The Relationship of Supermarket Access to the Price and Nutritional Quality of Household Purchases

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Outline

Problem Statement

Food accessibility in the United States and other countries is an important area for research and policy attention. The USDA has classified food accessibility as a function of food security that is defined as, "access by all people at all times to enough food for an active, healthy life." The major concerns related to food access are about the prices paid for grocery items, the quality of food purchases, and the health impacts of reduced accessibility to food. Limited access to healthy affordable food can create issues of hunger, obesity, diabetes, and heart disease. Food accessibility is also a significant component of the current fight against childhood obesity that includes national public awareness campaigns to ensure access to healthy affordable foods. Some of the most significant questions in the food access debate are whether the poorer households are paying more and/or purchasing lower nutritional quality food.

Research Questions

1. Do lower income households pay more for food?
2. Do lower income households purchase lower nutritional quality food products?
3. Does reduced access to supermarkets result in higher prices paid?
4. Does increased vehicle access result in lower prices paid?

Literature

Much of the existing literature in the U.S. that addresses supermarket access in urban areas has documented that urban residents, particularly the poor, black, and less mobile (i.e. households that lack a vehicle), are suffering from a lack of accessible supermarkets in their neighborhood. Other research has noted prices in inner cities are higher because small grocery stores, as opposed to large chains, are more likely to locate there. Supermarkets and large chains are associated with lower prices, wider selections, and greater availability of fresh fruits and vegetables; thus, accessibility to supermarkets has generally been identified as a necessary and sufficient condition for measuring food accessibility. While it has been noted that prices are higher in inner cities, there is little evidence that consumers are purchasing at these higher prices as their primary source for food-at home consumption.

Literature Continued...

Accessibility studies have also focused on areas where people live, disregarding opportunities for people to purchase food for at-home consumption from retail locations close to their places of work. The most recent work on supermarket access was initiated by Congress in the Food, Conservation, and Energy Act of 2008, which directed the U.S. Department of Agriculture to commission several research studies. One of the main conclusions from this most recent body of research is that: "the current state of research is insufficient and future research should consider improved methods to measure access levels."

Model

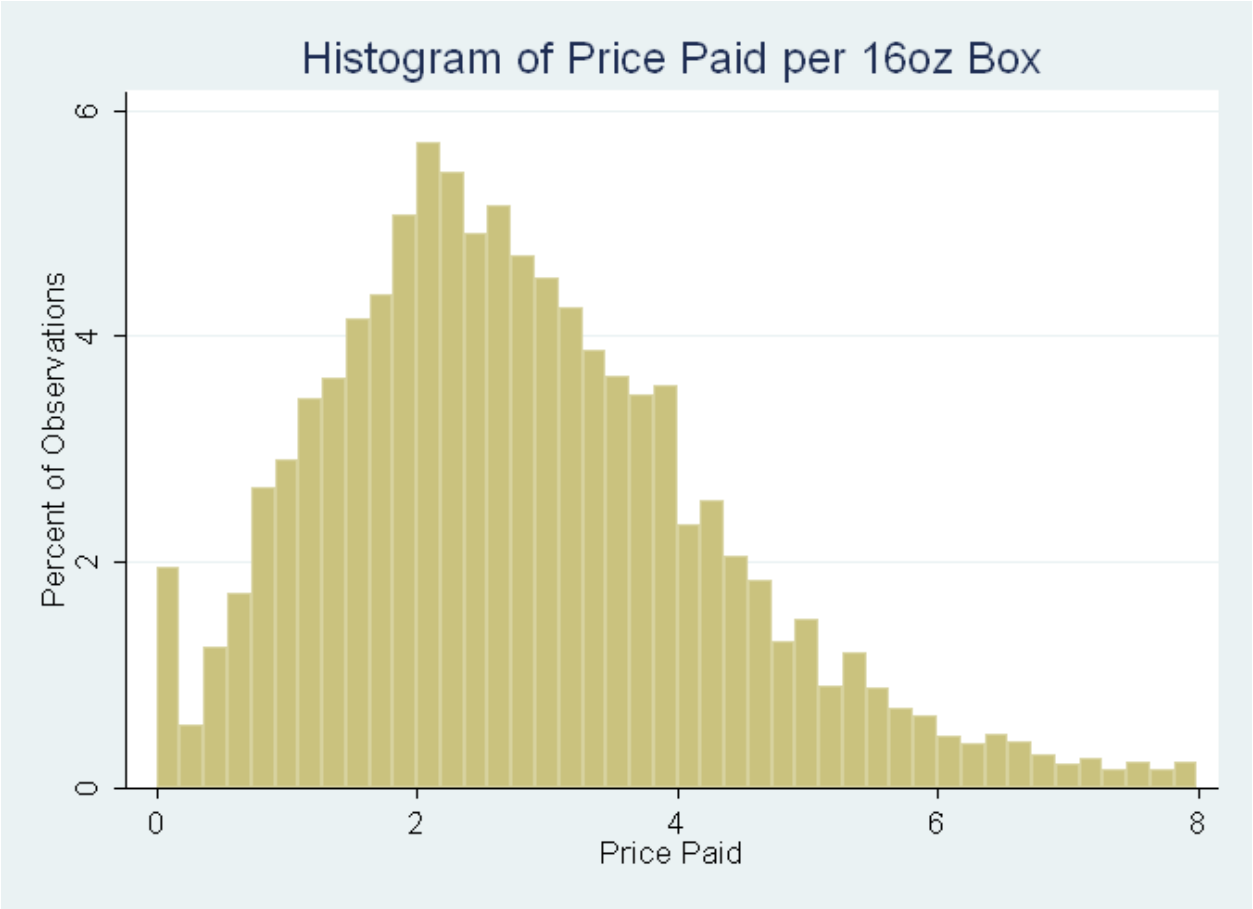
Macro Level Modeling
Simultaneous equations are jointly specified to measure the determinants of Price and Nutritional Quality.

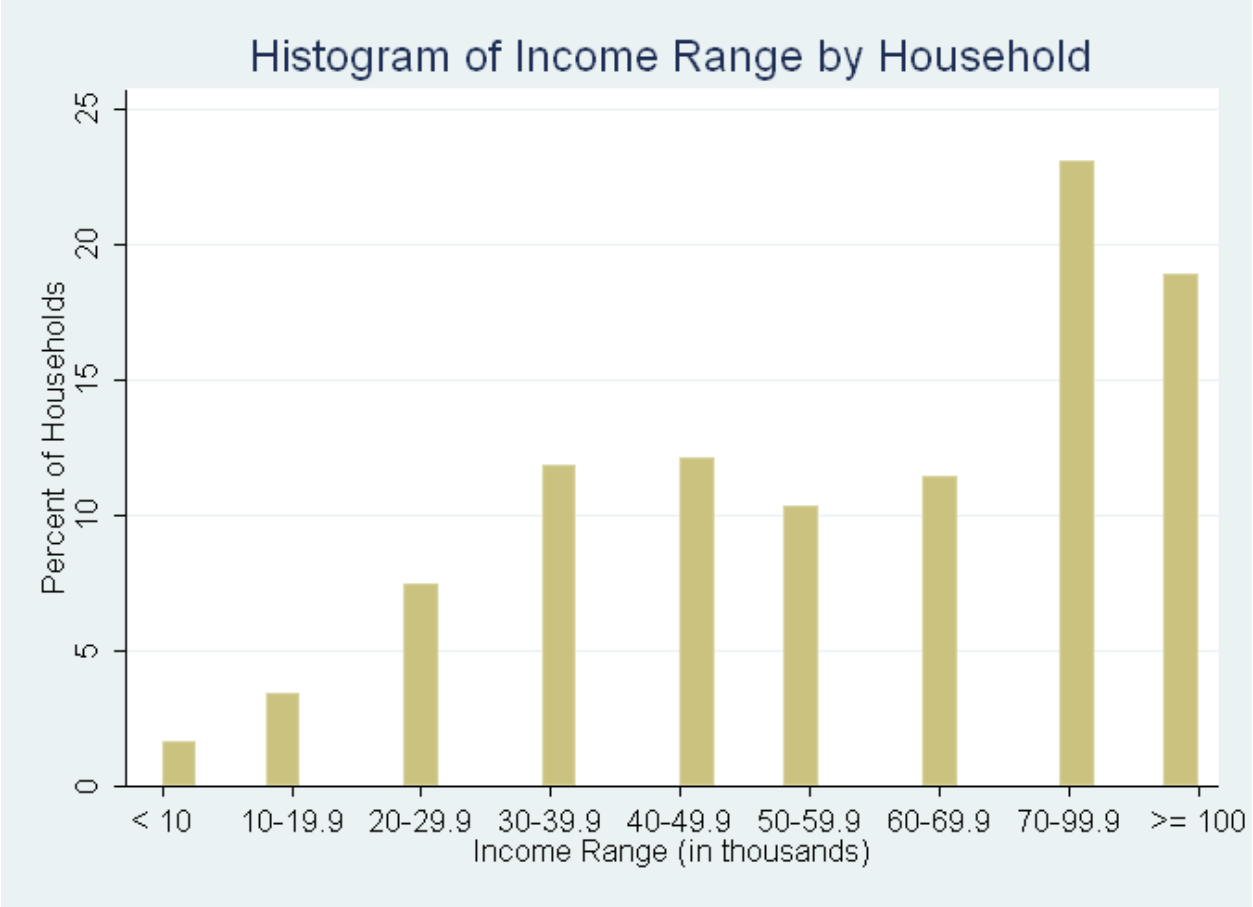
Micro Level Modeling
Accessibility is modeled along transportation networks using Geographic Information Systems (GIS) and spatial econometric techniques. Three different measure of access are calculated: (1) Distance to Closest Supermarket; (2) Number of Supermarkets within a Specified Area; and (3) a Measurement of Supermarket Density based on Store Location and Store Size.

The macro level system of equations are estimated as a random coefficients model using Generalized Method of Moments (GMM) with specified micro moment parameters.

Data

- Data Period: 2006 - 2008
- Data Geography: State of Connecticut
- Purchase Data: A.C. Nielsen - Homescan
- Food Category: Ready-to-Eat Cereal
- Number of Purchases: 29,495
- Household Demographics: A.C. Nielsen - Homescan
- Number of Households: 1,578
- Supermarket Locations: TDLinx Location Data


Histogram of Price Paid per 16oz Box
Percent of Observations
0
2
4
6
0
2
4
6
8
Price Paid


Histogram of Income Range by Household
Percent of Households
0
5
10
15
20
25
< 10
10-19.9
20-29.9
30-39.9
40-49.9
50-59.9
60-69.9
70-99.9
>= 100
Income Range (in thousands)

Results

[To Be Completed Prior to Conference]

Conclusions

[To Be Completed Prior to Conference]

Key References

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