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 (FoodAPS).

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.

Methods

Construction of Women’s intra-household bargaining power

\[ F_{NQ_{ij}} = \alpha_0 + \alpha_1 Age_{Gap_{ij}} + \alpha_2 Edu_{Gap_{ij}} + \alpha_3 Emp_{Gap_{ij}} + \alpha_4 HH_{Size_{ij}} + \alpha_5 Eil_{NonSNAP_{ij}} + \alpha_6 Inel_{NonSNAP_{ij}} + \epsilon_{ij}. \]

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:

\[ F_{NQ_{ij}} = \beta_0 + \sum \beta_i Y_{ij} + \sum \gamma_i Z_{ij} + \epsilon_{ij}. \]

where \( F_{NQ_{ij}} \) denotes food nutrition quality of household \( i \)'s trip. \( Y_{ij} = \{ Female_{ij}, Single_{ij}, Edu_{ij}, Diet_{ij}, Tobacco_{ij}, Obesity_{ij}\} \) is a vector of shopper-specific variables.

\[ Z_{ij} = \{ Female_{power_{ij}}, FoodAccess_{ij}, Child_{ij}, Rural_{ij}, Rsize_{ij}, Income_{ij}, Region_{ij}\} \] 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_Receive_{ij} SNAP_Ratio_{ij} to the basic model, where Day_Since_Receive_{ij} denotes the days since benefit receipt, SNAP_Ratio_{ij} denotes the expenditure ratio paid with SNAP benefits for trip \( ij \).

Results

<table>
<thead>
<tr>
<th>Treatment: SNAP take up</th>
<th>With 1 nearest neighbor</th>
<th>With 2 nearest neighbors</th>
<th>With 3 nearest neighbors</th>
<th>With 4 nearest neighbors</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT on food nutrition quality</td>
<td>-0.605</td>
<td>-0.582</td>
<td>-0.503</td>
<td>-0.724</td>
</tr>
<tr>
<td>SNAP vs Non-SNAP</td>
<td>(.546)</td>
<td>(.518)</td>
<td>(.503)</td>
<td>(.494)</td>
</tr>
</tbody>
</table>

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

Conclusions

1. Household diet quality is mainly driven by individual preferences shaped by gender, education, marital status, and healthy habits, etc.
2. 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.
3. 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.

Average food nutrition quality over the benefit month

Household level variables:

- FoodAccess: \( 0.096 \) (0.150) - 0.234 (0.208) - 0.368 (0.208) - 0.639 (0.208)
- Day_Since_Receive: \( 0.045 \) (0.045) - 0.052 (0.045) - 0.059 (0.045)
- SNAP_Ratio: \( 0.068 \) (0.068) - 0.071 (0.068) - 0.074 (0.068)

Note: Standard errors are in parentheses.

* denotes \( p < 0.1 \), ** denotes \( p < 0.05 \), *** denotes \( p < 0.01 \).