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Impact of Medicaid Expansion on Food Purchasing Among Low Income U.S. Households

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Rebecca Boehm, PhD*
Postdoctoral Fellow, Zwick Center for Food and Resource Policy
Agricultural and Resource Economics Department
University of Connecticut, Storrs, CT
Rebecca.boehm@uconn.edu

Shaheer Burney, PhD
Postdoctoral Fellow, Zwick Center for Food and Resource Policy
Agricultural and Resource Economics Department
University of Connecticut, Storrs, CT
shaheer.burney@uconn.edu

Xi He
Doctoral Student
Agricultural and Resource Economics Department
University of Connecticut, Storrs, CT
xi.he@uconn.edu

Rigoberto A. Lopez, PhD
Director, Zwick Center for Food and Resource Policy,
Professor and Department Chair, Agricultural and Resource Economics Department
University of Connecticut, Storrs, CT
Rigoberto.lopez@uconn.edu

*Presenting author

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ABSTRACT

The expansion of Medicaid through the Affordable Care Act (ACA) offered millions of low-income adults access to health care. However, little is known about how changes in government-sponsored health care affect food choices, nutrition, and other federal safety net programs. We hypothesize that expanded health care access for low-income households will change food choices through: (1) increased knowledge or awareness of healthy eating and/or (2) reduced out-of-pocket health care spending. Consequently, the objective of this study was to determine the casual impact of the ACA Medicaid Expansion on food purchasing patterns among low-income households. State-level data on changes in Medicaid eligibility criteria and household-level food expenditure data from the public use Consumer Expenditure Survey Diary Survey (years 2009 to 2016) were used in a Difference-in-Difference (DID) empirical framework to estimate the casual impact of the Medicaid expansion on food at home and food away from home spending. Results from the DID analysis show no significant change in food spending patterns among low-income households living in expansion states. Further refinement of the empirical strategy is required to ascertain the true effect of the Medicaid expansion on low-income household food spending.

INTRODUCTION

The passage of the Patient Protection and Affordable Care Act (ACA) in 2010 represented a major change to health care provision for low-income Americans. Medicaid, which began in 1965, has provided matching federal funds to states to pay for health care coverage for low-income people (Department of Health and Human Services, 2017). Prior to the ACA, states had significant leeway in deciding eligibility for the program based on means tests or other employment and asset criteria. Under the ACA, however, Medicaid was significantly expanded so that any parent and childless adult below approximately 138% of the federal poverty level could sign up for the program (U.S. Centers for Medicaid and Medicare Services, 2017a). Most expansion states began enrollment on January 1, 2014, and, to date, 33 states (and the District of Columbia) have expanded their Medicaid programs under the ACA. Approximately 74.5 million Americans are participating in Medicaid (U.S. Centers for Medicaid and Medicare Services, 2017b).

The health economics literature has established positive benefits to the Medicaid expansion and health insurance for low-income households. Increased health insurance coverage has been associated with reduced emergency room trips and hospital stays and improved self-assessed health among low-income Americans (Nikpay et al., 2016; Simon et al., 2017; Sommers et al., 2016). There is also evidence that unpaid bills and total debt in zip codes with high rates of low-income uninsured individuals declined significantly when Medicaid was expanded (Hu et al., 2016). This implies that Medicaid expansion has an *income effect* for low-income households: Medicaid enrollment frees income previously spent on medical expenses, potentially leading to changes in spending on food and other goods and changes in participation in other federal assistance program such as the Supplemental Nutrition Assistance Program (SNAP). In addition, an *education effect* may result from increased access to preventative care, including wellness visits, obesity and chronic disease screening, and nutrition counseling. Numerous studies show that nutrition interventions in the primary care setting lead to increased consumption of fruits, vegetables, and other healthier foods such as lean meats and whole grains (Ball et al., 2015; Bhattarai et al., 2013; Kimokoti and Millen, 2016).

A review of the literature reveals only two studies on the association between healthcare provision and food purchasing patterns among low-income Americans. One study benchmarked diet quality and health outcomes prior to the 2014 Medicaid expansion (Nguyen et al., 2016), but could not establish program impact due to data limitations. A study in Oregon assessed how Medicaid expansion effects SNAP participation rates, but results cannot be generalized to the U.S. population (Baicker et al., 2014). To our knowledge no other studies have examined the association between healthcare provision and policy changes and food spending patterns among low-income U.S. households.

How changes in health care provision impacts food purchasing is particularly important since a majority of Americans, especially low-income households, are consuming too few fruits, vegetables, and whole grains and too much added sugar, saturated fat, and sodium on a regular basis (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015). In 2015, only 57.8% of the U.S. adult population (ages 18 to 65) consumed a diet that met the 2015 Dietary Guidelines for Americans (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015). A large body of evidence suggests that lower socioeconomic status is associated with poorer dietary quality (Darmon and Drewnowski, 2008; Wang et al., 2014), which puts these populations at greater risk of diet-related chronic diseases (Kant and Graubard, 2007; Raffensperger et al., 2010). Further, food security remains a major concern for low-income U.S. households; in 2016 12.3% of Americans were classified as being food insecure (Coleman-Jensen et al., 2017). Consequently, understanding how health care provision and cost changes are associated with food purchasing patterns among low-income households is of great consequence to national food security, public health and disease prevention efforts.

The objective of this study is to determine the casual impact of the ACA Medicaid Expansion on food spending among low-income U.S. households. The expansion of Medicaid under ACA offers a unique opportunity to evaluate the impact of Medicaid on food purchasing patterns among low-income households since not all U.S. states chose to expand Medicaid under the new law. The variation in uptake

of the expanded Medicaid program is used in this study as a natural experiment to assess the impact of this important social safety net program on a casual basis.

METHODS

Data sources

Data on household food expenditures are derived from the U.S. Department of Commerce Bureau of Labor Statistics Consumer Expenditures Survey (CEX) Survey Diary public use micro-data (2009-2016). CEX is a nationally representative quarterly survey of U.S. households (including approximately 7,000 households/year). Households report expenses on goods and services, such as food and health care, for two consecutive weeks in one calendar year. Food at home expenditures are broken down into disaggregated food categories (i.e. red meat, dairy, fruits and vegetables), while food away from home categories are broken down by the meal consumed outside the home (i.e. breakfast, lunch or dinner) and the type of restaurant or retail outlet from which the household purchased the food. Households also report demographics such as state of residence, total household before tax monthly income (which includes wages, social security income, and welfare program funds), participation in SNAP, number of children, number of household members who are >64 years of age, race, education level, and household size.

Data on state participation in the Medicaid expansion was derived from the U.S. Department of Health and Human Services U.S. Centers for Medicare and Medicaid (U.S. Centers for Medicaid and Medicare Services, 2017a). Table 1 reports the states under ACA that expanded Medicaid as of January 1, 2014, which was the major implementation date of the Medicaid expansion. It should be noted that some states had already expanded Medicaid prior to January 1, 2014. However, according to prior literature, the Medicaid expansion starting in January 2014 significantly increased insurance coverage among low-income, eligible populations even in these early adoption states (Goodman, 2017). This suggests that assigning treatment to these states starting January 1, 2014 is a reasonable assumption. Consequently, we do not exclude or adjust for these early adopters in any of our analyses. However, there were four states that never expanded or eased eligibility restrictions for Medicaid prior to January 2014, but who did

expand Medicaid well after January 1, 2014. These states were excluded from the analysis and include: Alaska, Louisiana, Montana, and Pennsylvania.

Outcome Measures

Outcome measures include the following household food expenditure categories constructed using CEX data: (1) food spending as a share of total pre-tax monthly household income, (2) total food spending, (3) ratio of food for at-home consumption (FAH) spending to food for away from home consumption (FAFH) spending, (5) fast food spending as a share of total food spending, (6) fast food spending as a share of total FAFH spending. In addition to the broad food expenditure categories listed in 1-6, more specific FAH food categories are examined as a share of total FAH spending. These categories include: (7) cereals and bakery products; (8) beef, pork, and other red meats; (9) poultry, fish, and eggs; (10) dairy, (11) fruits and vegetables; (12) sugary drinks; (13) fats and oils; (14) sugar and sweets; (15) no alcoholic beverages (coffee, tea, fruit and vegetable juices, and bottled water), and (16) all other foods.

Empirical Strategy

A Difference-In-Difference (DID) model is employed, exploiting state-level variation arising from the Medicaid expansion to identify the causal effect of health care provision on food purchasing patterns among low-income households. Using the DID approach, Medicaid expansion serves as the intervention and compares changes in food expenditure of households residing in expansion states relative to those in non-expansion states. The DID model was specified as follows:

$$Y_i = \varphi MedExp_t * Treat_s + \omega X_i + \theta_t + \epsilon_i \quad (1)$$

where i =household, s =state, and t =month. Y_i represents categories of food expenditure shares. The indicator $MedExp_t$ equals 1 if a low-income household (defined as having a household income below 138% of the Federal Poverty Level) is observed after the Medicaid expansion, and 0 otherwise. The variable $Treat_s$ equals 1 if a low-income household resides in an expansion state and equals 0 otherwise. The variable of interest, called the difference in difference estimator, is the interaction between $MedExp_t$

and $Treat_s$, which determines the impact of Medicaid expansion on the outcome variable Y_i in the intervention group relative to the comparison group. X_i is a vector of household sociodemographics (e.g. household income, whether or not the household reference person graduated from college, race and ethnicity of household reference person, number of children <18 years of age in the household, whether or not the household participates in SNAP) and θ_t represents a year by quarter fixed effects term and ϵ_i is the error term. The analysis sample is restricted to households with total pre-tax income <138% of the Federal Poverty Line (FPL) for each respective year included in the analysis sample. CEX households who only reported one week of expenditures were excluded from analyses (approximately 5% of the original CEX sample). Finally, households with members who are all >64 years of age are excluded from the analysis sample since these households would not be impacted by the Medicaid expansion because they would participate in Medicare.

Testing DID Assumptions

To ensure internal validity of the DID approach the parallel trends assumption must be met. This means that the trend in outcome measures were consistent in Medicaid expansion and non-expansion states during the pre-expansion period from 2009 to the end of 2013. Consequently, average expenditure shares for aggregate and FAH disaggregate categories were compared between expansion and non-expansion states from 2009 to 2013 to determine baseline differences and any changes in differences over time and between the intervention and comparison states. In addition, the DID approach also requires that the intervention and comparison groups are stable for repeated cross-section analysis; this assumption is called the Stable Unit Treatment Value Assumption (SUTVA) (Wooldridge, 2012). To determine if this assumption is achieved, the share of households that were classified as low-income in expansion and non-expansion states were compared during the baseline period from 2009 to 2013. Sociodemographic characteristics for households in expansion and non-expansion states were also compared during the baseline period.

RESULTS

Table 2 reports the share of households classified as low-income (total pre-tax income <138% of

annual FPL), and Table 3 reports the probability that a household is low-income in expansion and non-expansion states for all years including in the analysis. The difference in share of low-income households between expansion and non-expansion is relatively small between 2009 and 2016. However, the difference in share of low-income households between expansion and non-expansion states changed significantly in 2015. No other changes in the share of households classified as low income over the study period were observed.

As reported in Table 4 there were no differences in household sociodemographic characteristics during pre-expansion years between expansion and non-expansion states. There were small but statistically significant differences in food spending patterns across households in expansion and non-expansion states (see Table 5). When adjusting for quarter by year and state effects, as well as household sociodemographic characteristics, households in expansion states spent a larger share of their food budget on FAH and a smaller share of their food budget on FAFH during the baseline period. No other differences in food spending patterns were observed across expansion and non-expansion state households during the baseline period of 2009 and 2013.

Table 6 and 7 show results from parallel trends tests for both aggregate food spending categories and disaggregated FAH spending categories. The only outcome measure that violates the parallel trends assumption is fast food spending as a share of total food spending and share of FAH spending on sugary foods and over sweets. In 2011 and 2012 the difference in fast food spending as a share of total food spending between households in expansion and non-expansion states changed. In 2011 the share of FAH spending on sugary foods and other sweets was significantly different between expansion and non-expansion states. No other violations of the parallel trends assumption were found in other outcome measures.

Overall, only minor changes in aggregate food spending and disaggregate FAH expenditure shares were observed after the 2014 Medicaid expansion in expansion states relatively to the pre-expansion period and non-expansion states, as reported in Tables 8 and 9. Low-income households in

expansion states spent significantly more of their FAH budget on the all other foods category compared to non-expansion states after the expansion occurred.

DISCUSSION

To our knowledge this is the first study to assess the impact of the Medicaid expansion on food purchasing behavior among low-income U.S. households. The null results of this study indicate that further investigation of the association between health care provision and food choices is warranted. Future work should carefully consider data sources. While CEX diary survey data provided comprehensive information about household characteristics and food spending, it did not contain accurate information about household income. This means that classification of households as low-income may not be accurate and this would affect the results of the approach used in this study. CEX diary data also had a relatively small sample size. The CEX sample only included a total of approximately 7,000 households and so analyses using these data may not be powered sufficiently to assess the effect of the Medicaid expansion on food spending. Finally, assigning treatment of the Medicaid expansion using CEX data proved difficult. This is because there was no information about household participation in Medicaid in the diary data. In addition, assigning treatment at the end of 2013 may not be accurate for all expansion states since there was substantial variation in the implementation date of the expansion across states. Regardless of the limitations and challenges of this study, it is important to consider the impact of the Medicaid expansion on food purchasing patterns given emerging evidence in the health economics literature that the expansion had a strong income effect for low-income households living in expansion states.

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Table 1. List of Medicaid Expansion and Non-Expansion States. States who expanded the program partially before January 1, 2014 or fully as of January 1, 2014 are considered expansion states.

Expansion states, including early adopters	Non-Expansion states	Late adopter states excluded from the analysis
Indiana	Kansas	Alaska
Maine	Florida	Louisiana
Tennessee	Georgia	Montana
Wisconsin	Idaho	Pennsylvania
Arkansas	Alabama	Vermont*
Kentucky	Mississippi	Wyoming*
Michigan	Missouri	
Nevada	Nebraska	
New Hampshire	North Carolina	
New Mexico	Oklahoma	
North Dakota	South Carolina	
Ohio	South Dakota	
West Virginia	Texas	
Arizona	Utah	
California	Virginia	
Colorado		
Connecticut		
Delaware		
District of Columbia		
Hawaii		
Illinois		
Iowa		
Maryland		
Massachusetts		
Minnesota		
New Jersey		
New York		
Oregon		
Rhode Island		
Washington		

*Vermont and Wyoming were not reported in CEX in some years or all year, so were excluded from the analysis.

Table 2. Percent of households classified as low income (total pre-tax income <138% of FPL) from 2009-2016 for Medicaid expansion and non-expansion states

Year	% Low Income Medicaid Expansion States	% Low Income Non-Expansion States	Percentage point difference
2009	33.9	33.0	0.9
2010	36.0	35.7	0.3
2011	35.6	34.4	1.2
2012	43.2	44.6	-1.4
2013	43.4	43.4	0.0
2014	32.1	35.7	-3.6
2015	33.1	37.9	-4.8
2016	34.1	35.0	-0.9

Table 3. Probability of being low-income in Medicaid Expansion and Non-Expansion States from 2009 to 2016 controlling for state fixed effects and household characteristics. Odds ratios reported (standard errors in parentheses)

	Probability of being low-income
Medicaid Expansion State	0.751 (0.148)
Year trends	
2010	1.036 (0.120)
2011	0.905 (0.106)
2012	2.016*** (0.223)
2013	1.947*** (0.223)
2014	1.104 (0.130)
2015	1.364** (0.166)
2016	1.164 (0.145)
Expansion State Status x Year Trends	0.955
Medicaid Expansion State x 2010	(0.138)
	1.061
Medicaid Expansion State x 2011	(0.156)
	0.900
Medicaid Expansion State x 2012	(0.125)
	1.003
Medicaid Expansion State x 2013	(0.144)
	0.821
Medicaid Expansion State x 2014	(0.123)
	0.739**
Medicaid Expansion State x 2015	(0.114)
	0.831
Medicaid Expansion State x 2016	(0.130)
State fixed effects	YES
Household Characteristics	YES
Quarter fixed effects	YES
Constant	0.173*** (0.0271)
Observations	24,801

Notes: Robust standard errors in parenthesis, statistical significance denoted as: *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Household Sociodemographic Characteristics in Expansion and Non-Expansion States Before Expansion among the Low-Income Population

	College degree or higher	SNAP participant in last 12 month	Household RP is female	Household RP is Hispanic	Household RP is White	Household RP is Black	Household RP is Asian	Average annual pre-tax income	Number of children <18 years old
Odd ratios or coefficients reported (standard errors in parenthesis)									
Medicaid State	3.443 (4.032)	1.087 (0.379)	0.645 (0.229)	0.709 (0.321)	1.293 (0.449)	0.587 (0.216)	1.778 (1.649)	-2,211 (1,580)	-0.224 (0.212)
Quarter x Year fixed-effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
State fixed-effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Constant	0.0161** (0.0202)	0.502* (0.155)	2.101* (0.662)	0.182** (0.0672)	0.960 (0.290)	0.862 (0.271)	0.0164** (0.0139)	17,195** (2,765)	1.060** (0.190)
Observations	3,451	3,567	3,723	3,636	3,723	3,631	3,556	3,723	3,723

Notes: Robust standard errors in parenthesis, statistical significance denoted as: ** p<0.01, * p<0.05.

Table 5. Mean Baseline (for years 2009 to 2013) Food Expenditure Shares for Aggregate Food Spending Categories and FAH Disaggregated Food Categories for Expansion and Non-Expansion States. Shares adjusted for household characteristics, time and state fixed effects.

	Medicaid Expansion States	Non-Expansion States
	Average shares reported (95% confidence intervals in parentheses)	
Aggregate Food Spending Categories		
Food as Share of Income	0.343 0.332 - 0.353	0.317 0.305 - 0.330
Total food spending	179.1 174.6 - 183.5	161.8 156.2 - 167.5
FAH spending share of total food spending	0.72 0.709 - 0.732	0.714 0.700 - 0.729
FAFH spending share of total food spending	0.28 0.268 - 0.291	0.286 0.271 - 0.301
Fast food as share of FAFH spending	0.572 0.555 - 0.589	0.604 0.582 - 0.626
Fast food as share of total food spending	0.151 0.143 - 0.159	0.168 0.156 - 0.179
FAH Disaggregated Food Categories		
Flours and Breads	0.0996 0.0958 - 0.103	0.098 0.0932 - 0.103
Fruits and Vegetables	0.173 0.167 - 0.178	0.153 0.147 - 0.160
Sugary drinks	0.0627 0.0589 - 0.0665	0.0685 0.0628 - 0.0743
Poultry, eggs, and fish	0.0969 0.0926 - 0.101	0.0913 0.0860 - 0.0967
Red meat	0.125 0.120 - 0.129	0.139 0.132 - 0.147
Dairy	0.101 0.0974 - 0.105	0.101 0.0960 - 0.107
Sugary foods and sweets	0.0803 0.0763 - 0.0843	0.0851 0.0795 - 0.0907
Salty snacks	0.0343 0.0317 - 0.0369	0.0403 0.0364 - 0.0441
Fats and oils	0.0255 0.0237 - 0.0272	0.0219 0.0200 - 0.0238
All other foods	0.127 0.122 - 0.132	0.134 0.127 - 0.141
Beverages	0.0753 0.0714 - 0.0793	0.0669 0.0617 - 0.0721

Notes: Bold indicates statistically significant difference of means at p<0.01 level of significance.

**Table 6. Results from Parallel Trend Assumption Tests for Aggregate Food Spending Category
Expenditure Shares**

	Food as a share of income	Total food spending	FAH share of total food spending	FAFH share of total food spending	Fast food share of FAFH spending	Fast food share of total food spending
Medicaid State	0.0386 (0.0431)	-29.75 (20.10)	-0.127* (0.0512)	0.126* (0.0512)	0.862* (0.421)	-0.109 (0.0756)
2010	-0.0325 (0.0340)	0.268 (14.07)	-0.0348 (0.0390)	0.0344 (0.0390)	0.352 (0.361)	0.0126 (0.0541)
2011	-0.0121 (0.0334)	1.695 (14.86)	0.0150 (0.0393)	-0.0157 (0.0393)	-0.0136 (0.311)	-0.0902 (0.0563)
2012	-0.0243 (0.0305)	8.024 (13.13)	0.0530 (0.0356)	-0.0534 (0.0356)	0.0346 (0.355)	-0.0948 (0.0519)
2013	0.0205 (0.0320)	4.925 (13.89)	0.0618 (0.0363)	-0.0624 (0.0363)	-0.177 (0.262)	-0.0312 (0.0523)
Medicaid State x 2010	0.000175 (0.0278)	-0.680 (12.06)	0.0170 (0.0323)	-0.0163 (0.0323)	0.240 (0.326)	0.0166 (0.0476)
Medicaid State x 2011	0.0110 (0.0287)	8.647 (12.73)	-0.0323 (0.0336)	0.0331 (0.0336)	0.0995 (0.294)	0.112* (0.0499)
Medicaid State x 2012	0.00751 (0.0257)	11.48 (11.12)	-0.00398 (0.0304)	0.00481 (0.0304)	-0.305 (0.469)	0.0934* (0.0445)
Medicaid State x 2013	-0.0213 (0.0268)	16.77 (11.85)	8.97e-05 (0.0309)	0.000780 (0.0309)	-0.123 (0.265)	0.0754 (0.0461)
Constant	0.389** (0.0376)	164.7** (18.81)	0.682** (0.0434)	0.317** (0.0434)	0.846* (0.351)	0.506** (0.0683)
Household Characteristics	YES	YES	YES	YES	YES	YES
Quarter by year fixed effects	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES
Observations	3,567	3,567	3,567	3,567	3,428	2,736

Notes: Robust standard errors reported in parenthesis below coefficients. Statistical significance denoted by: *p<0.05 and **p<0.01

Table 7. Parallel Trend Assumption Test Results for FAH Disaggregate Food Category Expenditure Shares

	Flours and Bread	Fruits and Vegetables	Sugary drinks	Poultry, fish, and eggs	Red meat	Dairy	Sugary foods and other sweets	Salty snacks	Fats and oils	All other foods	Beverages
Medicaid State	0.0199 (0.0158)	-0.00350 (0.0201)	-0.0197 (0.0171)	-0.0225 (0.0163)	-0.0105 (0.0206)	0.0187 (0.0223)	-0.000549 (0.0212)	-0.00306 (0.0128)	0.000541 (0.00760)	0.00992 (0.0226)	0.00864 (0.0197)
2010	-0.0123 (0.0123)	0.0348* (0.0162)	0.00337 (0.0150)	-0.0165 (0.0140)	-0.0175 (0.0171)	-0.0123 (0.0130)	0.0115 (0.0132)	0.0108 (0.0117)	0.00708 (0.00459)	-0.00275 (0.0181)	-0.00672 (0.0111)
2011	-0.0140 (0.0114)	0.0221 (0.0149)	-0.00925 (0.0160)	0.00400 (0.0156)	0.000412 (0.0167)	-0.0117 (0.0144)	-0.00990 (0.0117)	0.00500 (0.0108)	0.00423 (0.00483)	0.00656 (0.0171)	0.00172 (0.0110)
2012	-0.0133 (0.0102)	0.0172 (0.0140)	-0.00437 (0.0139)	-0.0202 (0.0132)	-4.26e-05 (0.0149)	-0.0183 (0.0117)	0.0260* (0.0132)	-4.94e-05 (0.00769)	0.00615 (0.00431)	0.00383 (0.0164)	0.00278 (0.0102)
2013	0.00361 (0.0117)	0.0137 (0.0144)	0.00126 (0.0143)	-0.00755 (0.0157)	-0.00945 (0.0157)	-0.0115 (0.0130)	0.0134 (0.0134)	0.00541 (0.00869)	0.000539 (0.00414)	-0.00696 (0.0158)	-0.00321 (0.0108)
Medicaid State x 2010	-0.00417 (0.0112)	-0.0102 (0.0145)	-0.000609 (0.0119)	-0.00658 (0.0111)	0.0123 (0.0155)	0.00902 (0.0120)	-0.0124 (0.0121)	-8.77e-05 (0.00794)	-0.00444 (0.00414)	0.0147 (0.0143)	0.00327 (0.0100)
Medicaid State x 2011	-0.00603 (0.0107)	-0.0197 (0.0140)	0.0131 (0.0125)	-0.00464 (0.0124)	-0.00238 (0.0163)	-0.00173 (0.0125)	0.0240* (0.0104)	0.00636 (0.00883)	-0.00198 (0.00443)	-0.00843 (0.0148)	0.00237 (0.0116)
Medicaid State x 2012	-0.00609 (0.00951)	-0.00591 (0.0130)	0.00691 (0.0115)	0.00580 (0.0108)	0.00178 (0.0145)	-0.000546 (0.0112)	0.0141 (0.0110)	0.00127 (0.00709)	0.000787 (0.00403)	-0.00856 (0.0136)	-0.00869 (0.0104)
Medicaid State x 2013	-0.0129 (0.0109)	0.00658 (0.0135)	-0.00503 (0.0116)	0.00395 (0.0119)	0.0134 (0.0149)	-0.00855 (0.0116)	-0.00453 (0.0106)	-0.00225 (0.00672)	-0.00113 (0.00394)	0.00742 (0.0131)	0.00406 (0.0108)
Constant											
Household Characteristics	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,428	3,428	3,428	3,428	3,428	3,428	3,428	3,428	3,428	3,428	3,428

Notes: Robust standard errors reported in parenthesis below coefficients. Statistical significance denoted by: *p<0.05 and **p<0.01

Table 8. DID Results for Aggregate Food Spending Categories

	Food as a share of income	Total food spending	FAH share of total food spending	FAFH share of total food spending	Fast food share of total food spending	Fast food share of FAFH spending
Medicaid x Post 2013	-0.0109 (0.0160)	-1.844 (6.768)	-0.00121 (0.0180)	0.00107 (0.0180)	0.0136 (0.187)	0.0428 (0.0259)
Household Characteristics	YES	YES	YES	YES	YES	YES
Quarterly by year fixed effects	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES
Observations	5,214	5,214	5,214	5,214	5,011	4,049

Notes: Robust standard errors reported in parenthesis below coefficients. Statistical significance denoted by: *p<0.05 and **p<0.01

Table 9. DID Results for Disaggregate FAH Food Spending Categories

	Flours and Bread	Fruits and Vegetables	Sugary drinks	Poultry, fish, and eggs	Red meat	Dairy	Sugary foods and other sweets	Salty snacks	Fats and oils	All other foods	Beverages
Medicaid x Post 2013	0.00693 (0.00575)	-0.0105 (0.00816)	-0.00950 (0.00742)	-0.00824 (0.00734)	0.0128 (0.00863)	-0.00175 (0.00636)	-0.00736 (0.00741)	-0.000896 (0.00456)	-0.00198 (0.00249)	0.0230** (0.00798)	-0.00252 (0.00593)
Household Characteristics	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,011	5,011	5,011	5,011	5,011	5,011	5,011	5,011	5,011	5,011	5,011

Notes: Robust standard errors reported in parenthesis below coefficients. Statistical significance denoted by: *p<0.05 and **p<0.01