

SNAP Emergency Allotment Expiration and Food Insufficiency Among Households with Children: Differences Across Income and Housing Tenure Groups

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Research Article

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Abstract

Objective

To examine the impact of the termination of Supplemental Nutrition Assistance Program Emergency Allotments (SNAP-EA) on food insufficiency among U.S. households with children, and to assess whether effects varied by economic and housing vulnerability.

Methods

We analyzed Household Pulse Survey data (August 2020–February 2023) using a two-way fixed-effects difference-in-differences design comparing SNAP and non-SNAP households before and after state EA expiration. Models adjusted for sociodemographic characteristics and time-varying SNAP policy flexibilities.

Results

Following EA expiration, SNAP households experienced a 0.13-point greater increase in food insufficiency on a four-point scale than non-SNAP households (95% CI, 0.08–0.17). Event-study estimates showed no evidence of differential pre-trends. Increases were larger among lower-income households and those occupying housing without payment.

Conclusion

EA expiration was associated with increased food insufficiency among SNAP households with children, particularly those facing greater economic and housing vulnerability.

1. Introduction

The Supplemental Nutrition Assistance Program (SNAP), formerly the Food Stamp Program, is by far the largest antihunger program in the United States, providing monthly food benefits to low-income households to support access to nutritionally adequate diets and promote health and well-being (1–4). During the first nine months of fiscal year 2025 (October 2024–June 2025), an average of 41.6 million individuals across 22.3 million households received SNAP benefits (2). Families with children represent a substantial share of program participants (34.3% of SNAP households), and children accounted for 39% of all SNAP participants in fiscal year 2023 (4), underscoring the program’s critical role in supporting child food security. Despite SNAP’s central role in reducing food insufficiency—defined as households reporting that they sometimes or often did not have enough to eat in the past 7 days—evidence that identifies the causal inference of changes in SNAP benefit levels on food insufficiency, particularly among households with children remains limited.

In response to the public health and economic disruptions triggered by the COVID-19 pandemic, Congress enacted the *Families First Coronavirus Response Act* in March 2020, authorizing states to issue Emergency Allotments (EA) that temporarily increased SNAP benefits up to the maximum allowable amount for each household, resulting in monthly benefit increases ranging from approximately \$95 to \$250 (5). During the pandemic, all U.S. states implemented EA for SNAP participants to mitigate rising food insecurity; however, the timing of EA termination varied substantially across states. Eighteen states ended EA between 2021 and 2022, prior to its nationwide expiration in February 2023 (6). This cross-state variation in the timing of EA termination created a natural experiment that enables causal inference by reducing confounding time-invariant state differences and national shocks.

Prior studies suggest that SNAP-EA reduced food hardship during the COVID-19 pandemic, while their expiration was associated with worsening food-related outcomes. EA payments reduced food insufficiency by approximately 9% (7), and states that ended EAs early experienced higher food insufficiency (6) and substantial reductions in monthly SNAP benefits (8). Following nationwide EA expiration, food insufficiency increased by approximately 8.4% (5). Despite this growing evidence, less is known about how EA expiration affected households with children and whether these changes varied across socioeconomic circumstances (5, 9, 10).

Households with children may be particularly vulnerable to benefit reductions because of greater household food needs (11), caregiving and childcare demands that constrain household resources (12), and vulnerability to rising food prices (13, 14). However, these vulnerabilities may also differ substantially within households receiving SNAP. This study therefore examines changes in food insufficiency following EA expiration among U.S. households with children and assesses heterogeneity by household income and housing tenure. By identifying which households experienced the greatest increases in food insufficiency, this study can inform the design and withdrawal of temporary nutrition assistance and help identify families that may require additional support during policy transitions.

2. Methods

2.1 Data source and target population

We drew data from the U.S. Census Bureau's Household Pulse Survey (HPS), a nationally representative, repeated cross-sectional survey (15). The U.S. Census Bureau collected the HPS data used in this study between August 19, 2020, and February 13, 2023. We restricted the sample to respondents from households with at least one child under age 18. We excluded survey waves before August 19, 2020, because those waves did not measure SNAP receipt. We also excluded observations after February 13, 2023, because all states had ended EA by February 28, 2023, leaving no remaining variation in EA status.

We merged state-level EA expiration dates with respondent records based on each survey week. The U.S. Census Bureau administered each survey wave over approximately two weeks, following a repeating

schedule of two weeks of data collection and two weeks without data collection. We applied person-level survey weights to maintain national representativeness.

2.2 Outcome

We assessed household food sufficiency using the Household Pulse Survey item asking respondents to describe the adequacy of food eaten in the past seven days. We coded responses on a four-point scale: 1 = “enough of the kinds of food wanted,” 2 = “enough, but not always the kinds wanted,” 3 = “sometimes not enough to eat,” and 4 = “often not enough to eat.” Higher scores indicated greater household food insufficiency. We excluded respondents with missing outcome data from the analytic sample.

2.3 Exposure

We measured SNAP participation using a binary indicator based on respondents’ reports of whether anyone in the household received SNAP benefits. We obtained state-level EA expiration dates from the State-Level Supplemental Nutrition Assistance Program Expansions During and After the COVID-19 Pandemic, United States, 2020–2023 dataset (16) and used these dates to construct a state-week indicator coded as 1 after a state’s EA expiration and 0 otherwise.

2.4 Covariates

2.4.1 Individual and household characteristics

We selected individual- and household-level covariates a priori based on prior studies of SNAP EAs and food insufficiency, as well as evidence linking household housing circumstances with food security (10, 17, 18). Covariates included respondent sex, race and ethnicity (non-Hispanic White; non-Hispanic Black; Hispanic; other), educational attainment (less than high school; high school graduate; some college or associate degree; bachelor’s degree or higher), marital status (married; widowed; divorced; separated; never married), household income (<\$25,000; \$25,000–34,999; \$35,000–49,999; \$50,000–74,999; \$75,000–99,999; \$100,000–149,999; \$150,000–199,999; ≥\$200,000), and housing tenure (owned free and clear; owned with a mortgage or loan; rented; occupied without payment).

2.4.2 State-level SNAP administrative flexibilities

We controlled for five SNAP administrative flexibilities: Temporary Suspension of Claims Collection, Waived Initial and/or Recertification Interviews, Waived Face-to-Face Interviews, Extended Certification Periods, and Adjusted Periodic Reports; each was coded as a state- and wave-specific indicator denoting whether the policy was in effect. These flexibilities were implemented alongside pandemic-era benefit expansions and varied across states and over time (19, 20). By modifying certification, reporting, and interview requirements, such flexibilities could reduce administrative burdens and facilitate SNAP enrollment and continued benefit receipt (20, 21). Because administrative requirements can affect SNAP participation and benefit continuity, which are in turn relevant to household food security, these time-varying flexibilities were included to account for concurrent changes in the SNAP policy environment that could otherwise be conflated with changes associated with EA expiration (20).

2.5 Statistical Analysis

2.5.1 Two-way fixed-effects (TWFE) estimation

All analyses incorporated person-level survey weights provided in the public-use Household Pulse Survey files to produce nationally representative estimates. The association between state EA expiration and household food insufficiency was estimated using a two-way fixed-effects (TWFE) difference-in-differences (DiD) framework with state and survey-week fixed effects, thereby adjusting for time-invariant differences across states and national shocks common to all households in each wave (22). Standard errors were clustered at the state level.

To estimate whether the end of EA was associated with differential changes in food insufficiency among SNAP-recipient vs. non-recipient households, we created an interaction term between SNAP participation and EA expiration. This approach allows the model to compare changes in food insufficiency in SNAP households before and after EA termination relative to non-SNAP households in the same period.

We estimated two models. In Model 1, we included no additional covariates. In Model 2, we additionally adjusted for individual- and household-level sociodemographic characteristics and five concurrent state-level SNAP administrative flexibilities listed above. We included state and survey-wave fixed effects and the SNAP receipt $\times$ EA expiration interaction term in both models. All regressions were estimated using Stata version 17 (23).

2.5.2 Subgroup analysis

Effect heterogeneity was assessed by estimating fully adjusted DiD models with categorical household income and housing tenure. For income, households with annual income $< \$25,000$ served as the reference group; for housing tenure, households owning their home free and clear served as the reference group. Interaction coefficients were interpreted as subgroup differences in the post-termination change in food insufficiency relative to the corresponding reference category.

3. Results

3.1 Sample Characteristics by SNAP-EA Expiration Status

After applying the study eligibility restrictions, the study sample included 1,010,941 observations, of which 91.27% occurred before state EA expiration and 8.73% occurred after expiration. As shown in the Supplementary Table S1, sample characteristics differed significantly by EA expiration status for race and ethnicity, education, marital status, food sufficiency, household income, and housing tenure (Rao–Scott χ^2 tests, $p < .05$), whereas SNAP receipt and sex did not differ significantly between the two groups. Compared with households surveyed before EA expiration, those surveyed after expiration were more likely to include non-Hispanic White and Black respondents, report lower food sufficiency, and

occupy housing owned free and clear. The post-expiration group also showed differences in educational attainment, marital status, and household income distributions.

3.2 Associations between Food Insufficiency and SNAP Emergency Allotment Termination

Table 1 presents the estimated associations between SNAP-EA expiration and household food insufficiency.

In the unadjusted model, the SNAP receipt × EA expiration interaction indicated a 0.09-point greater increase in food insufficiency on the four-point scale among SNAP-recipient households than among non-recipient households following EA expiration (95% CI, 0.05–0.12). After adjusting for covariates, the estimated differential increase was 0.13 points on the four-point food insufficiency scale (95% CI, 0.08–0.17).

Table 1
Estimated association between SNAP emergency allotment expiration and household food insufficiency

Variables	Model 1	Model 2
EA expired	0.04***	0.03***
95% CI	0.03, 0.06	0.02, 0.05
SNAP receipt	0.41***	0.01
95% CI	0.39, 0.43	– 0.02, 0.04
SNAP × EA expired	0.09***	0.13***
95% CI	0.05, 0.12	0.08, 0.17
Controls included	No	Yes

Abbreviation: EA = emergency allotment; TSCC = Temporary Suspension of Claims Collection; WIRI = Waived Initial and/or Recertification Interviews; WFFI = Waived Face-to-Face Interviews; ECP = Extended Certification Periods; APR = Adjusted Periodic Reports.

Note. Model 2 includes sociodemographic controls (sex, race and ethnicity, education, marital status, household income, and housing tenure) and five concurrent SNAP administrative flexibilities (TSCC, WIRI, ECP, APR, and WFFI).

$p < .05^*$, $p < .01^*$, $p < .001^{***}$.

Event-study estimates supported the parallel trends assumption and illustrated the dynamic association between EA expiration and food insufficiency (Figure 1). During the pre-termination period, we found generally small interaction coefficients that did not differ statistically from zero, providing no evidence of differential pre-trends between SNAP-participating and non-participating households. Following EA

termination (event time = 0), the coefficients shifted upward and remained predominantly positive across subsequent periods, indicating a sustained relative increase in food insufficiency among SNAP-participating households. This post-termination pattern aligned with the TWFE estimates.

3.3 Subgroup Analyses

Subgroup analyses revealed heterogeneity by household income (Supplementary Table S2). Relative to households with annual income <\$25,000, the estimated post-EA termination increase in food insufficiency among SNAP-recipient households was smaller for several higher-income groups, with significant differences for households earning \$35,000–\$49,999 ($\beta = -0.18$, 95% CI $[-0.35, -0.01]$), \$50,000–\$74,999 ($\beta = -0.16$, 95% CI $[-0.28, -0.05]$), \$75,000–\$99,999 ($\beta = -0.30$, 95% CI $[-0.47, -0.13]$), \$100,000–\$149,999 ($\beta = -0.25$, 95% CI $[-0.49, -0.00]$), and \$150,000–\$199,999 ($\beta = -0.47$, 95% CI $[-0.70, -0.25]$).

Supplementary Table S3 presents differences by housing tenure. We found no significant heterogeneity among homeowners with mortgages or renters relative to homeowners without a mortgage. However, households occupying housing without payment experienced a significantly greater increase in food insufficiency following EA termination ($\beta = 0.38$, 95% CI $[0.06, 0.71]$) relative to the reference group.

4. Discussion

This study examined changes in food insufficiency following SNAP-EA expiration among U.S. households with children. SNAP-recipient households experienced a greater increase in food insufficiency following EA expiration than non-recipient households, and event-study estimates showed no evidence of differential pre-trends. We also found heterogeneity among SNAP households: increases were greater among lower-income households, while households occupying housing without payment experienced a particularly large increase relative to homeowners without a mortgage. These findings suggest that the consequences of EA expiration varied according to households' economic and housing circumstances. The greater increase in food insufficiency among SNAP households following EA expiration may reflect the abrupt loss of enhanced benefits, consistent with prior evidence linking EA withdrawal to increased food hardship (9,13,24,25), while extending this literature to households with children.

Housing tenure revealed an additional dimension of vulnerability. Households classified as "occupied without payment" experienced a particularly large increase in food insufficiency following EA expiration relative to homeowners without a mortgage. This tenure category may capture informal or unstable living arrangements, including staying with friends or relatives or other nonstandard housing situations (26–28). Prior research links such housing circumstances with economic volatility, material hardship, and constrained social support (27–31), which may heighten households' vulnerability to reductions in nutrition assistance. Together, these findings suggest that economic and housing circumstances may shape households' ability to absorb the loss of SNAP-EA benefits.

Prior studies found that increasing SNAP benefits reduced food insufficiency, whereas ending EAs was associated with increased food insufficiency, particularly among SNAP recipients (10,32). Our findings further suggest that households may differ in their ability to absorb benefit reductions, with greater increases observed among lower-income households and those occupying housing without payment. Policymakers could therefore consider transition plans and targeted supports when temporary benefit expansions end, particularly for households with limited economic resources. Such approaches align with recommendations from SNAP administrators to pair emergency benefit expansions with transition planning as economic conditions stabilize (19).

Several limitations warrant consideration. First, food insufficiency is a self-reported, short-term measure and does not capture the broader construct of food insecurity or dietary quality. Second, self-reported SNAP receipt may introduce measurement error. Third, although our two-way fixed-effects design leveraged cross-state variation in the timing of EA expiration, staggered policy timing can create methodological challenges; however, event-study estimates showed no evidence of differential pre-trends. Finally, the relatively small number of households occupying housing without payment and the limited information about their specific housing circumstances warrant caution in interpreting this subgroup finding.

5. Conclusion

Using cross-state variation in the timing of SNAP-EA expiration, this study provides evidence that the withdrawal of emergency nutrition assistance was associated with a disproportionate increase in food insufficiency among U.S. households with children receiving SNAP. The effects were especially pronounced among families facing low incomes and housing instability, underscoring the importance of incorporating structural vulnerability into the design and rollback of nutrition assistance policies.

Declarations

Author Contribution

R.M. conducted the data analysis and drafted the Methods, Results, Discussion, and Conclusion sections. Y.W. provided guidance on the data analysis and reviewed and edited the Methods and Results sections. X.K. drafted the Introduction. L.Z. reviewed and edited the manuscript and oversaw the progress of the study. All authors reviewed and approved the final manuscript.

Data Availability

The data used in this study are publicly available. Household Pulse Survey public-use data are available from the U.S. Census Bureau. State-level SNAP Emergency Allotment expiration dates and other SNAP policy data are available from the Inter-university Consortium for Political and Social Research (ICPSR): <https://doi.org/10.3886/ICPSR39703.v1>.

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Figures

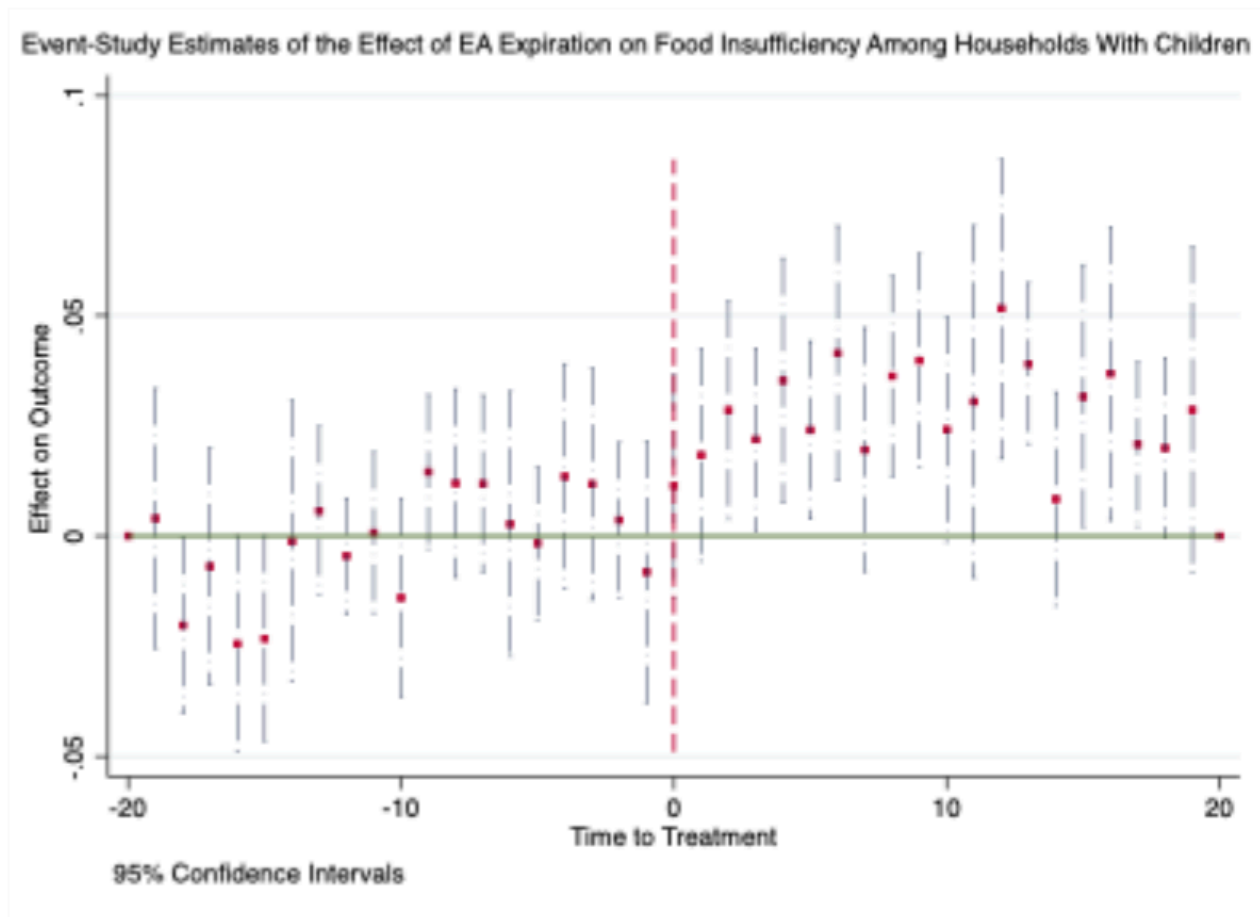


Figure 1

Event-Study Estimates of the Association between SNAP Emergency Allotment Expiration and Food Insufficiency Among Households With Children

Note. Each point represents the estimated coefficient of the interaction term (SNAP × EA expiration) at each event-time period relative to the week of EA expiration (event time = 0). Vertical bars indicate 95% confidence intervals.

Supplementary Files

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