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Insidious Consumption

Surprising Factors That Influence What We Eat and How Much

Lisa Mancino

lmancino@ers.usda.gov



- The prevalence of obesity and diet-related illnesses is rising, despite evidence that Americans are aware of the positive effects of a balanced diet and exercise.
- Standard tools of economics can only go so far in explaining these trends and may have limited impact on improving consumers' food choices.
- Findings from behavioral economics shed light on several factors that could help economists and policymakers better understand food choices.

A 2005 survey by the International Food Information Council found that at least 89 percent of American adults sampled indicated that they believe diet, exercise, and physical activity influence health. These beliefs are reflected in the popularity of books, magazines, and weight-loss programs offering dietary and health advice.

Recent consumption statistics, however, show that many of us are still choosing diets that are out of sync with dietary guidance. Many Americans eat too much sodium, saturated fat, and added sugar yet too few fruit, vegetables, and whole grains. And the prevalence of obesity and diet-related illnesses continues to rise. Although we may intend to have a healthy diet, other preferences often beguile us into food choices that may eventually harm our health.

To explain this growing pattern of insidious consumption, economists are increasingly turning to behavioral economics—a burgeoning field within the dismal science. Findings from behavioral studies point to a broader set of factors that help determine food choices. These findings also provide an opportunity to begin thinking of new ways to encourage consumers to choose diets better aligned with their own goals for future health.

Can Psychology Help the Dismal Science?

To understand why so many of us choose diets and lifestyles that lead to obesity and ill health, economists typically focus on the usual economic suspects—prices, income, dietary information, and time preferences (the willingness to forego a benefit now for an equal or greater benefit tomorrow). Examination of each variable's role in promoting poor food choices and increasing obesity rates, however, does not typically explain the full story.

And even when standard economics is able to identify the causes of poor food choices, policymakers have few attractive options to reverse these trends. For example, empirical evidence suggests that rising obesity rates are at least partially attributable to technological advances that have made food relatively cheap, plentiful, and convenient while making expending energy in our daily lives less necessary. However, standard economic tools, like using taxes to raise the relative price of unhealthful foods, may have unintended consequences. Taxes on food would disproportionately burden low-income individuals who spend a greater share of their income on food than wealthier consumers. Also, such measures would impose an additional cost for everyone, not just consumers who need incentives to make better choices. For example, they would raise prices for those who are in good health, but who may occasionally enjoy some less nutritious foods.

**An author interview is featured online
at: www.ers.usda.gov/amberwaves/**

So, what is an economist to do? An increasing number are now looking to psychology for answers. And for good reason—findings from behavioral and psychological studies indicate that people regularly behave in ways that contradict some basic economic assumptions. Our responses to prices and changes in income, for instance, are not as cut and dry as we had thought. Experimental studies of how we pay for various goods and services (e.g., cash versus credit, flat rate versus pay per use) show that payment options influence our choices. Time preferences are not solidly fixed either. The tradeoffs we make between now and the future fluctuate with situations, stress, and other distractions.

Behavioral experiments also reveal surprising findings about how we use and process information. Each day, we make thousands of decisions—should you hit the snooze button once or twice? Do you have time to eat breakfast at home? If so, what should you have and how much should you eat? Rather than brood over each and every quotidian task (and make it to work on time), we use simple rules of thumb. Given the sheer volume of information we need to process daily, this is an efficient solution. But it can lead to systematic reasoning errors that, again, become more likely when we are distracted or under stress.

Incorporating such idiosyncrasies into economic analysis of consumer behavior can expand our understanding of what motivates food choices and health outcomes. This can help us think of new ways to encourage all people to choose more healthful diets. For USDA, which devotes considerable resources to nutrition assistance programs like food stamps or school meals, findings from behavioral economics also offer alternative strategies that could be applied to improving the diet quality of program participants without restricting their right to choose the foods they like. This exploration of new ideas, however, is by no means a recommendation or endorsement of any of them. A thorough analysis of costs, benefits, and potential impacts would be needed before any strategy could be considered as a policy option.

Mentally, We're Not the Most Accurate Accountants


A tenet of standard economic theory is that lowering the price of one good, say food, will have both an income and a substitution effect. With the income effect, individuals increase food purchases in response to more room in their budgets. A price change may also have a substitution effect, where people change how they allocate expenditures among broad categories. In this case, lowering food prices may lead to only a slight increase in total food purchases while generating a

much greater rise in expenditures on other items.

In contrast, mental accounting supposes that, as one rule of thumb, individuals categorize their income into mental accounts by earmarking it for specific purposes or specifying that it be used within a certain timeframe. This behavioral economics concept predicts that one will spend within a certain category until funds are depleted. Thus, if one dedicates a portion of increased income to current food spending, he or she may not perceive lower prices in this category as loosening the total budget but instead see it as a reason to solely boost food consumption. In this case, a lower price on an item may lead to more or even too much consumption of that item, rather than substitution.

The idea of earmarking funds and mental accounts may partially explain why several studies have found that food stamp benefits, which can be used only for food purchases, are more effective at raising food expenditures than an equal amount given as cash even when both benefits and cash are used on food. This finding is contrary to the traditional economic assumption of rationality, which predicts that cash and benefits would have the same effect. This concept also supports the idea that providing further education or even targets for the proportion of food stamp benefits that should go toward purchasing healthful foods, such as fruit, dark-green vegetables, and whole grains, may increase the purchase of more healthful items among program participants.

Another consequence of mental accounting is that individuals tend to exhibit a "flat-rate bias," where they prefer to pay a flat rate rather than pay per item or use, even though they ultimately pay more. For example, researchers at the University of California, Berkeley and Stanford University have found that choosing an annual or monthly gym membership with unlimited access is more



Prepaid debit cards could be restricted to healthful foods, helping shoppers follow through on their intentions.



Pre-ordering groceries could help people commit to their dietary goals before being tempted in the store.

common than paying for each visit, even among infrequent exercisers. This implies that when certain items can be selected only by using prepayment, they will be chosen with greater frequency compared with items that must be paid for on the spot.

Using prepaid cards at food and beverage retailers, most commonly coffee shops, has become a popular alternative for many customers. They are also common on college campuses and some work cafeterias. Typically, one puts a dollar amount on the prepaid card (either using cash or credit) and uses this card for any item sold at the coffee shop or cafeteria. Exploiting the flat-rate bias to help customers make healthier choices, these retailers could offer a "healthy" prepaid card for purchasing only certain healthful menu items. Other less healthful items would need to be purchased with cash.

Grocery stores could also choose to offer their customers the option of using a prepaid "healthy" card that might, for example, preclude purchases of snack chips, desserts, and soda pop or only be valid on certain items, such as fruit and vegetables. Accepting food stamp benefits as payment for these "healthy" cards would extend this opportunity to food stamp participants. Prepaid cards at school

cafeterias could be used to place more guidance on foods that are not part of the USDA school meal programs. For example, through prepaid cards, parents and students could specify what portion of a student's total bill should be spent on fruit, vegetables, dessert, or carbonated beverages. Or, they could specify that less healthful items, such as sodas or high-fat desserts, be purchased only with cash.

Simple Commitment Devices May Help Increase Self-Control

Standard economic theory typically assumes that the value we place on future well-being is less than the value of today's well-being and the value of each subsequent period decreases at a constant rate. However, experimental and empirical studies provide a number of examples showing that actual consumer behavior cannot be reconciled with this assumption. One frequently observed anomaly is that individuals tend to behave more patiently (by making choices that are consistent with their future savings or health goals) when evaluating tradeoffs that will occur at some point in the future than they would if these same tradeoffs were to occur more immediately. For example, even in the absence of uncertainty, most individuals will prefer \$110 in 31 days

over \$100 in 30 days. Yet many of these same individuals will also prefer \$100 right now over \$110 tomorrow.

Repeated observance of time-inconsistent preferences has led some researchers to relax the more standard economic assumption. They use an alternative framework in which decisionmakers lack self-control and choose alternatives that are usually less desirable or less valuable over some timeframe simply because the alternatives are available sooner. This framework has been used to show that individuals can improve their longrun well-being through some sort of commitment mechanism, such as a 401k plan, that sets limits on current consumption levels.

Online grocery shopping and home delivery could help people make choices that are more in sync with their long-term health objectives. By pre-ordering food, they are able to commit to their purchasing decisions before being tempted in the store with less healthful food options. Expanding opportunities for pre-ordering groceries for home delivery among food stamp participants might help to improve their food choices.

Another commitment mechanism would be to allow grocery shoppers to specify that certain less healthful foods be ineligible for purchase with their own prepaid store cards. Or, they could specify their own personal "sin tax." For example, someone who wanted to discourage his or her own consumption of potato chips could impose an additional tax on these foods. The revenue from this tax would go back to one's prepaid store card for future purchases. An individual could also specify which items could be purchased with this revenue—it could be earmarked for fruit and vegetable purchases, for example. Again, accepting food stamp benefits as payment for prepaid grocery cards would extend this opportunity to food stamp participants.

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How food is packaged or presented can make it easier to gauge how much we consume.

Increasing the frequency of food stamp benefit disbursements could also function as another commitment mechanism. Behavioral economic research shows that any individual with self-control problems will likely spend too much for current consumption at the expense of future consumption. Giving food stamp participants the option to receive smaller benefits amounts more frequently, while leaving the total payment amount unchanged, might help some participants avoid impulsive behavior and make better long-term choices.

Within the school meal programs, students may be more likely to choose foods that promote better health if they choose foods well before they actually consume their meals. Alternatively, parents or children could devise a commitment mechanism, such as making certain foods off limits. Through prepaid lunch cards, such mechanisms are currently increasing in popularity. Some schools allow parents to track the menu items their children purchase at school and even specify that their

prepaid card preclude the purchase of specific items, such as sodas or high-fat desserts.

Judging a Serving by Its Container

For people trying to manage health and weight, choosing the right amount of food may be just as difficult as choosing the right types of foods. According to ERS data, the average calories available daily in the U.S. food supply increased by more than 500 calories per capita between 1970 and 2004. Experimental studies have found that choosing what to eat and how much may be controlled by separate psychological mechanisms. Again, we use simple rules of thumb, like eating one bowlful or drinking one full glass, as cues to gauge appropriate consumption volumes.

The increase in portion sizes over the past 25 years or so is often cited as contributing to the rise in obesity in the United States. Experimental research shows that people do eat more when presented with larger portions or packages. They are also less accurate in assessing their own intake: they underestimate their own consumption more when eating from larger packages than smaller ones.

Brian Wansink, a professor of food marketing and economics at Cornell University, finds that the shape of bowls, plates, and glasses can also significantly influence how much we consume. People tend to fill tall thin glasses with less liquid than short wide glasses that hold the same volume. In another experiment, he found that when people were randomly given bigger serving bowls or ice cream scoops, they unknowingly served themselves (and ate) significantly more ice cream than people given smaller bowls or scoops.

The presentation and variety of food can also lead to greater consumption volume. Even expanding the aspects of variety not associated with taste or nutrition can significantly raise quantity consumed.

Just adding more colors or changing their arrangement can get us to eat more M&M candies and jelly beans. People presented with 10 versus 7 different colors of M&M candies consumed 43 percent more candy. Another experiment presented one set of subjects with an identical number and variety of jelly beans. However, while one treatment group received the jelly beans sorted by color, the other received the assortment mixed. Those who received a mixed assortment ate 69 percent more on average.

There is also evidence that other alterations in food packaging or presentation may make it easier to gauge how much we consume. Introducing more intermediate packaging within larger packages of chips and cookies, such as individually wrapped sets of cookies within a bag, seems to draw attention to how much has been eaten and make it easier for individuals to determine an appropriate stopping point.

For school cafeterias, offering a greater variety of vegetables or fruit within a single salad may help boost intake of healthful foods. Changing the shape of containers could also promote consumption of certain foods and beverages relative to less healthful foods. Larger bowls could be used for fruit and vegetables, while small plates and dishes could be used for desserts or other less nutritious foods. Finally, placing packaging



Stephen Peterson, ERS/USDA

restrictions, such as 100-calorie packs, in vending machines and a la carte lines in cafeterias is another way to help students (and teachers!) to gauge their own consumption amounts within the schools.

Making Changes, by Default

Another idiosyncrasy of consumer choice frequently observed in experimental studies is that individuals exhibit an asymmetry in how they value gains relative to losses. This asymmetry gives rise to anomalous behavior, where individuals are willing to pay much less to acquire an item than they are willing to accept to part with it. It also makes them much more likely to choose the default options, even when the costs of switching to an alternative are low or even zero. For example, participation in 401k plans is much higher among employees who are automatically enrolled than it is among employees who are not automatically enrolled.

Relating this concept to our food choices, we are much more likely to choose a side of french fries over a fruit salad when the former is the status quo. The corollary to this, however, is that making the default option more healthful could help us make healthier choices. It is also not difficult to imagine how this concept could be extended to the food stamp or school meal programs. For example, a default food stamp package could be more restrictive by specifying that a minimum percentage of the benefit be allocated to purchase whole-grain foods, vegetables, and fruit. However, recipients would still have the option to choose the current, nonrestrictive food stamp benefits. Within the school meal programs, a healthy meal (or side) would be the default offering.

Seeing the Glass Half Full

Findings from behavioral economics provide insights into why we all make food choices that, on occasion, may appear irrational to economists. These insights



Stephen Peterson, ERS/USDA

Changing default side orders, say to fresh fruit or vegetables, may encourage healthier choices.

offer the opportunity to explore more nuanced policies that can improve diet quality without limiting freedom of choice. And unlike more traditional interventions, such as changing prices or banning specific food items, many of the proposed changes could be targeted to those consumers who feel they need extra help making choices that are more harmonious with their own long-term health objectives.

More innovative strategies to improve food choices can also be applied to USDA's nutrition assistance programs. Incorporating some of these findings—such as providing smaller, but more frequent distribution of food stamp benefits—into the existing programs would require some augmentation, and would have costs shared by both State and Federal partners. Other options, like using prepaid debit cards or providing participants an option for self-imposed restrictions on food stamp benefits, may be relatively more costly or complicated both in technology and policy impact.

An important next step would be to design experiments and pilot programs to gauge the efficacy, cost, and feasibility of these possible options as well as the potential change in behavior. Comparing results of these experiments against estimated costs and benefits of more traditional approaches to nutrition assistance would also clarify the merits of these ideas relative to other strategies. **W**

This article is drawn from ...

Could Behavioral Economics Help Improve Diet Quality for Nutrition Assistance Program Participants? by David Just, Lisa Mancino, and Brian Wansink, ERR-43. USDA, Economic Research Service, May 2007, available at: www.ers.usda.gov/publications/err43/

You may also be interested in ...

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