The Dynamic Effect of SNAP Participation on Food Choices, Tobacco Use, and Health Outcomes among Low-Income People

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BACKGROUND AND METHODOLOGY:

Food insecurity and malnutrition are two major public health crises that pose serious health threats to low-income families in the United States. The Supplemental Nutritional Assistance Program (SNAP) is “the first line of defense against hunger and cornerstone of all federal nutrition assistance programs.” Due to the late-2000s economic recession and high unemployment rate, SNAP is currently a massive federal spending program, it accounts for 68% of the Farm Bill to cover 47 million people up to the most recent report. Without significant improvement in the economy and job market, it is likely that the participation rate of SNAP will remain high in the near future. Hence, SNAP will likely become even more critical in the coming years as the food prices and poverty rate of the U.S. population are trending up together.

However, the puzzling correlation between SNAP participation, obesity, and malnutrition in recent decades has triggered fierce debate regarding whether current SNAP needs serious reform to fulfill its original mission, which is to improve the nutritional and health outcomes of both adults and children at risk of food insecurity. The current SNAP follows the policy structure designed in 1960s as a “defined contribution” program through which the federal government transfers funds to individual families as food budget based on means test. Currently, due to the coexistence of high rates of obesity, malnutrition, and tobacco use among SNAP participants, the American public and policymakers have started to wonder if SNAP is losing its function to achieve the original mission when lifestyle and food environment have changed significantly since 1960s. It remains uncertain whether and how the current SNAP program leads to increased consumption of nutritious foods and better health outcomes; or, on the contrary, it purely acts through income effect that either boosts the consumption of “sinful goods,” such as excessive consumption of added sugar or fat, or substitutes house budget for tobacco consumption, both could satisfy instant utility but lead to long-term adverse health outcomes.

Therefore, this study is conducted to achieve two aims: (1) to investigate the effect of SNAP on food choices and tobacco use, and (2) to investigate the subsequent effect of SNAP on health outcomes through food and tobacco consumption choices. Secondary data analysis was conducted using 2007 to 2008 waves of National Health and Nutrition Examination Survey (NHANES). A simultaneous dynamic model was constructed to estimate the effect of SNAP participation on daily calorie intake; specific nutrient intake including carbohydrates, protein, sugar, fiber, and fat; daily cigarette consumption; the Healthy Eating Index of 2005 (HEI2005); as well as the subsequent health outcomes measured by clinical indicators of high blood sugar (HbA1c>7.0%), high blood pressure (BP>140/90mmHg), high cholesterol level (total cholesterol>240, or LDL>160, or...
HDL <40), and depression (a score of 15 or higher from the screening using Patient Health Questionnaire 9th Edition [PHQ-9]). Discrete Random Factor Effect was used to control for unobserved individual heterogeneity that could influence not only SNAP participation, but also food choices, and health outcomes.

FINDINGS:

The results do not suggest that the current SNAP program fully fulfills its mission to improve the nutritional and health outcomes of the low-income population in the current economy and food environment.

After controlling for the unobserved heterogeneity and the major observed confounders such as demographics, educational level, family size, etc., this study tested the dynamic model with DFRE among different samples in different income levels. The results show that SNAP participants have lower calorie intake and worse quality of diet than the nonparticipants. Specifically, SNAP participants have 50 to 80 lower daily calorie intake than the non-SNAP participants, have 2.3 to 2.6 \textit{gm} lower daily protein intake, 1.3 to 1.8 \textit{gm} lower daily fiber intake, and 1.47 to 1.87 lower score of HEI2005.

In addition, what should concern the policymakers the most is that the results from health outcome estimates show that calorie intake, protein intake, fiber intake, and HEI2005 are the strongest predictors of better health in terms of lower probability of high blood sugar, and/or high cholesterol level, and/or depression. To summarize the results from both parts of the estimation, the net influence of SNAP on health outcomes is slightly negative, but is statistically significant.

There is no evidence from this investigation to suggest that SNAP leads to higher consumption of sugar, fat, or cigarettes.

Such results also suggest that the current SNAP program has a lot of room for improvement and reform. To guarantee stable and sufficient food supply with high-quality calories from protein and grains under SNAP reimbursement should be one priority of reform.

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