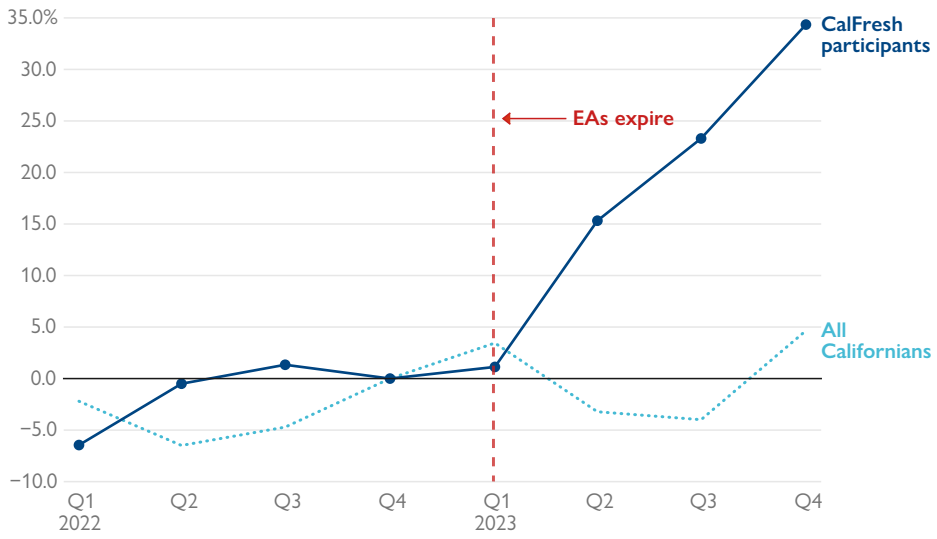
FIGURE 5A: Average wage earnings among CalFresh participants



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; and had a valid credit score in at least half of the quarters shown(N=1,270,732). Non-employed individuals have $0 in quarterly wage earnings.

Source: California Policy Lab analysis of California Department of Social Services and Employment Development Department data.

FIGURE 5B: Change in average earnings relative to 2022Q4 (%)

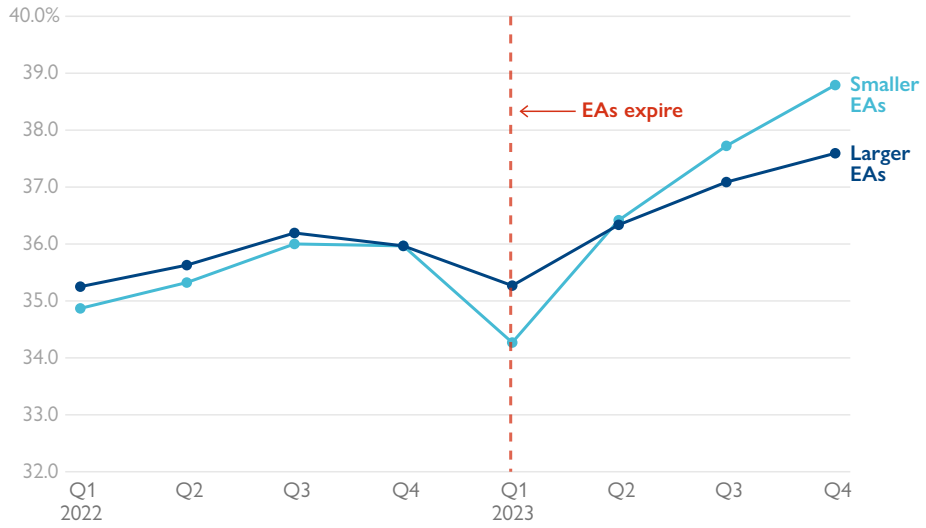


Notes: The CalFresh sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; and had a valid credit score in at least half of the quarters shown (N=1,270,732). The "All Californians" sample refers to aggregated average quarterly wage earnings data published by the Employment Development Department.

Source: California Policy Lab analysis of California Department of Social Services and Employment Development Department data.

Were these changes in labor market outcomes driven by those who lost smaller or larger EAs? While people from both groups were employed at higher rates in 2023 than they were in 2022, we find that **CalFresh participants who received smaller EAs (i.e., those with greater demonstrated economic need) saw larger increases in employment after EAs expired** (Figure 6). Specifically, CalFresh participants from the higher-need households who received smaller EAs were about 2.8 percentage points (8.3 percent) more likely to be employed in late 2023 than they were in 2022Q4. In contrast, those from relatively lower-need households, despite having had similar employment rates in 2022, were only about 1.6 percentage points more likely to be employed. That is, despite losing less than half as many benefits, CalFresh participants who received smaller EAs saw a 75 percent bigger increase in employment than CalFresh participants who received larger EAs. Likewise, **CalFresh participants from households with higher demonstrated need earned $1,070 more in 2023Q4 than they did in 2022Q4, whereas those from relatively higher-income households earned just $800 more** (Figure 7).

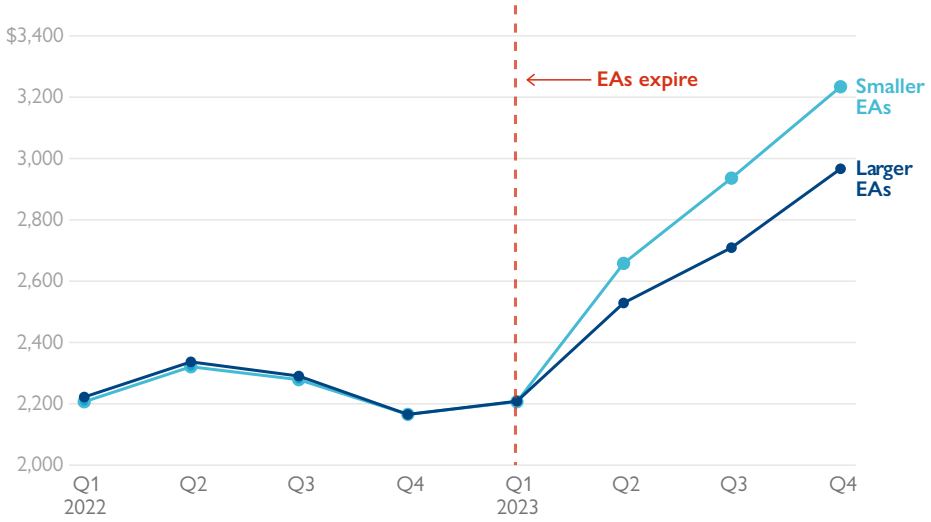
FIGURE 6: Estimated differences in employment rates



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in 2022; and could be assigned an appropriate statistical weight (N=669,618). The figure shows predicted values based on a difference-in-differences regression with inverse propensity weights. The regression specification appears in the Appendix.

Source: California Policy Lab analysis of California Department of Social Services and Employment Development Department data.

FIGURE 7: Estimated differences in wage earnings



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in 2022; and could be assigned an appropriate statistical weight (N=669,618). The figure shows predicted values based on a difference-in-differences regression with inverse propensity weights. The regression specification appears in the Appendix.

Source: California Policy Lab analysis of California Department of Social Services and Employment Development Department data.

Implications for CalFresh participants

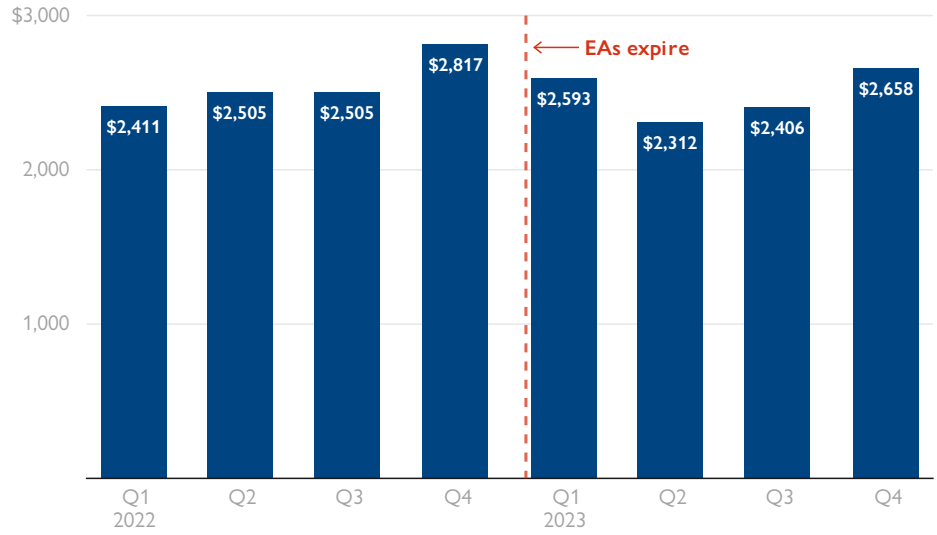
Overall, the data show upticks in employment and earnings among CalFresh participants after EAs expired, driven by those who lost the fewest benefits but had the greatest demonstrated economic need. That pattern is consistent with the idea that economic necessity, rather than any disincentive effects of benefit generosity during the pandemic, led CalFresh participants to work and earn more after EAs expired.

Other trends in the data support this explanation. While employment rates rose in 2023, the majority of CalFresh participants in both 2022 and 2023 were non-employed, even after they lost pandemic-era benefits. Figure 3 shows that most CalFresh participants — 57 percent of them — were non-employed in late 2023, despite having lost substantial CalFresh support earlier that year. In fact, **about half of CalFresh participants were unemployed in both 2022Q4, just before EAs expired, and in 2023Q4**. That persistent non-employment is consistent with the idea that, even among working-age CalFresh participants, barriers to employment (including disabilities and responsibilities at home), rather than the size of their CalFresh benefits, might explain why these individuals have low labor market engagement.

The fact that most CalFresh participants remained non-employed in late 2023 had implications for their overall economic wellbeing. While the average working-age CalFresh participant earned more in 2023 than they did in 2022, the median person did not. To better understand this distinction, consider how household income — wage earnings plus CalFresh benefits — changed for the average and median CalFresh participants.[7] On average, CalFresh participants earned slightly more in the labor market than they lost in benefits (compare Figures 1 and 5a). But the median participant — whose household income was higher than about half of CalFresh participants and lower than about half of CalFresh participants — was no more likely to be employed and thus experienced a net loss of $236 in quarterly household income after they no longer received pandemic EAs (Figure 8). In other words, **more than half of CalFresh households did not earn enough in the labor market to offset the income they lost when EAs expired, leaving them worse off on balance.**

7 Although we use the term "household income," we cannot observe sources of income besides wage earnings and CalFresh benefits. Households may also receive payments from Social Security and other transfer programs, or cash income from informal work. While we almost certainly underestimate household income, we argue that we likely capture most sources of funds for the families in our sample, given our focus on working-age CalFresh participants and the relative rarity of informal earnings.

FIGURE 8: Median CalFresh household income

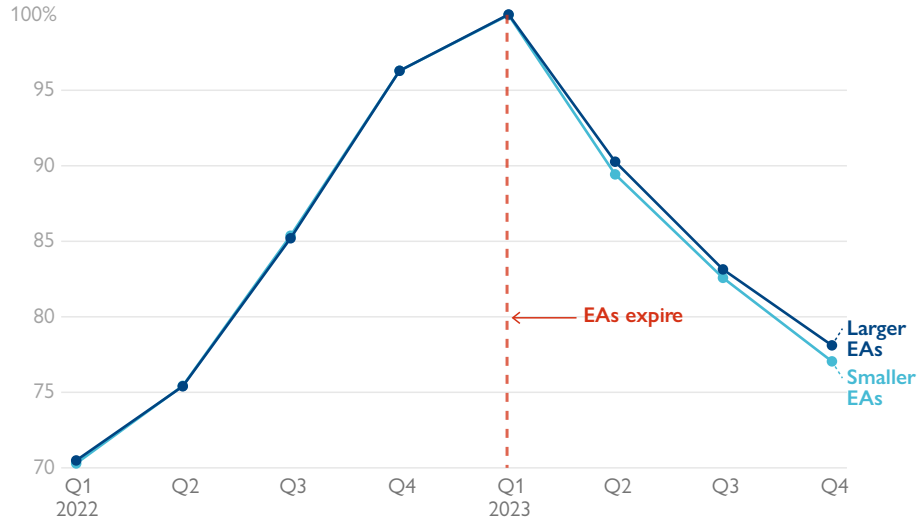


Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; and had a valid credit score in at least half of the quarters shown (N=1,270,732). "Household" refers to all people enrolled on a CalFresh case together in 2023Q1. "Household income" includes the household's CalFresh allotment ($0 if they are no longer enrolled in the program) plus all household members' wage earnings.

Source: California Policy Lab analysis of California Department of Social Services and Employment Development

These facts suggest that removing EAs did not put CalFresh families on a path to greater economic self-sufficiency as some hoped, at least in the short term. Indeed, CalFresh enrollment rates remained high throughout our study period. Upwards of 75 percent of working-age CalFresh participants who were enrolled in CalFresh when EAs expired remained enrolled in the program at the end of 2023 (Figure 9). CalFresh persistence rates were similar among those who lost smaller and larger EAs, even though they had very different earnings levels in 2023. Altogether, we do not find evidence that ending EAs improved the economic wellbeing of most CalFresh households, nor did losing these pandemic-era benefits diminish the role that CalFresh plays in supporting the incomes of these families.

FIGURE 9: Estimated differences in CalFresh enrollment



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in 2022; and could be assigned an appropriate statistical weight (N=669,618). The figure shows predicted values based on a difference-in-differences regression with inverse propensity weights. The regression specification appears in the Appendix.

Source: California Policy Lab analysis of California Department of Social Services data.

V. Did financial distress increase after EAs ended?

Beyond their employment and earnings, losing EAs could have impacted other dimensions of CalFresh participants' economic wellbeing. For instance, qualitative data suggest that at least some CalFresh recipients relied on credit cards to pay for essentials in 2023 (California Association of Food Banks 2024), while SNAP participants in other states reported having trouble repaying debt (e.g., Martinchek and Gonzalez 2024). Likewise, Californians whose CalFresh applications are denied have worse credit scores and higher borrowing afterwards than those whose applications are accepted (Homonoff, Lee, and Meckel 2025). One might therefore expect that CalFresh participants took on more debt and experienced worsening credit after they lost a substantial share of their benefits.

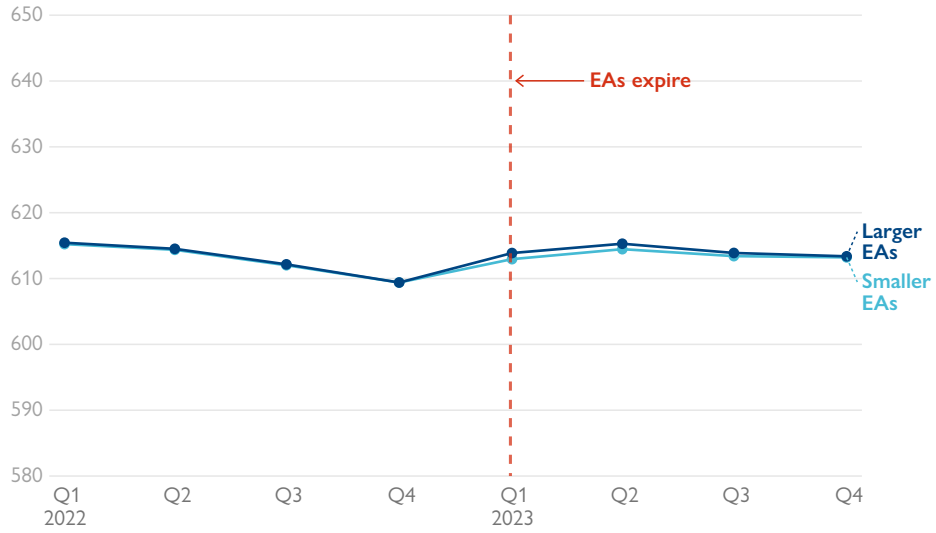
We examine this possibility among the subset of CalFresh participants who appear in credit records. These individuals include about 81 percent of CalFresh adults enrolled around the time that EAs ended. Those who do not appear in credit records do not have credit card debt or other types of formal loans by construction (as they would be included in the records if they did). We discuss the possibility of impacts on debt not covered by credit records below.

Overall, we do not find strong evidence that ending EAs caused greater financial distress among CalFresh participants, nor do we see any meaningful gaps in debt or credit worthiness between those who received smaller and larger EAs.

Consider credit scores, which summarize a person's likelihood of being able to repay a loan. From 2022 through 2023, CalFresh participants' credit scores remained largely flat, except for a small unrelated seasonal dip in winter 2022.[8] In other words, CalFresh participants' credit scores do not exhibit any sudden drops that would signify rising distress after EAs expired. That holds true both for those who lost smaller EAs and those who lost larger EAs (Figure 10).

8 This seasonality in credit is well documented. Researchers generally attribute falling credit scores and rising credit card debt in winter to increased retail spending over the winter holidays, which is followed by an improvement in financial health in spring as tax refunds reach consumers (CFPB 2018).

FIGURE 10: Estimated differences in credit scores



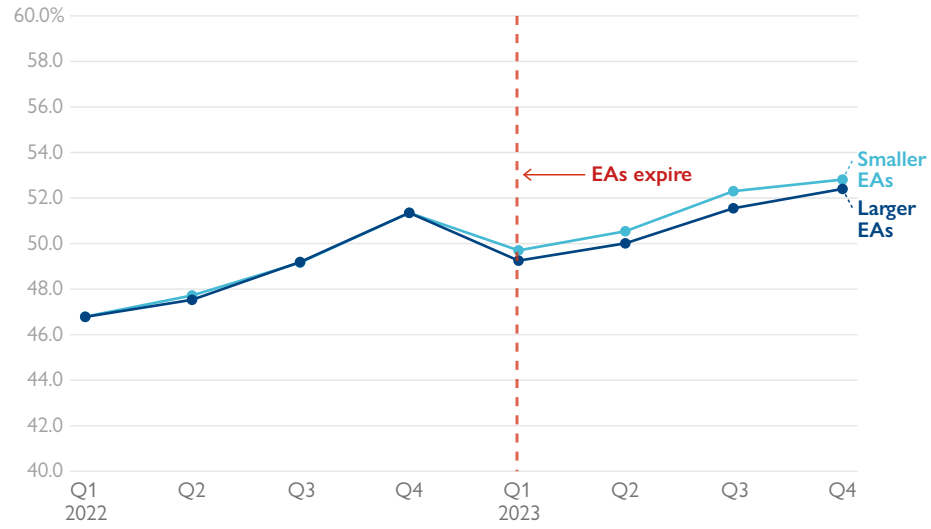
Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in 2022; and could be assigned an appropriate statistical weight (N=669,618). The figure shows predicted values based on a difference-in-differences regression with inverse propensity weights. The regression specification appears in the Appendix.

Source: California Policy Lab analysis of California Department of Social Services and University of California Consumer Credit Panel data.

To capture actual borrowing — which prior evidence suggests may have risen after EAs expired — we focus on credit card utilization, the ratio of card balances to borrowing limits. Credit cards are the most common consumer financial product: over 90 percent of people in our sample held at least one open credit card in 2023Q1. If CalFresh participants had to borrow more after EAs expired, they would presumably have utilized a larger share of their approved credit card limits beginning in early 2023.

Instead, we find that card utilization rose gradually throughout our study period and, if anything, that growth slowed in late 2023 following a seasonal drop early in the year (Figure 11). In other words, we do not find a jump in card utilization that would suggest CalFresh participants took on noticeably more credit card debt after EAs expired. However, we see that those who received smaller EAs maintained slightly higher card utilization rates than those who received larger EAs throughout 2023. This pattern is consistent with the idea we raised in Section 5 that households receiving smaller EAs had lower incomes and experienced greater distress after EAs were withdrawn. Still, these differences are quite small, amounting to less than a 1 percentage-point difference in utilization, or about 1.5 percent more borrowing.

FIGURE 11: Estimated differences in credit card utilization



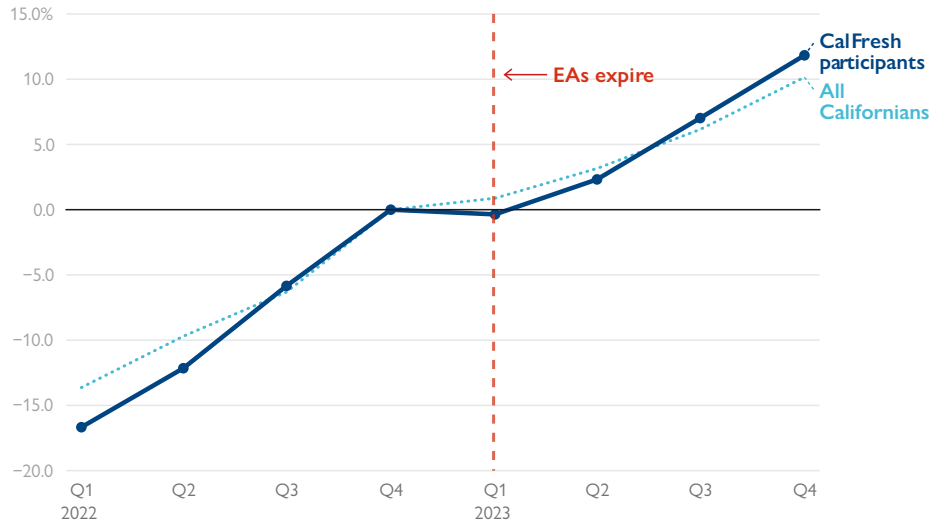
Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in 2022; could be assigned an appropriate statistical weight; and had at least one open credit card (N=531,069). "Credit card utilization" refers to the ratio of a person's total credit card balances to their total credit card limits.

Source: California Policy Lab analysis of California Department of Social Services and University of California Consumer Credit Panel data.

This is not to say that CalFresh participants were financially well-off in 2023. In early 2023, the average CalFresh participant had a credit score that would make them a "subprime" borrower, which likely limited their ability to access mainstream credit products. Consistent with the survey evidence we reference above, CalFresh participants' average credit card utilization rose slightly while their total credit card balances rose considerably between early 2022 and late 2023 (Figures 11 and 12).

However, these trends clearly predate the end of EAs; we do not find any deviations in early 2023 that might be attributed to losing pandemic-era benefits. Rising card balances also tend to accompany rising earnings and do not necessarily signal financial distress. Moreover, Californians writ large experienced similar declines in financial stability during this period, at the same time as savings accumulated during the pandemic (and augmented by stimulus payments) began to run out (see Figure 12).

FIGURE 12: Changes in average credit card balances, relative to 2022Q4 (%)



Notes: The CalFresh sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; and had a valid credit score in at least half of the quarters shown (N=1,270,732). The "All Californians" sample refers to aggregated average credit card balances among a random 2 percent sample of Californians, published in the California Credit Dashboard.

Source: California Policy Lab analysis of California Department of Social Services and University of California Consumer Credit Panel data.

It is possible that financial distress rose among CalFresh participants in ways that we cannot observe. For example, credit records do not include either payday loans or "buy now, pay later" loans. These types of debt are rarely reported to credit bureaus but might be prevalent among CalFresh participants, who have lower credit scores and credit card limits than the average Californian. They are also accessible to individuals who have limited or no access to formal credit (e.g., no credit score) — and who, by definition, are unobservable in the credit records we use in our analysis. To the extent that CalFresh participants took out more of these types of unreported loans after EAs expired, we underestimate their additional borrowing and miss this evidence of growing financial distress.

Yet it is equally possible that CalFresh participants did not experience any uptick in financial distress after EAs expired, at least in the short term. That conclusion offers a counterpoint to the idea we raised earlier that CalFresh participants worked more in response to economic need following the end of EAs. It would also stand in contrast to qualitative evidence of rising indebtedness among SNAP participants after EAs expired. Ultimately, the data at our disposal show that, like many Californians, CalFresh participants exited the pandemic in weakening financial positions, but the end of pandemic-era SNAP benefits does not seem to have accelerated this trend.

VI. Conclusion

The COVID-19 pandemic brought about one of the largest expansions of SNAP since its inception. Ever since, policymakers have debated the merits of more generous benefits. Some view expansive SNAP support as an economic lifeline, while others raise concerns that larger SNAP payments reduce employment rates. The end of pandemic-era emergency allotments in early 2023 provides us with an unusual opportunity to evaluate the relationship between SNAP benefit generosity, work, and financial wellbeing.

We find that employment and earnings among working-age CalFresh participants increased after they lost nearly 40 percent of their benefits when EAs ended. Crucially, though, the largest increases in employment and earnings were among households with the greatest demonstrated economic need — those who actually lost the fewest benefits when EAs ended. This finding runs counter to the idea that people worked less during the pandemic in order to receive larger benefits, as does the fact that most CalFresh participants remained non-employed even after experiencing a substantial reduction in benefits when EAs ended. Rather, our results imply that economic necessity, exacerbated by the loss of EAs, motivated CalFresh participants to work more.

At the same time, we find little evidence that losing EAs caused CalFresh participants to experience financial distress, at least in the short term. While many CalFresh participants had worsening financial situations when EAs expired, credit records do not show a surge in debt or a drop in credit worthiness that could be attributed to the end of EAs. These null results offer a counterpoint to predictions of a financial crisis among CalFresh participants after EAs expired.

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Appendix

A: Additional details about the linked dataset

As we noted in Section 3, this report uses a linked dataset that contains three components: CalFresh enrollment and monthly allotment records from the California Department of Social Services (CDSS); quarterly earnings and employment data from the Employment Development Department (EDD); and quarterly credit records from the University of California Consumer Credit Panel (UC-CCP), which uses data from one of the three major credit bureaus.

Combining datasets

CDSS combines their data with those of EDD by matching directly on Social Security numbers (SSNs). CPL links the combined CDSS-EDD data using an irreversible hashed merge linkage methodology that ensures data privacy. That is, rather than conducting the linkage based on original personally identifiable information (PII) such as names, dates of birth, or SSNs, we used hashed or obfuscated versions of that information. This approach obviates the need for agencies and the credit bureau to transfer unmasked PII, which could raise privacy concerns.

Rather, CDSS and the credit bureau each hash (encrypt) the PII that they hold, then transfer to CPL data with hashed IDs instead of PII. Agencies use a hashing algorithm (SHA-256, specified in the Federal Information Processing Standards: FIPS 180-4, Secure Hash Standard) designed so that identical strings will always be assigned the same hashed string value and thus matches on hashed IDs are equivalent to matches on the underlying PII. Partner agencies agree on a key (secret passphrase) amongst themselves, not to be shared with researchers under any circumstances. This means that CPL does not have any way to re-identify the data, and thus the data CPL analyzes cannot be linked back to the individuals to whom it pertains.

We match individuals in the CDSS records to those in the credit records using only hashed SSNs. In practice, including additional fields in the linkage process (such as hashed names) is not helpful because it turns up few additional matches and raises the potential for erroneous matches relative to using just SSNs.

Additional data processing steps

We note several important steps that we take to construct additional variables and conduct analyses that we describe in the main text and in this Appendix.

CalFresh enrollment records from CDSS include demographic information that we use to describe individuals in our sample. For each individual in a case, we observe characteristics such as their age, gender, and self-reported race/ethnicity during quarters in which they were enrolled in CalFresh. Because these variables can change over time due to updates and errors, we focus on their recorded values in 2023Q1, the only period during which, by construction, everyone in our sample was enrolled in CalFresh (see Section 3).

By the same logic, we assign to each individual certain characteristics of their 2023Q1 household. The CDSS data associates each individual with an assistance unit, or case, which we refer to as an enrollee's "family" or "household," but which functionally groups together individuals who jointly receive benefits, regardless of their relationship. We only observe a sampled person's household during quarters in which they are enrolled in CalFresh, as they are guaranteed to be in 2023Q1. We treat a person's CalFresh case in 2023Q1 (when, again, they are guaranteed to be enrolled in the program) as their household for the whole sample period. We construct measures of household income (CalFresh allotments plus total wage earnings among all household members); the number of adults and children in the household; and the household's county of residence based on this 2023Q1 data.

After linking these CalFresh records with the UC-CCP credit data, we restrict our sample to individuals who have a valid credit score in at least half our study period (see Section 3). By valid credit score, we mean that a person has a non-missing credit score of at least 300. Scores below 300 are invalid and refer to people who have no prior credit history and are assigned a placeholder value ("frag files").

To construct our measures of credit card utilization and card balances, we aggregate all the credit card records associated with an individual, as we note in the main text. In this step, we assign the balance and limit of a given card a weight of 0.5 if the card is a joint account with another person; otherwise, we assign cards a weight of 1 when calculating total card debt and utilization.

Sample restrictions

We note in Section 3 that we impose four criteria to ensure that we arrive at a relevant sample of CalFresh participants for our analysis. Table A1 provides a sense of how restrictive each criterion is.

TABLE A1: Sample restrictions

SAMPLE RESTRICTION	RESULTING SAMPLE SIZE
All CalFresh adults enrolled in 2023Q1	3,523,851
…who were also enrolled sometime in 2022	3,194,946
…and who were 25-54 years old in 2023Q1	1,568,752
…and who had a valid credit score throughout most of the study period	1,270,732
…and who could be classified as having a "smaller" or "larger" EA	760,538

Our focus on working-age adults (ages 25-54) has the biggest impact on our sample size. Restricting to those enrolled in CalFresh in 2022, and those with a valid credit score during most of our sample period, have comparatively small effects on the sample size.

This breakdown also highlights the limits of our ability to determine whether a household received a relatively small or large EA: we can only categorize about 60 percent of people who otherwise meet our sample criteria. Still, Table A2 shows that the roughly 510,000 observations that we cannot include in this analysis closely resemble those we can include.

TABLE A2: Comparing CalFresh participants who are and are not included in difference-in-differences analysis

	INCLUDED IN LARGE/SMALL EA ANALYSIS	EXCLUDED FROM LARGE/SMALL EA ANALYSIS
Age (years)	37.8	37.3
Female	58%	66%
White	24%	22%
Asian/Pacific Islander	6%	6%
Black	14%	16%
Hispanic	38%	40%
Household Size	2.4	2.8
Avg qtrly earnings in 2022	$2,679	$2,532
Avg qtrly employment in 2022	40%	43%
Avg credit score in 2022	611	603
Avg credit card utilization in 2022	50%	53%
Avg credit card balance in 2022	$2,318	$2,229
Avg CalFresh allotment in 2022	$1,385	$1,672

Source: California Policy Lab Analysis of California Department of Social Services, Employment Development Department, and University of California Consumer Credit Panel data

B: Technical details about estimation approach

As we discuss in Section 4, our empirical design aims to deliver the causal impact of losing relatively more CalFresh benefits when EAs expired in March 2023. To that end, our approach marries two components: a difference-in-differences regression framework and a statistical weighting scheme to ensure that we have a sample of otherwise similar people who lost more or fewer benefits in early 2023. We describe these techniques in more detail below.

Difference-in-differences regression analysis

As its name suggests, our difference-in-differences (DiD) framework compares two "differences" to estimate the causal effect of losing larger EAs. For concreteness, consider how this approach delivers the causal effect on individual earnings.

First, the DiD model estimates the difference in average earnings between people who lost larger and smaller EAs in 2023, after EAs expired. That "first-difference," post-EAs gap could represent the causal impact of losing EAs, but will also capture preexisting disparities in earnings. In particular, we know that those who received smaller EAs had lower earnings and employment in 2022, which likely limited their earnings potential in 2023 and could lead us to underestimate how much losing EAs mattered for individual earnings.

Our DiD framework therefore also adjusts for a "second" difference: the gap in earnings between people who received smaller and larger EAs in 2022, before EAs expired. Taking the difference between these first and second differences, we get the "difference-in-differences" estimate of how much losing larger EAs affects individual earnings, accounting for preexisting disparities between these groups.

This DiD estimate is plausibly causal under the assumption that, in 2022, earnings changed at similar rates for CalFresh participants who received smaller and larger EAs. Put differently, if, hypothetically, people who received smaller EAs saw rapid earnings growth in 2022, while those who received larger EAs did not, we would not reasonably conclude that ending EAs per se caused those who got smaller EAs to earn more — they were already on track to do so before EAs ended. We cannot directly test this "parallel trends" assumption, but instead provide visual evidence throughout this report that outcomes for those who lost smaller and larger EAs evolved in tandem — or were even overlapping — in 2022.

Formally, we estimate a dynamic DiD regression specification that allows us to easily assess whether the parallel trends assumption might hold. This specification estimates quarter-specific impacts and is sometimes referred to as an "event study" or a "two-way fixed effects" model. For person *i*'s outcome *y* measured in quarter *q*, we estimate the following regression equation:

$$y_{iq} = \sum_{q=2022Q1}^{Q=2023Q4} (\delta_q + \beta_q LargerEA_i) + \gamma_i + \epsilon_{iq}, \quad (1)$$

where γ_i represents person-level fixed effects, δ_q represents quarter fixed effects, $Larger\ EA$ is an indicator that equals 1 if person *i* receives a larger EA and 0 otherwise, and ϵ_{iq} is the error term. The vector β_q includes quarter-specific DiD estimates relative to 2022Q4—the quarter just before EAs expired. For example, β_{2023Q4} is the estimated difference in outcomes for people who received larger and smaller EAs in 2023Q4, relative to the analogous difference in 2022Q4.

Note that we could equivalently examine the effects of losing smaller EAs. Because the two groups are exclusive and exhaustive, we would reach identical conclusions either way. Only the signs on the estimates β_q would differ (e.g., if those who received larger EAs earned more, resulting in a positive estimate, then those who received smaller EAs necessarily earned less, resulting in a negative estimate). Because which group we focus on is entirely arbitrary, and because both groups experienced a decline in benefits between 2022 and 2023, we present our findings visually, using predicted values from this DiD model to emphasize the relative change in outcomes for our two groups of CalFresh participants.

Inverse propensity weighting

Our DiD strategy aims to compare outcomes among people who lost smaller and larger EAs in early 2023 — or, equivalently, people from households with more or less demonstrated economic need. But, as we alluded to above, CalFresh participants who received smaller and larger EAs differ in meaningful ways. In principle, DiD does not require that we have balanced sample of observably similar CalFresh participants. However, in our case, the underlying determinants of how much a person received in CalFresh EA size might also shape the evolution of their outcomes once EAs expired, which would lead to violations of the DiD parallel trends assumption. For example, by definition, those with greater economic need (smaller EAs) had lower employment rates before EAs expired. With less work experience, they may have had a more difficult time finding employment after EAs expired, which would lead us to understate the effect losing EAs had on their employment.

We account for these potentially problematic differences between people whose households received smaller and larger EAs using inverse propensity weighting (IPW). This technique helps create a sample of comparable people whose only observable distinction is that some received smaller EAs while others received larger EAs.

Implementing IPW involves two steps:

1. **Estimating propensity scores**: We estimate a propensity score for every person in our sample, which measures the probability that they received smaller EAs given their demographic characteristics; employment and earnings in 2022; and financial health in 2022. Intuitively, propensity scores capture the degree to which individuals "look like" those who receive smaller EAs, which helps us zoom in on CalFresh participants who received larger EAs but otherwise share similar characteristics as those who instead received smaller EAs.

   We use a logit model to calculate these propensity scores, with an indicator for whether the person received a smaller EA as the outcome variable. (As in our DiD design, which group we treat as the one of interest is arbitrary.) We include a battery of covariates to help predict whether a person received a relatively small EA; we want to ensure these covariates are balanced, or similar, across our two groups of CalFresh participants. In particular, we include the following characteristics as covariates in our propensity score model: race/ethnicity; sex; age in 2023Q1; household size and the number of children in that household as of 2023Q1; county of residence in 2023Q1; and CalFresh enrollment, earnings, employment, credit scores, open credit cards, credit card limit, credit card balances, and auto loan balances in each quarter of 2022.

   In effect, our choice of covariates ensures that our two groups share similar CalFresh enrollment, employment, and credit histories on average, as well as key demographic characteristics. However, it is also worth noting what we do not include in the model — namely, many of the determinants of CalFresh benefits, such as total household income, non-work income, and eligible expenses. (In fact, most of these are unobservable in our data.) Because we leave those characteristics untouched, we still see that CalFresh participants from households that received larger EAs experienced a bigger drop in benefits in early 2023, as expected (see Figure 8 in the main text). In that sense, the fact that we cannot condition on all of these determinants of CalFresh benefits is not in itself a cause for concern.

Ideally, though, we would still be able to observe these components of the function that determines CalFresh benefits so that we could intentionally control for all but one of those characteristics (e.g., income from other household members) in our propensity score model. In that perfect scenario, we could say definitively that any remaining variation in benefits losses after EAs expired came from that omitted factor. As it stands, because we cannot observe all the predictors of CalFresh benefit levels, we can only say that a combination of factors — likely dominated by differences in total household wage earnings and payments from other safety-net programs — drives the differential changes in benefits that we show in Figure 8.

2. **Constructing propensity score weights:** The second step in IPW uses our estimated propensity scores to construct statistical weights such that individuals with higher propensity scores receive bigger weights, thus contributing more to our analysis. To ensure that these weights do not take extreme values that might bias our results, we exclude roughly 12 percent of our sample who have unusually high or low propensity scores (less than 0.10 or greater than 0.90). As such, our effective sample size when we estimate our DiD models is about 669,000 individuals.

To better understand what these weights achieve, we present sample summary data in Table A3. The first two columns provide sample means using unweighted data; the latter pair of columns shows analogous statistics using our weighted data.

TABLE A3: Average CalFresh participant characteristics using unweighted and weighted data

	UNWEIGHTED SAMPLE		WEIGHTED SAMPLE	
	SMALLER EAs	LARGER EAs	SMALLER EAs	LARGER EAs
Age (years)	37.7	37.9	38.1	38.3
Female	50%	67%	59%	59%
White	26%	21%	37%	37%
Asian/Pacific Islander	6%	7%	24%	24%
Black	16%	12%	6%	6%
Hispanic	34%	44%	15%	15%
Household Size	1.58	3.31	2.17	2.17
Avg qtrly earnings in 2022	$1,660	$3,895	$2,229	$2,267
Avg qtrly employment in 2022	30%	52%	36%	35%
Avg credit score in 2022	601	623	611	612
Avg credit card utilization in 2022	53.7%	46.20%	49.9%	49.1%
Avg credit card balance in 2022	$2,071	$2,612	$2,363	$2,374

Source: California Policy Lab Analysis of California Department of Social Services, Employment Development Department, and University of California Consumer Credit Panel data

In the unweighted sample, we see clear indications that CalFresh participants who received relatively small EAs (and had greater economic need) differed systematically from those who received larger EAs. They had much lower earnings ($1,660 per quarter on average, versus $3,895 on average for those who received larger EAs), noticeably lower credit scores (601 versus 623), and higher credit card utilization (54 percent versus 46 percent).

Once we apply our weights, though, these differences shrink considerably or disappear entirely. In the weighted sample, CalFresh participants who received smaller and larger EAs have virtually identical demographic characteristics and comparable employment and credit outcomes in 2022. The resulting balanced sample enhances our DiD analysis, making it more plausible that the estimates we recover represent the causal effect of losing greater or fewer EAs rather than spurious correlations between outcomes in 2023 and underlying individual characteristics.

C: Supplemental results

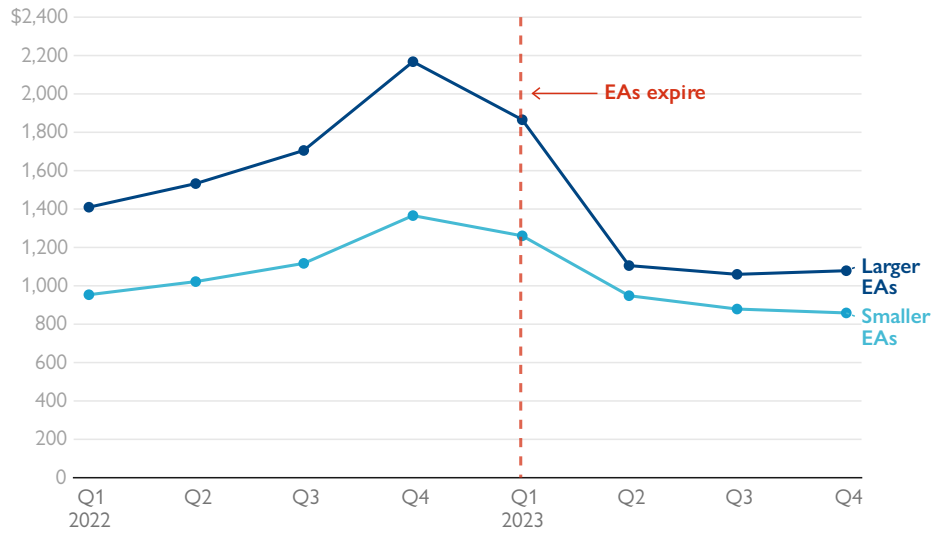
TABLE A4: Event study estimates

	EMPLOYMENT	EARNINGS	CREDIT SCORE	CREDIT CARD UTILIZATION	CALFRESH
2022 Q1	-0.0038 (0.0013)	-15.40 (12.28)	0.211 (0.165)	0.0018 (0.0018)	-0.0020 (0.0016)
2022 Q2	-0.0031 (0.0012)	-15.94 (12.04)	-0.153 (0.144)	0.0020 (0.0020)	0.0003 (0.0015)
2022 Q3	-0.0019 (0.0010)	-11.81 (9.66)	-0.136 (0.110)	-0.0003 (0.0011)	0.0017 (0.0012)
2023 Q1	-0.0100 (0.0010)	-1.48 (8.54)	-0.928 (0.106)	0.0045 (0.0017)	-0.0003 (0.0006)
2023 Q2	0.0008 (0.0011)	129.19 (11.07)	-0.827 (0.138)	0.0053 (0.0018)	-0.0084 (0.0011)
2023 Q3	0.0640 (0.0012)	226.76 (12.44)	-0.481 (0.161)	0.0075 (0.0042)	-0.0055 (0.0013)
2023 Q4	0.0120 (0.0013)	267.63 (13.33)	-0.161 (0.178)	0.0041 (0.0021)	-0.0106 (0.0014)

Notes: Each cell reports a quarterly event study estimate, following Equation 1 from Appendix B. Robust standard errors clustered at the household level (i.e., CalFresh case in 2023Q1) appear in parentheses. The 2022Q4 effect is the reference point and thus the estimate omitted. The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in 2022; and could be assigned an appropriate statistical weight (N=669,618).

Source: California Policy Lab Analysis of California Department of Social Services, Employment Development Department, and University of California Consumer Credit Panel data

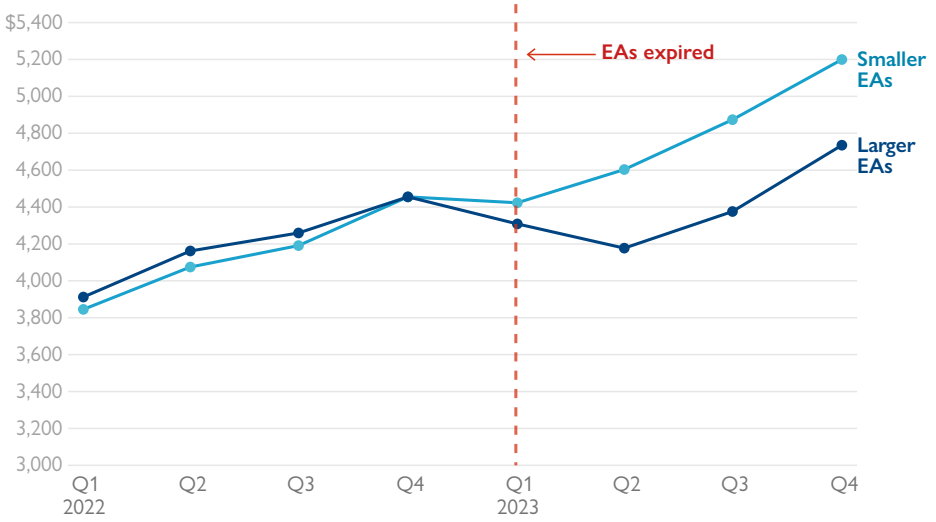
FIGURE A1: Average quarterly CalFresh allotments



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; and could be classified in terms of the size of their EAs in 2022 (N=760,538). Households that received larger EAs were larger on average and thus received more total benefits.

Source: California Policy Lab analysis of California Department of Social Services data.

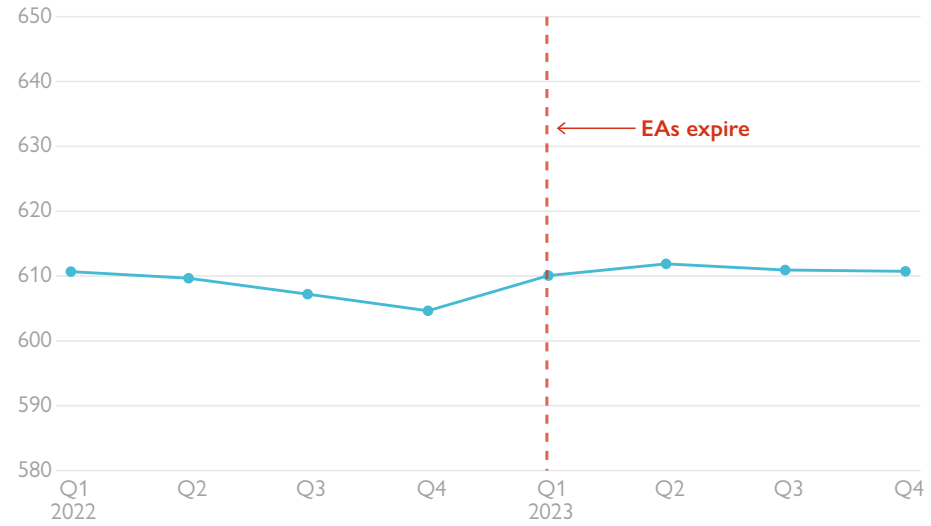
FIGURE A2: Estimated differences in household income



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; had a valid credit score in at least half of the quarters shown; could be classified in terms of the size of their EAs in2022; and could be assigned an appropriate statistical weight (N=669,618). The figure shows predicted values based on a difference-in-differences regression with inverse propensity weights. "Household income" includes the household's CalFresh allotment ($0 if they are no longer enrolled in the program) plus all household members' wage earnings. The regression specification appears in the Appendix.

Source: California Policy Lab analysis of California Department of Social Services and Employment Development Department data.

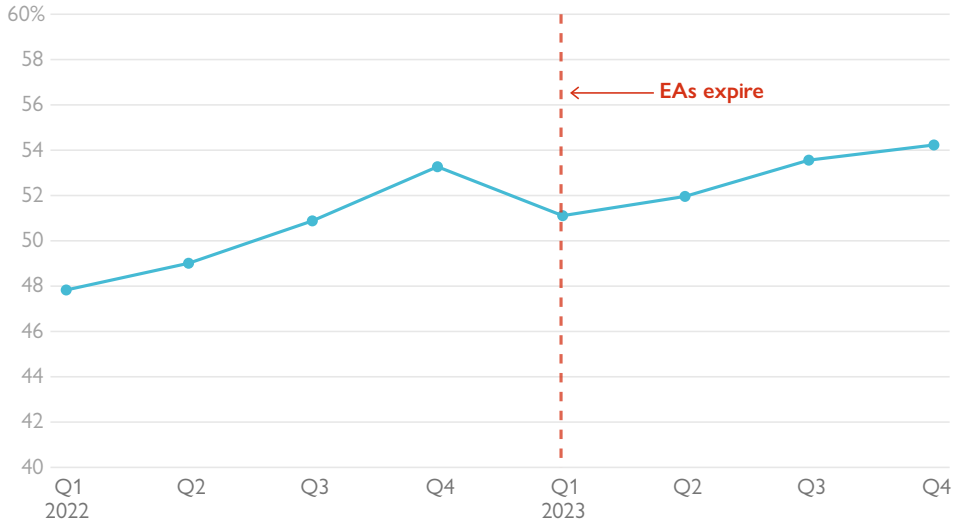
FIGURE A3: Average credit scores among CalFresh participants



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; and had a valid credit score in at least half of the quarters shown (N=1,270,732).

Source: California Policy Lab analysis of University of California Consumer Credit Panel data.

FIGURE A4: Average credit card utilization among CalFresh participants



Notes: The sample includes individuals who were enrolled in CalFresh in 2023Q1 as well as at least one quarter in 2022; were 25-54 years old in 2023Q1; had a valid credit score in at least half of the quarters shown; and had at least one open credit card (N=1,022,007). "Credit card utilization" refers to the ratio of a person's total credit card balances to their total credit card limits.

Source: California Policy Lab Analysis of University of California Consumer Credit Panel data