The Effect of SNAP on the Composition of Purchased Foods: Evidence and Implications

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Online Appendix

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Role of food-at-home spending in socioeconomic disparities in summary measures of food healthfulness, allowing for heterogeneity in the effect of food-at-home spending
Online Appendix Figure 1: Comparisons of distributions of TFP kilocalorie shares in the retail panel and FoodAPS data
Online Appendix Figure 1: Comparisons of distributions of TFP kilocalorie shares in the retail panel and FoodAPS data (continued)

Non-whole grains | Nuts, nut butters, and seeds | Orange vegetables

Other vegetables | Starchy vegetable products | Soft drinks, sodas, fruit drinks, and ades

Soups, fats, and condiments | Sugars, sweets, and candies | Whole fruits

Whole grains | Whole milk products

Notes: Each panel plots the cumulative distribution function (CDF) of a measure of food healthfulness across households in two different samples. For the line labeled “FoodAPS”, the sample is the set of households surveyed in the FoodAPS data, described in section 2.5. Each FoodAPS household is weighted according to the FoodAPS household weights such that the overall sample is nationally representative. For each household, the measure of food healthfulness is calculated from all observed food-at-home food acquisitions during the survey week. For the line labeled “Retailer”, the sample is all households in the retail panel during a randomly-assigned pseudo-survey week. Pseudo-survey weeks are randomly assigned to retailer households such that the distribution of pseudo-survey weeks in the retail panel equals the distribution of actual survey weeks in the FoodAPS data. For each household, the measure of food healthfulness is calculated from all food purchases at the retailer during their given pseudo-survey week. Each outcome is the share of kilocalories from a given product category underlying the Thrifty Food Plan, as described in section 2.4.1. The horizontal dotted lines intersect the 25th, 50th, and 75th percentiles of the distributions.
Online Appendix Figure 2: Comparisons of distributions of nutrient density indexes in the retail panel and FoodAPS data

Notes: Each panel plots the cumulative distribution function (CDF) of a measure of food healthfulness across households in two different samples. For the line labeled “FoodAPS”, the sample is the set of households surveyed in the FoodAPS data, described in section 2.5. Each FoodAPS household is weighted according to the FoodAPS household weights such that the overall sample is nationally representative. For each household, the measure of food healthfulness is calculated from all observed food-at-home food acquisitions during the survey week. For the line labeled “Retailer”, the sample is all households in the retail panel during a randomly-assigned pseudo-survey week. Pseudo-survey weeks are randomly assigned to retailer households such that the distribution of pseudo-survey weeks in the retail panel equals the distribution of actual survey weeks in the FoodAPS data. For each household, the measure of food healthfulness is calculated from all food purchases at the retailer during their given pseudo-survey week. Each outcome is a nutrient density index defined as the amount of a given nutrient purchased per kilocalorie divided by the corresponding nutrient density implied by the Food and Drug Administration (FDA) Daily Value (DV) bounds, as described in section 2.4.2. All measures are shown on a log scale. The horizontal dotted lines intersect the 25th, 50th, and 75th percentiles of the distributions.
Online Appendix Figure 3: Comparisons of distributions of summary measures of food healthfulness in the retail panel and FoodAPS data

Panel A: Nutrient density score

Panel B: Healthy Eating Index (HEI-2010)

Notes: Each panel plots the cumulative distribution function (CDF) of a measure of food healthfulness across households in two different samples. For the line labeled “FoodAPS”, the sample is the set of households surveyed in the FoodAPS data, described in section 2.5. Each FoodAPS household is weighted according to the FoodAPS household weights such that the overall sample is nationally representative. For each household, the measure of food healthfulness is calculated from all observed food-at-home food acquisitions during the survey week. For the line labeled “Retailer”, the sample is all households in the retail panel during a randomly-assigned pseudo-survey week. Pseudo-survey weeks are randomly assigned to retailer households such that the distribution of pseudo-survey weeks in the retail panel equals the distribution of actual survey weeks in the FoodAPS data. For each household, the measure of food healthfulness is calculated from all food purchases at the retailer during their given pseudo-survey week. In panel A, the measure of healthfulness is the nutrient density score, described in section 2.4.2. The nutrient density score is shown on log scale. In panel B, the measure of healthfulness is the Healthy Eating Index (HEI-2010), described in section 2.4.3. The horizontal dotted lines intersect the 25th, 50th, and 75th percentiles of the distributions.
Online Appendix Figure 4: Dynamics of TFP kilocalorie shares before and after entry into SNAP

Panel A: Monthly frequency

Panel B: Quarterly frequency with in-state earning dynamics

Panel C: Two stage least squares estimator

Panel D: Two stage least squares estimator relative to the IQR
Online Appendix Figure 4: Dynamics of TFP kilocalorie shares before and after entry into SNAP (continued)

**Panel A: Monthly frequency**
- Beef, pork, lamb, veal, and game
- Chicken, turkey, and game birds
- Coffee and tea

**Panel B: Quarterly frequency with in-state earning dynamics**
- Beef, pork, lamb, veal, and game
- Chicken, turkey, and game birds
- Coffee and tea

**Panel C: Two stage least squares estimator**
- Beef, pork, lamb, veal, and game
- Chicken, turkey, and game birds
- Coffee and tea

**Panel D: Two stage least squares estimator relative to the IQR**
- Beef, pork, lamb, veal, and game
- Chicken, turkey, and game birds
- Coffee and tea
Online Appendix Figure 4: Dynamics of TFP kilocalorie shares before and after entry into SNAP (continued)

Panel A: Monthly frequency

Panel B: Quarterly frequency with in-state earning dynamics

Panel C: Two stage least squares estimator

Panel D: Two stage least squares estimator relative to the IQR
Online Appendix Figure 4: Dynamics of TFP kilocalorie shares before and after entry into SNAP (continued)

Panel A: Monthly frequency

Panel B: Quarterly frequency with in-state earning dynamics

Panel C: Two stage least squares estimator

Panel D: Two stage least squares estimator relative to the IQR
Online Appendix Figure 4: Dynamics of TFP kilocalorie shares before and after entry into SNAP (continued)

Panel A: Monthly frequency

Panel B: Quarterly frequency with in-state earning dynamics

Panel C: Two stage least squares estimator

Panel D: Two stage least squares estimator relative to the IQR
Online Appendix Figure 4: Dynamics of TFP kilocalorie shares before and after entry into SNAP (continued)

Panel A: Monthly frequency

Panel B: Quarterly frequency with in-state earning dynamics

Panel C: Two stage least squares estimator

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Online Appendix Figure 4: Dynamics of TFP kilocalorie shares before and after entry into SNAP (continued)

Panel A: Monthly frequency

Panel B: Quarterly frequency with in-state earning dynamics

Panel C: Two stage least squares estimator

Panel D: Two stage least squares estimator relative to the IQR
Online Appendix Figure 4: Dynamics of TFP kilocalorie shares before and after entry into SNAP (continued)

Panel A: Monthly frequency

Panel B: Quarterly frequency with in-state earning dynamics

Panel C: Two stage least squares estimator

Panel D: Two stage least squares estimator relative to the IQR

Notes: Each figure plots coefficient estimates from a two-stage least squares regression of a measure of healthfulness on a vector of leads and lags of the contemporaneous change in SNAP use. The sample is the set of SNAP adopters. The unit of observation is the household-time period. Each regression includes controls for the sum of the change in SNAP use before the start of the plot window and after the end of the plot window, with the number of SNAP adoption periods before the start of the plot window and after the end of the plot window as excluded instruments. The change in SNAP use and the SNAP adoption indicator are treated as zero outside of the sample period. Each regression includes household and time period fixed effects. The coefficient estimates are shifted by a constant such that the mean of the coefficient estimates is equal to the mean of the outcome in the estimation sample. This mean is marked by a dotted line within each plot. Error bars represent ±2 coefficient standard errors. Standard errors are clustered by household. In panel A, the time period is a calendar month. In panels B-D, the time period is a calendar quarter. In panel A and panel B, the endogenous variables are a vector of leads and lags of the contemporaneous change in SNAP use and the second stage are estimated in the retail panel. The coefficients on the first and second leads of the contemporaneous change in SNAP use and the SNAP adoption indicator are treated as zero outside of the sample period. Each regression includes household and time period fixed effects. The coefficient estimates are shifted by a constant such that the mean of the coefficient estimates is equal to the mean of the outcome in the estimation sample. This mean is marked by a dotted line within each plot. Error bars represent ±2 coefficient standard errors. Standard errors are calculated as outlined in appendix B. The endogenous variables are a vector of leads and lags of a contemporaneous indicator for whether the current time period (i.e., month or quarter) is a SNAP adoption period as excluded instruments. The coefficient on the first lead of the contemporaneous change in SNAP use is normalized to zero. In panel B, in addition to the dynamics of the outcomes, the plots show the dynamics of in-state earnings (from figure 2) rescaled such that the change in in-state earnings matches the change in the outcome between two and one periods prior to the change in SNAP use. In panel C and panel D, the estimates are based on the research design described in section 3.1. The model is estimated in two samples using the TS2SLS estimator defined in Inoue and Solon (2010). Standard errors are calculated as outlined in appendix B. The endogenous variables are a vector of leads and lags of the contemporaneous change in SNAP use and average monthly in-state earnings, with leads and lags of a contemporaneous indicator for whether the current quarter is a SNAP adoption quarter as excluded instruments. The first stage for in-state earnings is estimated on the sample of SNAP adopters in the Rhode Island administrative data described in section 2.7. The first stage for the leads and lags of the contemporaneous change in SNAP use and the second stage are estimated in the retail panel. The coefficients on the first and second leads of the contemporaneous change in SNAP use are normalized to zero. In panel D, we repeat the plots in panel C, setting the y-axis range to be the interquartile range of the average of the outcome across all retailer households. Each outcome is the share of kilocalories from a given product category underlying the Thrifty Food Plan, as described in section 2.4.1.
Online Appendix Figure 5: Dynamics of nutrient density indexes before and after entry into SNAP

**Panel A: Monthly frequency**

- Calcium
- Cholesterol
- Dietary Fiber

**Panel B: Quarterly frequency with in-state earning dynamics**

- Calcium
- Cholesterol
- Dietary Fiber

**Panel C: Two stage least squares estimator**

- Calcium
- Cholesterol
- Dietary Fiber

**Panel D: Two stage least squares estimator relative to the IQR**

- Calcium
- Cholesterol
- Dietary Fiber
Online Appendix 5: Dynamics of nutrient density indexes before and after entry into SNAP (continued)

Panel A: Monthly frequency

Iron
Saturated fat
Sodium

Panel B: Quarterly frequency with in-state earning dynamics

Iron
Saturated fat
Sodium

Panel C: Two stage least squares estimator

Iron
Saturated fat
Sodium

Panel D: Two stage least squares estimator relative to the IQR

Iron
Saturated fat
Sodium
Online Appendix 5: Dynamics of nutrient density indexes before and after entry into SNAP (continued)

Panel A: Monthly frequency

Panel B: Quarterly frequency with in-state earning dynamics

Panel C: Two stage least squares estimator

Panel D: Two stage least squares estimator relative to the IQR

Notes: Each figure plots coefficient estimates from a two-stage least squares regression of a measure of healthfulness on a vector of leads and lags of the contemporaneous change in SNAP use. The sample is the set of SNAP adopters. The unit of observation is the household-time period. Each regression includes controls for the sum of the change in SNAP adoption periods before the start of the plot window and after the end of the plot window as excluded instruments. The change in SNAP use and the SNAP adoption indicator are treated as zero outside of the sample period. Each regression includes household and time period fixed effects. The coefficient estimates are shifted by a constant such that the mean of the coefficient estimates is equal to the mean of the outcome in the estimation sample. This mean is marked by a dotted line within each plot. Error bars represent ±2 coefficient standard errors. Standard errors are clustered by household. In panel A, the time period is a calendar month. In panels B-D, the time period is a calendar quarter. In panel A and panel B, the endogenous variables are a vector of leads and lags of the contemporaneous change in SNAP use, with leads and lags of a contemporaneous indicator for whether the current period (i.e., month or quarter) is a SNAP adoption period as excluded instruments. The coefficient on the first lead of the contemporaneous change in SNAP use is normalized to zero. In panel B, in addition to the dynamics of the outcomes, the plots show the dynamics of in-state earnings (from figure 2) rescaled such that the change in in-state earnings matches the change in the outcome between two and one periods prior to the change in SNAP use. In panel C and panel D, the estimates are based on the research design described in section 3.1. The model is estimated in two samples using the TS2LS estimator defined in Imbens and Solon (2010). Standard errors are calculated as outlined in appendix B. The endogenous variables are a vector of leads and lags of the contemporaneous change in SNAP use and average monthly in-state earnings, with leads and lags of a contemporaneous indicator for whether the current quarter is a SNAP adoption quarter as excluded instruments. The first stage for in-state earnings is estimated on the sample of SNAP adopters in the Rhode Island administrative data described in section 2.7. The first stage for the leads and lags of the contemporaneous change in SNAP use are normalized to zero. In panel D, we repeat the plots in panel C, setting the y-axis range to be the interquartile range of the average of the outcome across all retailer households. Each outcome is the amount of a given nutrient purchased per kilocalorie divided by the corresponding nutrient density implied by the Food and Drug Administration (FDA) Daily Value (DV) bounds, as described in section 2.4.2.
Online Appendix Figure 6: Dynamics of summary measures of food healthfulness before and after entry into SNAP

Panel A: Monthly frequency

(I) Nutrient density score

(II) Healthy Eating Index (HEI-2010)

Panel B: Quarterly frequency with in-state earning dynamics

(I) Nutrient density score

(II) Healthy Eating Index (HEI-2010)

Panel C: Two stage least squares estimator

(I) Nutrient density score

(II) Healthy Eating Index (HEI-2010)

Panel D: Two stage least squares estimator relative to the IQR

(I) Nutrient density score

(II) Healthy Eating Index (HEI-2010)

Notes: Each figure plots coefficient estimates from a two-stage least squares regression of a measure of healthfulness on a vector of leads and lags of the contemporaneous change in SNAP use. The sample is the set of SNAP adopters. The unit of observation is the household-time period. Each regression includes controls for the sum of the change in SNAP use before the start of the plot window and after the end of the plot window, with the number of SNAP adoption periods before the start of the plot window and after the end of the plot window as excluded instruments. The change in SNAP use and the SNAP adoption indicator are treated as zero outside of the sample period. Each regression includes household and time period fixed effects. The coefficient estimates are shifted by a constant such that the mean of the coefficient estimates is equal to the mean of the outcome in the estimation sample. This mean is marked by a dotted line within each plot. Error bars represent ±2 coefficient standard errors. Standard errors are clustered by household. In panel A, the time period is a calendar month. In panels B-D, the time period is a calendar quarter. In panel A and panel B, the endogenous variables are a vector of leads and lags of the contemporaneous change in SNAP use, with leads and lags of a contemporaneous indicator for whether the current time period (i.e., month or quarter) is a SNAP adoption period as excluded instruments. The coefficient on the first lead of the contemporaneous change in SNAP use is normalized to zero. In panel B, in addition to the dynamics of the outcomes, the plots show the dynamics of in-state earnings (from figure 2) rescaled such that the change in in-state earnings matches the change in the outcome between two and one periods prior to the change in SNAP use. In panel C and panel D, the estimates are based on the research design described in section 3.1. The model is estimated in two samples using the TS2SLS estimator defined in Inoue and Solon (2010). Standard errors are calculated as outlined in appendix B. The endogenous variables are a vector of leads and lags of the contemporaneous change in SNAP use and average monthly in-state earnings, with leads and lags of a contemporaneous indicator for whether the current quarter is a SNAP adoption quarter as excluded instruments. The first stage for in-state earnings is estimated on the sample of SNAP adopters in the Rhode Island administrative data described in section 2.7. The first stage for the leads and lags of the contemporaneous change in SNAP use and the second stage are estimated in the retail panel. The coefficients on the first and second leads of the contemporaneous change in SNAP use are normalized to zero. In panel D, we repeat the plots in panel C, setting the y-axis range to be the interquartile range of the average of the outcome across all retailer households. In the first column, the measure of healthfulness is the nutrient density score; described in section 2.4.2 In the second column, the measure of healthfulness is the Healthy Eating Index (HEI-2010), described in section 2.4.3.
Online Appendix Figure 7: Effect of SNAP use on the distribution of food healthfulness

Panel A: Program adoption research design
(I) Nutrient density score (NDS) (II) Healthy Eating Index (HEI-2010)

Panel B: Program exit research design
(I) Nutrient density score (NDS) (II) Healthy Eating Index (HEI-2010)

Notes: Each figure plots estimates of the effect of SNAP use on the probability of having a "good", "needs improvement", or "poor" level of healthfulness. In the left column, the outcome is the nutrient density score (NDS), described in section 2.4.2. In the right column, the outcome is the Healthy Eating Index (HEI-2010), described in section 2.4.3. For the HEI-2010, "good", "needs improvement", and "poor" levels of healthfulness are defined by score cutoffs established by the USDA for "good", "needs improvement", and "poor" levels of the original Healthy Eating Index (HEI) (USDA 1995). See Drenowatz et al. (2014), Gubur and Demir (2017), and Yosaee et al. (2017) for examples of prior work applying the original HEI cutoffs to the HEI-2010. For the NDS, "good", "needs improvement" and "poor" score cutoffs are computed as follows. First, we compute the percentiles of the original HEI score cutoffs in the distribution of the HEI-2010 using the FoodAPS data. Each FoodAPS household is weighted according to the FoodAPS household weights such that the overall sample is nationally representative. These are the percentiles reported in parentheses in the plots. Second, we compute the value of the NDS at each of the estimated percentiles in the sample of all retailer households, where the NDS of each household is the average NDS across all household-months. In panel A, the sample is the set of SNAP adopters and the unit of observation is a household-quarter. For each outcome, the effect of SNAP use is estimated via a two-sample two-stage least squares regression (Inoue and Solon 2010) of the change in the outcome on the change in an indicator for whether the current quarter is a SNAP quarter and the change in average monthly in-state earnings, with an indicator for whether the current quarter is a SNAP adoption quarter and its first lead as excluded instruments and calendar quarter fixed effects as exogenous controls. The first stage for the change in in-state earnings is estimated on the sample of SNAP adopters in the Rhode Island administrative data described in section 2.7. The first stage for the change in an indicator for whether the current quarter is a SNAP quarter and the second stage are estimated in the retail panel. For each outcome, the effect of SNAP use is estimated via a two-stage least squares regression of the change in the outcome on the change in an indicator for whether the current quarter is a SNAP month, with an indicator equal to one in the first month of a six-month clock that begins in the most recent adoption month as the excluded instrument and calendar month fixed effects as exogenous controls. The clock indicator is set to zero in the first six months (inclusive of the adoption month) following the most recent adoption, in any month after the first 24 months (inclusive of the adoption month) following the recent adoption, and in any month for which there is no preceding adoption. Error bars represent ±2 coefficient standard errors. Standard errors are clustered by household.
Online Appendix Figure 8: Effect of SNAP use on macronutrient kilocalorie shares

*Panel A: Program adoption research design*

*Panel B: Program exit research design*

Notes: The plot presents the IQR of and the estimated effect of SNAP use on the given the outcomes. For the IQR series, the sample is all retailer households and the unit of observation is the household. For the estimated effect of SNAP use, the sample is the set of SNAP adopters and the unit of observation is the household-time period. In panel A, the time period is a calendar quarter. For each outcome, the effect of SNAP use is estimated via a two-sample two-stage least squares regression (Inoue and Solon 2010) of the change in the outcome on the change in an indicator for whether the current quarter is a SNAP quarter and the change in average monthly in-state earnings, with an indicator for whether the current quarter is a SNAP adoption quarter and its first lead as excluded instruments and calendar quarter fixed effects as exogenous controls. The first stage for the change in in-state earnings is estimated on the sample of SNAP adopters in the Rhode Island administrative data described in section 2.7. The first stage for the change in an indicator for whether the current quarter is a SNAP quarter and the second stage are estimated in the retail panel. Standard errors are calculated as outlined in appendix B. In panel B, the time period is a calendar month. For each outcome, the effect of SNAP use is estimated via a two-stage least squares regression of the change in the outcome on the change in an indicator for whether the current month is a SNAP month, with an indicator equal to one in the first month of a six-month clock that begins in the most recent adoption month as the excluded instrument and calendar month fixed effects as exogenous controls. The clock indicator is set to zero in the first six months (inclusive of the adoption month) following the most recent adoption, in any month after the first 24 months (inclusive of the adoption month) following the recent adoption, and in any month for which there is no preceding adoption. Error bars represent ±2 coefficient standard errors. Standard errors are clustered by household. Each outcome is the share of kilocalories from a given macronutrient.
Online Appendix Figure 9: Dynamics of TFP kilocalorie shares over the six-month SNAP clock

- All cheese products
- Bacon, sausage, and lunch meats
- Beans, lentils, and peas
- Beef, pork, lamb, veal, and game
- Chicken, turkey, and game birds
- Coffee and tea
- Dark-green vegetables
- Eggs
- Fish and fish products
- Frozen or refrigerated entrees
- Fruit juices
- Low-fat milk products
Notes: Each figure plots coefficients from a regression of a normalized measure of food healthfulness on a vector of indicators for the position of the current month in a monthly clock that begins in the most recent adoption month and resets every six months or at the next SNAP adoption, whichever comes first. So, for example, the first month of the clock corresponds to months 7, 13, 19, etc. following SNAP adoption. The sample is the set of SNAP adopters. The unit of observation for each regression is the household-month. Each regression includes calendar month fixed effects. The omitted category consists of the first six months (inclusive of the adoption month) after the household’s most recent SNAP adoption, all months after the first 24 months (inclusive of the adoption month) following the household’s most recent adoption, and all months for which there is no preceding adoption. Error bars are ±2 coefficient standard errors. Standard errors are clustered by household. For each outcome, we first divide the change in the outcome by the absolute value of the coefficient on clock month 1 in the regression from panel A of figure 5. We then use this normalized change as the dependent variable. Each outcome is the share of kilocalories from a given product category underlying the Thrifty Food Plan, as described in section 2.4.1. In all plots, the range of the y-axis is the interquartile range of the average of the outcome across all retailer households.
Online Appendix Figure 10: Dynamics of nutrient density indexes over the six-month SNAP clock

Notes: Each figure plots coefficients from a regression of a normalized measure of food healthfulness on a vector of indicators for the position of the current month in a monthly clock that begins in the most recent adoption month and resets every six months or at the next SNAP adoption, whichever comes first. So, for example, the first month of the clock corresponds to months 7, 13, 19, etc. following SNAP adoption. The sample is the set of SNAP adopters. The unit of observation for each regression is the household-month. Each regression includes calendar month fixed effects. The omitted category consists of the first six months (inclusive of the adoption month) after the household’s most recent SNAP adoption, all months after the first 24 months (inclusive of the adoption month) following the household’s most recent adoption, and all months for which there is no preceding adoption. Error bars are ±2 coefficient standard errors. Standard errors are clustered by household. For each outcome, we first divide the change in the outcome by the absolute value of the coefficient on clock month 1 in the regression from panel A of figure 5. We then use this normalized change as the dependent variable. Each outcome is a nutrient density index defined as the amount of a given nutrient purchased per kilocalorie divided by the corresponding nutrient density implied by the Food and Drug Administration (FDA) Daily Value (DV) bounds, as described in section 2.4.2. In all plots, the range of the y-axis is the interquartile range of the average of the outcome across all retailer households.
Online Appendix Figure 11: Dynamics of summary measures of food healthfulness over the six-month SNAP clock

**Panel A: Nutrient density score**

**Panel B: Healthy Eating Index (HEI-2010)**

Notes: Each figure plots coefficients from a regression of a normalized measure of food healthfulness on a vector of indicators for the position of the current month in a monthly clock that begins in the most recent adoption month and resets every six months or at the next SNAP adoption, whichever comes first. So, for example, the first month of the clock corresponds to months 7, 13, 19, etc. following SNAP adoption. The sample is the set of SNAP adopters. The unit of observation for each regression is the household-month. Each regression includes calendar month fixed effects. The omitted category consists of the first six months (inclusive of the adoption month) after the household’s most recent SNAP adoption, all months after the first 24 months (inclusive of the adoption month) following the household’s most recent adoption, and all months for which there is no preceding adoption. Error bars are ±2 coefficient standard errors. Standard errors are clustered by household. For each outcome, we first divide the change in the outcome by the absolute value of the coefficient on clock month 1 in the regression from panel A of figure 5. We then use this normalized change as the dependent variable. In panel A, the outcome is the nutrient density score (NDS), described in section 2.4.2. In panel B, the outcome is the Healthy Eating Index (HEI-2010), described in section 2.4.3. In both panels, the range of the y-axis is the interquartile range of the average of the outcome across all retailer households.
Notes: The figure plots cumulative distribution functions (CDFs) of the Healthy Eating Index (HEI-2010), described in section 2.4.3, over a subset of households surveyed in the FoodAPS data, described in section 2.5. The HEI-2010 is calculated from all food-at-home acquisitions during the survey week. Each FoodAPS household is weighted according to the FoodAPS household weights such that the overall sample is nationally representative. For the line labeled “Non-college-educated,” the sample is the set of FoodAPS households whose main food shopper or meal planner does not report having a bachelor’s degree or higher. For the line labeled “College-educated,” the sample is the set of FoodAPS households whose main food shopper or meal planner reports having a bachelor’s degree or higher. For the line labeled “Equal-spending counterfactual,” the sample is the set of FoodAPS households whose main food shopper or meal planner does not report having a bachelor’s degree or higher. The “Equal-spending counterfactual” series is constructed as follows. First, among non-college-educated and college-educated households, we compute percentiles of each household by total food spending. Second, we assign to each non-college educated household the food spending of the college-educated household at the closest percentile, breaking ties at random. We then use the estimates of the effect of food spending on the HEI-2010 from panel A of column (5) of appendix table 1 to compute counterfactual food healthfulness at the given counterfactual level of food spending. The “Share of SES gap in mean outcome eliminated in counterfactual” is the share of the difference in average HEI-2010 across college-educated and non-college-educated households that would be eliminated if college-educated and non-college-educated households had the same average food spending. The share is estimated as the effect of food spending on the HEI-2010 (from panel A of column (5) of appendix table 1) times the difference in average food spending between college-educated and non-college-educated households divided by the difference in the average HEI-2010 between college-educated and non-college-educated households. The standard error associated with the estimated share is calculated via the delta method under the assumption that the estimate of the effect of food spending on the HEI-2010 is statistically independent from the estimated sample means.
Online Appendix Figure 13: Role of food-at-home spending in socioeconomic disparities in summary measures of food healthfulness, allowing for heterogeneity in the effect of food-at-home spending

Panel A: Nutrient density score

Panel B: Healthy Eating Index (HEI-2010)

Notes: The figures plot cumulative distribution functions (CDFs) of a measure of food healthfulness over a subset of households surveyed in the FoodAPS data, described in section 2.5. The measure of food healthfulness is calculated from all food-at-home (FAH) acquisitions during the survey week. Each FoodAPS household is weighted according to the FoodAPS household weights such that the overall sample is nationally representative. For the line labeled “Non-college-educated,” the sample is the set of FoodAPS households whose main food shopper or meal planner does not report having a bachelor’s degree or higher. For the line labeled “College-educated,” the sample is the set of FoodAPS households whose main food shopper or meal planner reports having a bachelor’s degree or higher. For the line labeled “Equal-spending counterfactual,” the sample is the set of FoodAPS households whose main food shopper or meal planner does not report having a bachelor’s degree or higher. The “Equal-spending counterfactual” series is constructed as follows. First, among non-college-educated and college-educated households, we compute percentiles of each household by total FAH spending. Second, we assign to each non-college-educated household the FAH spending of the college-educated household at the closest percentile, breaking ties at random. We then estimate the effect of FAH spending on diet healthfulness separately by quintile of food spending at the retailer in the six months prior to SNAP adoption. We then assign these estimates to non-college-educated households in the corresponding quintile of the FAH spending distribution and use them to compute counterfactual food healthfulness at the given counterfactual level of FAH spending. In panel A, the measure of food healthfulness is the nutrient density score, described in section 2.4.2. The nutrient density score is shown on log scale. In panel B, the measure of food healthfulness is the Healthy Eating Index (HEI-2010), described in section 2.4.3.
References not appearing in the paper


