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What Drives Household Healthy Food Choices? Evidence from FoodAPS

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Abstract

- Based on food at home purchase data of 4818 U.S. households over one week, we comprehensively investigate underlying determinants of household dietary quality.
- Empirical results show that preferences shaped by individual characteristics, such as gender, education, marital status, and health habits, are the primary factors driving food choices. In particular, female, married and more educated consumers are more likely to purchase healthier food.
- Finally, we find that SNAP households have a nutrition quality cycle, and we attribute this cycle to mental accounting: households use SNAP benefits to buy healthier food, but use their own non-SNAP income to acquire much unhealthier food.

Data and Index

- USDA's National Household Food Acquisition and Purchase Survey (Food APS).
- Sample: 4818 households, 12918 food purchasing trips.
- Index measuring food nutrition quality, which is in the same spirit to the Healthy Eating Index (HEI) developed by USDA

	All households	SNAP	Income-eligible non-SNAP	Higher-income non-SNAP
Total number of trips	12918	4400	2369	6149
Number of trips per household	2.681	2.788	2.518	2.675
Food nutrition score	34.112 (13.534)	32.104 (13.111)	34.178 (13.618)	35.524 (13.621)
Food expenditure per trip (dollars)	28.159 (38.781)	28.506 (44.168)	25.254 (35.055)	29.030 (35.868)

Objectives

- We incorporate both individual-level and household-level traits into the framework of analyzing household food nutrition quality.
- We also incorporate SNAP into the study to investigate its effect on nutrition intake quality and whether there's a nutrition quality cycle related to SNAP benefits.

Methods

- Construction of Women's intra-household bargaining power
 $Femle_Head_i = \alpha_0 + \alpha_1 Age_Gap_i + \alpha_2 Edu_Gap_i + \alpha_3 Emp_Gap_i + \alpha_4 HH_Size_i + \alpha_5 Eli_NonSNAP_i + \alpha_6 Ineli_NonSNAP_i + \varepsilon_i$
 $Female_power_i = \Pr(Femle_Head_i = 1)$

- Construction of Food Accessibility index: We use Principle Component Analysis (PCA), which incorporates two dimensions of food accessibility: number of retailers within certain distances, and distances to nearest retailers.

- Basic Empirical Model:

$$FNQ_{ij} = \beta_0 + \sum \beta_i Y_{ij} + \sum \gamma_i Z_i + \varepsilon_{ij}$$

where FNQ_{ij} denotes food nutrition quality of household i 's trip j .

$Y_{ij} = \{Female_{ij}, Single_{ij}, Edu_{ij}, Diet_{ij}, Tobacco_{ij}, Obesity_{ij}\}$ is a vector of shopper-specific variables.

$Z_i = \{Female_power_i, Food_Access_i, Child_i, Rural_i, Rsize_i, Income_i, Region_i\}$ is a vector of household-level variables.

- To investigate whether SNAP participation affects household food nutrition quality, we employ Propensity Score Matching (PSM)
- To investigate the food nutrition intake cycle, we add two other variables, $Day_Since_Receipt_{ij}, SNAP_Ratio_{ij}$, to the basic model, where $Day_Since_Receipt_{ij}$ denotes the days since benefit receipt, $SNAP_Ratio_{ij}$ denotes the expenditure ratio paid with SNAP benefits for trip j .

Results

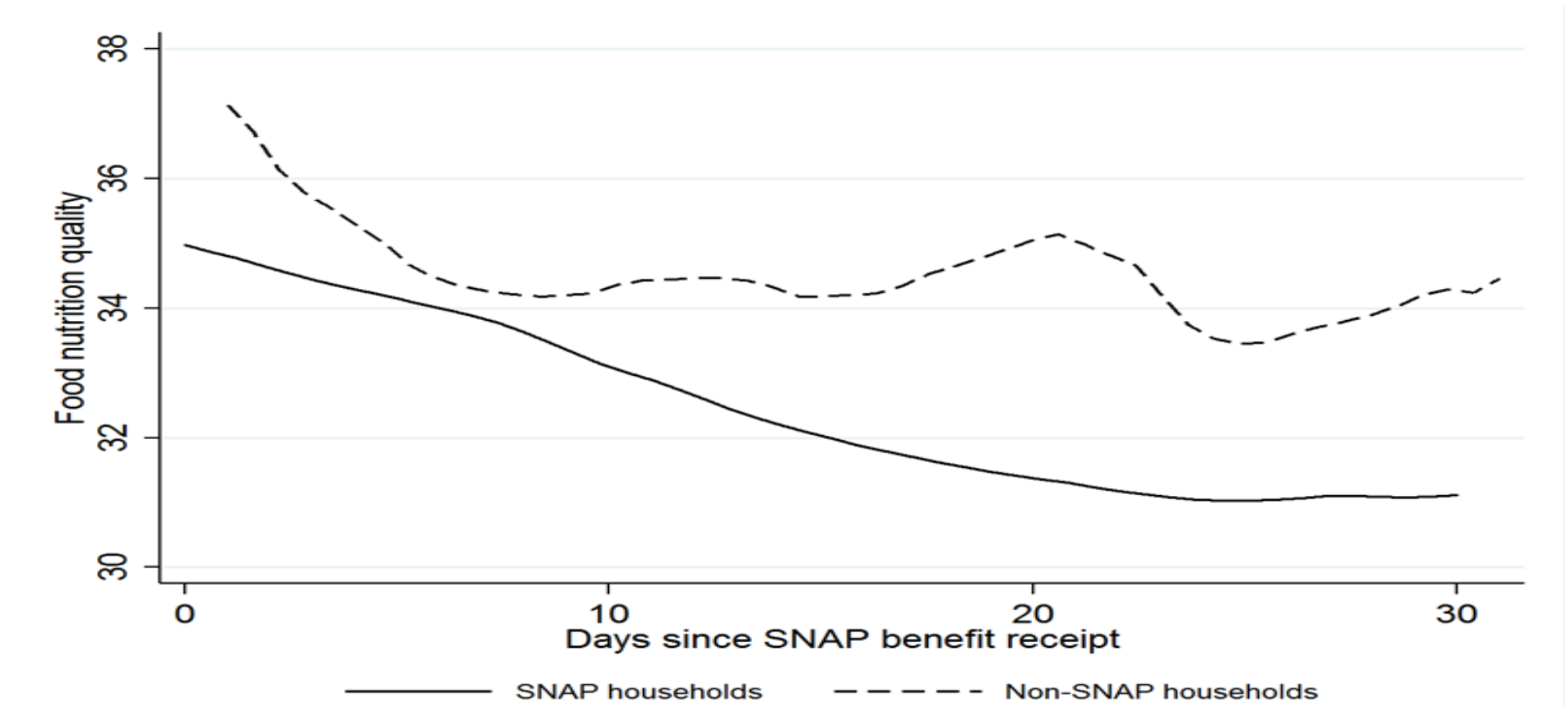
Treatment: SNAP take up	With 1 nearest neighbor	With 2 nearest neighbors	With 3 nearest neighbors	With 4 nearest neighbors
ATT on food nutrition quality (SNAP vs Non-SNAP)	-.605 (.546)	-.582 (.518)	-.603 (.503)	-.724 (.494)
Obs. on support (Treated/Control)	1277/644	1277/949	1277/1144	1277/1275

Note: Bootstrapping (2000 replications) standard errors are in parentheses.

Results

	All SNAP households			SNAP households with couples		
	All trips	Trips with SNAP benefits	Trips without SNAP	All trips	Trips with SNAP benefits	Trips without SNAP
	(1)	(2)	(3)	(4)	(5)	(6)
Shopper specific variables						
Female	1.754*** (0.498)	1.014 (0.746)	2.343*** (0.670)	2.521*** (0.870)	0.463 (1.467)	3.144*** (1.070)
Single	0.144 (0.507)	-0.562 (0.762)	0.566 (0.667)	1.519 (1.084)	-0.986 (1.376)	2.647* (1.440)
Education level	-0.0723 (0.189)	0.0329 (0.267)	-0.163 (0.262)	-0.0673 (0.320)	0.308 (0.480)	-0.368 (0.380)
On diet	1.607*** (0.457)	0.811 (0.669)	2.186*** (0.640)	1.836** (0.846)	-1.643 (1.325)	3.621*** (1.013)
Tobacco	-2.367*** (0.454)	-2.526*** (0.646)	-2.228*** (0.621)	-2.500*** (0.864)	-2.238* (1.304)	-2.798*** (1.053)
Obesity	-0.726 (0.501)	0.0927 (0.718)	-1.300* (0.680)	-0.639 (0.935)	1.485 (1.522)	-1.374 (1.050)
Household-level variables						
Date since SNAP	-0.0645** (0.026)	-0.113*** (0.038)	-0.0342 (0.033)	-0.0440 (0.044)	-0.116 (0.070)	-0.0190 (0.052)
SNAP benefit ratio	3.001*** (0.489)	-0.815 (1.715)		4.078*** (0.878)	3.146 (2.907)	
Female power				-4.014 (4.080)	-1.436 (7.462)	-2.339 (4.509)
Food Access	0.0368 (0.040)	0.0254 (0.051)	0.0666 (0.060)	0.0608 (0.082)	0.0454 (0.112)	0.0964 (0.098)
Resident size	-0.164 (0.153)	0.0918 (0.215)	-0.324 (0.209)	-0.268 (0.320)	0.213 (0.500)	-0.607* (0.332)
Income	0.000326*** (0.000)	0.000122 (0.000)	0.000429*** (0.000)	0.000354** (0.000)	0.0000791 (0.000)	0.000491*** (0.000)
N	4133	1856	2215	1380	553	810
R-square	0.045	0.026	0.043	0.066	0.055	0.075

Average food nutrition quality over the benefit month



Conclusions

- Household diet quality is mainly driven by individual preferences shaped by gender, education, marital status, and healthy habits, etc.
- SNAP households have a nutrition intake quality cycle in that their food quality is the highest right after receiving benefits, and is lower toward the end of the cycle, and this quality cycle can be accounted for by mental accounting effects
- Another explanation for the failure of SNAP in improving household diet quality: households use their own income to buy unhealthier food despite the fact that they use SNAP benefits to buy healthier food.