

In the U.S., households that have a higher level of educational attainment purchase more fruits and vegetables

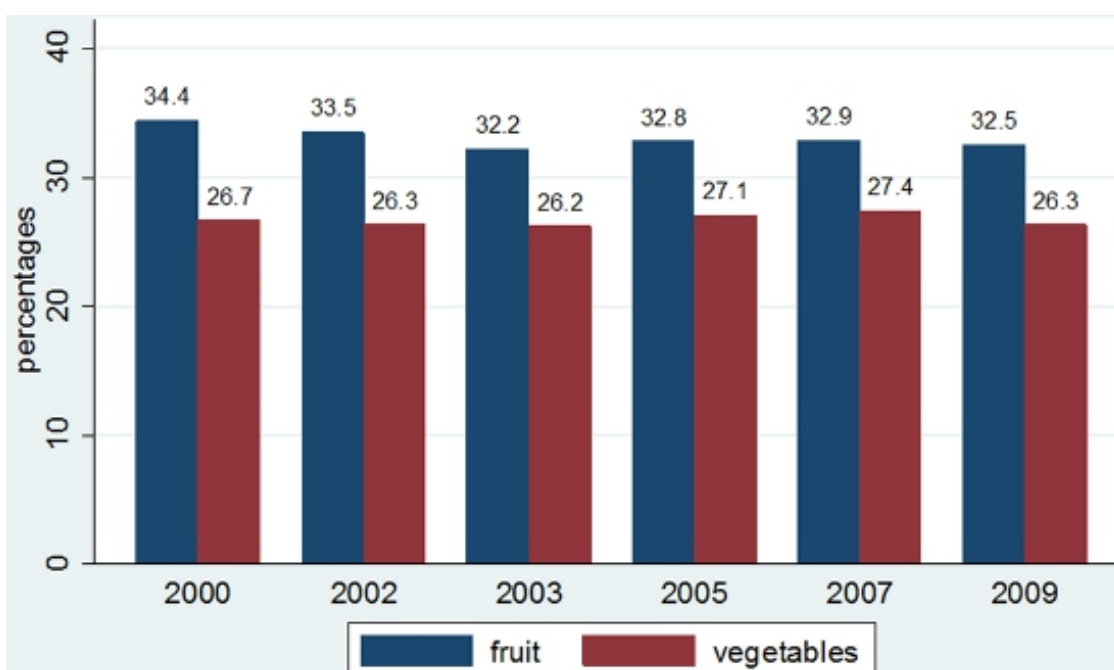
The U.S. currently faces an obesity crisis, costing society billions in preventative and treatment services as well as premature deaths. The declining consumption of fruits and vegetables among the public is often cited as a contributor to the crisis. In new research covering more than 7000 households, **Joshua Berning** and **John Hogan** find that those households that are headed by a college graduate purchase around nine more servings of fruits and vegetables a week compared to those with only a high school education. Not only do more highly educated people eat more fruits and vegetables, they also eat produce of higher quality. In light of these findings, they argue that we should not ignore the potential for education to counter the environmental factors that help to encourage obesity.



Over the past few decades, concern regarding the quality of diets within the United States has grown, largely due to increased rates of obesity and obesity related illnesses. To this point, one aspect of the American diet that appears particularly deficient is fruit and vegetable consumption. As can be seen in Figure 1, consumption of fruits has been declining and consumption of vegetables has remained steady. Both are below the previous targets of 75 and 50 percent of adults consuming fruit and vegetables two to three times a day, respectively.

Eating fruits and vegetables provides numerous health benefits and is also associated with lower rates of obesity. Thus, investigating ways to increase fruit and vegetable consumption is of considerable importance. According to our recent research, households with greater educational attainment are more likely to purchase fruits and vegetables when compared to less educated households, even after controlling for other relevant factors. This suggests that fostering education may improve diet and ultimately health outcomes.

Figure 1 – Percentage of US adults over 18 who consumed fruit two or more times per day and vegetables three or more times per day 2000 – 2009.



The relationship between education and health outcomes has been studied by economists and is subsequently [referred to](#) as “one of the strongest generalizations to emerge from empirical research on health in the United States.” The relationship between education and obesity, however, has been less explored. In particular, it remains unclear how and to what extent education impacts obesity. By examining household diets, particularly fruit and vegetable purchases, we gain new insights into the potential benefits of education to help reduce rates of obesity.

One theory suggests that education increases a person’s knowledge and understanding about how to “produce” good health. With respect to food consumption, education may improve a person’s ability to evaluate risks associated with their current diet and, more importantly, how to make appropriate changes. For example, education may better equip people to make informed decisions about their food choices such as how to eat a balanced diet or how to select healthier alternatives.

At the same time, household education need not affect household diet. In fact, the two could simply be correlated. For instance, highly motivated people may be more likely to pursue higher education and more likely to manage their diet. Alternatively, people who dedicate themselves to obtaining higher education may have a higher opportunity cost of time. As a result, they cut corners on other aspects of their lives such as their diet. In either case, education may have no influence on dietary behaviors, and any observed empirical relationship between the two may only be correlation.

We attempt to account for relevant household differences, including motivation, to identify the effect of educational attainment on fruit and vegetable purchases. We use the US Department of Labor’s Consumer Expenditure Survey which collects data from roughly 7,000 households, including a diary of household expenditures on frequently purchased items such as food. Using this data, we are able to identify household demographics, educational attainment of household members and various sources of household income. Taking account of the latter is relevant because higher income provides households with greater flexibility to obtain a better diet. Yet, a person can have a high income without obtaining higher education. Consequently, we separate the effect of education from the effect of income.

We consistently find that households that have people with higher levels of education purchase significantly more fruits and vegetables. Even after adjusting for numerous household differences. To put our results into context, we find that households with a college graduate as the head of household purchase about nine more servings of fruits and vegetables per person per week than those with only a high school graduate head of household. Given the abysmal levels of fruit and vegetable consumption in the US, this amount is not trivial.

Our finding is consistent across single and married households and households with additional adult members. Further, the effect of education on fruit and vegetable purchases is persistent regardless of who within the household obtains the higher education i.e. the husband or wife. It is interesting to note that the effect of income on purchases is small compared to education.

Beyond the quantity purchased, we find that education also has an effect on the *quality* of fruit and vegetable purchases. In particular, households with higher education purchase more fresh fruits and vegetables than processed fruits and vegetables. This suggests that higher education could result in more diet planning and management. Whereas processed fruits and vegetables are easier to stockpile in the pantry or freezer, fresh fruits and vegetables require more effort for both selection and preparation.

Implications

By exploring the link between education and diet we can better understand the potential for education-based policies to improve diets and ultimately health outcomes. This is especially relevant given the recent trends in obesity and obesity-related chronic diseases. Additionally, household specific improvements in diet can have society-wide benefits via reduction in overall health care costs. While the US food system often receives the majority of blame for the obesity epidemic, the potential of education to counter environmental factors should not be ignored. If low-academic achievement is an indicator of poor dietary habits, it may be beneficial to identify and target such at-risk populations with appropriate interventions.

This article is based on the paper '[Estimating the Impact of Education on Household Fruit and Vegetable Purchases](#)', in *Applied Economic Perspectives and Policy*.

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