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Differences in Food Expenditure Across Income Groups

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Differences in Food Expenditure Across Income Groups

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Overview

- Obesity in the US has dramatically increased over the past few decades—from 30.5% of the adult population in 1999 to 42.4% in 2018—and is a major public health concern since it is associated with serious health issues.
- The estimated to cost the US between $147 and $210 billion annually (CDC 2021; Harding and Lovenheim 2017).
- Poor diet and nutrition are considered leading causes for the increase in obesity and tend to disproportionally affect the poor (Valizadeh and Ng 2021).
- Past research relies on standard observable characteristics to study food choice, but these characteristics only explain a small portion of differences in food choice (Smith et al. 2019).
- Unobservable characteristics, like a preference for sugary goods, might affect a consumer's food purchasing decision but are not captured by traditional secondary data like the Nielsen Homescan Panel, NHANES, and FoodAPS.

Use a new data set containing psychographic data to look further into the difference in purchasing behavior of FV and SBB between income groups. Numerator's data is unique because it collects psychographic data from its panelists along with traditional consumer information. Psychographic is data about consumers' lifestyles, attitudes, interests, beliefs, emotions, values, and aspirations. Psychographic data provides information on what drives consumer purchasing behavior that could explain previously unobserved differences in purchases between income groups.

Data

Fruits, vegetables, and sugar-sweetened beverages data comes from Numerator, a market intelligence firm. Products were purchased from grocery stores throughout the U.S. and orders were either made online or in-store. It covers all fruits, vegetables, and sugar-sweetened beverages purchased in 2019.

References

Hlavac, Marek (2022). oaxaca: Blinder-Oaxaca Decomposition in R. R package version 0.1.5. https://CRAN.R-project.org/package=oaxaca

Smith, T.A., P. Valizadeh, B. H. Lin, and E. Coats. 2019. "What is driving increases in dietary quality in the United States?" Food Policy 86:101720.

Valizadeh, P., and S.W. Ng. 2021. "Would A National Sugar-Sweetened Beverage Tax in the United States Be Well Targeted?" American Journal of Agricultural Economics 103(3):961–986.

Model

Three twofold Blinder-Oaxaca Decomposition are used to decompose the gap in mean expenditure for fruits, vegetables, and sugar-sweetened beverages between low and high income panelist.

$$\overline{\Delta Y} = (X_A - X_B)^T \hat{\beta}_R + X_A^T(\hat{\beta}_A - \hat{\beta}_R) + X_B^T(\hat{\beta}_R - \hat{\beta}_B)$$

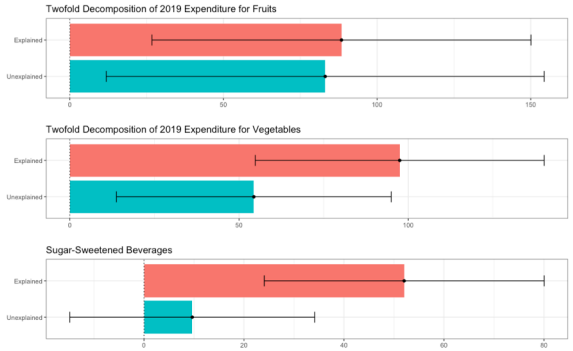
$\overline{\Delta Y}$ is the average difference in expenditure between low and high income panelists for either fruits, vegetables, or sugar-sweetened beverages.

X_H is a vector of demographics, socioeconomic, and psychographic variables for high income panelists.

X_L is a vector of demographics, socioeconomic, and psychographic variables for low income panelists.

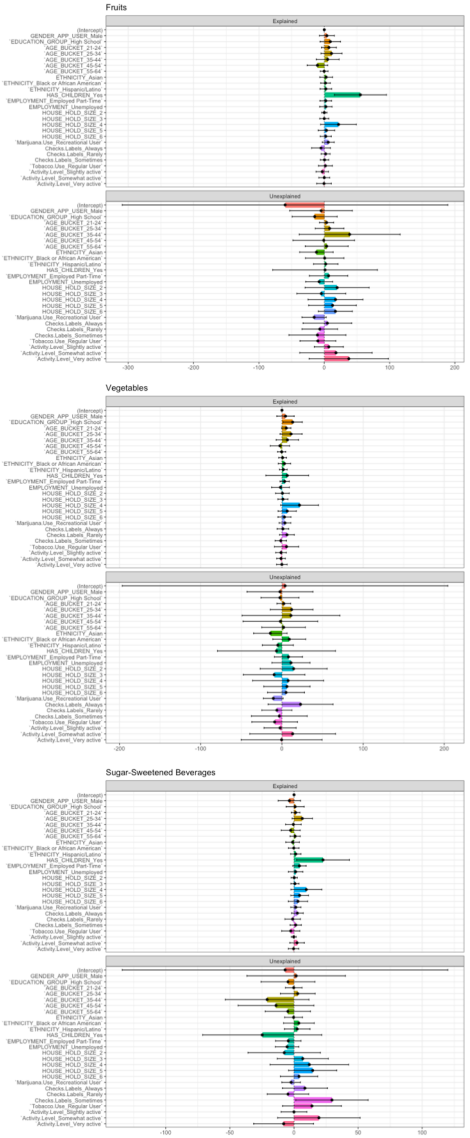
$\hat{\beta}_H$ is the vector of coefficients for high income and $\hat{\beta}_B$ is the vector of coefficients for low income.

$\hat{\beta}_R$ is the vector of reference group coefficients.



Discussion

Key Findings:

- Aside from levels of physical activity, psychographics do not provide significant explanation for the gap in fruits, vegetables, and sugar-sweetened beverages expenditure for low and high income panelists.
- Psychographics explain a larger portion for differences in expenditure for sugar-sweetened beverages.

Results indicate that psychographics do not provide much of the unobserved differences in food expenditures between income groups.