

# The roles of food prices and food access in determining food purchases of low-income households<sup>☆</sup>

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## Abstract

A growing literature suggests that limited access to full-service grocery stores may be linked to poor diets, obesity, and other diet-related diseases. Food prices are likely to be as much of a factor in low-income consumers' food purchase decisions as food store access is, but few studies consider the roles of prices and food access simultaneously. We incorporate supermarket access into a utility-theoretic censored demand system for 13 food groups among households that receive the Supplemental Nutrition Assistance Program (SNAP) benefits in the U.S. The demand system is estimated with a Bayesian procedure which otherwise would have been cumbersome with the classical approach. Results suggest that prices are significant determinants of food purchases, but supermarket access has limited influence. Improving food choices, diet, and health may require addressing both accessibility and affordability.

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## 1. Introduction

Eating and dietary habits have been shown to diverge along socioeconomic status in Europe and the United States (U.S.) (Darmon & Drewnowski, 2008; Irala-Estevéz et al., 2000; Lopez-Azpiazu et al., 2003; Trichopoulou, Naska, & Costacou, 2002; USDA, 2008). Poor diet is the cause of many health problems, including obesity, heart disease, stroke, cancer, diabetes, and osteoporosis-related hip fractures (USDHHS-USDA, 2005). Disparities in health, specifically diet-related health, across socioeconomic status have also been documented in Europe and the U.S. (Mackenbach et al., 2008; Shavers, 2007; U.S. CDC, 2011). The causes of dietary and health disparities cannot be completely explained by individual factors and are not fully understood. Environmental factors, such as food access and availability, recreation opportunities, and neighborhood safety are also potential contributors to these disparities.

Mitigating such environmental factors through public intervention has received considerable interest. The U.S. Congress has proposed the Healthy Food Finance Initiative that would bring affordable, nutritious food to areas of low access and low income. A working group comprising staff from the departments of Treasury, Health and Human Services, and Agriculture is coordinating and sharing information about strategies to expand the availability of nutritious food in underserved areas.<sup>1</sup> This tri-agency effort, which is just getting underway and made its first awards in the fall of 2011, builds upon State and local programs already in existence. For example, the Pennsylvania Fresh Food Financing Initiative uses State funds, leveraged with funds from private organizations, to provide grants and loans to develop grocery stores in underserved areas throughout Pennsylvania. This program has been underway since 2004 and served as a model for other programs in New York City, New Orleans, and California. Many other communities have private and publicly sponsored programs to improve healthy food access as well.

The relationships among neighborhood food availability, dietary intake, and obesity have received increasing attention among researchers, the public health community, and policy-makers. The research literature, which is primarily in the public health realm, shows mixed evidence about the link between neighborhood food availability and poor diets and obesity. Many of the cross-sectional studies find that limited access to full-service grocery stores are correlated with poor diets, and ultimately, to obesity and other diet-related diseases (Larson, Story, & Nelson, 2009; Powell, Auld, Chaloupka, O'Malley, & Johnston, 2007). A plausible explanation for the correlation is that limited access results in greater transportation and time costs for shopping at grocery stores relative to easier access to fast and convenience foods. Longitudinal studies and studies that use other methods to control for causal factors do not consistently show a link between the food environment and diet and obesity (Block, Christakis, O'Malley, & Subramanian, 2011; Boone-Heinonen et al., 2011; Chen, Florax, Snyder, & Miller, 2010). But the role of food prices on all but a very general level, has largely been ignored in this literature, even though it is obviously a major determinant of food shopping behavior.

In this study, we demonstrate that healthy food not only has to be available, but it also has to be priced affordably to improve food choices of low-income households. Our argument is based on an examination of the budget allocation among 13 food groups by a national sample of U.S. households that received Supplemental Nutrition Assistance Program (SNAP, formerly called the

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<sup>1</sup> See the Senate version of the Farm Bill (S. 3240) for the proposed Senate version: <http://www.ag.senate.gov/issues/farm-bill> and the following website for more information on the tri-agency effort: <http://apps.ams.usda.gov/fooddeserts/Default.aspx>.

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