Rewarding Healthy Food Choices in SNAP: Behavioral Economic Applications

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Context: American obesity rates continue to escalate, but an effective policy response remains elusive. Specific changes to the Supplemental Nutrition Assistance Program (SNAP) have been proposed as one way to improve nutrition and combat obesity among lower-income populations. While current SNAP proposals hold promise, some important challenges still remain.

Methods: We discuss the four most common recommendations for changes to SNAP and their benefits and limitations. We then propose three new delivery options for SNAP that take advantage of behavioral economic insights and encourage the selection of healthy foods.

Findings: Although the existing proposals could help SNAP recipients, they often do not address some important behavioral impediments to buying healthy foods. We believe that behavioral economics can be used to design alternative policies with several advantages, although we recognize and discuss some of their limitations. The first proposal rewards healthy purchases with more SNAP funds and provides an additional incentive to maintain healthier shopping patterns. The second proposal uses the opportunity to win prizes to reward healthy food choices, and the prizes further support healthier habits. The final proposal simplifies healthy food purchases by allowing individuals to commit their SNAP benefits to more nutritious selections in advance.

Conclusions: Reforming the delivery structure of SNAP's benefits could help improve nutrition, weight, and overall health of lower-income individuals. We advocate for more and diverse SNAP proposals, which should be tested and, possibly, combined. Their implementation, however, would require political will, administrative capacity, and funding.

Keywords: food stamps, SNAP, obesity, behavioral economics.

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AMERICA'S OBESITY PREVALENCE REMAINS STARTLING AND increasingly costly because of its associated health problems, medical spending, and lost worker productivity (Cawley and Meyerhoefer 2012; Cawley, Rizzo, and Haas 2007; Finkelstein et al. 2009). Equally concerning, national obesity rates among youth have risen dramatically over recent decades (Schmeiser 2012; Skelton et al. 2009), with a prevalence rate of just under 17 percent in 2009/2010 (Ogden et al. 2012). But the obesity burden is not equally shared. Lower-income individuals suffer disproportionately from high obesity rates and poor nutrition (Bhattacharya and Currie 2004; Han, Powell, and Isgor 2012; Ludwig, Blumenthal, and Willett 2012), and children of lower socioeconomic status (SES) often lack adequate nutrition to encourage proper development and healthy well-being (Ludwig, Blumenthal, and Willett 2012). Irrespective of household wealth, learning to consume nutritious food is especially important for young children, since these formative years can establish long-lasting eating patterns (Aldridge, Dovey, and Halford 2009; Beauchamp and Mennella 2009).

Consequently, pressure is mounting on policymakers to find effective solutions to the obesity epidemic. Prominent policy alternatives range from targeted taxation (e.g., on sugar-sweetened beverages) and restrictive regulations, to less burdensome "nudges" toward health promotion. Nudges, which make a healthier choice more appealing or accessible to the decision maker, have the advantage of not being overly paternalistic but still being powerful in motivating behavior change (Downs, Loewenstein, and Wisdom 2009; Thaler and Sunstein 2008). Accordingly, we propose in this article a new set of policy nudges that target lower-income households' food selections to improve nutrition and health among adults and children. Specifically, we argue for innovative changes to the primary supplier of public food assistance, the Supplemental Nutrition Assistance Program (SNAP). Our SNAP innovations would shift the focus from food quantity to food quality and could be tested to determine cost-effectiveness.

We begin by discussing four recently proposed changes to improve SNAP recipients' nutrition and then extend the menu of policy options with three additional proposals. We use principles of behavioral economics to discuss impediments to healthy eating, which existing proposals may fail to overcome, as well as to develop our contributions to addressing these problems. Behavioral economics integrates lessons from economics and psychology to better describe and address

decision-making biases in various contexts. Although a full description of behavioral economics is beyond the scope of this article, we provide two boxes (boxes 2 and 3) that define some key concepts. Because behavioral economics can be used for various health behaviors (e.g., Volpp et al. 2008; Volpp, Pauly, et al. 2009; Volpp, Troxel, et al. 2009) and health policies (e.g., Baicker, Congdon, and Mullainathan 2012; Oliver 2012), we have applied it to a new setting focused on rewarding SNAP recipients for making nutritious food choices.

SNAP and the Recipients' Diet

SNAP is a large, federally funded welfare program for eligible lower-income individuals and families and is administered by the United States Department of Agriculture (USDA). The program is intended to increase recipients' food-purchasing power and thereby guard against hunger and malnutrition (i.e., food insecurity) among this vulnerable population. Box 1 offers a brief overview of SNAP's features.

BOX 1

A Snapshot of the Supplemental Nutrition Assistance Program

- Aims to shield lower-income households against hunger and malnutrition.
- Formerly known as the Food Stamps Program.
- Benefits delivered through the electronic benefit transfer (EBT) card (not stamps).
- Average monthly benefit: \$133 per individual in 2012.
- More than 46,000,000 individual participants in 2012.
- More than 22,000,000 participating families in 2012.
- Total budget: \$78.4 billion in 2012.
- Federal government pays 100% of benefits, and administrative costs are roughly split with state governments.

Sources:

<http://frac.org/federal-foodnutrition-programs/snapfood-stamps/>
<http://www.fns.usda.gov/pd/annual.htm>

One prevailing view is that SNAP has achieved its goal of reducing food insecurity but has not fulfilled its other goals. Participation in

SNAP is associated with the consumption of lower-quality foods (Leung et al. 2012) and generally does not ensure that recipients have a nutritionally sound diet (Dinour, Bergen, and Yeh 2007; Goodner et al. 2000). For example, even when alternative and similarly priced beverages are available for purchase, SNAP recipients most often opt for the least healthy options (Andrejeva et al. 2012). Some evidence also links SNAP to increases in weight and obesity rates among both adults (Gibson 2003; Meyerhoefer and Pylypchuk 2008) and children (Gibson 2004; Robinson and Zheng 2011), although there are conflicting views on this (Dinour, Bergen, and Yeh 2007; Han, Powell, and Isgor 2012; Meyerhoefer and Yang 2011; Schmeiser 2012; Ver Ploeg et al. 2007). Another concern is that the monthly distribution of benefits has created a harmful “food stamp cycle” (Dinour, Bergen, and Yeh 2007; Hastings and Washington 2010; Shapiro 2005; Wilde and Ranney 2000). This cycle is characterized by substantial food purchases early in the month, followed by steep declines later as the funds are depleted. With these concerns in mind, a number of policy recommendations have been made to reform SNAP’s benefit design.

Existing Policy Recommendations for SNAP

More Frequent SNAP Payments

To break the “food stamp cycle,” some researchers propose distributing the SNAP benefits more often than the current monthly schedule (Bhargava 2004; Shapiro 2005), reasoning that more frequent payments and shopping trips could help smooth food consumption and improve dietary quality. Specifically, more frequent shopping could increase purchases of fresh foods, since they would be less likely to spoil between trips. A common belief is that SNAP consumers buy the cheapest, least healthy items when their monthly SNAP benefits are exhausted, although the evidence for this behavior is mixed (Hastings and Washington 2010).

Notwithstanding the potential gains from a greater frequency of benefits, consumption smoothing acts primarily on the quantity rather than the quality of food purchases. The reason is that recipients have little incentive to change existing dietary habits, and in-store pressures (e.g., environmental cues; see box 2) and personal influences (e.g., limited self-control and present bias; see box 2) remain. Therefore, this SNAP

proposal is likely best paired with other interventions. Of note, all proposals are sensitive to in-store behavioral influences, with the exception of our final proposal, which deliberately allows SNAP recipients to avoid tempting grocery store environments.

BOX 2

Some Behavioral Economic Concepts That Can Produce Unhealthy Eating

CONCEPTS

- *Cognitive Overload*: Decision making or actions are impaired by the complexity of the problem or the large quantity of information (e.g., complex nutritional and cost information).^a
- *Cues*: Items in the environment and/or displays of products that elicit temptation (e.g., appealing food packaging that creates a sense of hunger and a desire for such food).^b
- *Present Bias*: Too great a focus on the present at the expense of future considerations and consequences (e.g., underestimating or ignoring the future health effects of current unhealthy eating habits).^c
- *Salience*: The availability of information at the decision point (e.g., posting itemized nutritional information in a cafeteria setting).^d
- *Self-Control*: Willpower to make decisions and behaviors that match long-term plans or goals (e.g., needing self-control to resist the in-store temptations of unhealthy foods).^e

Sources: ^aSweller 1988; ^bLaibson 2001; ^cThaler and Sunstein 2008;

^dTsakanikos 2004; ^eBaumeister 2002; Baumeister et al. 2008.

Nutrition Education

Because many people have limited understanding of nutrition, particularly those in lower SES populations, making more nutritional information available has been proposed generally for both the population as a whole and specifically for SNAP participants (Bhargava 2004; Goodner et al. 2000; Schmeiser 2012). Even though giving consumers more information is generally a sound idea, information by itself may not significantly improve behavior in this context. For example, Downs and colleagues (2009) found that knowing the calorie content

of food did not appreciably change overall food choices but instead perversely caused dieters to increase their caloric intake. Likewise, an evaluation of New York City's 2008 menu-labeling mandate found that even though lower-income minorities became more aware of caloric information, they did not change their food choices (Elbel et al. 2009). Horgen and Brownell (2002) showed that price reductions could lead to a greater consumption of healthy foods but that the accompanying health messages were inconsequential. Moreover, there is limited, if any, empirical evidence demonstrating that food education initiatives lead to successful weight loss (Elbel et al. 2009; Finkelstein et al. 2004; You, Mitchell, and Nayga 2012).

Thus, although better nutritional guidance for SNAP recipients is a reasonable goal, it might have only a limited impact on actual food choices owing to the in-store behavioral factors cited earlier (e.g., cues and weak self-control; see box 2).

Food Restrictions

Other researchers advocate a more paternalistic approach that would limit the range of SNAP-eligible items to only those foods deemed healthy (Dinour, Bergen, and Yeh 2007), similar in spirit to the Women, Infants, and Children (WIC) program. WIC allows enrollees to use their benefits only for preapproved foods (USDA 2012), whereas SNAP recipients can use their benefits with much greater individual dietary discretion.

If some unhealthy choices are too tempting, removing them from the items available could enhance SNAP recipients' nutrition, as some evidence for WIC participants has shown (Tripp, Henderson, and Andreyeva 2012). That said, SNAP generally represents only a fraction of household food purchases (Wilde 2013), so the use of personal and other public funds to buy unhealthy foods could undermine any gains.

Beyond the recipients' strategic responses, proposing new restrictions is likely to lead to political controversy and unintended side effects. Officials in New York City hoped to remove sugar-sweetened beverages from eligible SNAP purchases in their city (Meyerhoefer and Yang 2011), but the USDA rejected their request. In contrast, fast-food lobbyists continue to fight for more expansive—rather than restrictive—uses of SNAP benefits (Ellis and Luther 2011). Producers and sellers also have incentives to introduce changes that avoid new restrictions but

perhaps offer only nominal nutritional adjustments to the product (e.g., modifying labels and serving sizes instead of content). Overall, it seems unlikely that the current vendors to a welfare program for more than 40 million recipients would passively accept lost business from new SNAP prohibitions.

While restricting foods has the benefit of not directly requiring new SNAP funds, administrators would have to develop a metric for determining eligible foods, and it likely would have to cover a broader range of items than WIC does, given SNAP's broader policy goals and reach. Although SNAP administrators could rely on current nutrition and public health science to develop these metrics, once determined, the benefit-compliant food list would need to be updated frequently to reflect the movement of products in and out of the U.S. food market (You, Mitchell, and Nayga 2012), particularly if food sellers lobby for SNAP approval on new or recently modified products.

Subsidizing Healthy Foods

Rather than taxing or regulating unhealthy items, healthy foods could be tied to a subsidy, which some now favor as a SNAP reform (Dinour, Bergen, and Yeh 2007; Han, Powell, and Isgor 2012). Studies have shown that subsidizing purchases of healthy foods can raise the consumption of these items (Epstein et al. 2006, 2007, 2010; Horgen and Brownell 2002). Whether a similar effect could be demonstrated in the full SNAP population has not yet been determined, but a few SNAP pilot initiatives have recently been conducted (as mentioned in Han, Powell, and Isgor 2012; You, Mitchell, and Nayga 2012), though not yet analyzed.

While this idea has merit and embraces incentives, each of the ways in which the subsidies could be delivered has different challenges. For example, if the subsidy is delivered at the time of checkout (i.e., similar to a coupon), then SNAP recipients needing to use the immediate savings would have to keep track mentally of which items are linked to what quantity of savings in order to adjust their overall purchases. The risk here of cognitive overload (box 2), in which recipients find information processing too difficult and thus do not participate, detracts from the proposal's appeal. An attractive subsidy version—which a Massachusetts SNAP pilot has used—relies more on a cash-back-like incentive. That is, every qualifying healthy food purchase earns a monetary reward (in

EBT dollars), up to a set monthly bonus ceiling, which is credited to the recipient's account (USDA 2013). This approach might provide more salient (box 2) rewards compared with coupon-like interventions and make it simpler for recipients, as the reward is managed on the EBT side instead of the consumer's side.

Many, if not all, subsidy programs have similar challenges. The discounts need to be signaled to SNAP recipients in a way that does not disrupt stores' other shoppers or to be provided ahead of time in an accessible format (e.g., mailing reward-eligible product lists). Either approach could make the subsidy less obvious or salient in the shopping moment. With low salience, the discounts are unlikely to overcome the in-store environmental cues, weak self-control, and present bias (box 2) that often impede healthy food selections. Per-item subsidies also cannot ensure that individuals take advantage of the variety of subsidized foods available, which may lead to a diet lacking a healthy balance. Moreover, the subsidies essentially expand recipients' food budget, which may undo the proposal's intent. As Epstein and colleagues' (2010) recent experiment shows, more purchasing power from subsidies can translate into more purchases of unhealthy foods. This combination of behavioral components could limit many healthy food subsidy programs' improvements in nutrition.

New Policy Recommendations

We next present our own recommendations, which we designed to encourage SNAP recipients to select higher-quality food. We rely on positive reinforcement, as there is some belief and some evidence that individuals respond better to carrots than to sticks in health behavior interventions (Volpp, Pauly, et al. 2009). Using carrots also may better match the political views of social programs targeting lower-income groups. Although our three reward-based interventions are not perfect, they use insights from behavioral economics to lower many of the obstacles to healthier eating.

Proposal 1: Incentives for Durable Shopping Habits

Our first proposal, providing incentives for durable shopping habits, extends Massachusetts's cash-back-like subsidy approach described earlier,

but with two specific adjustments. The first adjustment is the timing of the healthy food reward. Instead of accruing bonus SNAP funds in the current month, we shift the reward to the following month when the EBT card is reloaded. The extra funds earned would set a new, higher, monthly benefit level, which could be increased again in subsequent months through even more healthy food purchases. Consistent healthy shopping practices would thus translate into more generous SNAP benefit in the future. Although a maximum reward level could be set to limit the costs of the intervention, just as the Massachusetts pilot did, the reward ceiling in our proposal allows for a second adjustment. That is, once a predetermined ceiling was reached, the program could transition into another behavioral economic intervention that encourages good shopping habits through loss aversion (box 3). Specifically, SNAP recipients would be instructed to maintain a preset level of qualifying healthy food purchases to retain their previously earned maximum bonus award. Otherwise, their monthly EBT level would gradually fall until the desired purchasing patterns resume or the original, lower benefit level is reached.

BOX 3

Some Behavioral Economic Concepts to Address Unhealthy Eating

Biases harnessed to forge a solution

- *Loss Aversion*: Overweighting a potential loss in decision making relative to a gain of exactly the same value (e.g., wanting to keep a healthy eating prize rather than exchange it for an equivalent monetary amount).^a
- *Status Quo Bias*: Strong inertia that restrains changing choices or behavior (e.g., “opt-out” programs to generate greater participation rates).^b

Mechanisms that serve as solutions

- *Default*: Automatic choice if chooser does nothing (e.g., receives a salad for lunch unless deliberately changes order).^c
- *Commitment Device*: Formal contract, with reward or penalty components, to work against present bias decisions and stick to long-term, desired plans (e.g., placing a financial bet based on future weight loss).^d

Sources: ^aKahneman and Tversky 1979; ^bSamuelson and Zeckhauser 1988; ^cThaler and Sunstein 2008; ^dAshraf, Karlan, and Yin 2006.

While our extension has some advantages over existing or alternative subsidy programs, it admittedly also suffers from several of the same concerns, including diverting bonus funds to unhealthy purchases, establishing a list of qualifying purchases, managing the additional administrative and funding demands, and encouraging the consumption of a variety of healthy foods. This last concern could be partly addressed by capping the amount of bonus funds tied to a single item or requiring the purchase of a specified bundle of different healthy foods to earn the reward.

Proposal 2: Raffles for Prizes

Our second proposal relies on physical prizes to reward SNAP recipients' healthy food purchases. In this system, after a specified number of qualified purchases, individuals are given a raffle ticket offering a chance to win a range of different prizes. Drawings take place at specified intervals, and the prizes are chosen to encourage healthy eating and/or productive health behaviors. Prizes could range from many inexpensive to a few expensive items, with the more valuable prizes creating greater appeal and motivation. In this way, the raffle would have many winners per drawing but still offer some highly attractive rewards. Because individuals tend to overweight small probability events, delivering payouts through a raffle may also magnify the change in behavior per dollar spent, in a way similar to findings from prize-based initiatives for drug users (Peirce et al. 2006; Petry et al. 2005).

Examples of prizes are vouchers for home-cooking equipment or resources, like "quick healthy cooking" classes, that would reduce the production costs of healthy eating. The prizes could also expand beyond food and cooking to healthy options more generally, such as vouchers for exercise materials, gym memberships, or family activities.

The disadvantages of a prize-based system are similar to those of other proposals (e.g., selecting eligible foods, having sufficient funding, and administering the program). But the addition of prizes is likely to add considerable expense (Olmstead, Sindelar, and Petry 2007; Sindelar, Olmstead, and Peirce 2007), which may reduce their appeal relative to the other interventions already mentioned. Some costs could be lowered if the prizes were donated (e.g., from a partnering private company), but this might introduce other complications or administrative issues.

Proposal 3: Healthy Food Defaults

As previously discussed, many individuals find it difficult to resist the in-store temptations and cues involving unhealthy foods, which can reduce the impact of many interventions, including EBT funding and prize-based rewards. To address these problems, our third proposal capitalizes on both a commitment device (box 3) and a status quo bias (box 3) to obviate in-store browsing and thus avoid temptations for SNAP shoppers. This approach is intended to make healthy foods the default (box 3) for SNAP recipients.

Participating SNAP recipients would first select their desired purchases from a comprehensive list of approved healthy foods, thereby committing to higher nutritional quality. In exchange for doing so, their selections would be ready for pickup at the store at an agreed-on time. Some grocery sellers could offer home delivery if this appeals to SNAP participants and is acceptable to food suppliers. Recipients would no longer need “in the moment” shopper self-control and would be rewarded for their decision.

The list of healthy foods and the commitment device could not, however, guarantee a balanced selection of foods across nutritional categories and/or might scare away some SNAP recipients, as they would be confronted with many options from which to choose. Using the status quo bias (box 3) provides another useful component. When a SNAP shopper first joins the program, a well-rounded subset of healthy foods could be selected for him or her based on household size and type (e.g., number and ages of dependents). Although participants would be able to make changes, these selected healthy foods would become the default (box 3) and no other modifications would be necessary, which could help lock in a healthy, balanced diet for the household. The combination of a SNAP commitment device and a healthy default shopping list could sustain improvements in food selection.

Just as in other proposals, SNAP would have to draw up a list of eligible foods and ensure that the program is administered correctly. Nonetheless, this policy option might be less administratively and financially taxing than other options. Food suppliers would do much of the work in exchange for guaranteed business, and SNAP recipients might stick with the default list. Although the overall success and feasibility of certain components, such as home delivery, would likely depend on geography, a SNAP food delivery model is gaining traction. The USDA

recently approved a pilot program allowing an Internet-based grocery store to make deliveries to SNAP recipients in some low-income New York City areas (FreshDirect 2012). Although the details of the pilot are still evolving, the company (FreshDirectTM) plans to waive delivery charges for EBT orders as part of the SNAP agreement (FreshDirect 2012). Thus, both suppliers and SNAP recipients may find this proposal attractive.

Pilot Studies and Evaluation

In the spirit of ongoing pilot efforts, we suggest that each of our policy proposals be tested and evaluated to determine which, if any, merit being scaled up and under what conditions. Selecting and mixing the best aspects of all SNAP reform options—ours as well as others—might produce the most effective policy.

In all cases, the benefits of increased nutrition and reduced obesity must be weighed against the added administrative costs and funding challenges. Since a large body of work has described the environmental factors contributing to American obesity trends (e.g., Han, Powell, and Isgor 2012), the benefits and costs calculations may reveal important variations but also indicate which models can thrive in a particular area. As a note of caution, any long-term benefits of improving children's food habits would likely not be captured in short-term pilot studies, which somewhat complicates their evaluation.

Political Considerations

Each of the existing and new proposals described here may be capable of altering SNAP recipients' food consumption patterns, but probably in different ways. Behavioral economic considerations both suggest limitations of current proposals and offer opportunities to design new ones. That said, the politics of SNAP, like other welfare programs, can be divisive. Some policymakers may find devoting more resources to an already large welfare program to be politically or socially unpalatable. Even so, some of the financial consequences of obesity are shared with other programs (e.g., Medicare and Medicaid) that support the lower SES group, and may total billions of dollars in additional annual spending (Finkelstein et al. 2009; Thorpe et al. 2004). Therefore, investing in

behavioral interventions for SNAP could create savings elsewhere while simultaneously improving the well-being of lower-income households, even though the savings may not completely offset the additional spending.

Conclusion

As the obesity epidemic presses on, SNAP has not yet offered a substantive policy response. Despite SNAP's ability to address food insecurity, it is not designed to encourage the consumption of nutritious foods directly. We believe that several of our proposed policies, and combinations thereof, could help reform SNAP. We also argue that interventions based on behavioral economics offer opportunities for new, innovative approaches. Although our proposals are not magic bullets, they can contribute to the ongoing dialogue on SNAP policies. Finally, we recommend that more proposals be deposited in the SNAP idea-bank and eventually tested.

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