



The Effect of Food and Beverage Prices on Children's Weights

Minh Wendt and Jessica E. Todd

This is a summary of an ERS report.

Find the full report at www.ers.usda.gov/publications/err118

The rate of overweight among children has tripled over the past 30 years. First Lady Michelle Obama's *Let's Move* campaign highlights the growing public interest in finding ways to reverse this trend. One factor that may be important in shaping children's dietary intake and weight is food prices. This report estimates the effect of food prices on children's Body Mass Index (BMI) using variation in food prices across time and geographic areas.

What Did the Study Find?

Food prices have small but statistically significant effects on children's BMI, but not all food prices have the same effect. While the magnitude of the price effects is similar for healthier and less healthy foods, the direction differs. Lower prices for some healthier foods, such as lowfat milk and dark green vegetables, are associated with decreases in children's BMI. In contrast, lower prices for soda, 100-percent juices, starchy vegetables, and sweet snacks are associated with increases in children's BMI. Specifically, results show that:

- A 10-percent price decrease for lowfat milk in the previous quarter is associated with a decrease in BMI of approximately 0.35 percent, or about 0.07 BMI unit for an 8- to 9-year-old.
- A 10-percent drop in the price of dark green vegetables (e.g., spinach and broccoli) in the previous quarter is associated with a reduction in BMI of 0.28 percent.
- A decrease in the price of sweet snacks during the previous quarter is associated with an increase in BMI of 0.27 percent.

Not surprisingly, there is sometimes a delay between when prices change and when measurable changes occur in children's BMI.

- A 10-percent price increase for carbonated beverages 1 year prior is associated with a decrease of 0.42 percent in the average child's BMI. The same price increase for 100-percent juices or starchy vegetables (e.g., potatoes and corn) is associated with a decrease in BMI of 0.3 percent 1 year later.

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In addition to the effects varying over time, the effects of prices vary by other characteristics.

- Soda prices have a greater effect on children in households with income below 200 percent of the Federal poverty line, as compared with children in households with higher income.
- Prices for healthy foods such as lowfat milk and green vegetables have larger effects on higher BMI children than on children of average weight.
- Prices for less healthy food groups such as carbonated beverages, fruit drinks, and starchy vegetables have larger effects on BMI for children of average weight.

How Was the Study Conducted?

Panel data on children's BMI, demographic, and household characteristics from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 were linked to average retail food prices from the Quarterly Food-at-Home Price Database. BMI was regressed on lagged prices (one-quarter and 1-year lags) using fixed-effects regressions to control for unobserved factors that are likely correlated with BMI. Alternative specifications included price changes over the previous quarter and previous year. Regressions were conducted on the full sample and also separately for boys and girls. Quantile regressions were used to explore whether heavier children have different responses to food prices than thinner children.