SNAP and Food Expenditures: Evaluating California's Cash-out Policy

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Abstract

This paper investigates how Supplemental Nutrition Assistance Program (SNAP) eligibility and benefits affect food expenditures by exploiting the California "cash-out" policy, which made Supplemental Security Income (SSI) recipients ineligible for SNAP. Using the Consumer Expenditure Survey, we find that after the California cash-out policy ended, affected SSI recipients increased their "food at home" budget share by 2.5 to 4.3 percentage points ($120 to $206 per quarter). The cash-out effect on total food expenditures is dampened by a decrease in "food away from home" and driven by extramarginal households. We use changes in SNAP benefits and SSI optional state supplements from 2003 to 2020 to compare the consumption of in-kind versus cash transfers and find an increase in SNAP benefits leads to a greater increase in food at home expenditures ($0.40 cents per $1) compared to SSI cash benefits ($0.15 cents per $1). These findings suggest that SNAP is effective in increasing food at home consumption among its lowest-income beneficiaries.

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1 Introduction

Two-thirds of US transfers are provided in-kind as opposed to cash (Currie and Gahvari, 2008). In-kind transfers place restrictions on household budget sets, creating a potential consumption distortion. For instance, SNAP provides food vouchers to eligible participants and accounts for 50 percent of food at home spending among low-income households (Wilde, 2013). However, the extent to which SNAP increases food consumption more than an equivalent cash transfer remains an important policy question.

A central challenge for evaluating the effects of SNAP on household expenditures is that commonly used quasi-experimental approaches relying on state variation or policy reforms are not widely available (Hoynes and Schanzenbach, 2015). Among the 48 contiguous states there is no variation in maximum allotments and all use a common benefit formula largely unchanged since program inception. We overcome this identification challenge by examining the California "cash-out" policy, which made Supplemental Security Income (SSI) recipients ineligible for SNAP.

SSI provides cash benefits for low-income, disabled, and elderly individuals and in the absence of a state cash-out policy, SSI recipients are categorically eligible for SNAP. States have always had the option to cash-out SNAP benefits for SSI recipients by providing a cash supplement in lieu of SNAP benefits. California is one of the few states to utilize this cash-out policy and has been the lone state with the cash-out policy until rescinding it in June 2019. We utilize variation in this cash-out-policy to estimate the effect of SNAP benefits on food expenditures. While California was originally required to increase its SSI supplement amount to "cash-out" SNAP benefits in 1974, California held its SSI supplement constant at $161 when it rescinded the cash-out policy in 2019.

SSI recipients make up a significant and important fraction of SNAP caseloads. One in five SNAP households receive SSI benefits, triple the number of SNAP beneficiaries receiving TANF benefits (Hoynes and Schanzenbach, 2016). Few SSI

recipients participate in the labor market and those that do face a restrictive monthly earned income limit of $1,220 (in 2019). The limited ability to supplement SSI income means that SNAP benefits is especially valuable to SSI recipients. The limited state variation for both SSI and SNAP makes evaluation of these programs difficult and this is the first paper to look at the causal effect of SNAP benefits on food expenditures of SSI recipients.

The cash-out policy effects on SNAP benefits vary across households. If the SSI state supplement amounts remains constant, the effect on SNAP for single-person households is clear: rescinding the cash-out policy increases expected SNAP benefits. In the absence of the cash-out policy, single SSI recipients are eligible for at least the SNAP minimum benefit of $15 and on average receive $119 per month.[1] For multi-person households the direction of rescinding the cash-out policy on SNAP benefits is unclear but likely negative. If all household members are SSI recipients, then the cash-out policy is clearly positive, similar to the single-person case. If some household members do not receive SSI (as is typically true), without a cash-out policy, SNAP eligibility increases the maximum SNAP allotment, but the inclusion of the SSI recipient's income in the household benefit calculation lowers SNAP benefits and could outweigh the marginal increase in the maximum allotment.

To measure the effect of SNAP benefits on food expenditures, our analysis compares single-person California SSI recipients to single-person non-California SSI recipients following the end of the cash-out policy. To look at the cash-out effect on consumption behavior, we use the Consumer Expenditure Survey (CEX). The CEX is a large, nationally representative survey providing detailed questions on consumption choices. We initially focus on the expenditure category, "food at home", which SNAP benefits can be spent on but then expand our analysis to consider the SNAP benefit effect on expenditures for each goods category.

Classical economic theory dating back to Southworth (1945) predicts that in-kind

[1]SNAP Quality Control data, 2019.

versus cash transfers can be equally efficient if program participants are inframarginal, meaning that participants would spend more than the in-kind transfer amount on the targeted good under an equivalent cash-only budget set. If participants are extramarginal, the in-kind inefficiency grows with the discrepancy between the in-kind benefit and optimal expenditure amount. Prior work, including Hoynes et al. (2015) and Trippe and Ewell (2007), show that a large majority of SNAP recipients are indeed inframarginal, however the likelihood of being inframarginal may vary greatly among vaious subgroups. An early review on the the marginal propensity to consume food (MPCF) of SNAP benefits cited estimates ranging between 0.17 and 0.47, far higher than the 0.05 to 0.10 MPCF of cash expenditures (Fraker et al., 1990). Yet, more recent empirical evidence on the MPCF of SNAP benefits has been mixed and sometimes reveal a higher MPCF.

Early work investigating the relative effects of in-kind versus cash benefits on food expenditures focuses on a set of "cash-out" experiments which replaced food stamps with an equivalently valued check. Moffitt (1989) examines a cash-out experiment in Puerto Rico finding it has little effect on household food expenditures relative to cash, with an implied MPCF between 0.11 and 0.16. Other work focusing on randomized control trials, mainly conducted in San Diego, finds that food stamps have a modest positive effect on food expenditures (Fraker et al., 1995a,b). Levedahl (1995) analyzes the San Diego cash-out demonstration and finds cash benefits produced a small reduction in food expenditures with an estimated MPCF of 0.26, attributing this higher MPCF to a stigma effect of SNAP. Breunig and Dasgupta (2002, 2005) find the increased food expenditures from these trials are driven entirely by multi-adult households and attribute this to intra-household bargaining, while the effect is negligible for single-adult households. Using survey evidence, Whitmore et al. (2002) find an underground market existed where food stamp benefits which could be traded as cash at 65 percent of their face value. Schanzenbach (2007) re-analyzes these experiments and finds the average treatment effect is a combination of no difference among inframarginal recipients and large shifts from a few households which were constrained by the voucher

restriction. While our analysis studies a similar cash-out policy, California did not reduce its SSI supplement when rescinding the cash-out policy, providing an increase to single-person SSI households budgets as opposed to the budget-neutral experiments studied here.

More recent work has produced conflicting evidence on the MPCF from SNAP benefits relative to equivalent cash transfers. Hoynes and Schanzenbach (2009) examine the initial Food Stamp Program roll-out during the 1960s and 1970s and find an increase in food expenditures among recipients that is comparable to a cash transfer with an MPCF of 0.16. Using CEX data and looking at income variation, Castner et al. (2010) also find a low MPCF among current SNAP participants of 0.07. Beatty and Tuttle (2015) and Bruich (2014) study the consumption response to the SNAP benefit changes during the Great Recession. Studying the SNAP expansion using CEX data, Beatty and Tuttle (2015) estimate a relatively high MPCF of 0.48 while Bruich (2014) studies the SNAP benefit contraction using retail scanner data and estimates an MPCF of 0.37.

Also using retail scanner data, Hastings and Shapiro (2018) exploit shocks in SNAP recipient budgets induced by either SNAP policies or gasoline prices to look at the SNAP versus cash food expenditure response. They find a high MPCF of SNAP benefits between 0.5 and 0.6 compared to a MPCF of cash close to zero. Instead of attributing this high MPCF to the budget set distortions, they propose this phenomenon is better explained by the hypothesis of mental accounting (Thaler, 1999) where the income source affects the household's consumption decision.

We contribute to this literature in several ways. We consider a large, salient SNAP eligibility shock to a group of households with a compelling comparison group. Prior work has often used smaller intensive margin benefit changes (Beatty and Tuttle, 2015; Bruich, 2014; Hastings and Shapiro, 2018). Granting eligibility to single-person SSI households through the cash-out policy change is worth up to $192 compared to the $22 increase and $11 decline for this group studied during the 2009 expansion. This larger shock to SNAP benefits may be more salient to

households when re-allocating expenditure decisions and allows us to detect smaller effects. Utilizing CEX data we are able to measure the SNAP effect on all goods, capturing any substitution or complementarities across groups. Prior work using scanner data is not able to track expenditures on food away from home as SNAP participants may be re-allocating food spending towards groceries and away from dining out, lowering the estimated MPCF of SNAP benefits.

We find that following the end of the cash-out policy, single SSI recipients in California increased their food at home budget share by 2.5 to 4.3 percentage points relative to single non-California SSI recipients. The implied MPCF of these estimates is high at 0.45 and 0.78. Using either multi-person SSI recipients or single non-SSI recipients as an additional comparison group in a triple-difference framework these estimated magnitudes remains similar.

Analyzing eight other expenditure categories, no category besides food at home shows consistent evidence of an increase in budget share among single SSI recipients in California following the end of the cash-out policy. We do find evidence that the cash-out policy change led newly eligible SNAP households to substitute some "food away from home" for "food at home" and accounting for this substitution reduces the net effect on total food expenditures by 30 percent. We additionally find that both the food at home effect, and food away from home substitution is greater among extramarginal households, defined as households reporting food at home expenditures below the SNAP quarterly maximum during their first interview survey. The food at home expenditure response among inframarginal households to the cashout policy is similar to expectations from an cash-based income shock.

To directly compare the expenditure responses of cash relative to SNAP benefits we estimate a two-way fixed effects model among SSI recipients. We continue to use the California cash-out policy to create cross-state variation in SNAP benefits. For example, when SNAP benefits increased by 13.6% in 2009, this did not affect single California SSI recipients but did affect single Non-California SSI recipients. We then utilize variation in SSI state supplements to generate cross-state variation in

cash for comparison to SNAP benefits.

We find that between 2003 and 2020, SNAP benefit changes increased food expenditures by more than cash benefits. For each dollar increase in SNAP benefits we find food at home expenditures rise by 39.8 cents while each dollar increase in cash benefits causes food at home expenditures to rise by only 15.1 cents. These results re-enforce our earlier findings that SNAP benefits significantly increase spending on food at home and provide some corroborating evidence that the net effect on food consumption is partially mitigated by a decline in food away from home spending.

2 Background

2.1 Supplemental Nutrition Assistance Program

SNAP, originally called the Food Stamp Program, was initially authorized by the Food Stamp Act of 1964 with the stated goal to "raise levels of nutrition among low-income households".[2] SNAP is the largest food and nutrition program and the second largest means-tested transfer program in the US. In 2019, SNAP included 36 million recipients at a total cost of $60 billion.

SNAP is a broadly universal program available to households below the income standard (130 percent of the federal poverty line) and meeting an asset test currently set at $2,500, or $3,750 for elderly or disabled households. Households can also gain categorical eligibility for SNAP benefits through participation in TANF or SSI.

SNAP recipients are given monthly food vouchers, commonly called food stamps, which can be spent at grocery stores or other authorized retailers. In 2019, the

[2]The Food Stamp Program officially changed its name to the Supplemental Nutrition Assistance Program in 2008. Some states use an alternative name for their program. California calls its SNAP program "CalFresh".

average SNAP monthly benefit was $130 per person. SNAP vouchers are largely unrestricted and can be used to purchase most grocery items, such as fruits and vegetables, dairy products, snacks, and non-alcoholic beverages. These vouchers cannot be used to purchase alcoholic beverages, hot foods, vitamins, or non-food items at the grocery store such as pet food or cleaning supplies.

Maximum SNAP allotments (Max_{jt}), set at the federal level, are based on the Thrifty Food Plan which is the cost of a "market basket of foods which if prepared and consumed at home would provide a complete, nutritious diet at minimal cost".[3] This allotment increases with household size (j) and is indexed to the Thrifty Food Plan inflation each fiscal year beginning in October. In 2019, the maximum monthly SNAP allotment for a single-person household was $192. The minimum SNAP allotment (Min_{jt}), conditional on program eligibility is $15. A notable exception to this benefit level came with the American Recovery and Reinvestment Act of 2009 which temporarily increased SNAP benefits by 13.6 percent and sunset by October 2013.

The SNAP benefit formula expects the household to contribute 30% of their net income towards the cost of the Thrifty Food Plan. Net income is gross income ($Gross_{ijt}$) less allowable deductions ($Deductions_{ijt}$). Gross income is the sum of earned and unearned income. Unearned income includes all other types of cash income such as SSI, TANF, Social Security, Unemployment Insurance, child support, and disability income but excludes in-kind transfers such as housing assistance or Medicaid benefits. Payments from the Earned Income Tax Credit are also excluded although the saved value of this payment would count against the asset limit in future years. For an eligible SNAP household i with j SNAP-eligible members in year t, the benefit amount ($SNAP_{ijt}$) is the remaining difference between the maximum SNAP benefit and the expected household contribution:

$$SNAP_{ijt} = \max\{Max_{jt} - 0.3 * \max\{Gross_{ijt} - Deductions_{ijt}, 0\}, Min_{jt}\} \quad (1)$$

[3]Note that Alaska and Hawaii are allowed to set higher maximum SNAP benefits.

The allowable deductions determine how much income is disregarded before benefits phase out with income. All SNAP recipients receive a standard deduction, set at $157 in 2019 for a 1-person household. Other allowable deductions include excess shelter costs, earnings, dependent care, child support, and medical care. More details on the important excess shelter and how we account for its potential role in benefit determination are available in the Appendix.

2.2 Supplemental Security Income

SSI is a means-tested cash transfer program targeting the disabled, blind, and elderly. The federal SSI program was initiated in 1974, and provides an income floor for Social Security and Disability Insurance (OASDI) beneficiaries or other elderly or individuals with disabilities that are ineligible for OASDI benefits. In 2019, SSI provided 8 million low-income and disabled Americans with $55 billion in cash benefits.

SSI benefits are determined as the difference between the federal benefit rate ($SSIMax_{jt}$) plus any state supplement ($SSIState_{ijt}$) and household countable income. For single adult SSI recipients, countable income is the sum of unearned income and half of earned income after including a $20 general income exclusion and a $65 earned income exclusion:

$$SSI_{ijt} = SSIMax_{jt} + SSIState_{ijt} - \max\{UnEarn_{ijt} - 0.5 * \max\{Earn_{ijt} - 65, 0\} - 20, 0\}$$

In 2019, the federal benefit rate was $771 for singles and $1,157 for couples. The average total (federal plus state) payment was $566. Some states provide an optional SSI supplemental payment in addition to the federal benefit, $SSIState_{ijt}$ which is state financed and not typically adjusted for inflation in contrast to federal

benefits.[4,5] Less than 5 percent of SSI recipients report positive earned income (SSA, 2014). Unearned income consists of unemployment benefits, social security, disability benefits, or family transfers. Unearned income does not include SNAP or other in-kind benefits. Note that unearned income has a 100 percent SSI benefit reduction rate. This means that for households with no earned income, the sum of the SSI benefit and unearned income will be the same. In this way, SSI tops up OASDI beneficiaries to provide a common consumption floor of $SSIMax_{jt}$.

SSI state supplements generally display little time variation.[6] Since 2000, there have only been 21 state supplement changes greater than $10, with California accounting for five of these instances including the largest decrease, reducing their supplement from $233 in 2009 to $171 in 2010. In 2019, 23 states offered an optional state supplement to independently-living disabled adults with an average maximum value of $67 and only four states offer a supplement of $100 or greater. In total, state supplements account for 8 to 9 percent of total SSI benefits (Hoynes and Schanzenbach, 2016). Since 2000, California has averaged the second-highest state supplement amount at $190.

In addition to cash benefits, SSI recipients are categorically eligible for other social safety net programs including SNAP, Medicaid, and housing assistance.[7] The average single-person SSI household on SNAP receives $119 per month in SNAP benefits.[8]

[4]SSI benefits receive a cost-of-living adjustment based on the year-over-year percentage change in the third quarter of the consumer price index for urban wage earners and clerical workers (CPI-W). This adjustment occurs in January.

[5]Some states vary supplement amounts based on household type and composition. We focus on the payment available to individuals.

[6]Appendix Figure A.1 displays state-by-year SSI supplement amounts.

[7]Alternatively, receiving SSI makes an individual ineligible to receive TANF benefits.

[8]2019 SNAP Quality Control data.

2.3 California Cash-out Policy

The ability for states to cash-out food stamp or SNAP benefits for SSI recipients has always existed. When the government created the SSI program in 1974, it federalized numerous state and local versions of old age and disability transfer programs. SSI recipients were granted categorical eligibility for food stamps nationwide. At that time, however, states also were given the option to replace SNAP benefits for SSI recipients if instead they increased their state supplemental payments by at least \$10 –"cashing" out the food stamp benefit with a cash benefit (Arnold and Marinacci, 2003). Only five states, Nevada, Wisconsin, New York, Massachusetts, and California, initially opted to cash-out food stamp benefits. All states besides California rescinded their cash-out policy by 1981, however California maintained their cash-out policy through June 2019.

The cash-out policy effect on SNAP benefit amounts varies depending on household size and income. For single-person households, implementing the cash-out policy would have a negative or neutral effect on benefits since they would be ineligible for any SNAP benefits. Without the cash-out policy, single-person SSI households are at least entitled to the minimum SNAP benefit and potentially more depending on their total income and deductions.

For multi-person households, the effect of the cash-out policy on SNAP benefits is ambiguous. To understand this, consider a two-person SNAP-eligible household where one member receives the full SSI benefit and the household has no other income or deductions. If this household is not subject to the cash-out policy, it would have a maximum SNAP benefit ($Max_{2,2019}$) of \$353. After subtracting 0.3 times net income (SSI benefit less the standard deduction) the SNAP benefit is \$168.[9] If instead this household is subject to the cash-out policy, the SSI member is ineligible for SNAP, reducing the SNAP maximum to ($Max_{1,2019}$) \$192. Since the eligible household members have zero net income they receive this maximum benefit amount. By making the SSI recipient ineligible for SNAP, the cash-out

[9]The calculation is 353 - 0.3*(771-157)=168.

policy actually raised the household benefit amount.

Conversely, consider the same household but suppose they can claim a $200 excess shelter deduction. In this case, without the cash-out policy the household receives a SNAP benefit of $229, while with the cash-out policy the household continues to receive $192. As this example shows, for multi-person households with sufficient deductions, the cash-out policy can decrease benefits. When California rescinded the cash-out policy, it included a "hold harmless" provision that declared current beneficiaries should not see their benefits decrease as a result of the policy change, however the local implementation of this policy remains uncertain.

For SSI households, the preference for cashing-out SNAP benefits depends primarily on the SSI optional state supplement amount and the fraction of single-person SSI households relative to multi-person SSI households. The lower the fraction of single-person SSI households in a state, the more likely it is for households to benefit from the cash-out policy. Similarly, the higher the state supplement, the more likely the cash-out policy will increase benefits for SNAP households. California's cash-out policy choice may be unsurprising since they have consistently had the second highest state supplement amount. However, state policymakers, SNAP benefits are more attractive since they are federally financed while SSI supplements are state financed.

3 Data

We utilize the Consumer Expenditure Interview Survey (CEX) to analyze the effect of SNAP benefits on food and other expenditures. The CEX interview survey, administered by the Bureau of Labor Statistics, is a nationwide survey which contacts approximately 10,000 addresses, yielding approximately 6,000 responses.[10] The survey contains detailed questions on household expenditures over the prior three months as well as household income and demographic information. We focus

[10]The CEX follows "consumer units" which are similar to a household or a family definition.

our sample on the years 2003 to 2020 —a period long enough to include the SNAP benefit expansion during the Great Recession and subsequent contraction along with several state-level changes to SSI supplements.[11] Our baseline sample ends at the May 2020 interview (meaning consumption is reported through April 2020).

The CEX provides a detailed recording of household expenditures which are grouped into categories. The groupings include food, housing, apparel and services, healthcare, entertainment, alcohol, transportation, personal care products, reading, education, tobacco, miscellaneous, cash contributions, personal insurance, and pensions. We will investigate the effect of SNAP benefits on expenditures for these groups. To simplify the analysis we combine several of the smallest categories into a single "other" group.

Our primary interest is analyzing the effect of SNAP benefits on food expenditures, which are separately reported as "food at home" and "food away from home". Food at home represents what SNAP benefits can be spent on (groceries) while SNAP benefits cannot be spent on food away from home at restaurants or on "hot" or prepared foods fit for immediate consumption. We separately analyze the effect of SNAP benefits on "food at home" and "food away from home" to see if households substitute between these food types.

The CEX repeatedly surveys chosen addresses four times as a rotating panel survey. This means families that move are not re-interviewed at their new location, but instead new residents at the address are interviewed. The CEX does not have a unique identifier for each household. Similar to Beatty and Tuttle (2015), we approximate a household identifier by flagging an observation if the reported age decreases or increases by more than one year between interviews. We drop any observations that move during their interview rotation, just under 5 percent of the sample.

Our analysis focuses on single-person SSI recipient households. We identify

[11] We pick October 2003 as our starting date since the CEX only begins to track one of our control variables, Hispanic ethnicity, beginning in this year.

households as SSI recipients if they ever responded positively to the question "During the past 12 months did you receive any Supplemental Security Income payments?". Table 1 displays summary statistics of our sample of single SSI recipients split by pre- and post- cash-out policy change and California versus non-California (all other states) residents. All dollar values are normalized to 2019 dollars using the personal consumption expenditure price deflator produced by the Bureau of Economic Analysis. To reduce the influence of outlier purchases such as large durable goods, all expenditure variables are winsorized at the 3^{rd} and 97^{th} percentiles.

In the top half of the table, showing demographic characteristics, single-person SSI households in California are more likely to be aged relative to single SSI recipients outside of California (42 percent and 32 percent), less likely to be male (35 percent and 41 percent), more likely to have greater than a high school education (52 percent to 33 percent), and are less likely to be black (15 percent to 29 percent). The bottom half of Table 1 displays summary statistics of the expenditure categories. Due to their relatively high optional state supplement benefit, California SSI recipients spent 22 percent more per quarter than non-California recipients. Single-person SSI households spent $4,123 per quarter, or $1,374 per month during our sample period. For the full sample, housing is the largest expenditure category averaging 50 percent, followed by food (both home and away) at 23 percent, and transportation and "other" at 7 percent. Most food expenditures are spent on food at home at 19.6 percent of total expenditures while food away from home accounts for 3.2 percent.

Figure 1 displays the average budget share for each expenditure category for the 11 months pre- and post- the cash-out policy change, with the arrow pointing from the pre- to the post-period average. Observations to the right of the 45 degree line, the dashed black line, reflect goods which are consumed at a higher rate by single Californian SSI recipients relative to non-Californians. Expenditure categories with horizontal arrows pointing right indicate that Californians increased their consumption share of the good following the cash-out policy change while

non-Californians did not. This figure clearly demonstrates that the largest expenditure change relative to the cash-out policy change for any good was food at home, which significantly increased for Californians while decreasing slightly for non-Californians.

In 2019, the maximum quarterly SNAP benefit for a 1-person household was $576. During our sample period, 45% of observations spent less than $576 (including SNAP food voucher amounts) on food at home suggesting that the SNAP benefit amount could surpass the food consumption amount of an equivalent cash benefit.

Prior to 2019, when the California cash-out policy was in effect, California single SSI recipients spent 9% less of their budget on food at home and 27% more on food away from home. Following the cash-out policy rescission, single California SSI recipients increased their spending on food at home by 10.8 percent and lowered their spending on food away from home by 33 percent.

4 Empirical Strategy

In this section we discuss the empirical methodology we use to estimate the effect of SNAP benefits on expenditures. We first measure the effect of ending California's cash-out policy on expenditures using a difference-in-difference framework comparing single SSI recipients in California to those outside of California. We then estimate the expenditure response to changes in SSI and SNAP benefits using a two-way fixed effects model.

4.1 Difference-in-Difference

In order to identify the effect of SNAP food vouchers on expenditures, we use a difference-in-difference analysis of the California cash-out policy on a sample of single-person SSI households. To estimate the cash-out policy effect on

expenditures we estimate the following equation:

$$Y_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 Post_t + \beta_3 CA_{it} * Post_t + \beta_4 ln(TotExp_{it}) + \beta_5 X_{it} + \delta_y + (\theta_i) + \epsilon_{it} \quad (2)$$

Y_{it} is our outcome variable for household i at time t. Household demographic variables are controlled for in Equation (2) with X_{it} which include age, race, gender, educational attainment, interview month, race, and ethnicity, δ_y are the year and calendar month fixed effects, and ϵ_{it} is a random error term. Following Wilde et al. (2009) and Beatty and Tuttle (2015), we account for Engel curves by including the natural log of total household expenditures $ln(TotExp_{it})$. As suggested by Banks et al. (1997) and the QUAIDS model, our baseline specification includes a quadratic term in the log of household expenditures when estimating household budget shares to account for the curvature of Engel curves for each good, however our robustness analysis tests several functional forms for this term. We cluster our robust standard errors at the state level to account for any autocorrelation within states over time and we use household weights to make our sample nationally representative.

Some specifications include a household fixed-effects term, θ_i, which limits our identification to within-household responses to the cash-out policy change. Controlling for household fixed effects mitigates concerns about changes in unobserved characteristics, such as wealth, tastes, or habits, to drive our results. A limitation of the household fixed effects is that since we cannot follow the same household to a new residence, we are unable to capture changes in housing consumption arising from a residential move.

For each observation, t is the interview month but for this month the household reports expenditures for good Y during the prior 3 months $t-3$ to $t-1$. Thus, we define $Post_t$ as the share of months in between $t-3$ and $t-1$ that the cash-out policy was no longer active in California, June 2019 or later. For example, a household interviewed in July 2019 would report expenditures for April, May, and

June 2019 and so $Post_t = \frac{1}{3}$ for this observation. The dummy variable CA_{it} is equal to 1 if the household lives in California. The interaction of CA_{it} and $Post_t$ yields our coefficient of interest, β_3, which reveals how much spending on category Y changed among single California SSI recipients relative to single non-California SSI recipients following the end of the cash-out policy.

To estimate the cash-out policy effect on SNAP take-up our initial outcome variable is a dummy indicator for SNAP participation. After this, Y_{it} is the budget share of the goods category Y, similar to Beatty and Tuttle (2015), although we additionally run our analysis using expenditures in dollars instead of shares. Our primary focus is on "food at home", since this is the goods category that SNAP benefits are allowed to be spent on. However, we estimate Equation (2) on "food away from home" as well as the other expenditure categories to see how SNAP benefits change expenditures on non-SNAP items. One standard concern in a difference-in-difference framework is that differences in pre-trends for treatment group relative to the control group may bias the estimated coefficients or reflect an unsuitable control group. Figures 2 and 3 displaying SNAP participation and food at home consumption trends. A visual inspection of these figures do not reveal evidence of a differential pre-trends between these groups, though the limited sample of treated households does increase the data noise.

4.2 Difference-in-Difference-in-Difference

Interpreting the β_3 coefficient in Equation (2) as the cash-out effect on the expenditure share for good Y assumes that changes to single-person California SSI recipient budget shares is the result of changes to SNAP benefits as opposed to differential changes to food prices, preferences, or other explanatory variables in California relative to other states. To address these concerns we estimate a difference-in-difference-in-difference model of the effects of the cash-out policy on food expenditures by comparing the single SSI recipients response to either multi-person SSI recipient households or to single non-SSI households.

The triple difference estimating equation is:

$$\begin{aligned} Y_{it} = \quad & \beta_0 + \beta_1 CA_{it} + \beta_2 Post_{it} + \beta_3 CA_{it} * Post_{it} + \beta_4 Treat_{it} + \\ & \beta_5 Treat_{it} * Post + \beta_6 Treat_{it} * CA + \beta_7 CA_{it} * Treat_{it} * Post_{it} + \\ & \beta_8 ln(TotExp_{it}) + \beta_9 X_{it} + \delta_y + (\theta_i) + \epsilon_{it} \end{aligned} \tag{3}$$

In this equation, we have added an additional difference: $Treat_{it}$ as a in indicator for if the household is a single SSI recipient. We utilize this specification for two separate samples. In the first sample of households which report positive SSI benefits, $Treat_{it}$ equals zero for multiple person households, and so our coefficient of interest, β_7, represents the change in the expenditure share of good Y for single SSI recipients in California relative to non-California single SSI recipients and relative to the expenditure change of non-single SSI recipients in California compared to non-single non-California SSI recipients.[12]

This triple difference specification helps control for potentially unobserved changes in California SSI recipients not accounted for in Equation (2). As previously discussed, multi-person SSI households in California are affected by the cash-out policy, but the net effect on SNAP benefits is ambiguous on a household basis and likely to be a negative. Here, β_7 should be interpreted as the relative response between these two groups but not assuming the cash-out effect on the comparison group to be zero.

In our second triple difference sample of single-person households, $Treat_{it}$ equals one for SSI recipients and zero for non-SSI recipients. Our coefficient of interest, β_7, represents the change in the expenditure share of good Y for single SSI recipients in California relative to non-California single SSI recipients while controlling for the expenditure change of single non-SSI recipients in California compared to single non-SSI non-California recipients. This specification accounts for any unobserved relative changes in the preferences or prices facing singles in California compared to

[12]Summary statistics for our sample of multi-person SSI households and non-SSI single-person households are provided in Appendix Table A.1.

non-California singles. In contrast to our other triple difference sample, non-SSI singles should be unaffected by the cash-out policy change.

4.3 Two-way Fixed Effects

The existence of the California cash-out policy, prior to its repeal in 2019, created a cross-state difference in the effects of SNAP benefit changes for SSI recipients. For instance, in 2009 the American Recovery and Reinvestment Act boosted the maximum SNAP benefit by 13 percent. While most SSI recipients benefited from this SNAP increase, SSI recipients in California, and particularly single SSI recipients, did not receive this benefit. Alternatively, variation across states in the optional state supplement amount creates differences among SSI recipients in their cash budgets. For example, California decreased its SSI state supplement by $62 in 2010, lowering the household budget by $62 for California SSI recipients. However, when other states change their SSI supplements, this change interacts directly with the SNAP benefit formula. For a $62 decrease in non-California SSI benefits, their household budget would decrease between $43 and $62 depending on how SNAP benefits adjust as discussed in Section 2.1.

To measure the expenditure response to changes in SNAP and SSI benefit levels over time, we utilize data on SSI state supplements and SNAP benefit levels that come from the Social Security Administration and the USDA. We utilize the cross-state differences in SSI state supplements and SNAP cash-out policies to measure how household spending responds to changes in SSI cash benefits and SNAP food voucher (in-kind) benefits by estimating the following two-way fixed effects model:

$$Y_{ijst} = \beta_0 + \beta_1 SSI_{st} + \beta_2 SNAP_{jst} + \beta_3 ln(TotExp_{it}) + \beta_4 X_{ist} + \psi_m + \delta_y + \lambda_s + \epsilon_{ijst} \quad (4)$$

In this equation, Y_{ijst} is the expenditures on good category Y (in dollars) of household i of size j in state s between the time period $t-3$ and $t-1$. State and

year fixed effects, λ_s and δ_y, along with calendar month dummies, ψ_m, the natural log of total expenditures, $ln(TotExp_{it})$, and demographic controls, X_{ist}, are also included. The variable SSI_{st} is the maximum combined federal and state SSI cash benefit available in state s while $SNAP_{jst}$ is the maximum SNAP benefit for a household of size j in state s and year t. The sample for this estimation includes all SSI recipients, allowing the cash-out policy to differentially affect California SSI recipients based on household size.

A concern of using the statutory maximum SNAP benefit in Equation (4) could be that it does not well represent the benefit level for most SSI recipients because SSI cash income often lowers SNAP benefits. For instance, based on Equation 1, using the federal 2019 SSI benefit rate of $771, the SNAP maximum allotment of $192 for a single-person household, and a standard deduction of $157, the expected benefit for a single-person SSI household would be $6, or $15 as the minimum benefit would be binding. Yet only 9 percent of single SSI recipients received this minimum, while 21 percent received the maximum allotment and the average benefit was $119. Further, changes in SSI state supplement amounts likely reduced SNAP benefits at the thirty percent benefit reduction rate, potentially complicating the coefficient interpretations.

Our baseline model calculates $SNAP_{jst}$ from Equation (1) assuming the household gross income is the SSI benefit rate and receives the standard deduction but nothing else. As Equation (1) shows, for each $1 increase in income past total deductions SNAP benefits are reduced by $0.30 until reaching the minimum SNAP benefit. Within-state changes in SNAP benefits only occur during our time period due to the small annual inflation adjustments and the 2009 SNAP expansion, and subsequent contraction, during the Great Recession. However, these changes do not affect single-person SSI households in California while they do affect multi-person SSI households in California. We calculate an alternative maximum SNAP benefit making various assumptions about the important excess shelter deduction. Our three alternative SNAP maximum benefits for SSI recipients assume housing costs are 50%, 75%, and 1,000% of SSI income when computing this shelter deduction.

Note that the 1,000% assumption is equivalent to using the statutory SNAP benefit level. More details on this calculation can be found in the Appendix.

When estimating Equation (4) on food expenditures, β_1 represents the fraction of each additional dollar of SSI income spent on food at home while β_2 represents the fraction of each additional dollar of SNAP food-voucher benefits allocated to additional food expenditures. If households treat cash transfers equivalently to SNAP food vouchers, we expect β_1 to equal β_2.

5 Results

5.1 SNAP Participation

The first part of our analysis verifies that rescinding the California cash-out policy led to an increase in SNAP participation among single SSI recipients in California. Figure 2 displays SNAP participation rates in the 60 months prior to and 12 months following the cash-out policy change for our treatment (California) versus control groups (non-California). We observe a large and steady increase in reported SNAP participation among single California SSI recipients following the cash-out policy change. This increase is not observed in non-California SSI recipients during this time. California SNAP participation rates approach but do not attain the level of non-California participation rates by May 2020. The lower participation rates in California compared to other states following the cash-out policy change may be due to the larger California SSI supplement resulting in lower expected SNAP benefits and, in turn, a reduction in the likelihood of SNAP participation.

Figure 2 does show a positive, though small, level of SNAP participation among single SSI recipients in California during our pre-period. While the cash-out policy should rule this out, the positive SNAP responses could be attributed to SNAP or SSI participation changes within the past year since both SNAP benefits and SSI income are reported for the prior 12 months. Some of these households may have

recently begun receiving SSI benefits and were receiving SNAP benefits in the months prior to SSI participation. Others may be recently single and were previously able to benefit from household SNAP participation.

Several prior studies have shown that the CEX chronically under-reports SNAP participation and benefits (Taeuber et al., 2004; Kreider et al., 2012; Czajka et al., 2012; McGranahan, 2014). McGranahan (2014) finds that since 1990 only 35 to 75 percent of SNAP dollars are accounted for in the CEX. This under-reporting implies our SNAP participation estimate could be biased downward if new beneficiaries from the cash-out policy change under-report their SNAP benefits.

To precisely measure the effect of the cash-out policy on SNAP participation among our CEX sample, Table 2 displays coefficients from estimating Equation (2) on a binary indicator for whether the household reports receiving SNAP benefits in the prior 12 months. Columns (1) through (4) vary in whether demographic controls and household fixed-effects are included. Our SNAP participation effect estimates range between an 18 to 19 percentage point increase following the cash-out policy change.

We look at administrative SNAP Quality Control data to confirm our participation trends. This data is available through September 2019. A limitation of this dataset is that we only observe SNAP participants, so we cannot estimate the fraction of SSI recipients reporting SNAP benefits. This administrative data confirms that no single-person households in California were simultaneously receiving both SSI and SNAP benefits prior to June 2019. The data also verifies an immediate and large jump in the SNAP caseloads among single California SSI recipients beginning in June 2019.[13] Similar to Figure 2, rates of SSI recipiency among single-person households in California begin to approach but do not meet the rates of non-California singles following the cash-out policy change.

[13]Appendix Figure A.2 displays the fraction of single-person California SNAP cases reporting SSI income by month relative to the timing of the cash-out policy change.

5.2 Food at Home

We next evaluate the effect of SNAP benefits on food at home consumption using the cash-out policy change as a natural experiment affecting SNAP eligibility. Figure 3 displays the time trend of the share of budget spent on food at home for California versus non-California single SSI recipients. We observe a clear increase in the food at home budget share for California following the policy change and do not observe any evidence of pre-trends that would distort our results.

Estimating Equation (2) on the food at home share, Column (1) of Table 3 reveals that single-person SSI recipients in California spent 4.3 percent more of their quarterly expenditures on food at home relative to non-California single-person SSI recipients. Adding household control variables in Column (2) does not change this coefficient. Restricting the identification to within-household benefit changes by including household fixed effects reduces these estimates somewhat to 2.5 percent.[14] The cash-out effect on food at home expenditures is statistically different from zero at the 95 percent confidence level or greater for all specifications.

We find that granting single SSI recipients SNAP eligibility increases their food at home budget share by 2.5 to 4.3 percent. Based on the average total quarterly expenditures for this group of $4,800, this translates into a $120 to $206 quarterly increase in food at home expenditures. Using the 2019 SNAP Quality Control dataset, we observe that the average single SSI recipient in California received a monthly benefit of $88 between June and September of 2019, or $264 per quarter. This suggests a high MPCF of SNAP benefits among this group, between 0.45 and 0.78 or even higher if SNAP participation were not universal.

[14]Note that the California coefficient (CA) is unidentified in the household fixed-effects models because the CEX does not follow households if they relocate during the survey, so no within-household state changes are observed. However, the interpretation of β_3 remains the same in this specification: the budget share change of food at home expenditures of California single SSI recipients following the cash-out policy change relative to non-California single SSI recipients.

5.3 All Goods

To investigate the SNAP benefit effect on expenditures further, the first two rows of Table 4 display coefficient estimates from estimating Equation (2) on all 9 major CEX expenditure categories using our difference-in-difference strategy. Each row in Table 4 displays our coefficient of interest, β_3 or β_7, from our various specifications, with all specifications including household control variables.

Column (1) of Table 4 reports the cash-out policy effect on expenditures for food at home as previously discussed. None of the eight other expenditure category estimates consistently reveal a positive, statistically significant effect of the cash-out policy.[15]

The MPCF estimate, for food at home, is similar or greater than recent estimates by Hastings and Shapiro (2018), Bruich (2014), and Beatty and Tuttle (2015) and could reflect the theory of mental accounting (Thaler, 1999) as suggested by Hastings and Shapiro (2018). This suggests the stickiness of food vouchers to increase food expenditures is rooted in a psychological accounting mechanism where households view food vouchers differently than cash when deciding on optimal consumption bundles.

We investigate two alternative potential explanations for the high estimated MPCF values: food substitution and budget set distortions. In Column (2) of Table 4 spending on food away from home decreased by 1.3 to 1.7 percent following the cash-out policy change in our difference-in-difference specifications. The statistically significant response of food away from home is large relative to the mean budget share of 3.2 for this expenditure category. This estimate means that 30 percent of our baseline estimate of the effect of SNAP benefits on food at home expenditures is offset by decreased spending on food away from home. Combining Columns (1) and (2) the net effect of removing the cash-out policy was to increase

[15] Alternative estimates of Table 4 use dollars instead of budget share for our outcome variable. These results are similar to our main finding, suggesting an MPCF of 0.64 for our difference-in-difference estimate, and are available in Appendix Table A.2.

total food expenditures by 3.0 percent. This suggests a lower MPCF of 0.54, or 0.16 in the household fixed effects model, when including the substitution away from food away from home towards food at home. This substitution is consistent with Beatty and Tuttle (2015) who find a (statistically insignificant) decline in food away from home spending and can help explain the findings of Hastings and Shapiro (2018), which rely on retail scanner data, ignoring any food away from home substitution in their analysis.

The high estimated MPCF value is especially surprising given our sample is of single-person SSI households which is the same group for which Breunig and Dasgupta (2005) found food stamps have a negligible distortionary effect on expenditures. While mental accounting could explain the high MPCF value, budget distortions could also explain this estimate as our sample includes both infra- and extra-marginal households, as opposed to Beatty and Tuttle (2015) which only considers inframarginal households. We find that around half of our sample of single SSI recipients are potentially extramarginal, spending less than the quarterly maximum SNAP amount ($576) on food at home prior to the cash-out policy change. In rows 1 and 2 of Table 5, we split our sample into inframarginal and extramarginal households based on the food at home expenditures reported in the first interview survey. We find that the increase in food at home expenditures following the cashout policy change is concentrated among households with extramarginal households, in row 2, suggesting that the increased SNAP benefits may be distorting consumption behavior among this group, particularly by reduced expenditures on food away from home. While inframarginal households also reduced their food away from home spending following the cashout policy change, this effect was lower than the extramarginal group and the effect on food at home expenditures was near zero. Together, both food substitution and budget set distortions account for a substantial fraction of the high estimated MPCF from the cashout policy change.

Rows 3 through 6 of Table 5 test the robustness of our food share estimates to the functional form assumptions for household Engel curves. We find the cashout

policy effect on both food at home and food away from home budget shares changes little whether we include a quadratic term (QUAIDS) or linear term (AIDS) in the log of total expenditures or simply a linear term in total expenditures. Excluding total expenditures from the model, in row 6, increases our cashout effect on food at home to 6.1 percent. Together, these robustness checks suggest our assumptions on the income elasticity of demand for food have little effects on our results.

Changes to non-food expenditure groups in Table 4 Columns (3) through (9) are mostly small and statistically insignificant. Across all our specifications in Column (3) we see the cashout policy change is associated with a reduction in alcohol expenditures although this effect is small and statistically insignificant. Column (7) does show a decline in spending on healthcare of 1.5 and 2.2 percent. The decreased spending on healthcare expenditures could be related to increased health from improved nutrition resulting from SNAP benefits. Entertainment spending in Column (8) shows a decrease of 1.6 and 0.5 percent. An explanation for this decrease could be related to the food away from home decrease if entertainment is a complimentary good to dining out. For example, households may be less inclined to go to dinner and a movie if they have more food at home to prepare a meal and watch a movie at home instead.

In Table 4 Column (4), the cash-out effect on housing expenditures is also worth considering. We find a mixed cash-out effect on housing. Because of large transaction costs and long-term contracts, the housing consumption short-term response may be muted as the increased SNAP benefits are unlikely to be large enough to cover moving costs. Since housing accounts for the largest budget share of any category at 50 percent, the frictions incurred from housing consumption adjustment could lessen the long-run increase in food spending.

Our comparison of California versus non-California single SSI recipients in Table 3 could result in biased estimates if food prices or preferences changed differentially in California following the cash-out policy change. We address this concern by separately including two additional comparison groups, multi-person SSI

households and non-SSI single-person households, in a triple-difference framework. These additional comparison groups would be similarly affected by changes to California food prices, preferences, or policies.

Comparing single-person non-SSI recipients to single-person SSI recipients allows us to control for any preference or policy changes affecting single households while comparing single-person SSI recipients to multi-person SSI recipients allows us to control for any additional changes to the California SSI program that we may be unaware of. While multi-person SSI recipients in California are affected by the cash-out policy change, this effect is smaller than for single-person SSI households and is likely to be negative. On average, we observe in the administrative Quality Control data that multi-person households in California decreased SNAP benefit amounts by about $100 following the cash-out policy change, however the local implementation of the "hold harmless" provision of the policy change brings into question the realized value of this loss. In our CEX data, average SNAP benefits for this group increase by about $ following the end of the cash-out policy. However, this increase is due to a participation response as reported benefits declined by 18 percent among households reporting SNAP benefits.

Rows 3 and 4 of Table 4 display coefficient estimates when using multi-person SSI households as a comparison group for single-person SSI households. When household fixed effects are included, though we lose some statistical significance, we observe only a small change in our food at home estimates, decreasing to 4.3 percent and 3.7 percent.[16] In rows 5 and 6 of Table 4, the additional comparison group is non-SSI single-person households. Using this comparison group, our coefficient estimates decline to 3.1 percent and decrease to 1.4 percent when household fixed effects are included.

Looking at Column (2) in Table 4, we continue to observe the food away from home budget share decline in response to increased spending on food at home, with estimates ranging between -0.5 to -1.8 percent. Consumption patterns among the

[16]The full triple difference specification is provided in Appendix Table A.3.

other expenditure categories remain similar to the difference-in-difference estimation. These triple difference specifications reinforce our prior findings that food at home expenditures of single California SSI recipients increased significantly following the cash-out policy change and this was partially offset by a decrease in food away from home spending.

5.4 In-Kind Versus Cash Transfers

Our difference-in-difference analysis allows us to examine the expenditure response to the removal of the California cash-out policy, revealing SSI recipients increased food at home expenditures significantly. However, to directly compare the expenditure responses of in-kind (SNAP) relative to cash (SSI) benefits, we estimate Equation (4).

Table 6 displays coefficient estimates from this two-way fixed effects model utilizing cross-state variation in benefit changes induced by either SNAP policy changes or SSI optional state supplement changes. The top panel of Table 6 shows the fraction of each additional dollar of SSI (row 1) and SNAP (row 2) benefits spent on food at home. The second panel uses budget shares as opposed to dollars as the outcome variable.

In Column (1), we observe that for each additional dollar of SNAP benefit food at home expenditures increase by 39.8 cents while each dollar of SSI benefit increases food at home expenditures only by 15.1 cents with both coefficients statistically different from zero at a 95 percent confidence level or higher. A the results of a t-test for whether the SSI and SNAP coefficients are the same on food at home expenditures is rejected at the 95 percent confidence level, suggesting that the MPCF from SNAP benefits is greater than from SSI cash benefits. When using budget shares in place of dollars in Panel B, we see that an additional percentage point increase in SNAP benefits increases the food at home budget share by 0.223 percent while a similar increase in SSI cash benefits shows a slightly negative effect

on food at home expenditures.[17]

Looking at the other eight columns of Table 6, we continue to observe that food at home remains the largest expenditure response to SNAP benefits. Column (2) shows that food vouchers – unlike cash benefits – result in a decrease in spending on food away from home, though this effect size is smaller than estimated in our difference-in-difference analysis.

6 Conclusion

This paper examines the effect of SNAP eligibility and benefits, induced by the California cash-out policy, on food expenditures for single SSI recipients. We find that a majority of the new SNAP benefits were allocated to food at home consumption. We also find that between 31 and 55 percent of this food at home expenditure increase is offset by a decrease in food away from home spending. While the net effect on the MPCF remains high, this finding suggests that prior work such as Hastings and Shapiro (2018) may be overstating the MPCF if food away from home expenditures are not considered when evaluating the consumption effects of SNAP.

One current limitation of our study is measuring the longer-term expenditure responses to increased SNAP benefits. Though we are able to observe up to 18 months following the cash-out policy change, housing is the largest expenditure for these households but a costly good to adjust. For example, our estimated MPCF, including both food at and away from home, is between 0.24 and 0.53, higher than the average 19.6 percent that the food at home budget share would predict. However, if we assume housing consumption is unable to repsond to SNAP benefits, this predicted food at home consumption increases to 39.2 percent, well

[17] We alternatively estimate Equation (4) allowing for various alternative assumptions about the excess shelter deduction. Results are shown in Appendix Table A.4 but results remain similar across a wide range of assumed values.

within our range and similar to Bruich (2014). Future work investigating whether the longer-term consumption response differs from the short-term response could shed light on the effects of SNAP on food consumption and nutrition.

While we find that increased SNAP benefits were mostly spent to increase food at home expenditures following the cash-out policy rescindment, this study also tests the relative expenditure response of increased SNAP versus cash benefits. While state-level changes in supplemental SSI payments provide natural policy variation in cash benefits, we utilize the same cash-out policy, but over a longer time frame, to provide state variation in the effect of SNAP benefits on food expenditures. We find consistent evidence that among SSI recipients, increased SNAP benefits increase spending on food at home that is partially offset by less spending on food away from home.

Our findings contribute to the literature by examining the expenditure responses of a unique policy reform which granted SNAP benefits to a previously ineligible group. Building on recent work by Hastings and Shapiro (2018), Beatty and Tuttle (2015), and Bruich (2014), we find clear evidence that additional SNAP benefits increase food at home expenditures among single SSI recipients above the MPCF of general income among this group.

These results highlight an important topic for current federal policies. The recent expansions of SNAP benefits during the pandemic, including the issuance of emergency allotments, a temporary increase in maximum benefit levels, and the upward revision of the Thrift Food Plan cost, have greatly expanded the impact of SNAP on the budget set for low-income households. Given our results, we expect a majority of these expanded benefits will increase food consumption. Further work exploring ultimate health, nutrition, and consumption effects is needed to weigh the welfare consequences of the continued focus on in-kind transfers in the United States social safety net programs.

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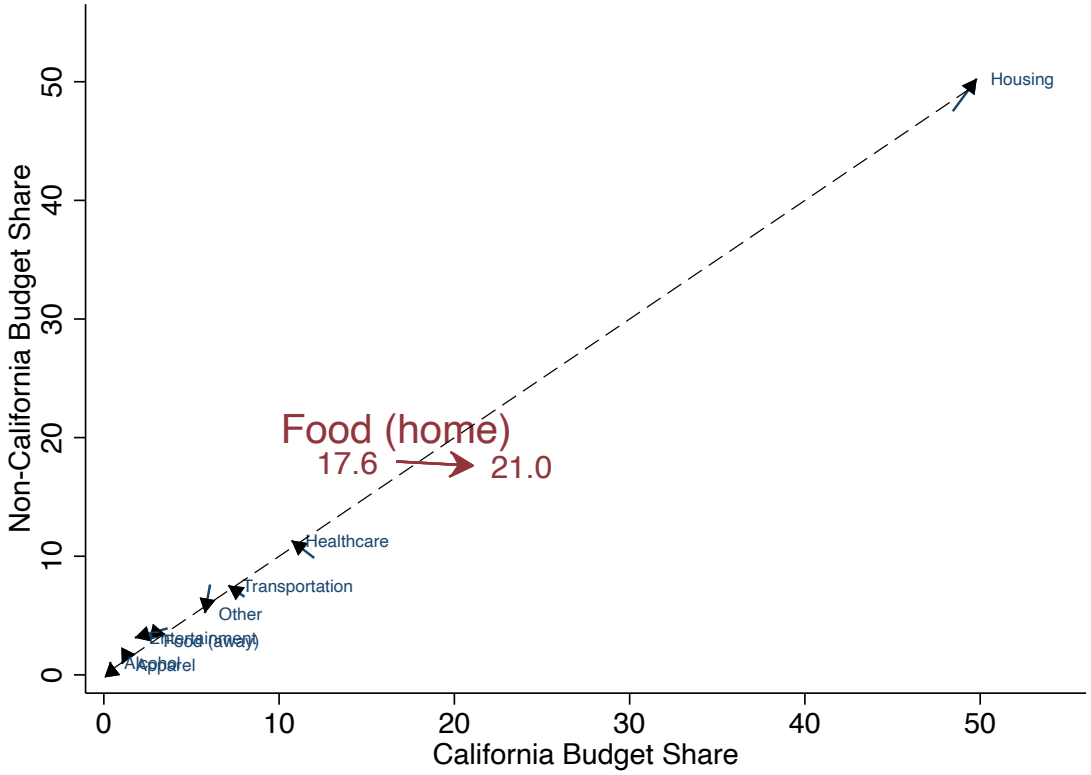
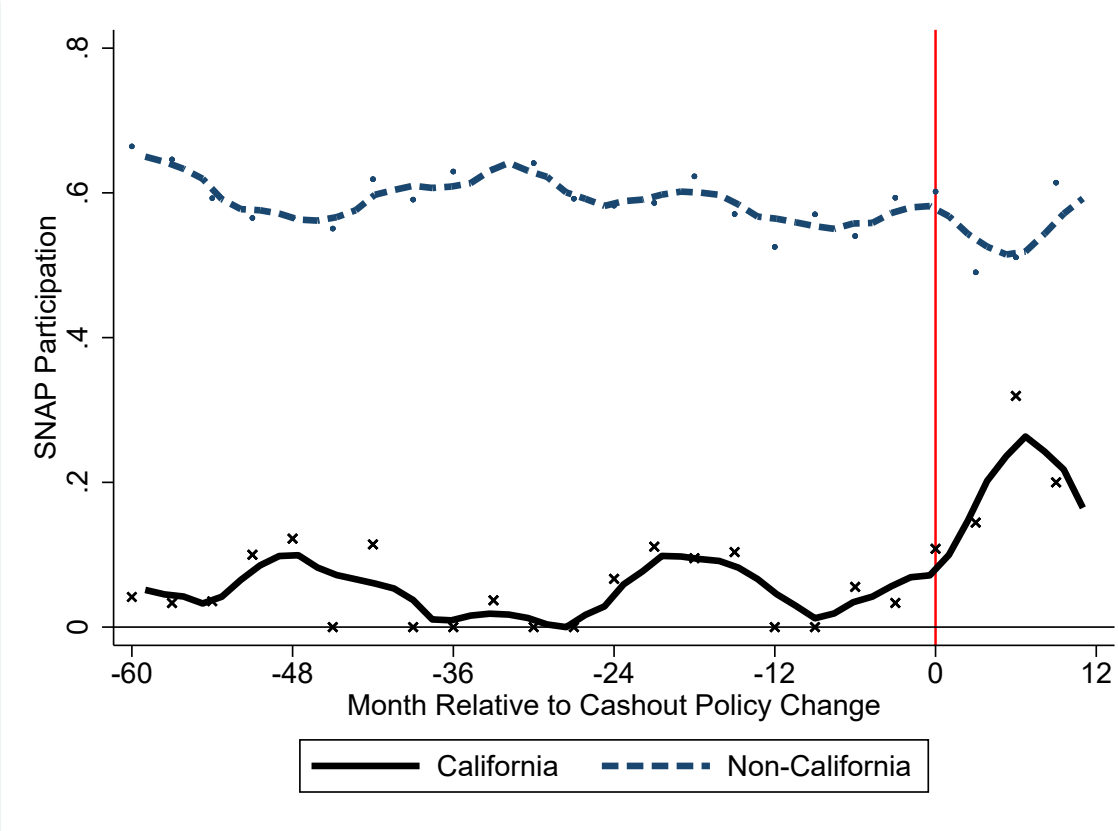
Figure 1: Expenditure Share Shifts Following the End of the California Cash-out Policy



Source: Consumer Expenditure Survey.

Note: This figure displays the average budget share of expenditure categories for California versus non-California single SSI recipients in the 11 months prior to and following the cash-out policy change in June 2019. The dashed line represents the 45 degree line.

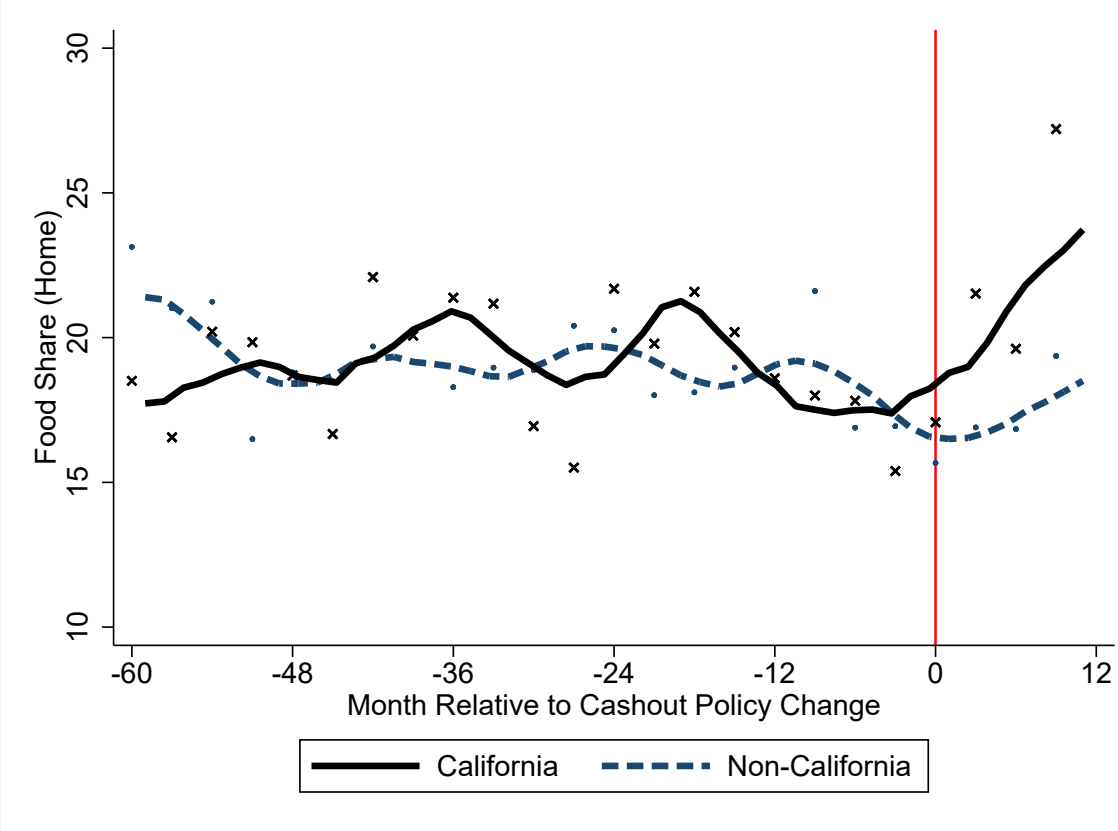
Figure 2: SNAP Participation of Single-Person SSI Recipients, California versus Non-California



Source: Consumer Expenditure Survey.

Note: This figure displays the average SNAP participation of California versus non-California single SSI recipients relative to the cash-out policy change date of June 2019.

Figure 3: Food (Home) Share of Single-Person SSI recipients, California verus non-California



Source: Consumer Expenditure Survey.

Note: This figure displays the average food at home budget share of California versus non-California single SSI recipients relative to the cash-out policy change date of June 2019.

Table 1: Summary Statistics of Single SSI Recipients, 2003-2020

	(1) Non-CA Pre	(2) Non-CA Post	(3) CA Pre	(4) CA Post	(5) Full
SSI	0.75	0.76	0.75	0.76	0.75
	(0.44)	(0.42)	(0.43)	(0.43)	(0.43)
SSI Benefit Rate	792.81	794.85	971.02	932.44	813.42
	(50.97)	(42.41)	(37.32)	(0.46)	(74.21)
SNAP	0.53	0.56	0.04	0.26	0.48
	(0.50)	(0.50)	(0.20)	(0.44)	(0.50)
SNAP Amount	655.99	825.14	68.59	331.14	605.15
	(881.03)	(923.28)	(364.51)	(702.65)	(865.47)
Age >= 65	0.32	0.31	0.42	0.40	0.33
	(0.47)	(0.46)	(0.49)	(0.49)	(0.47)
Age	57.70	58.61	60.64	62.23	58.15
	(15.21)	(13.94)	(15.78)	(12.12)	(15.16)
Male	0.41	0.43	0.35	0.38	0.40
	(0.49)	(0.50)	(0.48)	(0.49)	(0.49)
=HS	0.30	0.42	0.21	0.15	0.30
	(0.46)	(0.49)	(0.41)	(0.35)	(0.46)
> HS	0.33	0.35	0.52	0.64	0.36
	(0.47)	(0.48)	(0.50)	(0.48)	(0.48)
Hispanic	0.12	0.12	0.17	0.22	0.13
	(0.32)	(0.32)	(0.38)	(0.42)	(0.33)
Black	0.29	0.30	0.15	0.10	0.28
	(0.45)	(0.46)	(0.36)	(0.30)	(0.45)
Other Race	0.06	0.06	0.20	0.18	0.08
	(0.24)	(0.24)	(0.40)	(0.38)	(0.27)
Food (Home)	19.89	17.98	18.53	19.45	19.58
	(12.54)	(12.11)	(12.05)	(12.82)	(12.47)
Food (Away)	3.11	3.17	3.95	2.28	3.19
	(5.73)	(5.51)	(6.05)	(4.39)	(5.73)
Housing	50.12	46.55	52.21	49.57	50.02
	(17.48)	(18.20)	(17.79)	(17.52)	(17.62)
Alcohol	0.47	0.51	0.57	0.36	0.49
	(1.77)	(1.51)	(1.95)	(1.06)	(1.76)
Apparel	1.93	1.32	1.82	1.35	1.86
	(3.19)	(2.38)	(2.44)	(2.37)	(3.05)
Transportation	6.62	8.32	6.38	7.01	6.75
	(9.71)	(11.57)	(9.24)	(7.97)	(9.83)
Healthcare	5.53	11.05	6.15	9.15	6.12
	(7.92)	(11.32)	(7.92)	(9.16)	(8.43)
Entertainment	4.30	3.42	3.95	2.27	4.16
	(5.30)	(4.51)	(5.05)	(3.69)	(5.20)
Other	7.39	7.22	6.26	8.52	7.28
	(9.87)	(10.31)	(10.02)	(12.68)	(9.98)
Total Expenditures	3954.75	4733.90	4819.07	4807.18	4123.42
	(2747.46)	(3078.69)	(3538.31)	(3262.70)	(2894.82)
Obs	6,264	486	910	91	7,751

Source: CEX

Period: October 2003-May 2020

Notes: Sample restricted to single SSI recipients.

Table 2: SNAP Participation

	(1)	(2)	(3)	(4)
CA x Post	0.182***	0.180***	0.187***	0.193***
	(0.037)	(0.038)	(0.047)	(0.046)
CA	-0.464***	-0.461***		
	(0.024)	(0.025)		
Post	-0.100**	-0.096**	-0.075*	-0.077*
	(0.049)	(0.048)	(0.043)	(0.043)
Ln(TotExp)	1.853***	1.733***	-0.262	-0.247
	(0.441)	(0.420)	(0.214)	(0.217)
$Ln(TotExp)^2$	-0.124***	-0.116***	0.014	0.013
	(0.028)	(0.027)	(0.013)	(0.013)
Age		0.000		0.007
		(0.001)		(0.005)
Age >= 65		-0.073**		0.105***
		(0.035)		(0.032)
Male		-0.052**		0.093
		(0.020)		(0.063)
=HS		-0.096***		0.024
		(0.031)		(0.047)
> HS		-0.064**		-0.061
		(0.024)		(0.081)
Hispanic		0.120***		-0.006
		(0.027)		(0.029)
Black		0.044*		-0.017
		(0.023)		(0.063)
Other Race		0.014		0.161
		(0.033)		(0.123)
HH FE	No	No	Yes	Yes
Mean	0.478	0.478	0.479	0.479
Obs	7,557	7,557	7,557	7,557

Source: Consumer Expenditure Survey

Period: October 2003-May 2020

Notes: Sample restricted to single SSI recipients.

All specifications include year and month fixed effects.

Standard errors clustered at the state level.

* p<.10, ** p<.05, *** p<.01

Table 3: Cash-out Effect on Food at Home

	(1)	(2)	(3)	(4)
CA x Post	4.313***	4.344***	2.510**	2.537**
	(0.952)	(0.943)	(1.196)	(1.206)
CA	-0.056	-0.139		
	(0.299)	(0.424)		
Post	0.180	0.157	1.060	0.997
	(1.170)	(1.213)	(1.287)	(1.294)
Ln(TotExp)	43.442***	39.640***	31.172***	30.523***
	(8.779)	(8.677)	(9.068)	(9.043)
$Ln(TotExp)^2$	-3.060***	-2.803***	-2.139***	-2.100***
	(0.519)	(0.516)	(0.549)	(0.546)
Age		0.082***		-0.348*
		(0.029)		(0.197)
Age >= 65		-0.958**		1.499
		(0.465)		(1.364)
Male		-0.059		5.212
		(0.373)		(5.317)
=HS		-0.632		-3.248
		(0.420)		(2.859)
> HS		-1.298		-2.720
		(0.798)		(2.743)
Hispanic		2.219**		3.685
		(0.970)		(4.390)
Black		0.402		-8.489
		(0.632)		(6.190)
Other Race		-0.118		-0.591
		(0.832)		(1.777)
HH FE	No	No	Yes	Yes
Mean	19.571	19.571	19.568	19.568
Obs	7,557	7,557	7,557	7,557

Source: Consumer Expenditure Survey

Period: October 2003-May 2020

Notes: Sample restricted to single SSI recipients.

All specifications include year and month fixed effects.

Standard errors clustered at the state level.

* p<.10, ** p<.05, *** p<.01

Table 4: Cash-out Effect On Expenditure Categories

	(1) Food (Home)	(2) Food (Away)	(3) Alcohol	(4) Housing	(5) Transportation	(6) Apparel	(7) Healthcare	(8) Entertainment	(9) Other
DID									
CA x Post	4.344***	-1.288***	-0.141	-1.420	0.138	-0.027	-1.477	-1.556***	2.285*
	(0.943)	(0.352)	(0.141)	(2.043)	(0.643)	(0.217)	(1.062)	(0.304)	(1.236)
DID + HH FE									
CA x Post	2.537**	-1.679*	-0.191	1.786	1.563	-0.264	-2.197**	-0.556	-0.628
	(1.206)	(0.999)	(0.185)	(2.024)	(1.064)	(0.237)	(0.925)	(0.494)	(1.027)
DDD: Multi-person									
CA x Single x Post	4.294***	-1.799***	-0.151	-1.885	-0.319	0.058	-1.182	-1.438***	3.985***
	(1.207)	(0.389)	(0.164)	(2.015)	(1.009)	(0.231)	(1.041)	(0.315)	(1.479)
DDD: Muli-person + HH FE									
CA x Single x Post	3.645**	-0.454	-0.289	0.746	-2.254	-0.848*	-1.215	1.078**	-0.272
	(1.800)	(0.770)	(0.198)	(2.199)	(1.358)	(0.484)	(1.409)	(0.516)	(2.093)
DDD: Non-SSI Single-person									
CA x SSI x Post	3.129***	-1.420***	-0.137	-1.805	0.750	-0.131	-2.088*	-1.250***	3.644***
	(0.898)	(0.306)	(0.144)	(2.034)	(0.630)	(0.218)	(1.083)	(0.360)	(1.318)
DDD: Non-SSI Single-person + HH FE									
CA x SSI x Post	1.430	-1.585	-0.368	0.306	0.824	0.023	-1.557	-0.024	1.703
	(2.237)	(1.638)	(0.442)	(3.610)	(2.584)	(0.787)	(1.833)	(1.180)	(3.058)
Mean	19.571	3.191	0.488	50.153	6.717	1.870	5.957	4.192	7.294
Obs	7,557	7,557	7,557	7,557	7,557	7,557	7,557	7,557	7,557

Source: Consumer Expenditure Survey
Period: October 2003-May 2020
Notes: All specifications include year and month fixed effects.
Standard errors clustered at the state level.
* p<.10, ** p<.05, *** p<.01

Table 5: Cash-out Effect On Expenditure Categories, Robustness

	(1) Food (Home)	(2) Food (Away)	(3) Alcohol	(4) Housing	(5) Transportation	(6) Apparel	(7) Healthcare	(8) Entertainment	(9) Other
Inframarginal									
CA x Post	-0.256	-1.480***	-0.368**	0.449	2.215**	0.340	-2.896	-2.879***	5.218***
	(1.058)	(0.412)	(0.147)	(1.584)	(0.879)	(0.232)	(1.764)	(0.587)	(1.229)
Extramarginal									
CA x Post	4.568***	-2.293***	0.407	-1.960	0.737	0.682**	-1.801	1.173**	-0.929
	(1.369)	(0.668)	(0.259)	(4.318)	(1.780)	(0.319)	(1.828)	(0.553)	(2.742)
QUAIDS									
CA x Post	4.344***	-1.288***	-0.141	-1.420	0.138	-0.027	-1.477	-1.556***	2.285*
	(0.943)	(0.352)	(0.141)	(2.043)	(0.643)	(0.217)	(1.062)	(0.304)	(1.236)
AIDS									
CA x Post	4.228***	-1.291***	-0.143	-1.489	0.161	-0.036	-1.505	-1.575***	2.406*
	(0.950)	(0.352)	(0.141)	(2.036)	(0.641)	(0.216)	(1.065)	(0.310)	(1.269)
Linear									
CA x Post	4.575***	-1.353***	-0.157	-1.664	-0.126	-0.035	-1.663	-1.574***	2.429*
	(0.948)	(0.350)	(0.141)	(2.008)	(0.650)	(0.215)	(1.054)	(0.312)	(1.233)
None									
CA x Post	6.129***	-1.498***	-0.186	-1.213	-0.991	0.017	-1.781*	-1.486***	1.147
	(0.935)	(0.347)	(0.139)	(1.967)	(0.642)	(0.219)	(1.045)	(0.317)	(1.173)

Source: Consumer Expenditure Survey
Period: October 2003-May 2020
Notes: All specifications include year and month fixed effects. Inframarginal households defined as household which reports food at home expenditures greater than $576 in the first interview survey. Rows 3 through 6 vary inclusion of quadratic (QUAIDS) or linear (AIDS) terms for log total expenditures, linear in total expenditures or no total expenditure control.
Standard errors clustered at the state level.
* p<.10, ** p<.05, *** p<.01

Table 6: In-Kind versus Cash Effects on Expenditures

	(1) Food (Home)	(2) Food (Away)	(3) Alcohol	(4) Housing	(5) Transportation	(6) Apparel	(7) Health care	(8) Entertainment	(9) Other
Dollars									
SSI Amount	0.151	0.012	-0.070***	0.577***	-0.120	0.014	-0.114*	-0.025	-0.278**
	(0.091)	(0.072)	(0.011)	(0.127)	(0.117)	(0.029)	(0.058)	(0.025)	(0.125)
SNAP Amount	0.398***	-0.057***	-0.021***	-0.426***	0.013	0.030***	-0.016	-0.018**	-0.096**
	(0.013)	(0.012)	(0.003)	(0.046)	(0.023)	(0.005)	(0.015)	(0.008)	(0.036)
t-test(SSI-SNAP=0)	-0.248**	0.069	-0.048***	1.002***	-0.133	-0.015	-0.098	-0.007	-0.182
Budget Shares									
SSI Amount (%)	-0.156***	0.002	0.000	0.007	0.079***	-0.002	0.040***	-0.022***	-0.087***
	(0.027)	(0.007)	(0.001)	(0.024)	(0.012)	(0.004)	(0.011)	(0.006)	(0.011)
SNAP Amount (%)	0.223***	-0.032***	-0.008***	-0.253***	0.025*	0.012***	0.019**	-0.013***	0.026*
	(0.019)	(0.007)	(0.001)	(0.027)	(0.013)	(0.004)	(0.009)	(0.005)	(0.015)
t-test(SSI-SNAP=0)	-0.379***	0.034***	0.008***	0.260***	0.054***	-0.014**	0.022*	-0.009	-0.113***

Source: Consumer Expenditure Survey
Period: October 2003-May 2020
Notes: All specifications include year and month fixed effects.
Standard errors clustered at the state level.
* p<.10, ** p<.05, *** p<.01

A SNAP Benefits and the Excess Shelter Deduction

The excess shelter deduction plays an important role in determining SNAP benefits, particularly for SSI recipients. Shelter costs include expenditures on rent, mortgage and interest payments, fuel to heat and cook with, electricity, water, and property taxes. In 2019, the average SSI household received an excess shelter deduction of $347 per month, accounting for 64 percent of total deductions (94 percent of deductions excluding the standard deduction).[18]

Excess shelter ($SheltDed_{it}$) is defined as the difference between shelter expenses ($SheltExp_{it}$) and half of gross income less other deductions:

$$SheltDed_{it} = SheltExp_{it} - 0.5 * \max\{GrossInc_{it} - OtherDeductions_{ijt}, 0\} \quad (5)$$

The maximum excess shelter deduction allowed is $552 (in 2019). However this deduction is uncapped if at least one household recipient is elderly or disabled, meaning that SSI recipients are not subject to this excess shelter deduction cap.

The primary reason for the discrepancy between the observed benefit and the predicted benefit based on statutory rates for SSI recipients is the excess shelter deduction. Because of the nonlinear benefit function facing SNAP recipients, we create an adjusted maximum SNAP benefit measure ($SNAP_{ijt}$) to represent the expected maximum benefit available for SSI recipients by incorporating the interaction of SSI income and the excess shelter deduction into the SNAP benefit formula. This is computed as:

$$SNAP_{ijt} = Max_{jt} - 0.3 * \max\{SSI_{it} - StDed - ExShelt_{ijt}, 15\} \quad (6)$$

To compute our expected excess shelter deduction ($ExShelt_{ijt}$), we need to make

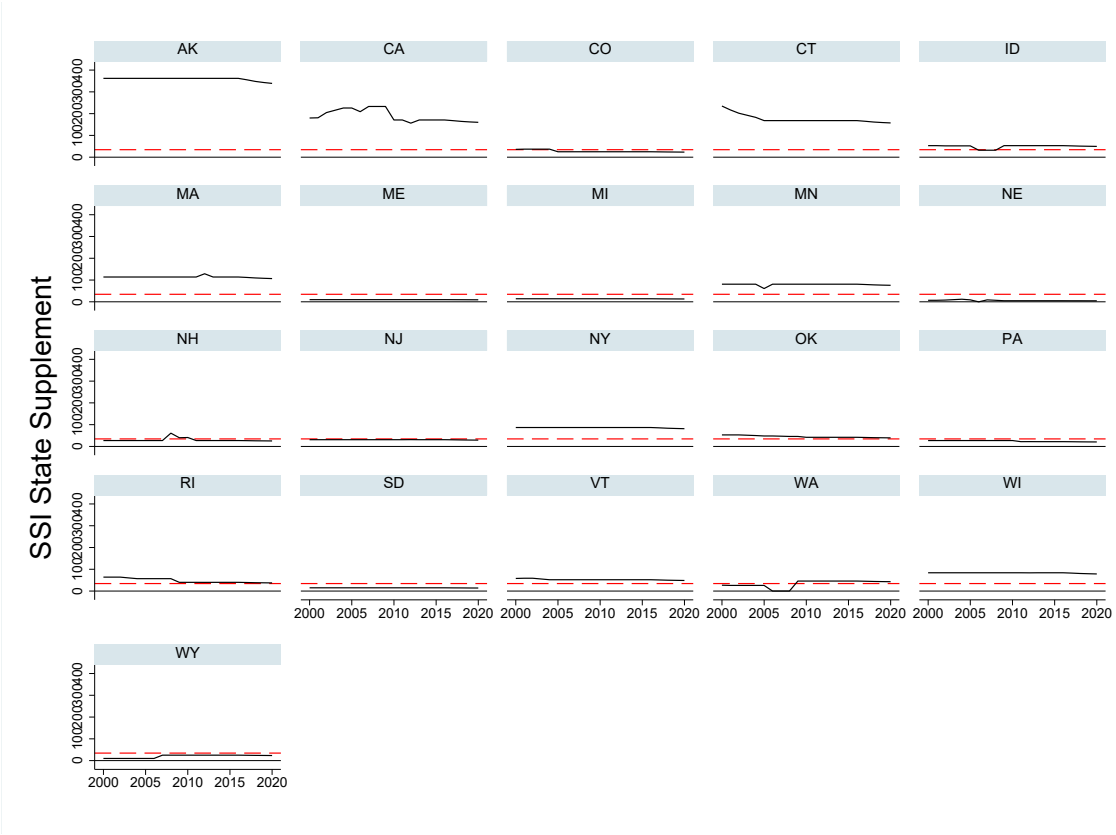
[18]Source: SNAP Quality Control data

assumptions as to how much the household spending on housing:

$$ExShelt_{ijt} = H * (SSI_{ijt} + Max_{jt}) - 0.5 * \max(SSI_{it} - StDed, 0)$$

In this eqution, H, represents the housing budget share of our assumed gross income of the maximum SSI benefit amount. Because our baseline model does not include any shelter deductions, this is equivalent to H being a high enough number that the maximum benefit is attained. We alternatively test our results when we assume H is 75%, 50%, and 0% to see how much this assumption affects our results.

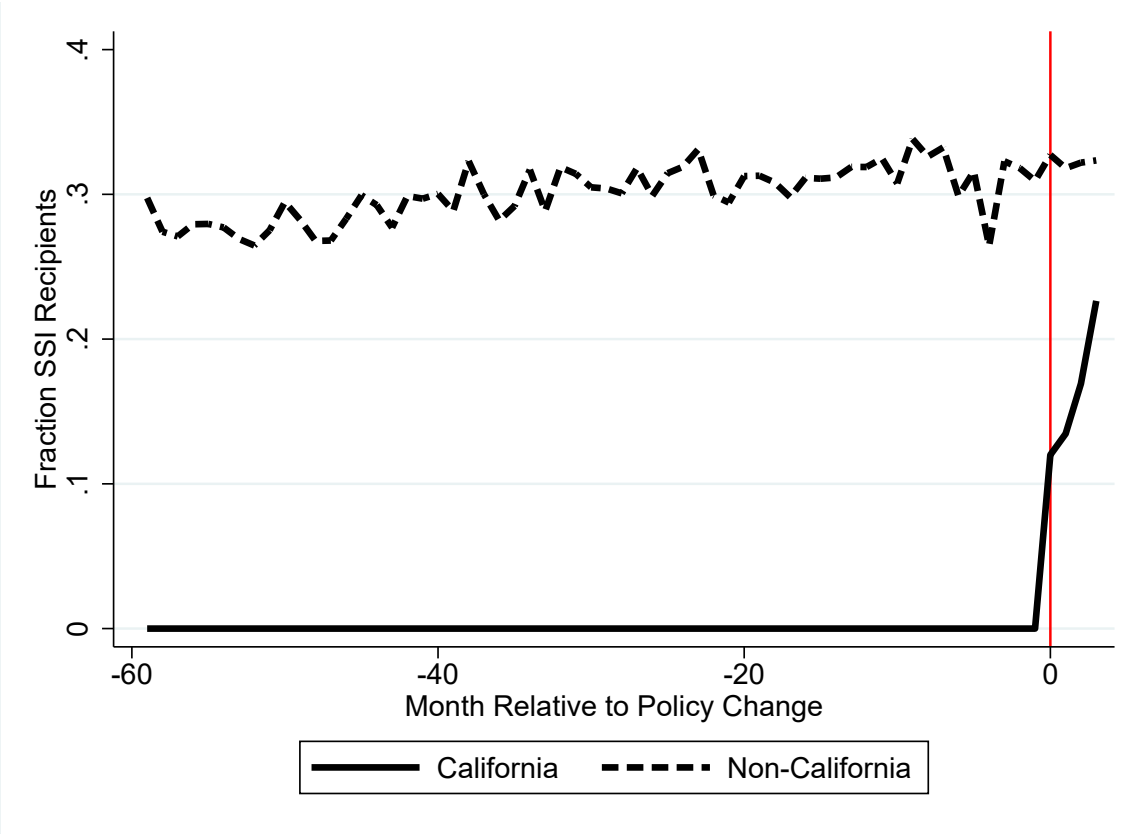
Figure A.1: SSI State Supplement Amount



Source: Social Security Administration.

Note: This figure displays the optional state supplement amount by year among states offered a positive supplement. The dash red line represents the state average among states providing a supplement.

Figure A.2: SNAP Participation —Quality Control Data



Source: SNAP Quality Control Data.

Note: This figure displays the fraction of single-person SNAP recipients reporting SSI income relative to the cash-out policy change date of June 2019.

Table A.1: Summary Statistics of Multi-Person SSI Recipients and Single-Person Non-SSI Households

	(1) Non-CA Pre mean/sd	(2) Non-CA Post mean/sd	(3) CA Pre mean/sd	(4) CA Post mean/sd	(5) Non-CA Pre mean/sd	(6) Non-CA Post mean/sd	(7) CA Pre mean/sd	(8) CA Post mean/sd	(9) Full mean/sd
SSI	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.14
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.35)
SSI Benefit Rate	787.17	796.15	974.92	932.42	787.67	795.84	975.67	932.38	806.86
	(47.10)	(43.39)	(39.80)	(0.46)	(49.28)	(41.19)	(39.72)	(0.44)	(72.52)
SNAP	0.45	0.42	0.18	0.27	0.05	0.07	0.03	0.05	0.11
	(0.50)	(0.49)	(0.38)	(0.44)	(0.22)	(0.25)	(0.17)	(0.21)	(0.31)
SNAP Amount	795.16	778.78	365.15	459.30	56.49	86.34	36.48	44.47	154.20
	(1112.98)	(1103.42)	(880.04)	(904.40)	(316.57)	(382.42)	(258.59)	(269.28)	(542.74)
Age >= 65	0.20	0.25	0.29	0.30	0.32	0.37	0.32	0.41	0.32
	(0.40)	(0.43)	(0.45)	(0.46)	(0.47)	(0.48)	(0.47)	(0.49)	(0.47)
Age	52.25	55.11	55.38	55.41	52.58	54.33	52.77	57.97	53.14
	(14.95)	(14.37)	(15.36)	(13.91)	(20.81)	(19.84)	(20.21)	(18.32)	(19.94)
Male	0.32	0.32	0.40	0.43	0.46	0.46	0.47	0.45	0.45
	(0.47)	(0.47)	(0.49)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
=HS	0.31	0.31	0.23	0.31	0.25	0.23	0.14	0.12	0.24
	(0.46)	(0.46)	(0.42)	(0.46)	(0.43)	(0.42)	(0.35)	(0.33)	(0.43)
> HS	0.39	0.49	0.47	0.59	0.65	0.70	0.77	0.83	0.62
	(0.49)	(0.50)	(0.50)	(0.49)	(0.48)	(0.46)	(0.42)	(0.38)	(0.49)
Hispanic	0.17	0.18	0.31	0.41	0.07	0.08	0.16	0.11	0.09
	(0.37)	(0.39)	(0.46)	(0.49)	(0.25)	(0.27)	(0.36)	(0.32)	(0.29)
Black	0.29	0.23	0.10	0.05	0.14	0.17	0.07	0.08	0.16
	(0.45)	(0.42)	(0.30)	(0.22)	(0.35)	(0.37)	(0.26)	(0.27)	(0.36)
Other Race	0.06	0.06	0.24	0.20	0.05	0.04	0.13	0.14	0.06
	(0.23)	(0.23)	(0.42)	(0.40)	(0.21)	(0.20)	(0.34)	(0.34)	(0.23)
Food (Home)	18.39	17.89	17.19	15.36	11.71	11.60	11.10	12.25	12.75
	(11.10)	(10.98)	(9.47)	(7.73)	(8.58)	(8.26)	(8.60)	(8.98)	(9.45)
Food (Away)	3.37	3.40	4.01	4.71	5.26	4.65	5.49	4.41	4.93
	(4.87)	(4.20)	(5.04)	(5.06)	(6.37)	(5.94)	(6.45)	(5.14)	(6.21)
Housing	39.48	37.87	42.52	41.06	38.79	38.93	41.96	41.55	39.84
	(14.98)	(13.88)	(15.53)	(13.59)	(15.32)	(15.20)	(15.77)	(14.50)	(15.71)
Alcohol	0.45	0.50	0.43	0.48	0.99	0.94	0.90	0.85	0.89
	(1.23)	(1.28)	(1.06)	(1.08)	(2.05)	(1.78)	(1.69)	(1.46)	(1.93)
Apparel	2.17	1.48	1.93	1.17	1.84	1.23	1.87	1.14	1.82
	(2.92)	(2.51)	(2.45)	(1.61)	(2.85)	(2.15)	(2.46)	(1.66)	(2.78)
Transportation	11.51	11.17	11.17	11.09	10.45	9.68	9.78	8.57	10.19
	(9.82)	(8.72)	(8.93)	(8.82)	(9.33)	(8.69)	(8.47)	(7.18)	(9.32)
Healthcare	6.79	8.61	5.83	8.39	7.42	8.60	6.05	8.51	7.29
	(7.63)	(8.05)	(6.51)	(7.86)	(8.80)	(8.78)	(7.66)	(8.73)	(8.61)
Entertainment	4.09	3.41	3.56	2.94	4.14	3.75	4.06	3.77	4.08
	(3.71)	(3.62)	(3.36)	(2.89)	(4.19)	(4.09)	(4.04)	(3.91)	(4.19)
Other	14.20	16.52	14.07	15.55	19.40	20.70	18.90	19.17	18.23
	(11.95)	(12.78)	(12.70)	(12.43)	(15.12)	(16.18)	(15.20)	(15.69)	(15.04)
Total Expenditures	9095.32	10194.01	10327.71	12023.40	8326.36	9105.18	10272.17	11105.78	8379.92
	(5463.53)	(5906.15)	(6392.07)	(6413.23)	(5072.05)	(5116.99)	(6075.68)	(6354.21)	(5269.01)
Obs	8,538	634	1,700	145	84,254	6,533	9,631	769	119,955

Source: CEX
Period: October 2003-May 2020

Table A.2: Cash-out Effect On Expenditure Categories, Dollars

	(1) Food (Home)	(2) Food (Away)	(3) Alcohol	(4) Housing	(5) Transportation	(6) Apparel	(7) Health care	(8) Entertainment	(9) Other
DID									
CA x Post	171.052***	-55.283***	7.307	49.081	-48.215	7.415	-130.379**	-61.018***	126.063
	(34.887)	(18.232)	(8.708)	(92.242)	(41.505)	(8.740)	(61.751)	(17.660)	(86.112)
DID + HH FE									
CA x Post	127.616**	-101.191*	-0.740	73.434	-287.609***	-1.770	-26.540	69.524*	81.497
	(51.652)	(50.336)	(9.851)	(104.189)	(77.186)	(11.877)	(38.231)	(37.318)	(80.045)
DDD: Multi-person									
CA x Single x Post	272.396***	-108.511***	16.706	-40.826	-132.658	8.081	-112.907	-82.559***	354.419***
	(77.357)	(35.946)	(12.812)	(94.321)	(89.742)	(14.594)	(67.857)	(29.270)	(130.552)
DDD: Muli-person + HH FE									
CA x Single x Post	168.944	-18.172	-7.309	-265.182	-290.252*	-49.155	105.587	206.370***	221.453
	(189.717)	(119.193)	(14.496)	(165.825)	(147.392)	(33.123)	(115.602)	(53.532)	(230.941)
DDD: Non-SSI Single-person									
CA x SSI x Post	54.921	-56.691**	11.324	-96.629	5.055	26.777***	-210.425***	-55.914**	181.839**
	(34.595)	(21.160)	(9.092)	(100.417)	(41.814)	(8.819)	(61.973)	(20.951)	(83.678)
DDD: Non-SSI Single-person + HH FE									
CA x SSI x Post	12.638	-26.525	6.764	-51.976	-360.950	27.021	60.874	54.713	484.644
	(153.973)	(158.118)	(32.778)	(325.186)	(256.110)	(59.723)	(139.113)	(97.039)	(339.188)

Source: Consumer Expenditure Survey
Period: January 2000-May 2020
Notes: All specifications include year and month fixed effects.
Standard errors clustered at the state level.
* p<.10, ** p<.05, *** p<.01

Table A.3: Multi-person and non-SSI Recipients

	(1)	(2)	(3)	(4)
SSI Singles vs SSI non-Singles				
CA x Single x Post	4.297***	4.294***	3.645*	3.645**
	(1.195)	(1.207)	(1.811)	(1.800)
CA	-0.291	-0.411	0.000	0.000
	(0.178)	(0.268)	(.)	(.)
Single	-4.449***	-4.105***	-1.375	-1.325
	(0.365)	(0.383)	(1.030)	(1.045)
Post	1.568*	1.435	-0.012	-0.007
	(0.864)	(0.860)	(1.988)	(1.976)
CA x Post	0.007	0.119	-0.105	-0.126
	(0.651)	(0.641)	(2.120)	(2.116)
Single x Post	-2.129*	-2.118*	0.995	0.967
	(1.218)	(1.218)	(1.787)	(1.778)
Single x CA	0.125	0.340	0.811	0.776
	(0.326)	(0.332)	(1.068)	(1.097)
Ln(TotExp)	12.673*	10.658	18.720***	18.210**
	(6.735)	(6.513)	(6.796)	(6.798)
$Ln(TotExp)^2$	-1.157***	-1.011***	-1.311***	-1.282***
	(0.382)	(0.370)	(0.382)	(0.383)
SSI Singles vs non-SSI Singles				
CA x SSI x Post	3.061***	3.129***	1.440	1.430
	(0.938)	(0.898)	(2.237)	(2.237)
CA	0.742***	0.657***	0.000	0.000
	(0.142)	(0.142)	(.)	(.)
SSI	3.851***	3.179***	0.000	0.000
	(0.399)	(0.325)	(.)	(.)
Post	0.235	0.219	-0.032	-0.031
	(0.239)	(0.230)	(0.258)	(0.258)
CA x Post	1.497***	1.376***	1.058	1.058
	(0.216)	(0.212)	(0.728)	(0.729)
SSI x Post	-2.214**	-2.109**	0.932	0.934
	(0.932)	(0.892)	(0.819)	(0.819)
SSI x CA	-1.130***	-0.916***	0.000	0.000
	(0.312)	(0.285)	(.)	(.)
Ln(TotExp)	8.017*	5.277	9.546***	9.508***
	(4.474)	(4.243)	(1.236)	(1.236)
Ln(TotExp)2	-0.815***	-0.640**	-0.839***	-0.837***
	(0.252)	(0.240)	(0.072)	(0.072)
Controls	No	Yes	No	Yes
HH FE	No	No	Yes	Yes

Source: Consumer Expenditure Survey

Period: October 2003-May 2020

Notes: All specifications include year and month fixed effects.

Standard errors clustered at the state level.

* p<.10, ** p<.05, *** p<.01

Table A.4: In-Kind versus Cash Effects on Expenditures, Varying Shelter Deduction Assumptions

	(1) Food (Home)	(2) Food (Away)	(3) Alcohol	(4) Housing	(5) Transportation	(6) Apparel	(7) Health care	(8) Entertainment	(9) Other
SheltExp=0%									
Dollars									
SSI Amount	0.151	0.012	-0.070***	0.577***	-0.120	0.014	-0.114*	-0.025	-0.278**
	(0.091)	(0.072)	(0.011)	(0.127)	(0.117)	(0.029)	(0.058)	(0.025)	(0.125)
SNAP Amount	0.398***	-0.057***	-0.021***	-0.426***	0.013	0.030***	-0.016	-0.018**	-0.096**
	(0.013)	(0.012)	(0.003)	(0.046)	(0.023)	(0.005)	(0.015)	(0.008)	(0.036)
Budget Shares									
SSI Amount	-0.156***	0.002	0.000	0.007	0.079***	-0.002	0.040***	-0.022***	-0.087***
	(0.027)	(0.007)	(0.001)	(0.024)	(0.012)	(0.004)	(0.011)	(0.006)	(0.011)
SNAP Amount	0.223***	-0.032***	-0.008***	-0.253***	0.025*	0.012***	0.019**	-0.013***	0.026*
	(0.019)	(0.007)	(0.001)	(0.027)	(0.013)	(0.004)	(0.009)	(0.005)	(0.015)
SheltExp=50%									
Dollars									
SSI Amount	0.189**	0.006	-0.072***	0.536***	-0.119	0.017	-0.115*	-0.027	-0.287**
	(0.090)	(0.071)	(0.011)	(0.130)	(0.118)	(0.029)	(0.058)	(0.025)	(0.124)
SNAP Amount	0.351***	-0.052***	-0.019***	-0.374***	0.009	0.027***	-0.014	-0.015**	-0.088***
	(0.014)	(0.010)	(0.002)	(0.043)	(0.020)	(0.004)	(0.013)	(0.007)	(0.031)
Budget Shares									
SSI Amount	-0.156***	0.002	0.000	0.007	0.078***	-0.002	0.040***	-0.021***	-0.087***
	(0.031)	(0.007)	(0.001)	(0.024)	(0.012)	(0.004)	(0.011)	(0.006)	(0.011)
SNAP Amount	0.186***	-0.028***	-0.007***	-0.215***	0.023*	0.010***	0.014*	-0.012***	0.022*
	(0.017)	(0.006)	(0.001)	(0.023)	(0.012)	(0.004)	(0.008)	(0.004)	(0.012)
SheltExp=75%									
Dollars									
SSI Amount	0.225**	0.001	-0.074***	0.497***	-0.118	0.020	-0.116**	-0.029	-0.296**
	(0.088)	(0.072)	(0.011)	(0.133)	(0.119)	(0.029)	(0.058)	(0.025)	(0.123)
SNAP Amount	0.354***	-0.051***	-0.019***	-0.384***	0.008	0.026***	-0.009	-0.016**	-0.090***
	(0.014)	(0.010)	(0.002)	(0.041)	(0.020)	(0.004)	(0.012)	(0.007)	(0.030)
Budget Shares									
SSI Amount	-0.158***	0.002	0.000	0.011	0.077***	-0.002	0.040***	-0.021***	-0.087***
	(0.038)	(0.007)	(0.001)	(0.028)	(0.011)	(0.004)	(0.010)	(0.006)	(0.011)
SNAP Amount	0.168***	-0.026***	-0.006***	-0.203***	0.026**	0.009**	0.015*	-0.012***	0.019
	(0.020)	(0.006)	(0.001)	(0.025)	(0.011)	(0.004)	(0.008)	(0.004)	(0.012)
SheltExp=100%									
Dollars									
SSI Amount	0.232**	-0.000	-0.074***	0.490***	-0.117	0.020	-0.117**	-0.029	-0.298**
	(0.087)	(0.072)	(0.011)	(0.136)	(0.119)	(0.029)	(0.058)	(0.025)	(0.124)
SNAP Amount	0.393***	-0.056***	-0.021***	-0.415***	0.011	0.029***	-0.017	-0.018**	-0.100***
	(0.013)	(0.012)	(0.002)	(0.044)	(0.022)	(0.005)	(0.013)	(0.008)	(0.034)
Budget Shares									
SSI Amount	-0.164***	0.004	0.001	0.018	0.076***	-0.002	0.040***	-0.021***	-0.087***
	(0.047)	(0.008)	(0.001)	(0.036)	(0.011)	(0.004)	(0.010)	(0.006)	(0.012)
SNAP Amount	0.168***	-0.029***	-0.007***	-0.207***	0.030**	0.009*	0.013	-0.013***	0.018
	(0.035)	(0.006)	(0.001)	(0.037)	(0.012)	(0.005)	(0.009)	(0.004)	(0.013)

Source: Consumer Expenditure Survey
Period: October 2003-May 2020
Notes: All specifications include year and month fixed effects.
Standard errors clustered at the state level.
* p<.10, ** p<.05, *** p<.01