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School Meals Improve Diet Quality Among Low-Income Children

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At nearly all public and some private schools, children from low-income households are eligible to receive free and reduced-price school lunches. Most of these schools also offer breakfasts. In a recent study, we compared nutritional intake between the periods just before and just after the school year begins for children likely to be eligible for free school meals (incomes under 200% of the poverty guideline) versus students unlikely to be eligible. We found that access to school meals reduces caloric intake, driven by a reduction in soda consumption for younger children, and a reduction in total fat intake for older children. Given increasing obesity among school children and the specific ways that calories are reduced, these findings likely represent improvements in students' diets. Our findings suggest that school meals programs can improve nutritional intake. Policymakers should consider this benefit when considering changes to program availability.

Key Facts

Programs like the National School Lunch Program (NSLP) and School Breakfast Program (SBP) offer free and reduced-price meals to millions of low-income children across the U.S.

With the start of the school year, caloric intake among low-income students fell, largely due to lower soda consumption for young students and lower fat for older students.

These results suggest that school meals can improve diet quality.

Background

Poor nutrition is a major concern in the United States.[1] Low-income children are at particularly high risk because they lack reliable access to nutritious food and face disrupted eating patterns due to lack of available food.[2] Poor nutrition contributes to a wide range of morbidities, including obesity, diabetes, anemia, and cancer.[3] Schools play a major role in children's diet and nutrition, as most children consume a breakfast and/or lunch provided by the school.[4,5]

The National School Lunch Program (NSLP) and the School Breakfast Program (SBP) are two of the most widely used food assistance programs. Both are aimed at ensuring school-aged children have access to affordable, healthy food. Meals provided by the NSLP and the SBP must meet certain nutritional standards, some of which have changed over time. Examples of these standards include limits on the percent of calories from fat and sugar content.[6]

Approximately 28.5 million children participated in the NSLP in 2023, and about 14.7 million participated in the SBP.[5] Children in families with income below 130 percent of the federal poverty guideline (FPG) are eligible for free school meals, while those in families with income between 130 and 185 percent of the FPG pay a maximum of 40 cents per meal.[7] However, access to these programs is limited to when schools are in session. In our study, we leveraged changes in program access by comparing intake in the months surrounding the start of the school year to estimate the effect of access to school meals on children's nutrition.[8]

Examining the impacts of school meals

We used data from the National Health and Nutrition Examination Survey (NHANES), a nationally-representative, repeated cross-section survey designed to assess the health and nutritional status of adults and children in the U.S. Specifically, we used data on about 4,500 school-aged children collected between 1988 and 2014. The NHANES data we used are collected throughout the year, allowing us

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3. Centers for Disease Control and Prevention, 2022b. Childhood Nutrition Facts. https://www.cdc.gov/healthyschools/nutrition/facts.htm
4. National Center for Education Statistics, 2024. Common Core of Data Data File, https://nces.ed.gov/ccd/ccddata.asp
5. U.S. Department of Agriculture, 2024a. Economic Research Service. National School Lunch Programs, https://www.ers.usda.gov/topics/food-nutrition-assistance/child-nutrition- programs/national-school-lunch-program/
6. Federal Register. 2016. National School Lunch Program and School Breakfast Program: Nutrition Standards for All Foods Sold in School as Required by the Healthy, Hunger- Free Kids Act of 2010. 81(146), 50132-50151. https://www.federalregister.gov/documents/2016/07/29/2016-17227/national-school-lunch-program-and-school-breakfast-program-nutrition-standards-for-all-foods-sold-in
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8. Bitler, M., Currie, J., Hoynes, H., Ruffini, K., Schulkind, L., and Willage, B. 2025. Effects of school meals on nutrition: Evidence from the start of the school year. Food Policy, vol. 134(C). DOI: 10.1016/j.foodpol.2025.102901

to measure differences in nutrition consumed between students in the period before and after the beginning of the school year. We focused on specific foods or combinations of foods based on the US Dietary Guidelines for Americans 2020-2025. According to those guidelines, under-consumed foods include fresh fruits and vegetables, as well as milk, while high-sugar foods and drinks such as soda are over-consumed. We used a difference-in-differences approach using precise, district-level school-start dates to capture increased access to free school meals that coincide with the start of the school year.

School meals can shape children's nutritional consumption

Our results show that school meals improve children's diets. Upon returning to school after the summer break, children in our study consumed fewer calories and less protein, while older children consumed less fat. Protein intake among children in our sample (as with the U.S. population as a whole) was well above the Dietary Guidelines for Americans; the reduction in protein could therefore represent an improvement in diet. Given high rates of obesity among students and the sources of calorie reductions (soda and fat), these changes in diet are likely to be beneficial.

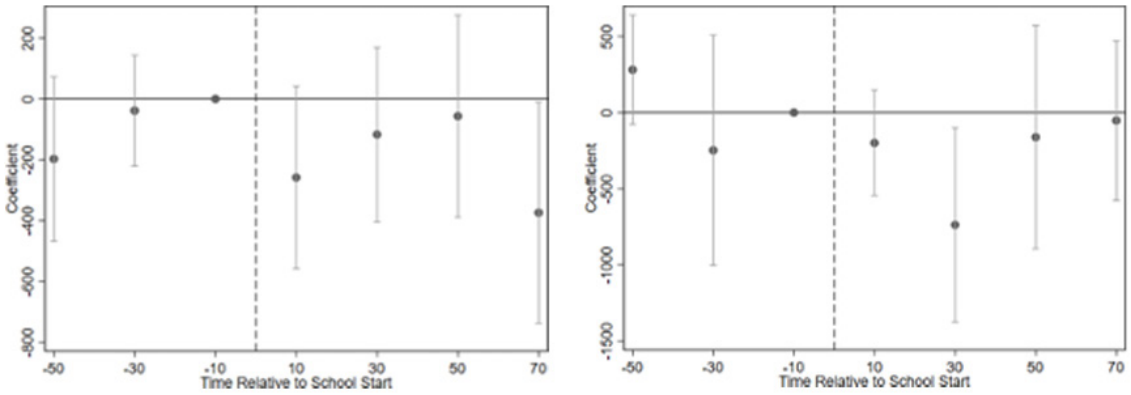

Figure 1. Caloric intake (kcal) before and after starting school for grades 1–6 (left) and 7–12 (right).

Reduced soda consumption and fat intake contributed to drop in total calories

For elementary school students (grades 1 to 6), we found a statistically significant drop in caloric intake of approximately 191 calories per day upon starting school—a 9.8 percent reduction. Lower soda consumption was responsible for 25-30 percent of this decrease. We also found a drop of 7.5 grams of protein (11 percent), with statistically insignificant declines in the consumption of fat and carbohydrates.

For older students, we found similar patterns, though with statistically significant and somewhat larger declines in calories (reductions of 263–298 calories/day or 12–14 percent), statistically significant declines in fat (declines of 14–17 grams per day or 17–20 percent), and statistically significant declines in protein (dropping by 6–9 grams per day for 8–12 percent) in two out of the three specifications. As with younger children, there was no significant change in older students' carbohydrate consumption or the prevalence of food insecurity.

These results suggest that schools can shape children's nutritional consumption, and that the school meals program could be a lever to improve children's dietary quality. With a growing number of states providing universal meals programs, school meals have the capacity to affect a greater share of America's children. Policymakers should consider these findings when contemplating potential changes to programs like the NSLP and the SBP.

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