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EVIDENCE FROM LUMP-SUM EARNED INCOME TAX CREDIT PAYMENTS

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Working Paper 34007
<http://www.nber.org/papers/w34007>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
July 2025

The opinions expressed in this paper are those of the authors and do not reflect the opinions of the Federal Reserve Bank of Chicago, the Federal Reserve System, or the National Bureau of Economic Research. The authors thank Charles Fisher for helpful research assistance.

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Income Elasticity of Demand for Healthy and Unhealthy Foods: Evidence from Lump-Sum
Earned Income Tax Credit Payments

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NBER Working Paper No. 34007

July 2025

JEL No. H3, I38, Q18

ABSTRACT

The Earned Income Tax Credit is unique among social programs in that benefits are not paid out evenly across the calendar year but are received in a lump-sum cash payment. We exploit this feature of the EITC to investigate how receiving this influx of cash affects food expenditure patterns of eligible households. We find consistent evidence that households increase their spending on healthy foods such as fresh fruit and vegetables, meat and poultry, and dairy products when they receive their tax credit. Causal estimates of the spending response to this lump-sum payment are about twice as large as the cross-section variation in spending by income implies. By contrast, there is no measurable increase in spending on soft drinks including sodas and sports drinks, and evidence suggests that spending on soft drinks is relatively inelastic with regard to income.

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1. Introduction

There is great policy interest in improving the dietary quality of the U.S. population, especially among lower-income populations who on average have worse diets than higher-income populations (Callahan et al. 2021; Lin 2005). In its simplest form, an economic model of food purchases is a function of a family's tastes and preferences, their budget constraint, and the prices they face. While it is generally thought to be difficult for policy to change tastes and preferences, policy makers have made many attempts to influence dietary quality through the price mechanism by altering the relative prices of healthy and unhealthy foods. For example, some localities have imposed "sin" taxes on soft drinks, and the Navajo Nation imposes a tax on the purchase of "junk foods" (Tax Policy Center 2024). Other policies reduce the price of healthy foods, such the "Double Up Food Bucks" program for Supplemental Nutrition Assistance Program participants that provides a subsidy for the purchase of fruits and vegetables. Evidence suggests that these policies are successful: taxing soda reduces its consumption (Cawley et al. 2019), and subsidizing fruits and vegetables increases theirs (Klerman et al. 2014; Steele-Adjognon & Weatherspoon 2017).

We know less about how changes in a family's budget constraint impacts dietary quality. The EITC pays many low-income families a sizeable, lump-sum cash payment in the first quarter of the year. In this paper, we use variation in the timing of the receipt of EITC payments to estimate food spending responses to this additional influx of cash. Using data from the Diary component of the Consumer Expenditure Survey, we group food spending into categories including healthy foods, unhealthy foods, and soft drinks. We find that households increase their spending on healthy foods by about 20 percent after they receive lump-sum EITC payments. Spending on unhealthy foods and soft drinks, on the other hand, do not rise when EITC payments are made.

We then compare the effects on food spending of receipt of the lump-sum EITC payment with the cross-sectional relationship between food spending and income and find that spending on healthy foods increases by more and spending on unhealthy foods increases by less than the cross-sectional relationship predicts. These findings suggest that the causal income elasticity of demand for healthy foods may be higher than we previously thought, and it may be lower than we previously thought for unhealthy foods

and soft drinks. Together, these imply that increases in income among low-income families will lead to healthier diets.

2. Background on the EITC

The EITC is structured as an earnings subsidy that is primarily paid to low-income workers with children. The credit amount is a function of the number of children in the house, the filers' marital status, and earned income. As earnings increase, the credit amount first rises over a range of lower earnings, plateaus over a subsequent range, then phases out. The credit is fully refundable, meaning that families owing no federal taxes receive a net payment. The IRS reports that there were 23 million tax returns claiming \$64 billion in EITC for tax year 2023. The average credit has increased over time and was \$2,743 in 2023 (Internal Revenue Service 2025). For tax filers without children, the credit is relatively small, averaging \$765, or about 5% of median household income among this population. The credit is substantially larger for those with children, e.g. for those with three or more children the credit averaged nearly \$4,000, or 15%-19% of their median income (Werfel & Johnson 2022).

Families receive their EITC payment in a single lump sum shortly after they file their taxes.² This makes EITC unusual in terms of social programs because it is paid out once per year, in contrast to other benefits that are paid out more consistently across the year (see Appendix Figure 1). EITC payments are concentrated in months in the first quarter of the year, somewhat earlier than federal overpayment refunds.

A large body of research has investigated the impact of the EITC on employment, earnings, and health and well-being (see Eissa & Hoynes 2006; Nichols & Rothstein 2015; Bastian & Jones 2021; Schanzenbach & Strain 2021; Kleven 2024). A smaller body of research has investigated the effects of the EITC's lump sum payment structure on household spending patterns, finding increases in spending on durable goods, especially cars, in response to the large lump sum transfer (Barrow & McGranahan 2000; Goodman-Bacon & McGranahan 2008).

² Through 2010, recipients could receive some benefit payments in the calendar year prior to tax filing via Advance EITC payments. This provision received little take-up and was discontinued.

We exploit the lump-sum nature of EITC payments to investigate how food spending among EITC recipients changes in the period after EITC receipt. In particular, we investigate changes in spending patterns in those months when most EITC benefits are received using variation across years in the timing of payments to identify the impact.

A. Timing of EITC Payments

While many higher-income people wait until the tax filing deadline on April 15th to file their taxes, EITC recipients tend to file earlier in the tax filing season to receive their payments as early as possible. To file taxes, individuals need to have their W-2 form and the IRS filing window needs to be open. Employers are required by the Federal government to issue W-2s by January 31, and the tax filing window usually opens in late January. In 2020 the window opened on January 27, while in 2021 it opened on February 12, and in 2022 it opened on January 24.³ The day the tax filing window opens tends to be the first day that volunteer tax preparation sites open and is the first date that paid preparers can submit returns.

Once a return is submitted, the IRS processes it and sends out any refund owed. According to the IRS, under normal processing, refunds for e-filed returns using direct deposit are paid two Fridays after the return is filed and paper checks are mailed three Fridays after filing. Refunds from paper returns take longer, approximately six to eight weeks. In the 2022 tax season, 92 percent of individual income tax returns were electronically filed, and 91 percent of refunds were paid via direct deposit. These percentages have been increasing over time and as a result payments have been received progressively earlier in the filing window.

One source of identification in the results that follow stems from variation in refund timing across years. Figure 1 displays the percentage of EITC refunds paid by the IRS by month in selected years of our sample period, according to data from the U.S. Monthly Treasury Statements.⁴ Note that over 90% of the value of the EITC is delivered in the form

³ According to the IRS, the 2021 opening date was delayed to allow for additional programming and testing that was necessary due to COVID-19 recovery-related tax law changes passed on December 27, 2020.

⁴ Over some of the sample period, recipients may have expedited receipt of funds via Refund Anticipation Loans (RALs). These tend to be one- to two-week loans that allow recipients to receive funds when taxes are

of tax refunds, as opposed a reduction in tax liabilities. In the earliest years of the sample, the modal month of payment was March, with a large share of payments made in April and May and a smaller share in February. In more recent years, most benefits have been paid by the IRS in February, another sizeable share in March, modest shares in January and April, and very few in the remainder of the year.

B. Increases in EITC generosity over time

Another source of variation we use to identify the impact of lump-sum EITC payments on food spending comes from increases over time in the generosity of the EITC schedule, and its variation by number of children. When it started in 1975, the EITC was a small program designed to offset payroll taxes among low income working families with children. The EITC has been expanded over time, as shown in Figure 2, broadening its coverage and dramatically increasing benefit levels among recipient families. In 1986, legislation was passed to adjust the credit annually for inflation. In 1990, the credit amount was first tied to the number of children. The large expansion in 1993 increased payment levels substantially, especially for families with 2 or more children, and added a small benefit for childless household. Starting in 2009, families with three or more children received higher benefits (Crandall-Hollick 2022).

C. Addition of state credits over time

Currently 31 states and the District of Columbia offer state EITCs. Most but not all of these state credits are refundable for those owing no state taxes, and their generosity varies widely (National Conference of State Legislatures 2025). Most states calculate their state EITC credits as a percentage of the federal credit. For example, in tax year 2021, New Jersey's state credit was 40% of the federal credit and Michigan's was 6% (Tax Policy Center 2023).⁵

filed. According to Wu & Fox (2012), 18% of EITC recipients received RALs in 2010. RALs became illegal in April 2012. Their replacement, Refund Anticipation Checks (RACs), do not expedite fund availability.

⁵ Occasionally, we must modify these values by number of children for states who use different percentages depending on a household's size: Wisconsin, Oregon, and Maine use different percentages of the federal credit depending on the number of children in a household. In some states including California, Minnesota, and Washington, the state EITC is calculated independently of the federal credit.

Below we will test whether spending responses to EITC payments vary by presence of a “generous” state EITC program. We characterize a state as having a generous state EITC benefit if its benefit is above the 60th percentile of the state-to-federal benefit ratio for a given year including zeroes in states without a state EITC. For example, in calendar year 2022, the 60th percentile among states was 30% of the average imputed federal benefit. States with a generous state EITC benefit are shown in Figure 3 along with the timing of when they first offered a generous benefit. Because over time more states adopt programs and the credit rates may change, some states fall out of the generous categories in some years. The full coding of generous states by year is reported in Appendix Table 2.

3. Data

We use data from the Diary portion of the Consumer Expenditure Survey (CEX) from 1982 through 2022 to investigate the expenditure response to receipt of EITC benefits. The unit of analysis in the CEX is the “consumer unit” which is conceptually similar to a household, and we use these terms interchangeably. The Diary is intended to cover spending on frequently purchased items such as groceries. In keeping with this distinction, in the creation of weights for the Consumer Price Index, the Bureau of Labor Statistics uses the Diary data to measure consumption for nearly all food and beverage spending categories. By comparison, the better-known CEX Interview Survey focuses on monthly spending and bigger-ticket items.

The Diary data contain information on weekly spending of household based on entries in spending diaries that detail their food (and other) spending using any form of payment, including SNAP or other benefits.⁶ Note that the survey collects information on total expenditures, but does not include separate information on prices and quantities. Each diary covers spending for one week, and while households are in the sample for two consecutive weeks, data collected in week two are attenuated relative to week one. We limit our primary results to the first diary week.⁷

⁶ The instructions specifically ask respondents to include payments by “SNAP Card” and “WIC Voucher” (U.S. Department of Labor, Bureau of Labor Statistics 2024).

⁷ Results using two diary weeks are qualitatively similar and are available upon request.

The microdata contain spending information on food at home and food away from home in aggregate as well as for detailed subcategories. For example, in addition to data on weekly household spending on fresh fruit, we also have separate data on spending on apples, bananas, and oranges. The data also contain information on the socio-demographic characteristics of the household and measures of household income.

Respondents are not asked directly about EITC receipt. Instead, following Barrow and McGranahan (2000) we combine individuals' earnings within the household to create tax units and impute EITC eligibility and levels based on earned income, tax unit composition, and the EITC schedule. The Diary data collect income over the twelve months leading up to the survey date, and we assume that this income is equal to the income in the previous tax year for purposes of EITC imputation.⁸

The CEX changed the way it measured income during our sample period. Prior to 2004, income values were only reported for households that were considered to be "complete income reporters." The CEX processors began imputing missing income information in 2004. We restrict our sample to complete income reporters prior to 2004 and include all households in later years. In Appendix A, we provide further information on our EITC imputation procedure by comparing data from our CEX based imputation to aggregate data from the IRS.

Table 1 displays summary statistics of our analysis sample, both for the overall population and by imputed EITC eligibility. Observations are at the household-by-week level, and we restrict the sample to households headed by individuals aged 18-65. Panel A displays means and standard deviations of weekly food spending overall, and separately for food at home and food away from home as coded by the BLS. From the microdata, we also create three categories of interest. "Healthy foods" include the following categories: poultry; fish and shellfish; eggs; milk; cheese; other non-ice cream dairy; fruit excluding juice; vegetables; dried fruit; nuts; prepared salads; bread other than white; and baby food. "Unhealthy foods" include the following categories: cakes and cupcakes; doughnuts,

⁸ For example, if we observe a household with three children in June 2004 that reports \$20,000 of income, we assign that income to tax year 2003 and calculate any EITC benefit accordingly (in this case, the EITC would be \$2,884 based on the 2003 tax schedule). They are imputed as EITC eligible when we observe them (in June 2004), and their refund would have been received shortly after their 2003 taxes were filed in the first quarter of 2004.

pies, tarts and turnovers; hot dogs; ice cream; candy and gum; potato chips and other snacks; and prepared desserts. “Soft drinks” include the subcategories cola drinks; other carbonated drinks; fruit-flavored drinks; sports drinks; and other non-carbonated drinks excluding tea and coffee.

Weekly food spending is expressed in terms of January 2022 dollars (adjusted using the CPI-U price index). The average consumer unit spends \$173.5 per week, and on average 62% of total food spending is spent on food consumed at home. When we compare spending by EITC eligibility, we note that EITC households spend less on average on total food, while spending a similar amount on food at home and a far lower amount on meals away from home compared with non-EITC households.

Panel B of Table 1 shows summary statistics of the socio-demographic variables used as controls in the regressions that follow. EITC households on average are larger, contain more children, are more likely to be headed by a single female, are more likely to have a head with an education level of a high school diploma or less, and have substantially lower incomes.⁹ All of these are consistent with a program that is designed to help low-income families with children. In the sample, 16% of households are imputed to be EITC eligible; reflecting increases in generosity of the program, the percentage receiving the EITC grows from 7% in the early years of the sample to over 20% in the most recent years. The average (imputed) annual federal EITC benefit is over \$2100, or about 2.5 times average weekly income among recipients. By comparison, the average recipient is imputed to receive about \$150 from state EITC programs.¹⁰

4. Methodology and Results

Below we begin by estimating descriptive regressions showing determinants of food consumption patterns overall and among EITC participants and how these patterns vary over the course of the year. We then provide a range of causal estimates of the impact of

⁹ A substantial share of EITC recipients have incomes too high to qualify for SNAP. In our data, only 13% of those eligible for the EITC report receiving SNAP benefits in the survey month, though it is well-documented that SNAP receipt is underreported in the CEX data (Bee et al. 2015; Hoynes et al. 2015).

¹⁰ We only impute state EITC receipt for those individuals where the state code is not suppressed in the microdata.

EITC receipt, with identifying variation coming from the timing of payment receipt across years, variation across state EITC programs, and increases in federal benefits.

A. Descriptive Results

For exposition purposes, we begin by descriptively investigating the determinants of food spending. We estimate:

$$(1) \quad E_{it} = \alpha + \beta \mathbf{X}_i + \gamma EITC_i + Q_t * EITC_i + Y_t + \varepsilon_{it}$$

where E_{it} is expenditure by household i at time t . $\mathbf{X}_i$ is a series of socio-demographic characteristics that may affect food spending, including income, family composition, and head characteristics. $EITC_i$ is a dummy equal to 1 if the household is imputed to be EITC eligible. Y_t is a series of year fixed effects which capture factors such as changing aggregate prices, consumer preferences and survey categorization. $Q_t * EITC_i$ is a series of fixed effects indicating the quarter of the calendar year, designed to capture quarterly seasonality in food consumption and prices that is constant across years—for example, these will capture spending in the 4th quarter of each year on candy (due to Halloween in October) and turkeys (due to Thanksgiving in November). Quarterly fixed effects are interacted with EITC participation status to allow for differences in seasonality across groups, and we test whether seasonal effects are equal in the table that follows. ε_{it} is an error term.

The results of estimating equation 1 via OLS for six different categories of food spending are presented in Table 2. Each column in the table displays the results of a different regression. As expected, spending on each category is increasing in family size and income. Conditional on total household size, spending in most categories is lower in families with more children, consistent with their lower caloric needs. An exception to this pattern is spending on unhealthy foods, which is not statistically different among families with more children. Households imputed to be EITC eligible spend less across each category even controlling for these other covariates.

Conditional on the other covariates, EITC families spend more on food in the first and second quarters of the year, and the seasonal variation in food spending is stronger

among EITC families than among those that are not eligible for the EITC. Results for F tests for equality of the interactions between quarter fixed effects and EITC eligibility status are shown in the bottom rows of the table. EITC recipients generally increase their spending in the first two quarters of the year by more than non-recipients. Two exceptions are food away from home and soft drinks, for which the quarter fixed effects do not vary by EITC status.

B. Effects based on Timing of EITC Payments

To identify the impact of receipt of the lump-sum EITC payment on food purchasing patterns, we add to equation (1) *shareEITC*, which measures the share of annual EITC benefits paid out in a given month and year according to the MTS. For example, 0.59 of 2006 EITC benefits were paid out in February, but in 1982 only 0.17 of EITC benefits were paid in February. Our new equation is:

$$(2) \quad E_{it} = \alpha + \mathbf{X}_i\beta + \gamma EITC_i + \chi shareEITC_t + \lambda(EITC_i \times shareEITC_t) + Q_t * EITC_i + Y_t + \varepsilon_{it}.$$

The coefficient λ measures whether EITC eligible households spend relatively more in months when more EITC is paid out, conditional on other controlled factors. We continue to control for separate quarterly fixed effect by EITC status, so the coefficient is identified from cross-year variation in the timing of EITC payments (primarily) within the first quarter.

Results are presented in panel A of Table 3. The coefficient 22.88 in the first row of column (1) can be interpreted that if 100% of EITC benefits were paid in a given month, we would expect EITC households to spend an additional \$22.88 on food in each week of that month. In the bottom rows of the panel, we report two calculated statistics. First, we calculate the percent increase in spending in each food category by dividing the coefficient on the $EITC \times shareEITC$ interaction by average weekly food spending among EITC recipients. A \$22.88 increase represents a 14.6% increase in weekly total food spending. In the final row of the panel, we calculate the implied percentage of average EITC benefits spent on that food in a month with a 100% share of EITC payments. Specifically, we multiply the estimated coefficient by 4.3 to translate the weekly additional spending into monthly additional spending and divide this by the average imputed EITC

benefit among those eligible. We estimate that about 4.6% of the average total EITC benefit would be spent on food in the month the payment is received.

Columns (2) and (3) repeat the exercise for spending on food at home and food away from home, respectively. The point estimate on food at home is larger than it is on food away from home—\$13.73 vs. \$9.15 per week—but the increase is larger in percentage terms for food away from home. Columns (4) through (6) show spending results for subcategories of interest. Weekly spending on healthy foods increases by an estimated \$6.23, or 16.4% of the mean. Over the course of a month, this represents just over 1% of the EITC payment amount. Estimated impacts on unhealthy foods (column 5) and soft drinks (column 6) are small in dollar terms and not statistically significantly different from zero.

Panels B and C test the robustness of these results by including additional fixed effects to the model. As shown in Figure 2, EITC payments levels have increased over time. We can remove this source of variation so that the coefficient of interest is only identified from variation across months in EITC payment timing. Panel B adds separate year effects for EITC recipients, removing variation that comes from general increases across years in the generosity of the EITC. Panel C pushes the identification strategy further by including separate year fixed effects for each group that faces a different EITC schedule. In particular, there are 8 EITC groups representing the interaction of marital status (married, single) and number of children (0, 1, 2, 3+). Each is then interacted with EITC participation status (yes, no) and year fixed effects. Across all columns, the coefficients are little changed with the inclusion of additional fixed effects. A little less than 5% of the EITC lump-sum payment is spent on food, and there is a sizeable increase in spending on healthy foods with no statistical impact on spending on unhealthy foods or soft drinks. Appendix table 1 shows that the results are little changed when we limit the sample to include only households with children (panel A) or further limit to households with head's level of education of some college or less (panel B).

C. Effects based on Generosity of State EITC Payments

Next, we modify the identification strategy to estimate the impact of EITC payments using variation in states' add-on EITC benefits. Note that our sample size is limited

because the CEX Diary does not include state identifiers in the microdata until 1994, and subsequently state codes are suppressed for some observations.

We augment equation (2) by adding a binary variable that indicates whether the state's EITC benefit is generous and the interactions of this indicator with the variables of interest. Since this identification approach uses variation across states, we also include state fixed effects interacted with household EITC status. Here we estimate the following equation:

$$(3) \quad E_{it} = \alpha + \mathbf{X}_i\beta + \gamma EITC_i + \chi shareEITC_t + \lambda(EITC_i \times shareEITC_t) + \chi(generous_{it}) + \kappa(EITC_i \times generous_{it}) + \theta(shareEITC_t \times generous_{it}) + \mu(EITC_i \times shareEITC_t \times generous_{it}) + Q_t * EITC_i + Y_t + S_i * EITC_i + \varepsilon_{it}$$

where μ measures the triple interaction representing whether EITC-eligible households spend relatively more when benefits are received in states that have more generous EITC benefits, controlling for other covariates and all two-way effects. We also include state-level fixed effects interacted with EITC eligibility.

Table 4 reports coefficients of interest from equation (3). The first row reports the interaction between EITC receipt and payment timing, and the second row reports the differential spending response among EITC recipients in generous states when payments are made. The results are quite saturated with fixed effects and are somewhat imprecise. Overall, the results suggest that spending on food, food at home, and healthy foods increases by more in generous states among EITC recipients when the EITC is paid. Column (1) indicates that food spending increases by nearly \$20 per week in EITC recipient households when benefits are paid. In generous states, food spending in this group increases by an additional (imprecise) \$16. Differential spending responses in generous states are statistically significant for food at home (column 2) and healthy foods (column 4). Consistent with earlier findings, neither unhealthy foods (column 5) nor soft drinks (column 6) show positive effects overall or in generous states. Findings from this source of variation provide further evidence that in response to receiving a lump-sum benefit, EITC recipients spend more on healthier foods but do not increase their spending on unhealthy foods.

D. Effects based on Benefit Variation from Federal Expansions

A third identification strategy is to leverage the discrete increases in federal EITC generosity. Our sample period spans benefit increases in 1986, 1990, 1993 and 2009 (but does not include the 1975 introduction of the program, see Figure 2). We use these federal expansions to test how increased benefits impact spending among EITC recipients when payments are made. Adapting the framework used in Schanzenbach and Strain (2021), we limit the sample period to five years before and each expansion and estimate impacts separately for each expansion policy.

The expansions varied in terms of who was impacted, and we adapt the samples and frameworks accordingly. The 1986 and 1990 expansions only affected households with children, so we exclude childless households from our sample for these expansions. The large 1993 expansion increased benefits disproportionately for families with two or more children, so we specify the estimating equation to allow the impact to differ across families with one vs. two or more children. The 2009 expansion increased benefits only among families with three or more children, so we limit the sample to households with two or more children and estimate the impact of the expansion on spending among EITC families with three or more children. Note that the 1993 expansion also introduced modest EITC eligibility to households without children, which we investigate separately in Panel E.

We estimate versions of the following model:

$$(4) \quad E_{it} = \alpha + \mathbf{X}_i\beta + \gamma EITC_i + \chi shareEITC_t + \lambda(EITC_i \times shareEITC_t) + \\ + \pi(EITC_i \times Post_t) + \chi(shareEITC_t \times Post_t) + \varphi(EITC_i \times shareEITC_t \times Post_t) \\ + Q_t * EITC_i + Y_t + \varepsilon_{it}$$

where $Post_t$ is an indicator variable for the period after the relevant federal expansion. The variables of interest are λ , which measures the spending response among EITC recipients when benefits are paid, and φ , the coefficient on the three-way interaction between the share of EITC payments made in a given month, whether the household receives the EITC, and the timing being after the federal expansion. Estimates for the

1993 expansions among families with children includes additional interactions with an indicator for whether the family has two or more children.

Results are presented in Table 5. While estimates are across the board imprecise and generally not statistically significant, the point estimates are often generally close to those estimated in our primary approach shown in Table 3. Panel A investigates impacts of the 1986 expansion. While the estimates are very imprecise, the point estimates offer suggestive evidence that spending increases more in the post-expansion period for EITC participants when benefits are paid. The suggestive evidence is consistently positive across all groups of foods—including unhealthy foods and soft drinks—except for food away from home, for which the point estimate is negative. The wrong-signed estimate on food away from home may be surprising because earlier work finds that mothers are more likely to be employed in response to EITC expansions (Schanzenbach & Strain 2021), and one would expect families to purchase more food away from home in response to increased employment levels. Recall, though, that these estimates include controls for income, and spending on food away from home is strongly increasing in income. The estimates reported in Table 5 are identified using variation in lump-sum payment levels (and timing) across years. The negligible finding on food away from home, then, does not mean that families do not purchase more food away from home when employment rises, but instead should be interpreted that they do not disproportionately purchase food away from home in the immediate aftermath of receiving a larger EITC payment.

There was generally no differential spending response to the larger EITC payments after the 1990 expansion, as shown in panel B.

Panel C presents results for the 1993 expansion, allowing the post-expansion impacts to differ for families with one child vs. two or more children. Here, again, the estimates are imprecise, but there is some suggestive evidence that those with more children who received larger EITC benefit increases raised their food spending more across the board. Panel D estimates impacts of the 2009 expansion that raised benefits for families with three or more children. Note that in addition to being narrowly targeted, the 2009 expansion occurred during the Great Recession. Prior research has found inconsistent evidence of its impact on employment, with Schanzenbach and Strain (2021) finding no impact and Bastian and Lochner (2022) finding positive impacts. Estimates of food

spending responses are consistently wrong signed with the standard errors generally larger than the point estimates. It is worth noting that Lenhart (2023) finds evidence that the 2009 expansion reduced food insecurity (as measured in the CPS Food Security Supplement), suggesting that the expansion had a positive impact on food availability among these families.

For completeness, panel E estimates impacts of the 1993 introduction of a small EITC for childless families. These estimates are also generally wrong-signed and very imprecise.

5. Variation over time

We find consistent evidence that EITC-eligible households spend more on healthy food when they are less income-restrained. Families use approximately two percent of their EITC payment to increase their purchases of healthy foods, and do not use it to purchase additional unhealthy foods or soft drinks. These findings hold across specifications that control for a range of fixed effects and are identified from variation in payment timing across years. Results leveraging identification from policy expansions—measured using generous state EITC add-on benefits as well as federal EITC expansions—are consistent with these findings, though are generally less precisely measured.

We further probe the evidence by testing for heterogeneity across survey period in Table 6, estimating results separately by decade.¹¹ In panel A, we limit the sample to 1982-1989, the early period of the program when benefits were relatively low. During this period, the average imputed real benefit was \$352, and we find that a relatively high share of benefits was spent on food—our point estimates suggest that 20% of total benefits were spent on food (and food at home in particular). Spending on healthy foods increased by about one-third in the month after benefit receipt, with no statistically significant impact on unhealthy foods or sodas.

The second period, shown in panel B, spans the 1990s, including the large 1993 expansion in benefit levels. During this period, EITC benefits averaged \$1031 among those receiving the EITC. A smaller share of benefits went to increased food consumption

¹¹ Summary statistics by decade are presented in Appendix Table 3.

during this time period (14% compared with 20% in the 1980s), and more of the increase was spent on food away from home. Similar to the earlier period, though, a sizeable share went to the purchase of healthy foods and there was no significant impact on unhealthy foods or sodas.

In the first decade of the 2000s, a much smaller share of the EITC payment went to increasing food spending—only 3.5% of the lump-sum EITC amount appears to have been spent on food overall, and this mostly occurred in food at home. We estimate that weekly spending on healthy foods increased by nearly \$10 in a month when 100% of EITC payments were made, an increase of over one-quarter of the baseline mean. This spending increase is the only individual category that is statistically significant in this period, and the implied increase in healthy foods purchases across the month accounts for nearly 2% of the \$1602 average benefit amount.

In the most recent years, 2010-2022, there were few EITC policy changes and benefits averaged \$2066. Results are broadly similar to those from the prior decade, with an estimated 3.4% of the EITC payment going toward food. In the recent period, a larger share of the EITC payment appears to be spent on food away from home, and a much smaller share is spent on healthy foods. As in other periods, there is no measured impact on spending on unhealthy foods or soft drinks. These results are little changed if we omit the COVID period.

One potential explanation for the shift over time in food spending responses to receipt of the EITC lump-sum payment is that over time families may be more likely to use the (increasingly large) lump-sum payment to purchase durables or other large-ticket items, as found in Barrow and McGranahan (2000) and Goodman-Bacon and McGranahan (2008). It is also worth noting that the share of food spending that goes to unhealthy foods has sharply declined over time, while the share going to soft drinks has also declined and share of food spending on healthy foods has increased somewhat, as shown in Appendix Figure 2.

6. Implications for Income Elasticity of Food Spending

Our results find evidence that in the months when EITC recipients receive their benefits, they spend more on food. In particular, they use their benefits to purchase more

healthy foods—not surprising, because healthy foods are normal goods. What is surprising, though, is that spending on unhealthy foods and soft drinks do not increase.

To put these findings in context, we explore cross-sectional variation in spending by food category across income levels in Figure 4. The figure uses the same data we have been using throughout the paper, here limited to families with children over the period 2000-2022. Families are assigned an income percentile rank within the data, and we calculate average weekly spending by food category for each percentile. The results are shown using scatterplots, and we fit an OLS line to the data on unhealthy foods and soft drinks. Based on inspection of the data, we fit a spline to the data on healthy foods, allowing the line's slope to change above the 57th percentile of the income rank. The figure also includes the share of families eligible for the EITC to highlight where in the income distribution the families that identify our results are situated.

As shown in the figure, spending on healthy food steadily increases across income percentile ranks throughout the distribution. The slope increases sharply above the 57th percentile of the distribution—a section of the graph that includes few EITC recipients. The slope of the fitted line indicates that weekly spending on healthy foods increases by 20 cents for every one-point increase in percentile rank at or below 57; the slope increases to 69 cents above this point. On the other hand, spending on soft drinks is much more inelastic with respect to income, increasing by only 3 cents per one-point increase in the income percentile rank. The slope of spending on unhealthy foods falls between these at 14 cents.

Using this cross-sectional variation, we can predict the expected increase in spending across food categories. The relationship between income percentile and average income level is approximately linear between the 5th and 80th percentiles, and along this range each additional percentile rank implies an increase in monthly income of \$139. The average lump-sum EITC payment of \$2158 would be the equivalent of moving up 15.5 percentile rank points in the income distribution. Multiplying by the expenditure slopes implies a predicted increased weekly spending of \$3.11 for healthy goods, \$2.17 for unhealthy goods, and \$0.47 for soft drinks.

How do these cross-sectional predictions compare to the causal estimates presented in Table 3? The causal estimate of the impact of increased income on spending on healthy

foods is larger than the increase implied by the cross-section variation, and it is smaller for unhealthy foods and (perhaps) soft drinks. Our preferred point estimate from panel A of Table 3 indicates that spending on healthy goods would have increased by \$6.23 in a month that all EITC benefits were received—an estimate that is about twice as high as the cross-sectional variation predicts, although the confidence interval includes an estimate of the smaller magnitude. The estimate in Table 3 for unhealthy foods is negative and statistically insignificant at -\$0.34, and in this case we can statistically reject that the impact is as large as the \$2.17 increase implied in the cross section. The implied increase of less than 50 cents in spending on soft drinks is always within the confidence interval of the estimates—in other words, more than 30 years of CEX diary data with more than 170,000 observations is underpowered to detect an impact of the expected small magnitude.

To further explore the relationship between spending by food group and income, in Figure 5 we show variation across groups in the share of total food spending instead of the spending level. Over the lower 57 percentiles of income—a range that includes essentially all of those receiving EITC benefits—the share of food spending going to healthy foods declines slowly before flattening out at 22% of food spending. The share spent on unhealthy foods is essentially flat across most of the distribution, while the share spent on soft drinks declines slowly but steadily (with a slope of -0.0003).

7. Conclusion

Using the Diary data from the Consumer Expenditure Survey, we have investigated changes in food spending after households receive a lump-sum cash transfer. We identify the impact using variation in timing of EITC payments across years, as well as from variation in payment sizes driven by state and federal policy changes.

We find that low-income households spend more on food when they receive their EITC benefits. The spending increases are particularly strong (and robust across subgroups and identification strategies) for healthy foods, and the causal impact of increased income is about twice as large as a naïve cross-sectional estimate would imply. On the other hand, spending on unhealthy foods and soft drinks do not increase.

These findings suggest that the income elasticity of demand for healthy foods is higher than it is for unhealthy foods and soft drinks. As a result, increases in income among low-income should lead to healthier diets.

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9. Tables and Figures

Table 1. Summary Statistics

	Overall sample		EITC recipients		Non-recipients	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Food expenditure</i>						
Food Total	173.5	158.7	157.2	149.1	176.6	160.3
Food at Home	106.8	109.5	108.5	112.1	106.5	109.0
Food Away	66.6	95.0	48.6	77.9	70.1	97.6
Healthy Foods	36.8	42.3	38.1	43.7	36.6	42.0
Unhealthy Foods	12.4	18.2	11.8	18.0	12.5	18.2
Soft Drinks	6.6	10.8	7.0	10.9	6.5	10.8
<i>Panel B: Demographics</i>						
Family Size	2.71	1.54	3.59	1.66	2.54	1.45
Weekly Pre-Tax Income (thousar	1.69	1.55	0.83	0.75	1.85	1.61
Any persons age 0-13	0.355	0.478	0.649	0.477	0.298	0.457
Any persons age 14-18	0.147	0.354	0.253	0.435	0.126	0.332
# persons age 0-13	0.63	1.02	1.20	1.20	0.53	0.95
# persons age 14-18	0.18	0.47	0.31	0.59	0.15	0.43
# persons 65 or older	0.05	0.24	0.04	0.22	0.05	0.25
Married Head	0.550	0.500	0.480	0.500	0.570	0.500
Head is unmarried + male	0.190	0.390	0.130	0.330	0.200	0.400
Head is unmarried + female	0.260	0.440	0.390	0.490	0.230	0.420
Age of Head	42.0	12.5	39.6	11.6	42.5	12.7
Head HS grad or less	0.380	0.490	0.560	0.500	0.350	0.480
Head is Black	0.112	0.315	0.169	0.375	0.100	0.301
Head is Neither Black nor white	0.061	0.240	0.064	0.244	0.061	0.239
Rural	0.073	0.261	0.093	0.290	0.070	0.254
EITC eligible	0.16	0.37	1	0	0	0
Imputed EITC amount	348.96	1122.37	2157.90	1971.38	0	0
Observations	176,935		28,613		148,322	

Notes: Data from Consumer Expenditure Survey diary data, 1982-2022. Sample is limited to households with heads ages 18-65 and include only the first survey week. All dollar values are inflation adjusted to January 2022. Food expenditure variables represent weekly spending.

Table 2. Descriptive Regressions of Food Spending

	(1) Food Total	(2) Food at Home	(3) Food Away	(4) Healthy Foods	(5) Unhealthy Foods	(6) Soft Drinks
EITC eligible	-13.31*** (1.88)	-8.04*** (1.33)	-5.27*** (1.18)	-0.96* (0.52)	-2.23*** (0.23)	-0.33** (0.14)
Family Size	31.11*** (0.51)	23.77*** (0.36)	7.33*** (0.32)	8.07*** (0.14)	2.11*** (0.06)	1.59*** (0.04)
Weekly Income (thousands)	24.06*** (0.26)	8.61*** (0.18)	15.45*** (0.16)	3.46*** (0.07)	1.09*** (0.03)	0.28*** (0.02)
Any persons age 0-13	12.80*** (1.36)	10.66*** (0.96)	2.14** (0.86)	4.01*** (0.38)	1.74*** (0.17)	0.79*** (0.10)
Any persons age 14-18	18.07*** (2.56)	6.35*** (1.80)	11.71*** (1.61)	-0.11 (0.71)	2.16*** (0.31)	1.11*** (0.19)
# persons age 0-13	-17.14*** (0.80)	-8.62*** (0.56)	-8.52*** (0.50)	-3.12*** (0.22)	-0.03 (0.10)	-0.99*** (0.06)
# persons age 14-18	-8.71*** (1.99)	-2.68* (1.40)	-6.02*** (1.25)	-1.26** (0.55)	-0.05 (0.24)	-0.61*** (0.15)
# persons 65 or older	-1.43 (1.49)	0.20 (1.05)	-1.63* (0.94)	1.31*** (0.41)	0.29 (0.18)	-0.53*** (0.11)
Age of Head	2.07*** (0.14)	1.33*** (0.10)	0.74*** (0.09)	0.33*** (0.04)	0.21*** (0.02)	0.12*** (0.01)
Age squared	-0.02*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.00 (0.00)	-0.00*** (0.00)	-0.00*** (0.00)
Head HS grad or less	-16.45*** (0.75)	-5.24*** (0.53)	-11.20*** (0.47)	-3.06*** (0.21)	-1.26*** (0.09)	0.20*** (0.06)
Head is Black	-25.58*** (1.11)	-12.96*** (0.78)	-12.63*** (0.70)	-2.82*** (0.31)	-3.27*** (0.14)	-1.38*** (0.08)
Head is Neither Black nor white	5.70*** (1.44)	2.09** (1.02)	3.61*** (0.91)	6.88*** (0.40)	-1.44*** (0.18)	-1.59*** (0.11)
Rural	-16.45*** (1.34)	-5.74*** (0.94)	-10.71*** (0.84)	-4.45*** (0.37)	-0.49*** (0.16)	0.41*** (0.10)
Head is unmarried + male	-16.87*** (1.16)	-17.89*** (0.82)	1.02 (0.73)	-7.16*** (0.32)	-2.55*** (0.14)	-0.62*** (0.09)
Head is unmarried + female	-23.02*** (1.21)	-12.29*** (0.85)	-10.73*** (0.76)	-4.76*** (0.33)	-1.72*** (0.15)	-0.66*** (0.09)
Head is male	-1.25 (1.03)	-0.11 (0.72)	-1.14* (0.65)	-0.47 (0.28)	-0.20 (0.13)	0.10 (0.08)
No EITC X Q1	0.69 (1.04)	-1.59** (0.73)	2.28*** (0.65)	-0.38 (0.29)	-0.69*** (0.13)	-0.07 (0.08)
No EITC X Q2	1.19 (1.05)	-1.55** (0.74)	2.73*** (0.66)	-0.16 (0.29)	-0.51*** (0.13)	0.53*** (0.08)
No EITC X Q3	-0.54 (1.05)	-3.35*** (0.74)	2.80*** (0.66)	-0.96*** (0.29)	-0.98*** (0.13)	0.53*** (0.08)
Yes EITC X Q1	7.75*** (2.37)	3.05* (1.67)	4.70*** (1.49)	1.12* (0.66)	0.14 (0.29)	0.18 (0.18)
Yes EITC X Q2	5.74** (2.39)	1.30 (1.68)	4.44*** (1.50)	0.58 (0.66)	0.36 (0.29)	0.59*** (0.18)
Yes EITC X Q3	1.93 (2.40)	-1.92 (1.69)	3.85** (1.51)	-1.07 (0.66)	-0.62** (0.29)	0.57*** (0.18)
Constant	22.83*** (2.96)	-2.07 (2.08)	24.90*** (1.86)	1.68** (0.82)	0.22 (0.36)	-0.33 (0.22)
P-value: No EITC X Q1 = Yes EITC X Q1	0.006	0.011	0.136	0.036	0.008	0.179
P-value: No EITC X Q2 = Yes EITC X Q2	0.080	0.121	0.296	0.303	0.006	0.764
P-value: No EITC X Q3 = Yes EITC X Q3	0.345	0.441	0.524	0.881	0.260	0.849

Notes: N=170,935. Year effects are also included. Data from Consumer Expenditure Survey diary data, 1982-2022. Sample is limited to households with heads ages 18-65 and include only the first survey week. All dollar values are inflation adjusted to January 2022. Food expenditure variables represent weekly spending.

Table 3. Impacts of EITC Receipt on Food Spending

	(1) Food Total	(2) Food at Home	(3) Food Away	(4) Healthy Foods	(5) Unhealthy Foods	(6) Soft Drinks
<i>Panel A: Quarter X EITC, Year Fixed Effects</i>						
EITC share X EITC	22.88*** (8.26)	13.73** (5.82)	9.15* (5.19)	6.23*** (2.28)	-0.34 (1.01)	0.98 (0.61)
Pct Increase	14.6	12.7	18.8	16.4	-2.9	14.1
Pct of EITC lump sum over month	4.6	2.7	1.8	1.2	-0.1	0.2
<i>Panel B: Adding Year X EITC Fixed Effects</i>						
EITC share X EITC	23.10*** (8.27)	14.06** (5.83)	9.03* (5.20)	6.26*** (2.29)	-0.28 (1.01)	0.97 (0.61)
Pct Increase	14.7	13.0	18.6	16.5	-2.4	14.0
Pct of EITC lump sum over month	4.6	2.8	1.8	1.2	-0.1	0.2
<i>Panel C: Adding Year X EITC Schedule X EITC Fixed Effects</i>						
EITC share X EITC	23.09*** (8.29)	14.02** (5.85)	9.06* (5.22)	6.15*** (2.30)	-0.31 (1.01)	0.97 (0.61)
Pct Increase	14.7	12.9	18.6	16.2	-2.6	13.9
Pct of EITC lump sum over month	4.6	2.8	1.8	1.2	-0.1	0.2

Notes: N=170,935. All columns include the control variables shown in Table 2. See notes to Table 2. EITC share calculated from U.S. Treasury, Monthly Treasury Statements, 1982-2022.

Table 4. Impacts of EITC Receipt on Food Spending using State EITC Variation

	(1)	(2)	(3)	(4)	(5)	(6)
	Food Total	Food at Home	Food Away	Healthy Foods	Unhealthy Foods	Soft Drinks
EITC share X EITC	19.84*	6.072	13.77*	3.30	-1.48	0.74
	(11.18)	(7.60)	(7.23)	(3.05)	(1.31)	(0.77)
EITC share X EITC X Generous state	16.07	25.41*	-9.34	10.75**	1.62	0.24
	(19.90)	(13.53)	(12.88)	(5.44)	(2.34)	(1.36)

Notes: N=103,949. All columns include the control variables shown in Table 2. See notes to Table 2. State EITC parameters drawn from Tax Policy Center (2023), Montialoux and Rothstein (2015), Coghlan and Hinkley (2018), and State of California Franchise Tax Board (retrieved 2023).

Table 5. Impacts of EITC Receipt on Food Spending using Federal EITC Expansions

	(1) Food Total	(2) Food at Home	(3) Food Away	(4) Healthy Foods	(5) Unhealthy Foods	(6) Soft Drinks
<i>Panel A. 1986 expansion (N=17,392)</i>						
EITC share X EITC	27.57 (41.96)	23.48 (33.88)	4.09 (21.97)	11.22 (12.71)	1.04 (5.62)	-1.60 (3.72)
EITC share X EITC X Post expansion	28.32 (45.56)	39.26 (36.79)	-10.95 (23.85)	11.53 (13.80)	3.66 (6.10)	4.86 (4.04)
<i>Panel B. 1990 expansion (N=20,871)</i>						
EITC share X EITC	36.62 (29.94)	56.73** (23.83)	-20.11 (16.20)	19.47** (8.94)	3.08 (4.35)	1.79 (2.76)
EITC share X EITC X Post expansion	0.96 (36.58)	-18.03 (29.11)	18.99 (19.79)	0.47 (10.92)	-5.03 (5.31)	-1.40 (3.38)
<i>Panel C. 1993 expansion (N=18,516)</i>						
EITC share X EITC	63.28 (47.17)	77.96** (35.99)	-14.69 (27.30)	32.95** (13.64)	5.39 (6.71)	1.50 (4.09)
EITC share X EITC X 2+ kids	-45.03 (57.35)	-51.59 (43.76)	6.56 (33.19)	-18.13 (16.58)	-3.57 (8.15)	-0.50 (4.97)
EITC share X EITC X Post	-87.98 (61.13)	-84.95* (46.64)	-3.03 (35.38)	-27.12 (17.68)	-16.81* (8.69)	-8.18 (5.30)
EITC share X EITC X 2+ kids X Post	103.20 (78.62)	88.21 (59.99)	14.95 (45.50)	36.45 (22.74)	8.44 (11.18)	7.92 (6.81)
<i>Panel D. 2009 expansion (N=13,738)</i>						
EITC share X EITC X 3+ kids	-8.48 (60.80)	-5.17 (44.53)	-3.31 (34.14)	-4.57 (17.75)	-1.36 (7.09)	6.43 (4.42)
EITC share X EITC X 3+ kids X Post	-43.00 (77.17)	-28.27 (56.52)	-14.73 (43.33)	-6.71 (22.52)	-5.32 (9.00)	-3.12 (5.61)
<i>Panel E. 1993 childless expansion (N=20,076)</i>						
EITC share X EITC	-23.50 (53.63)	-7.24 (39.02)	-16.26 (34.20)	-8.60 (14.74)	-0.44 (7.31)	0.79 (4.63)

Notes: Each panel includes data 5 years before and after the expansion. Panels A-C limited to families with at least one child. Panel D limited to families with two or more children. Panel E includes only childless households. All regressions include the controls described in Table 2.

Table 6. Impacts of EITC Receipt on Food Spending by Decade

	(1) Food Total	(2) Food at Home	(3) Food Away	(4) Healthy Foods	(5) Unhealthy Foods	(6) Soft Drinks
<i>Panel A. 1982-89 (N=29,788)</i>						
EITC share X EITC	40.90* (24.57)	41.13** (18.68)	-0.23 (14.84)	14.05** (7.12)	4.64 (3.12)	0.62 (2.06)
Pct Increase	24.5	33.4	-0.5	34.4	38.4	7.3
Pct of EITC lump sum over month	19.85	19.96	-0.11	6.82	2.25	0.30
<i>Panel B. 1990-99 (N=35,571)</i>						
EITC share X EITC	62.63*** (21.95)	25.12 (15.74)	37.51*** (13.97)	14.65** (5.99)	-1.47 (2.98)	1.04 (1.85)
Pct Increase	39.1	21.7	84.6	37.9	-11.1	12.9
Pct of EITC lump sum over month	14.32	5.74	8.58	3.35	-0.34	0.24
<i>Panel C. 2000-09 (N=46,092)</i>						
EITC share X EITC	18.91 (16.81)	17.20 (11.18)	1.71 (11.13)	9.92** (4.43)	0.09 (2.03)	1.55 (1.21)
Pct Increase	11.8	16.0	3.3	26.2	0.8	20.9
Pct of EITC lump sum over month	3.50	3.18	0.32	1.83	0.02	0.29
<i>Panel D. 2010+ (N=59,484)</i>						
EITC share X EITC	18.87 (12.53)	6.99 (8.86)	11.87 (7.61)	3.07 (3.55)	-1.01 (1.42)	1.02 (0.82)
Pct Increase	12.5	6.8	24.5	8.2	-9.3	17.6
Pct of EITC lump sum over month	3.35	1.24	2.11	0.55	-0.18	0.18

Notes: All regressions include the controls described in Table 2.

Appendix Table 1. Impacts of EITC Receipt on Food Spending, Alternate Samples

	(1) Food Total	(2) Food at Home	(3) Food Away	(4) Healthy Foods	(5) Unhealthy Foods	(6) Soft Drinks
<i>Panel A: Only Households with Children (N=75,333)</i>						
EITC share X EITC	21.88* (11.41)	15.51* (8.31)	6.37 (6.78)	7.76** (3.24)	-1.74 (1.42)	0.91 (0.86)
Pct Increase	13.3	13.4	13.0	19.1	-13.8	12.2
Pct of EITC lump sum over month	3.54	2.51	1.03	1.26	-0.28	0.15
<i>Panel B: Households w/Children, Head Education Some College or Less (N=53,161)</i>						
EITC share X EITC	23.71* (12.26)	18.20* (9.32)	5.51 (6.78)	8.69** (3.53)	-1.17 (1.59)	1.76* (0.98)
Pct Increase	14.7	15.8	11.8	21.7	-9.4	23.1
Pct of EITC lump sum over month	3.86	2.96	0.90	1.41	-0.19	0.29

Notes: All regressions include the controls described in Table 2.

Appendix Table 2. Generous State EITC Programs

Year	CA	CT	DC	ME	MD	MA	MN	NJ	NY	OH	RI	SC	VT	VA	WI
1994					1										1
1995					1										1
1996					1										1
1997					1										1
1998					1								1		1
1999							1						1		1
2000							1		1				1		1
2001					1		1		1				1		1
2002					1		1		1				1		1
2003							1	1	1				1		1
2004							1	1	1				1		1
2005			1				1		1		1		1		
2006			1		1			1	1		1				
2007			1		1			1	1					1	
2008			1						1						
2009			1		1			1	1					1	1
2010			1		1			1	1						
2011			1	1	1				1						
2012			1		1				1						
2013			1		1				1						1
2014		1	1		1		1		1						1
2015		1	1		1		1		1	1					1
2016	1	1	1		1		1		1	1					1
2017	1	1	1		1		1	1	1	1					1
2018	1		1		1		1	1	1	1					1
2019	1		1		1		1	1	1	1					1
2020	1		1			1	1	1	1	1		1			1
2021	1		1		1	1	1	1	1	1		1			1
2022	1		1		1		1	1				1			1

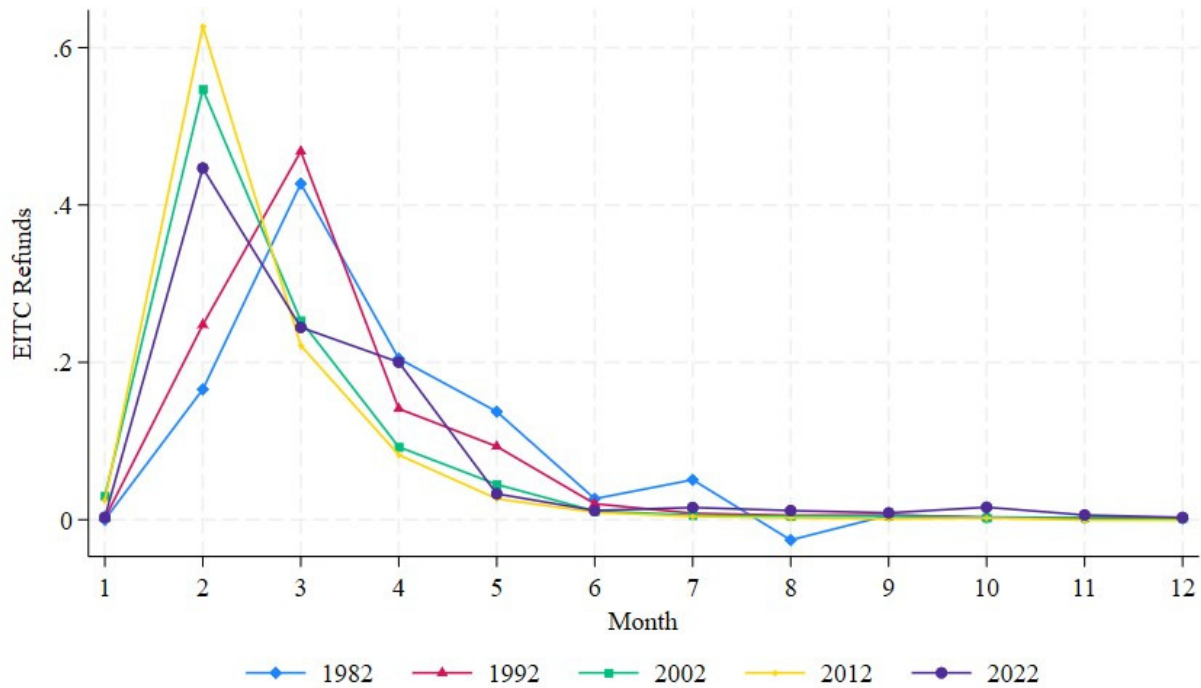
Notes: A state is characterized as having a generous state EITC benefit if its benefit is above the 60th percentile of the state-to-federal benefit ratio for a given year including zeroes in states without a state EITC. State EITC parameters drawn from Tax Policy Center (2023), Montialoux and Rothstein (2015), Coughlan and Hinkley (2018), and State of California Franchise Tax Board (retrieved 2023).

Appendix Table 3. Summary statistics by Decade

	1982-1989		1990-1999		2000-2009		2010-2022	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: Food expenditure</i>								
Food Total	178.40	145.36	175.56	151.42	173.67	162.78	169.51	165.40
Food at Home	111.72	108.48	111.43	107.45	103.61	105.63	104.49	114.25
Food Away	66.68	81.87	64.13	90.94	70.06	103.31	65.02	95.88
Healthy Foods	36.42	39.92	36.25	39.93	36.23	41.43	37.90	45.34
Unhealthy Foods	12.16	17.03	13.88	19.41	12.40	18.42	11.54	17.74
Soft Drinks	7.61	10.98	7.60	11.69	6.69	10.91	5.40	9.94
<i>Panel B: Demographics</i>								
Family Size	2.75	1.55	2.79	1.55	2.70	1.52	2.66	1.53
Weekly Income (thousands)	1.41	1.11	1.54	1.29	1.78	1.65	1.85	1.77
Any persons age 0-13	0.385	0.487	0.398	0.490	0.349	0.477	0.319	0.466
Any persons age 14-18	0.148	0.355	0.150	0.358	0.152	0.359	0.139	0.346
# persons age 0-13	0.69	1.05	0.72	1.07	0.62	1.01	0.57	0.99
# persons age 14-18	0.18	0.48	0.18	0.46	0.19	0.47	0.17	0.45
# persons 65 or older	0.04	0.21	0.04	0.20	0.05	0.24	0.07	0.28
Age of Head	39.3	12.9	40.5	12.0	42.3	12.2	44.0	12.6
Head HS grad or less	0.493	0.500	0.429	0.495	0.368	0.482	0.311	0.463
Head is Black	0.108	0.310	0.106	0.308	0.115	0.319	0.114	0.317
Head is Neither Black nor white	0.035	0.185	0.046	0.209	0.059	0.236	0.086	0.280
Rural	0.083	0.276	0.103	0.304	0.071	0.258	0.052	0.222
Head is unmarried + male	0.167	0.373	0.170	0.376	0.193	0.395	0.207	0.405
Head is unmarried + female	0.246	0.431	0.254	0.435	0.257	0.437	0.266	0.442
Married Head	0.587	0.492	0.576	0.494	0.550	0.497	0.528	0.499
EITC eligible	0.079	0.270	0.158	0.365	0.173	0.378	0.195	0.396
Imputed EITC amount if >0	351.9	234.5	1031.0	911.8	1601.8	1378.0	2066.2	1861.1
Observations	29,788		35,571		52,092		59,484	

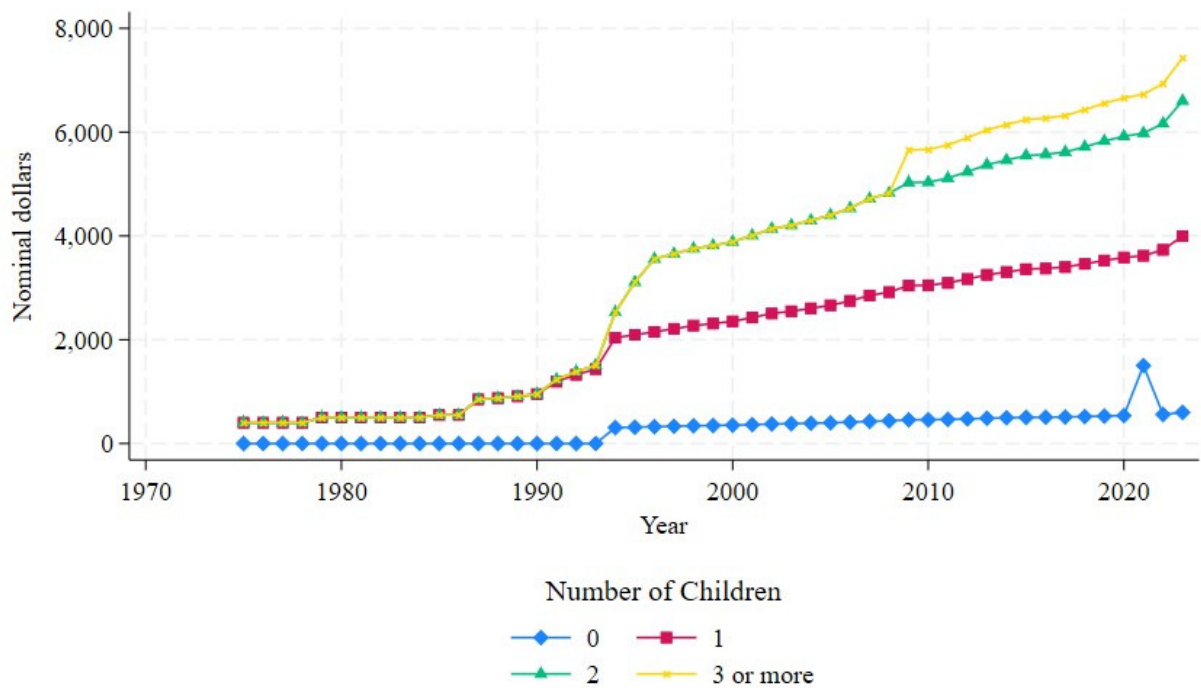
Notes: Data from Consumer Expenditure Survey diary data, 1982-2022. Sample is limited to households with heads ages 18-65 and include only the first survey week. All dollar values are inflation adjusted to January 2022. Food expenditure variables represent weekly spending.

Figure 1: Monthly EITC Payment Timing



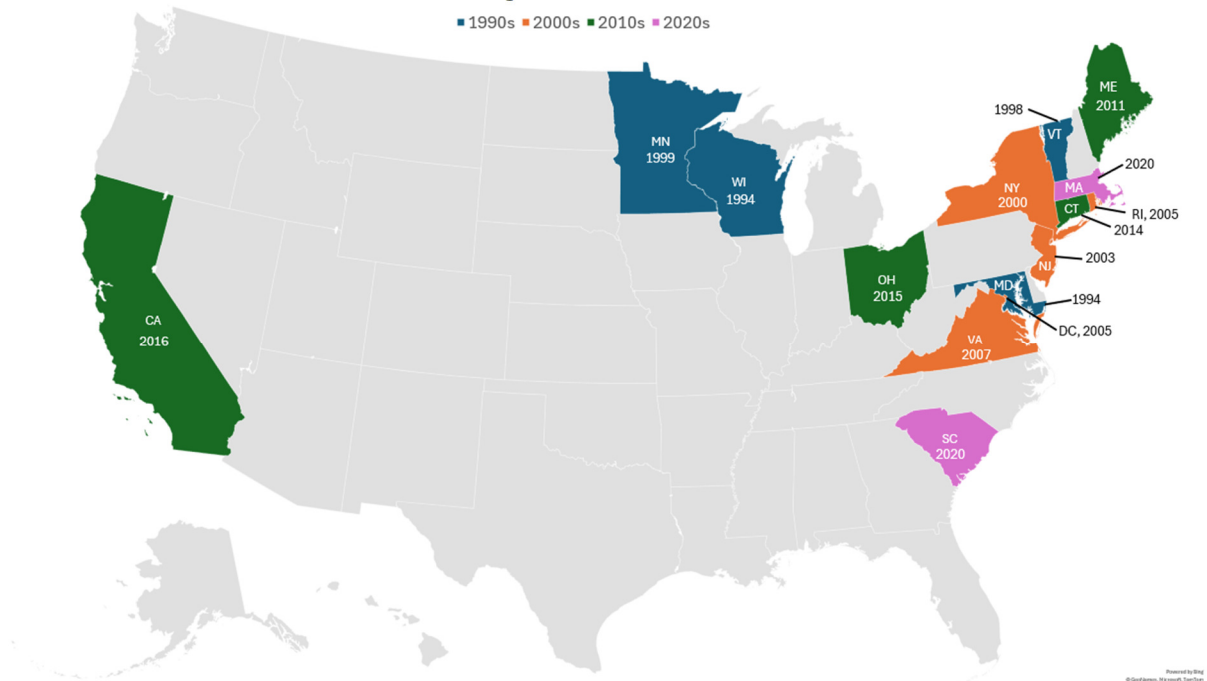
Notes: Authors' tabulations from United States Department of the Treasury, Monthly Treasury Statements, Various Issues.

Figure 2: Maximum EITC Benefit Over Time, by Number of Children



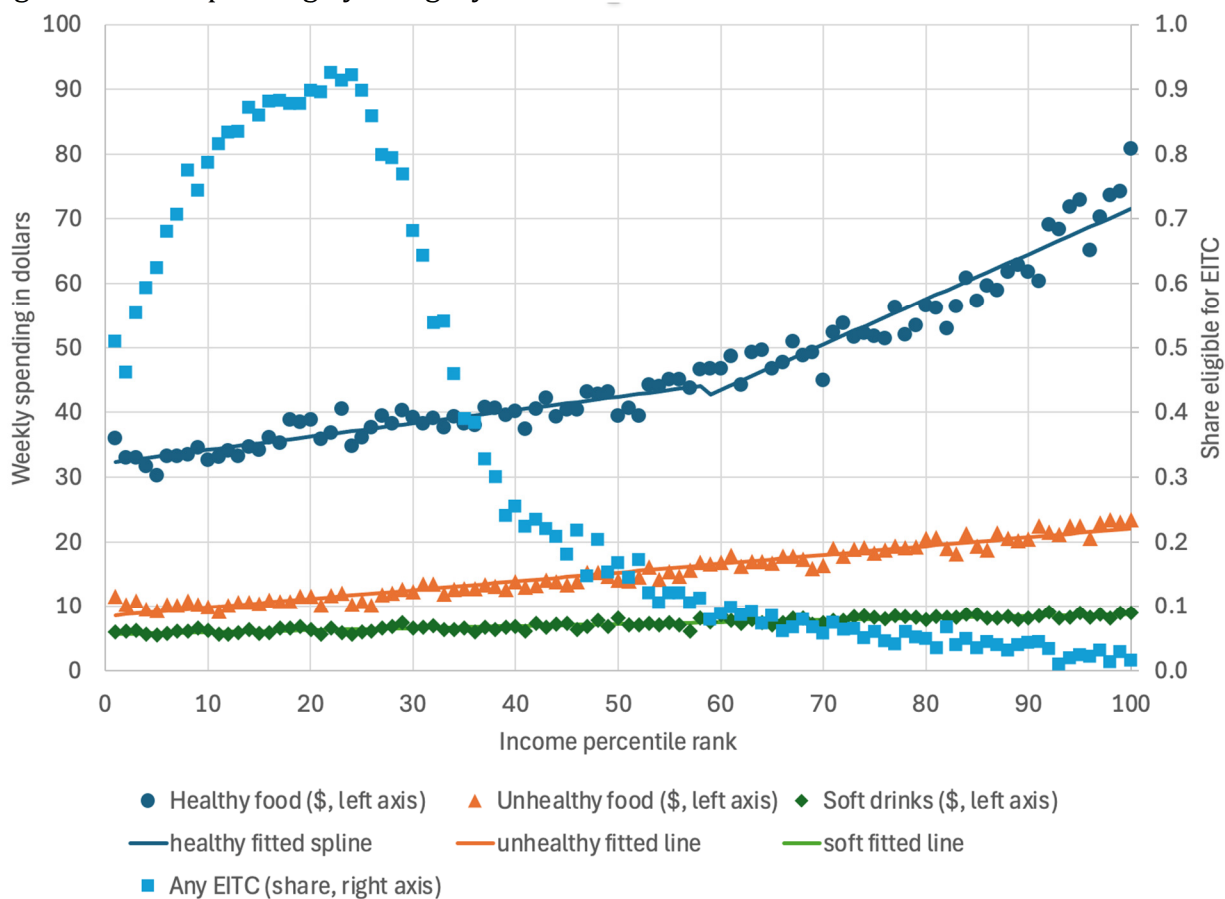
Notes: Authors' tabulations from Tax Policy Center (2022). Benefits reported in nominal dollars.

Figure 3: States with Generous EITC Programs



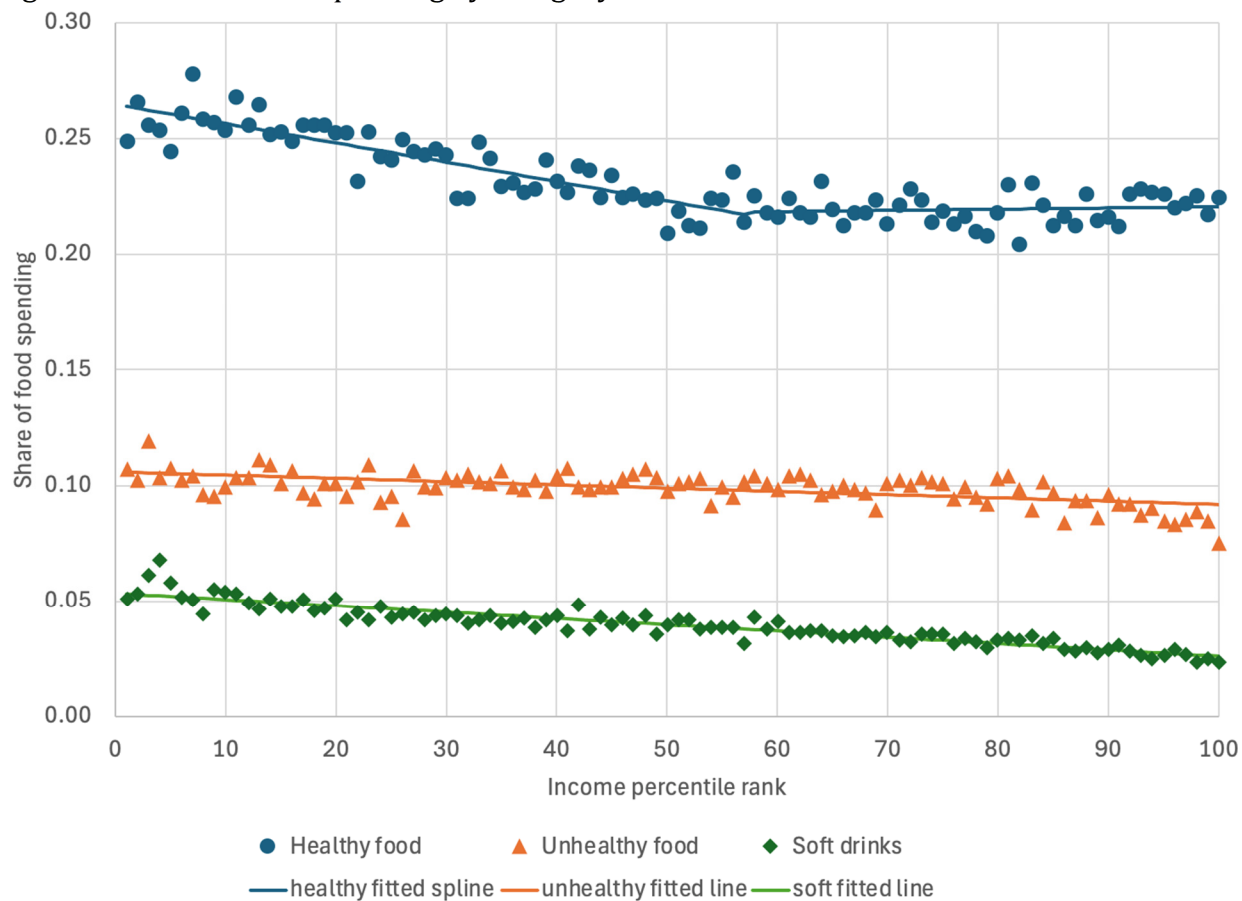
Notes: A state is characterized as having a generous state EITC benefit if its benefit is above the 60th percentile of the state-to-federal benefit ratio for a given year including zeroes in states without a state EITC. State EITC parameters drawn from Tax Policy Center (2023), Montialoux and Rothstein (2015), Coughlan and Hinkley (2018), and State of California Franchise Tax Board (retrieved 2023).

Figure 4: Food Spending by Category and Income Percentile



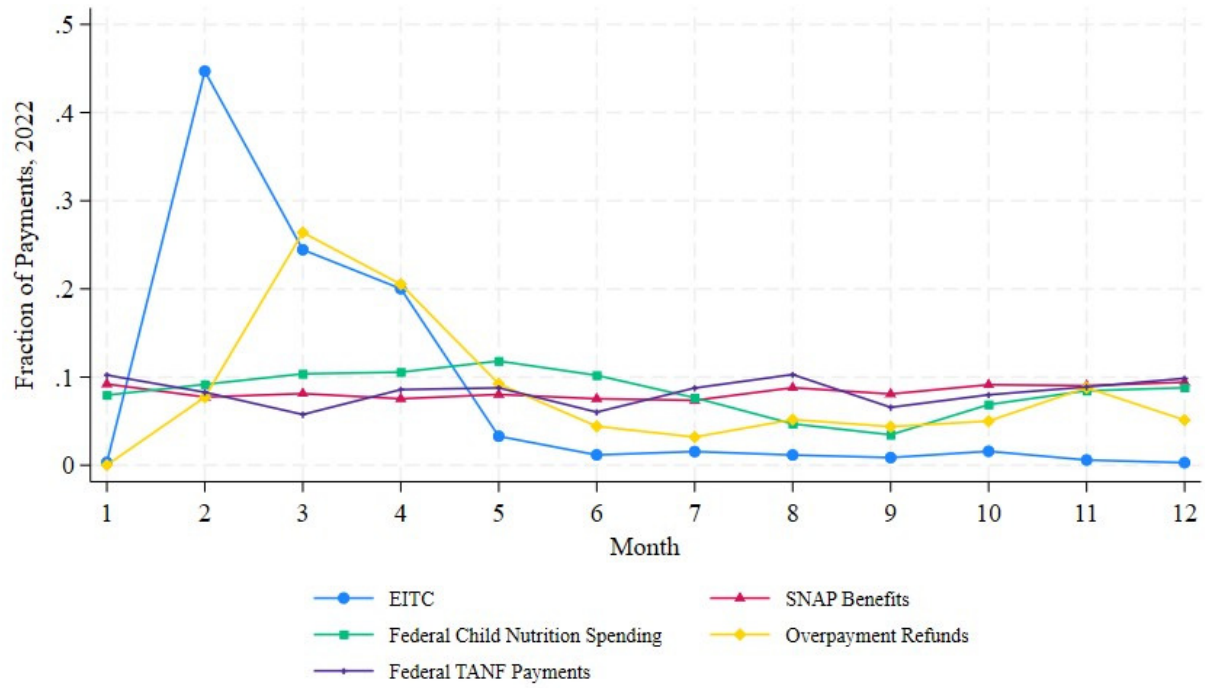
Notes: Authors' calculations using CEX diary data, 2000-2022, limited to households with heads ages 18-64 and children. X axis is percentile rank of weekly inflation-adjusted income. Dots represent the average spending by food type or share eligible for the EITC for each percentile rank. Lines are fit on data averages. OLS used for unhealthy food and soft drinks, and a spline is used for healthy food with a level and slope shift for income percentiles above 57.

Figure 5: Share of Food Spending by Category and Income Percentile



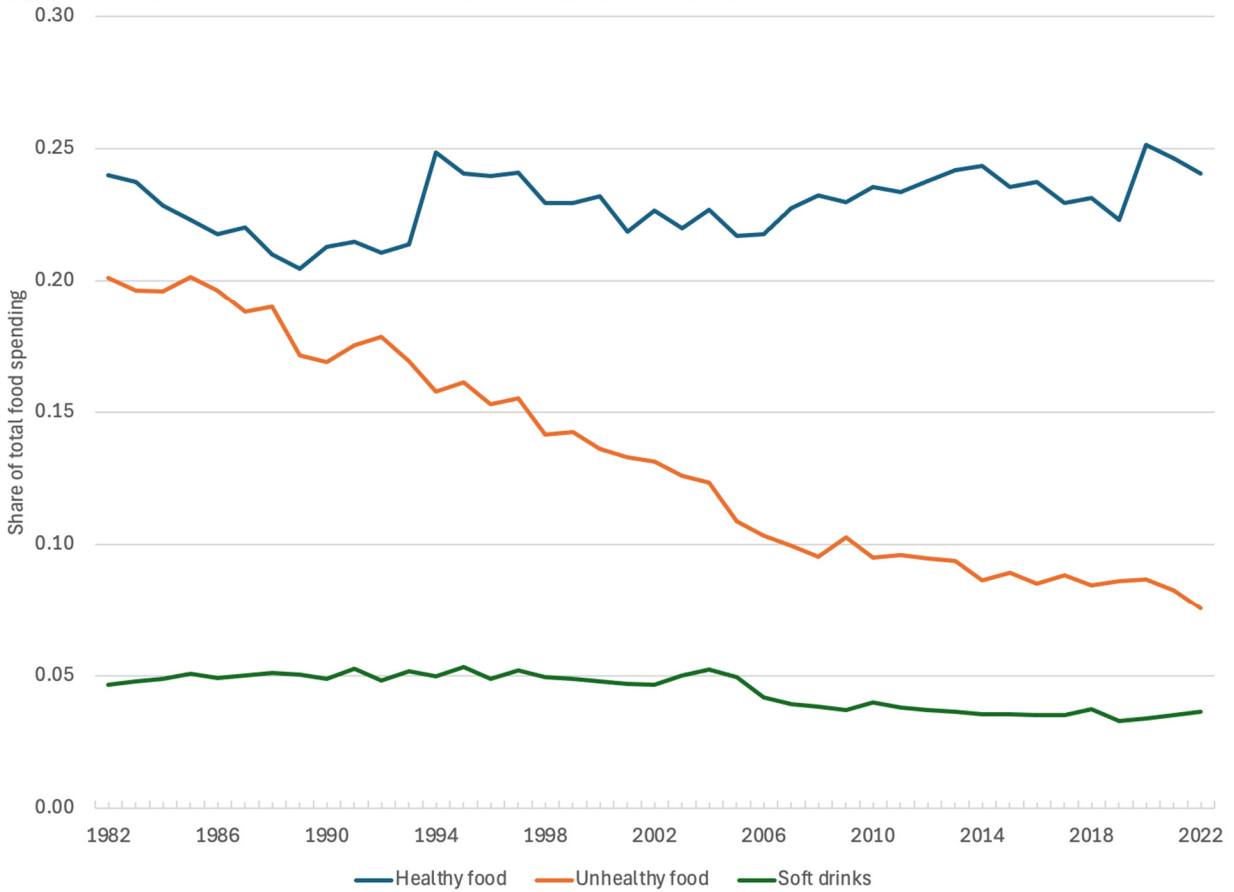
Notes: Authors' calculations using CEX diary data, 2000-2022, limited to households with heads ages 18-64 and children. X axis is percentile rank of weekly inflation-adjusted income. Dots represent the average spending for each category as a share of total food spending for each percentile rank. Lines are fit on data averages. OLS used for unhealthy food and soft drinks, and a spline is used for healthy food with a level and slope shift for income percentiles above 57.

Appendix Figure 1: Monthly Payment Shares, Selected Income Support Programs, 2022



Notes: Authors' tabulations from U.S. Department of the Treasury, Monthly Treasury Statements, Various Issues.

Appendix Figure 2: Share of Food Spending by Category Over Time



Notes: Authors' calculations using CEX diary data, 2000-2022, limited to households with heads ages 18-64. Each food category is shown as a share of total weekly food spending.