What is New in Behavioral Economics: Food and Nutritional Research?

Beijing Association of Agricultural Economics Annual Meeting

5 December 2015

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What is behavioral economics?

- A synthesis of psychology and cognitive theory with economics
- Provides insights into the human decision-making process
- Studies distortions and biases in decision-making

By understanding how people make decisions, can we influence food choice?

The folks at Cornell and elsewhere say “yes”

Closing the lid on an ice cream freezer reduced number of people choosing ice cream from 30% to 14%.

Suggesting students take a fruit increased the number of students eating fruit by up to 70%.

http://www.ben.cornell.edu/

Behavioral economics considers less than rational behavior.

Other than rational thought clearly identified in economic theory, what else influences decision-making?

We know a lot about what influences choice and behavior.

- Social Norms / Herding Instinct
- Defaults
- Anchoring Bias
- How, by whom and how often information is presented
- Emotional / subconscious associations and influence
- Mental Short Cuts (e.g., loss avoidance)
- Salience (attention is drawn to what is novel and is relevant)
- Consistent with public promises and reciprocal acts
- Our Ego

The power of suggestion

How do default settings affect behavior?

They are choices by those who do not actively change them.

People are more likely to choose a default, irrespective of its characteristics.

Attractive policy option because they can affect behavior while maintaining freedom of choice.

Mechanisms?

- Power of suggestion
- Time inconsistency (procrastination)
- Cost of information acquisition
- Loss aversion

Johnson & Goldstein (2003), Do Defaults Save Lives? Science, Vol. 302

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The power of suggestion

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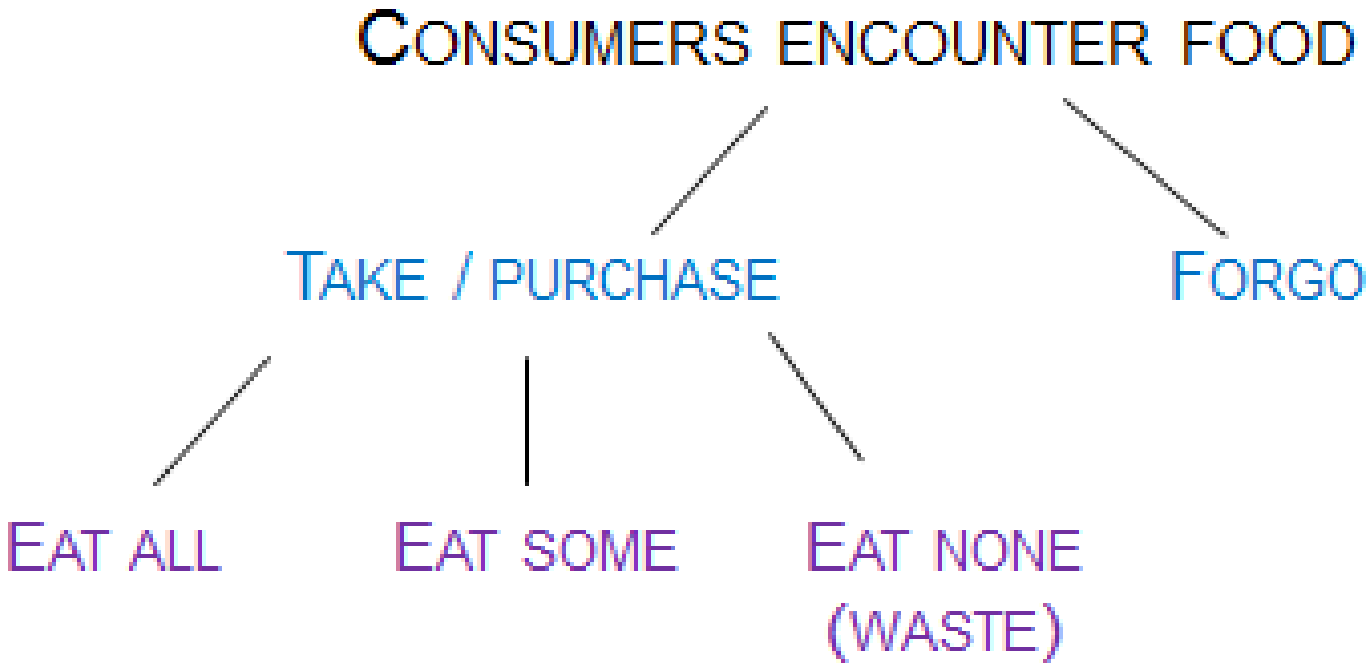

My utility doesn't matter at home.

How do we go about designing an intervention that encourages healthier dietary choices?

Order Effects

Randomly assign conference participants to one of two breakfast buffet lines

One line had (in this order)

Cheesy eggs
Bacon
Potatoes
Cinnamon rolls
Granola
Yogurt
Fruit

The other line had the same foods, but in exactly the opposite order.

From: Are You Going to Eat That? Key insights from behavioral economics into food selection and intake decisions, 2015 AAEA Annual Meeting Post-Conference, Andrew S. Hanks

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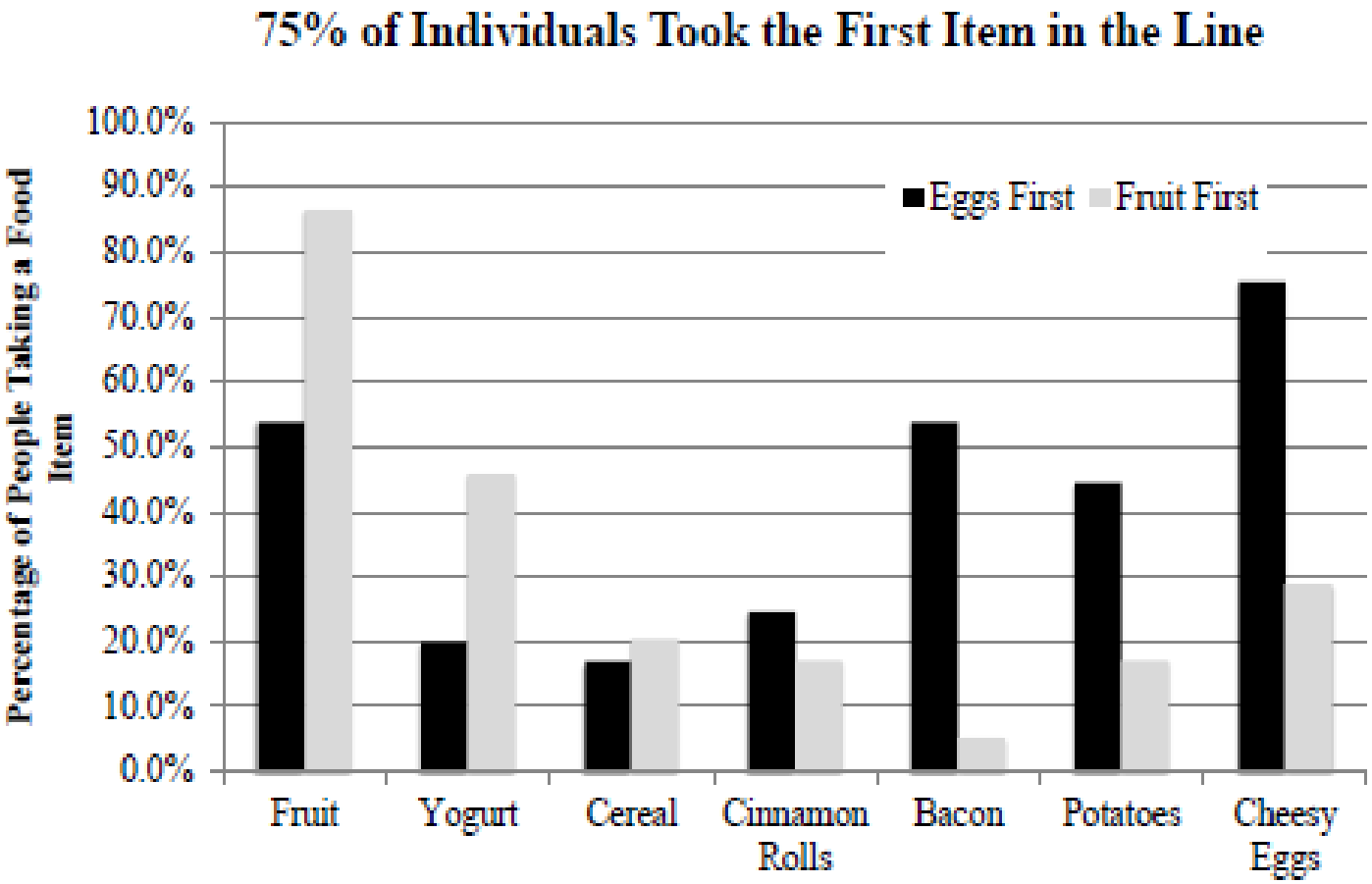
Why does order matter?

- Default
- Sensory-specific influences

Researchers tracked what items were taken

(no serving sizes or intake measured)



Those with cheesy eggs first line took 31% more items.

Forcing the Choice Ahead of Time

Pre-commitment

Choosing “when more rational”

Two elementary schools in western NY (14 classrooms)

Students pre-order lunch entrée at the beginning of the day.

They receive selected entrée at lunch time and then choose side.

Collect student selection and tray waste data (classroom) for analysis.

Hanks, Just, and Wansink (2013), JAMA Pediatrics

Pre-commitment

Pre-ordering resulted in more healthy selection but more waste.

	Pre-ordered	No Pre-order
Ordered Healthy	12.1%	5.2%
Waste	44% (h), 80% (uh)	44% (h), 58% (uh)

Students who DID NOT pre-order were

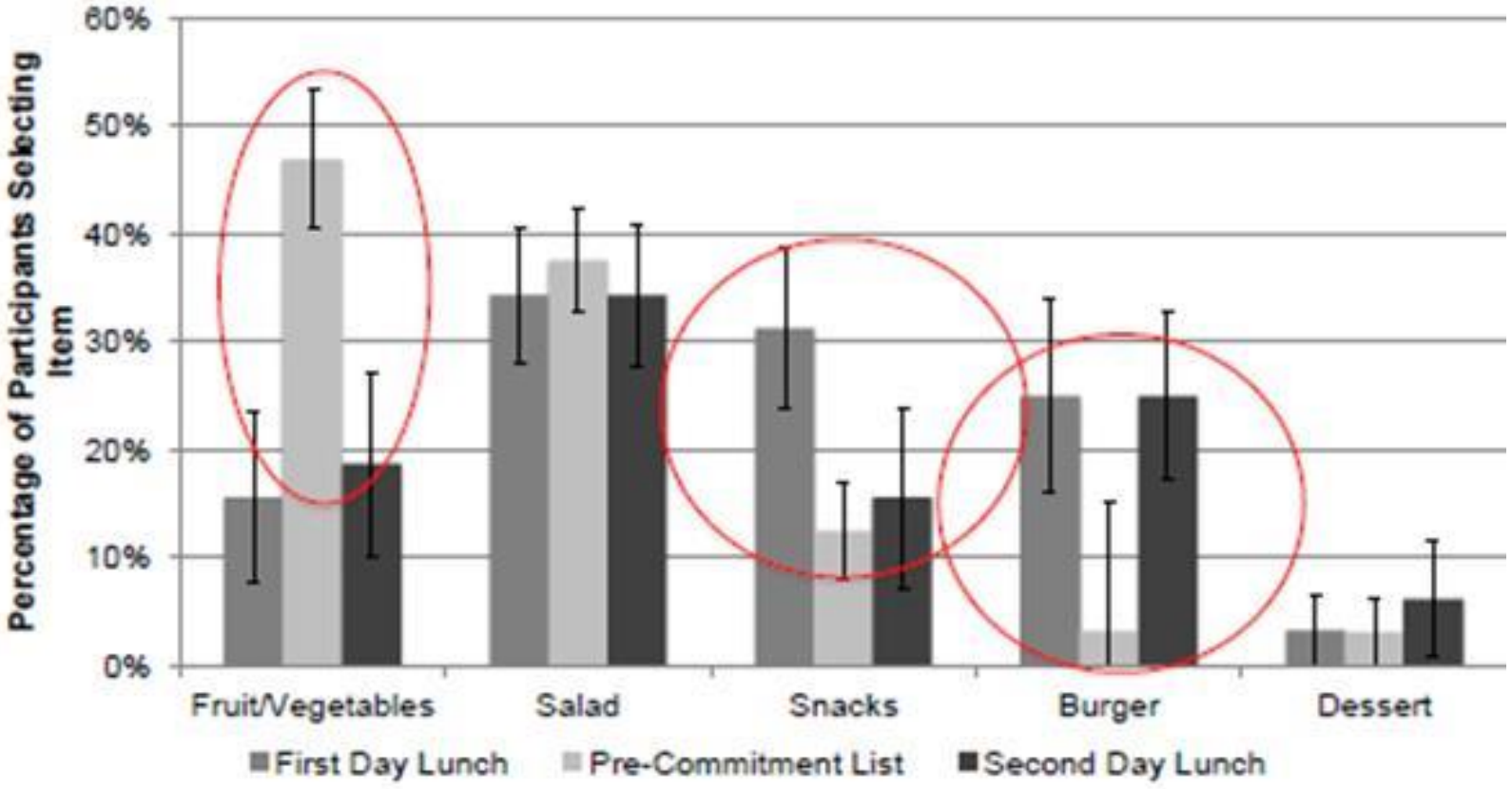
- 11.8% less likely to take a fruit
- 8.9% more likely to take a snack food
- 25% more likely to take a starchy side

Hanks, Just, and Wansink (2013), JAMA Pediatrics

Pre-commitment

One day, undergraduate students ate lunch and reported food choice and their anticipated lunch choice for next day.

Hanks, Just, and Wansink (2013), JAMA Pediatrics



Without a binding commitment mechanism, folks don't follow through. Intentions are nice, but…

Social Influence

From: Are You Going to Eat That? Key insights from behavioral economics into food selection and intake decisions, 2015 AAEA Annual Meeting Post-Conference, Andrew S. Hanks

Public goods

Local Mexican restaurant in Ithaca, NY.

Free basket of chips for each pair of individuals.

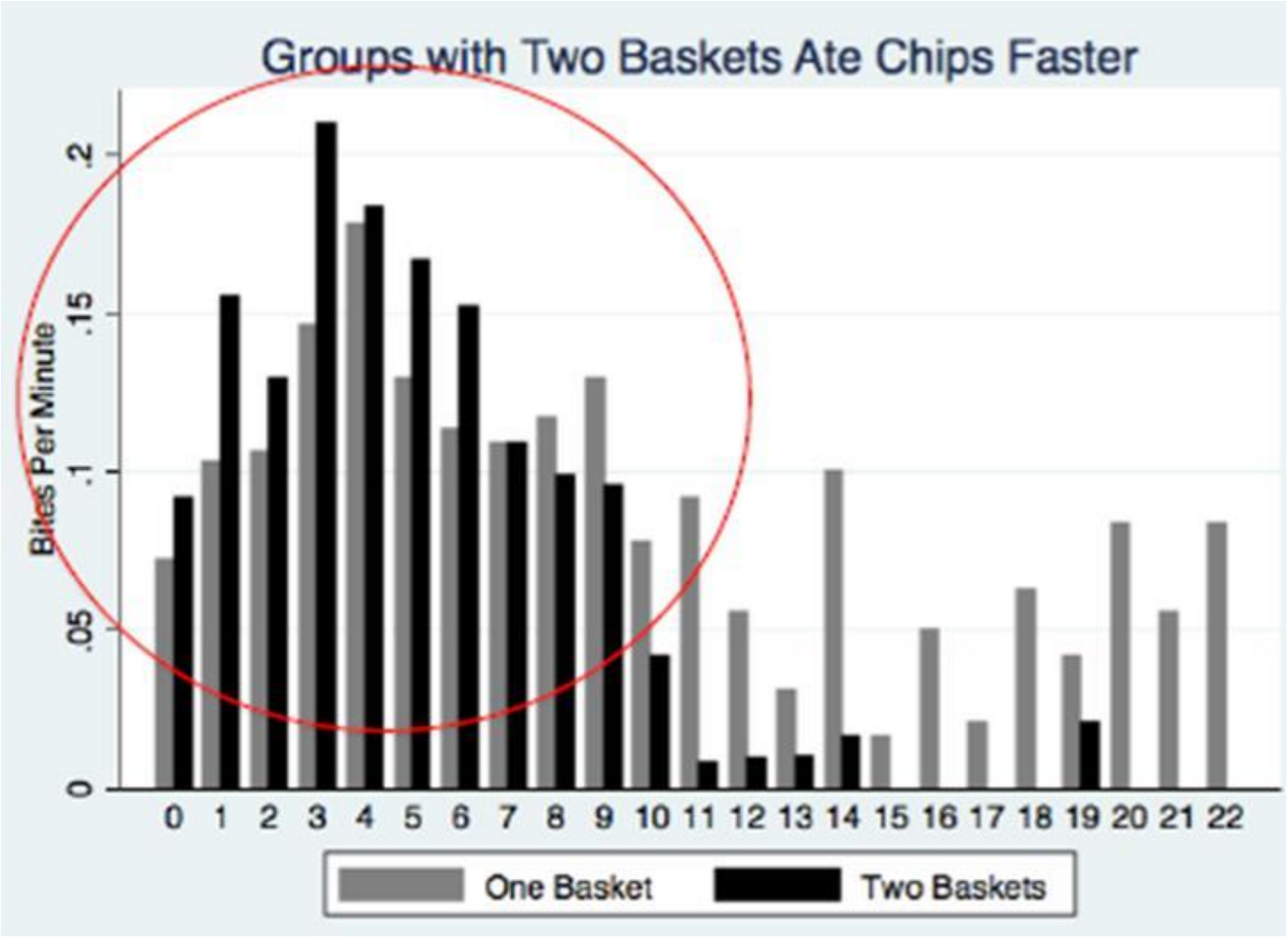
Half received one basket; half received same amount but in two baskets.

Collect data on meal order, meal consumed, and number of bites taken per 10 second interval (until entrée arrived)

Remember the objective of your intervention.

Tragedy of the Commons describes overuse of public goods.

So what was going on here?



Pre-shopping Interventions

Role of Pre-shopping Intervention

Hypothesis: Consumption of a healthy item pre-shopping will increase produce purchase (intent).

STUDY 1: Shoppers were randomly given an apple sample, a cookie sample or no sample.

Results: Those given the apple sample bought 28% more fruits and vegetables than those given a cookie sample and 25% more fruits and vegetables than those given no sample.

STUDY 2: Participants were given an actual cookie or apple sample and asked to imagine they were grocery shopping. They were shown product pairs with one healthy and one unhealthy item and asked to select one for purchase.

Results: Those who ate the apple opted for healthier items. Those who ate a cookie opted for a greater amount of less healthy items.

Tal and Wansink (2015). An Apple a Day Brings More Apples Your Way: Healthy Samples Prime Healthier Choices. Psychology & Marketing, 32(5), 575-584. doi: 10.1002/mar.20801

Affecting Food Purchase Choice: Virtual Shopping

Hypothesis: Consumption of a perceived healthy item pre-shopping will increase produce purchase.

Tal and Wansink (2015). An Apple a Day Brings More Apples Your Way: Healthy Samples Prime Healthier Choices. Psychology & Marketing, 32(5), 575-584. doi: 10.1002/mar.20801

Study 3: Does simply framing a sample as healthy influence shopping behavior?

Group One: Chocolate milk labeled "healthy, wholesome chocolate milk".
Group Two: Same milk but labeled, "rich, indulgent chocolate milk."
Group Three: No milk.

Results: Those given "healthy, wholesome" milk selected more healthy foods.

Conclusion: What influences shoppers' behavior is not the actual but the perceived healthfulness of a sample.

So, we should eat a healthy snack before we go to the grocery store?

In-store Interventions

Third-Party Certification

The Guiding Stars program is available in more than 1,800 supermarkets in North America and also operates in public school, college, hospital and corporate cafeterias.

Guiding Stars takes the guesswork out of nutritious shopping.

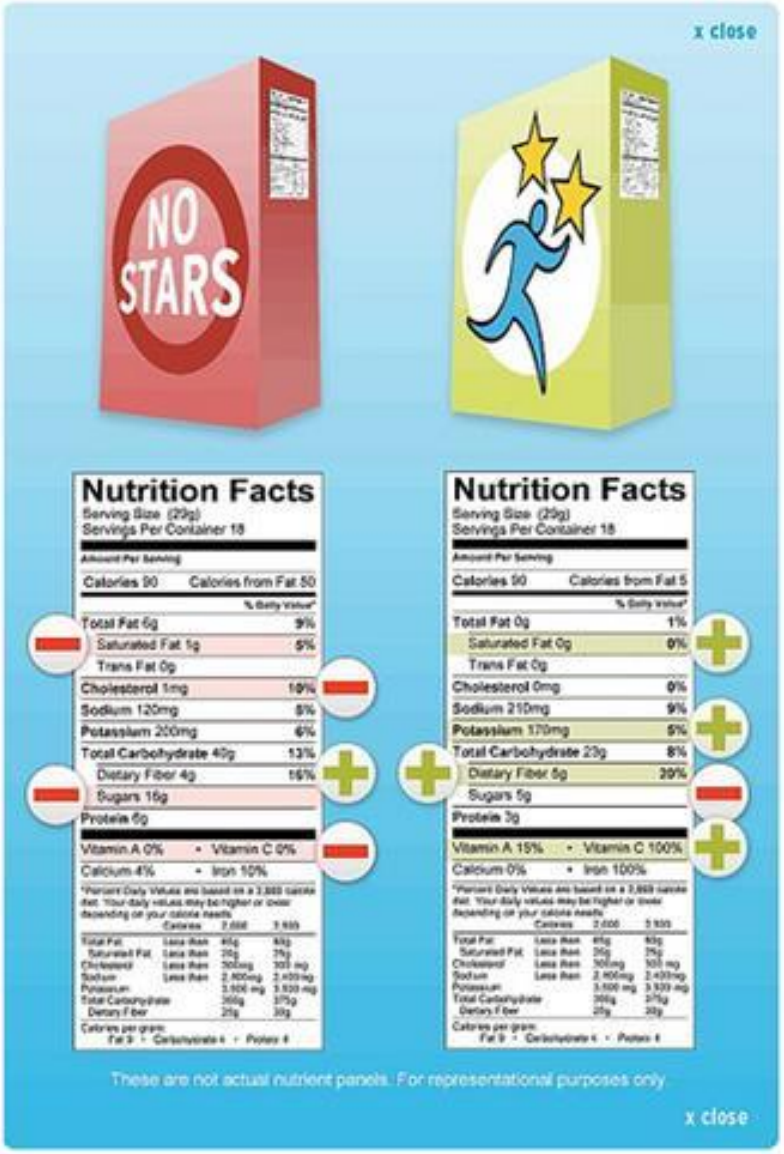
As you go through each aisle of the store or navigate through your cafeteria, the Guiding Stars program can help you identify more nutritious choices. We rate the nutritional quality of food using information from the Nutrition Facts Panel and the ingredients list. Foods are rated and receive a score based on the assignment of credits and debits.

- **One Guiding Star** indicates good nutritional value
- **Two Guiding Stars** indicate better nutritional value
- **Three Guiding Stars** indicate the best nutritional value

Guiding Stars is not intended to tell you what to buy, but rather point you toward foods that have more vitamins, minerals, dietary fiber, whole grains –*and less* fats, cholesterol, sugar and sodium. Guiding Stars is objective, based on consumer research, and not influenced by price, brand or manufacturer trade groups. With **over 100,000 rated foods**, making nutritious choices for you and your family is now simple… and even fun.

We look at the same nutrient information that's available to the public.

Our algorithm looks directly at the information provided by the FDA-governed Nutrition Facts Panel present on all prepared foods. We also analyze the ingredients list, which is especially important when considering whether a food should be debited for added sugars. If a food, such as fresh produce, doesn't have listed nutrition facts, we use the USDA's National Nutrient Database.



Our algorithm recognizes that not all diets are created equal.

In situations where the recommendations for a diet vary, so does our algorithm. Infant formula and medical foods, for example, are not rated because we recognize that inclusion of these foods in a diet should be supervised by your doctor. Food for babies and toddlers is rated on a separate algorithm, recognizing that the dietary recommendations are different for children under the age of two.

"This extremely well-designed and rigorous study makes an important contribution to the growing field of nutrition labeling or profiling systems and demonstrates that such systems can indeed positively influence consumer purchasing behavior," said Leslie. M. Fischer, PhD, MPH, RD of UNC-Department of Nutrition, and member of the Guiding Stars Scientific Advisory Panel. "This work is very affirming and independently demonstrates that the Guiding Stars program has succeeded at helping shoppers to make more nutritious food choices, thus fulfilling the goal of the program."

Articles citing this article

Toward a Just, Nutritious, and Sustainable Food System: The False Dichotomy of Localism versus Supercenterism
J. Nutr. 2015 145: 1380–1385
» Full Text » Full Text (PDF)

Placement and promotion strategies to increase sales of healthier products in supermarkets in low–income, ethnically diverse neighborhoods: a randomized controlled trial
Am J Clin Nutr 2014 99: 1359–1368
» Abstract » Full Text » Full Text (PDF)

Processed foods: contributions to nutrition
Am J Clin Nutr 2014 99: 1525–1542
» Abstract » Full Text » Full Text (PDF)

Effects of front–of–package and shelf nutrition labeling systems on consumers
Nutr Rev 2013 71: 1–14
» Abstract » Full Text » Full Text (PDF)

The American Journal of CLINICAL NUTRITION

Guiding Stars: the effect of a nutrition navigation program on consumer purchases at the supermarket[1,2,3,4,5]

Lisa A Sutherland, Lori A Kaley, and Leslie Fischer

Guiding Stars®
Nutritious choices made simple®


Fresh Cut Fruit
Limited Time Offer
Sweet Sale
$1.99
Guiding Stars®
Nutritious choices made simple®
Sweetbay

Shopper Directions

- Salient
- Easy to interpret
- Easy to compare against current behavior

Over 200,000 person grocery story transactions as daily sales reports

There is some evidence these interventions influence food choice.

- Order of food choice
- Pre-commitment
- Social pressure
- Pre-shopping intervention
- Certification
- Directional signage at retail

At least in the (very) short run.

We are including interference in the lives of real people.

Let’s look at policy.

The Importance of Choice

Reactance is a motivational reaction to offers, persons, rules, or regulations that threaten or eliminate specific behavioral freedoms. Reactance occurs when a person feels that someone or something is taking away his or her choices or limiting the range of alternatives.

Reactance can cause the person to adopt or strengthen a view or attitude that is contrary to what was intended, and also increases resistance to persuasion.

Attribution means that choice (even relatively meaningless choice) can create value and increase influence of intercepts

"Yet research in the behavioral sciences indicates that consumers that are emotionally attached to a consumption good or other behavior might respond with resistance when policies threaten their consumption or behavior. Moreover, policies that in fact validate some emotional attachments can stir a stronger preference for the good or behavior."

…"emotional responses can create hidden costs to policy implementation that could not be detected using standard welfare economic techniques."

Just, D.R. and A.S. Hanks. 2015. The Hidden Cost of Regulation: Emotional Responses to Command and Control, American Journal of Agricultural Economics, doi:10.1093/ajae/aav016.

The Bloomberg Effect

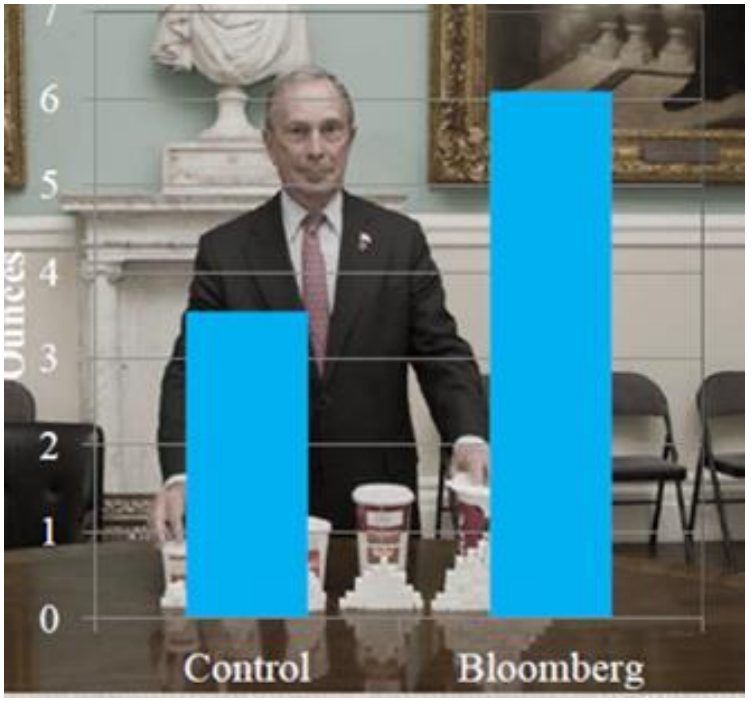
Participants offered soda during task.

Half had been shown Bloomberg's picture and a description of the policy he was trying to implement

Half read other (unrelated) information

An overt policy can be a *behavioral interrupt*

Drives an emotional response



Soda consumed during experiment.

Just, David R. and Jakina Debnam. "Rebellion and Policy: The Economic Cost of Reactance." Working Paper, 2015.
Just, David and Andrew Hanks. The Hidden Cost of Regulation: Emotional Responses to Command and Control.

The New York Times

New York's Ban on Big Sodas Is Rejected by Final Court

By MICHAEL M. GRYNBAUM JUNE 26, 2014

A proposal in 2012 by former Mayor Michael R. Bloomberg to limit the sales of sugary drinks larger than 16 ounces ignited a global debate over soda consumption.
Hiroko Masuike/The New York Times

The Bloomberg big-soda ban is officially dead.

The state's highest court on Thursday refused to reinstate New York City's controversial limits on sales of jumbo sugary drinks, exhausting the city's final appeal and dashing the hopes of health advocates who have urged state and local governments to curb the consumption of drinks and foods linked to obesity.

In a 20-page opinion, Judge Eugene F. Pigott Jr. of the New York State Court of Appeals wrote that the city's Board of Health "exceeded the scope of its regulatory authority" in enacting the proposal, which was championed by former Mayor Michael R. Bloomberg. Judge Pigott wrote that the complexity of the proposal and its reach into the everyday lives of millions meant that the City Council ought to address it instead.

The ruling was a major victory for the American soft-drink industry, which had fought the plan. Two lower courts had already ruled against the city, saying it overreached in trying to prohibit the sale of sugary drinks in containers larger than 16

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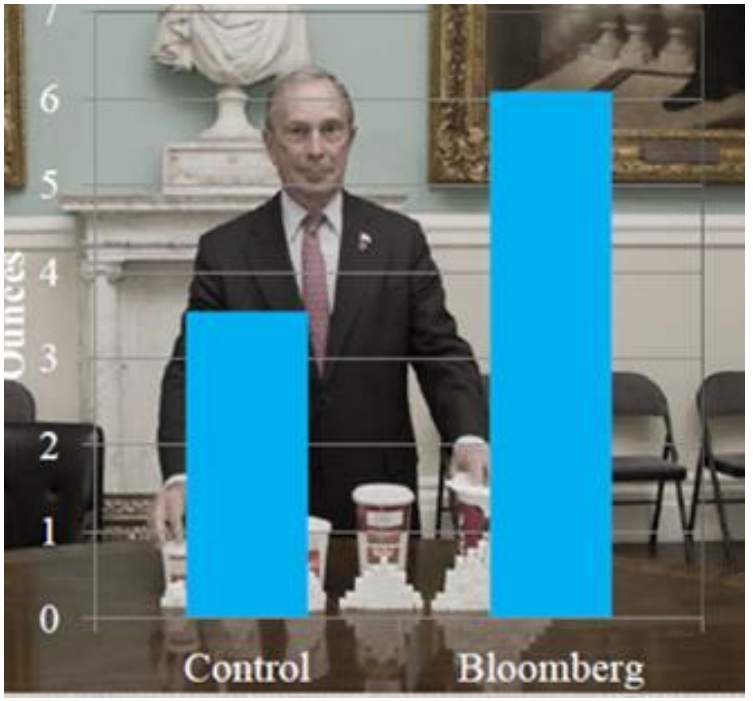

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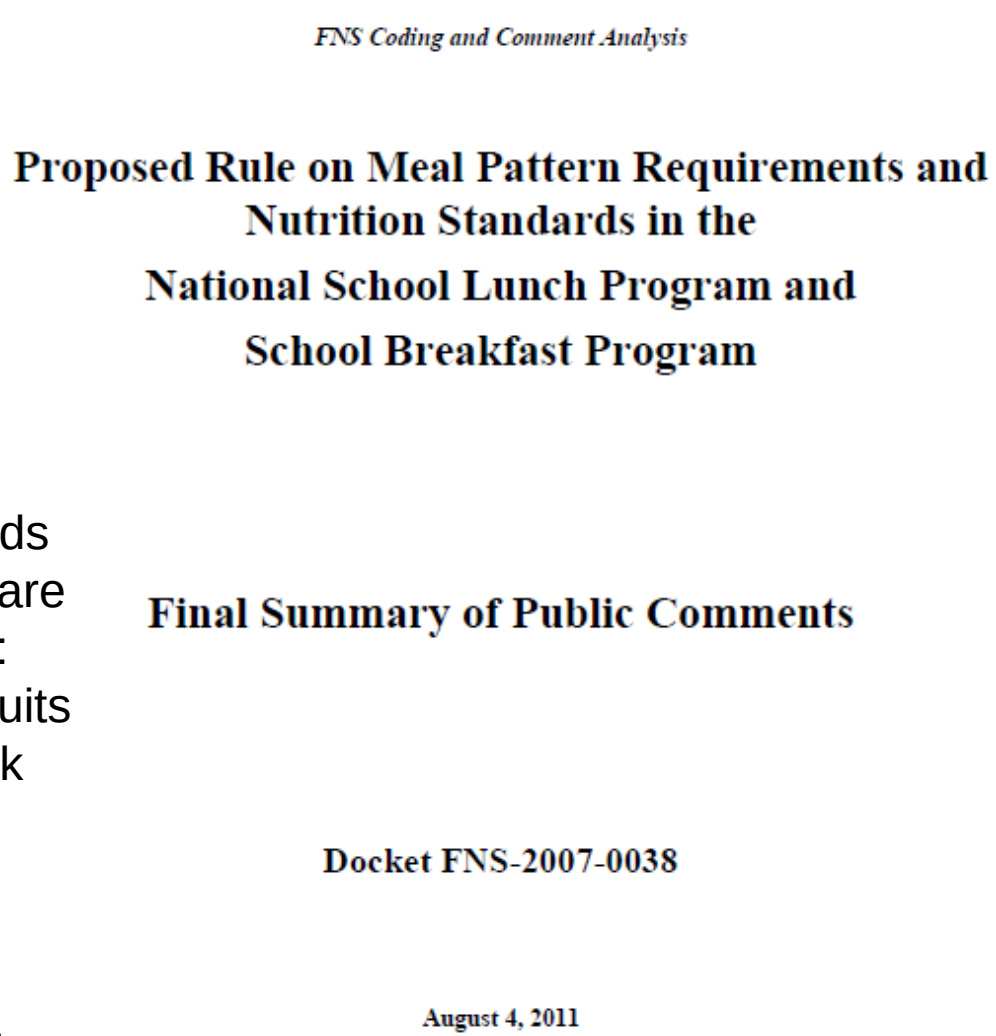
Just, David and Andrew Hanks. The Hidden Cost of Regulation: Emotional Responses to Command and Control.

How about a policy for healthier school lunches?

“The final standards make the same kinds of practical changes that many parents are already encouraging at home, including:

- Ensuring students are offered both fruits and vegetables every day of the week
- Substantially increasing offerings of whole grain-rich foods;
- Offering only fat-free or low-fat milk varieties;
- Limiting calories based on the age of children being served to ensure proper portion size; and
- Increasing the focus on reducing the amounts of saturated fat, trans fats and sodium.”



General opposition for the proposed requirements in their entirety 430 submissions; summative comments

1. Proposed changes will result in decreased participation in the meal programs because the food offered would not be acceptable to students. Decreased participation rates would lead to decreased revenues, which could lead some schools to stop offering meal service.

2. Proposed changes would result in increased plate waste because of increased portions and the proposed requirement that a reimbursable meal must include a fruit or a vegetable.

3. Increased plate waste, increased produce requirements, and increased whole grain requirements would result in increased costs for schools exceeding that allocated. Increased costs would result in schools having to raise meal prices, which may impact participation rates.

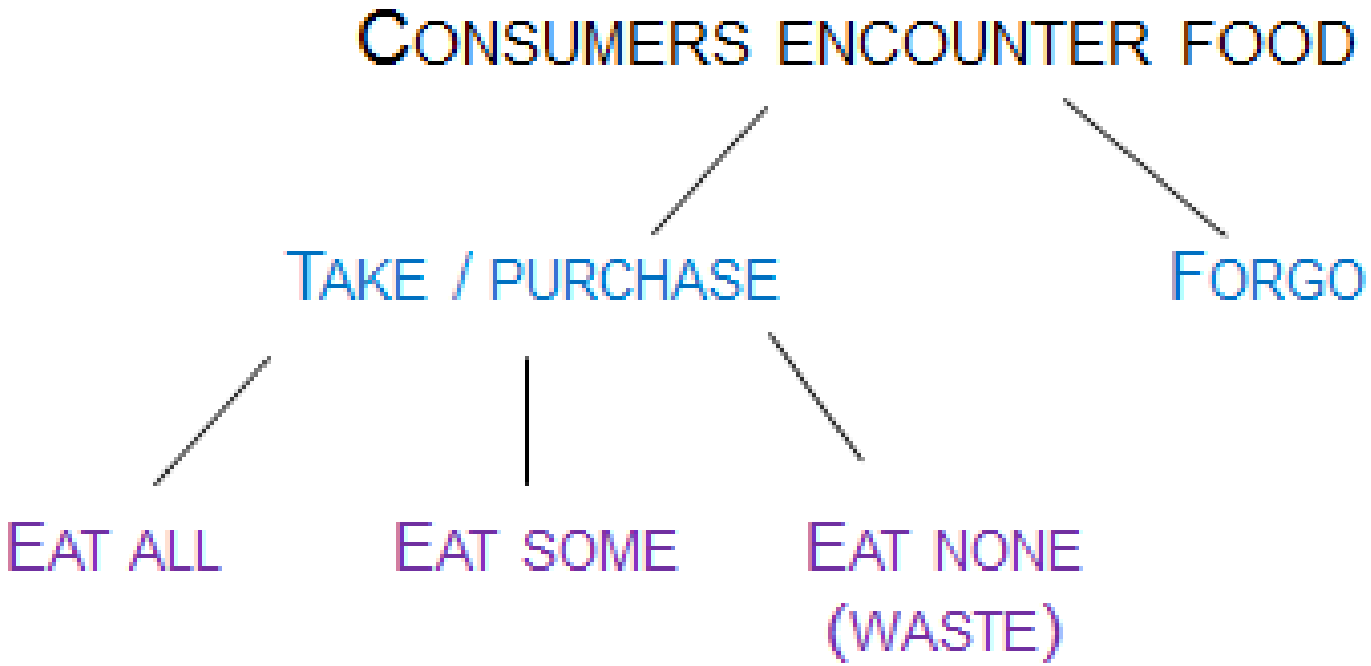
School kids are blaming Michelle Obama for their 'gross' school lunches

By Roberto A. Ferdman November 24, 2014 Follow @robferdman

First lady Michelle Obama's push for healthier school lunches has met teenage friends and foes. (AP Photo/Pablo Martinez Monsivais)

If I chose it, I will rationalize the choice; I own the choice; Usually association with positive behaviors

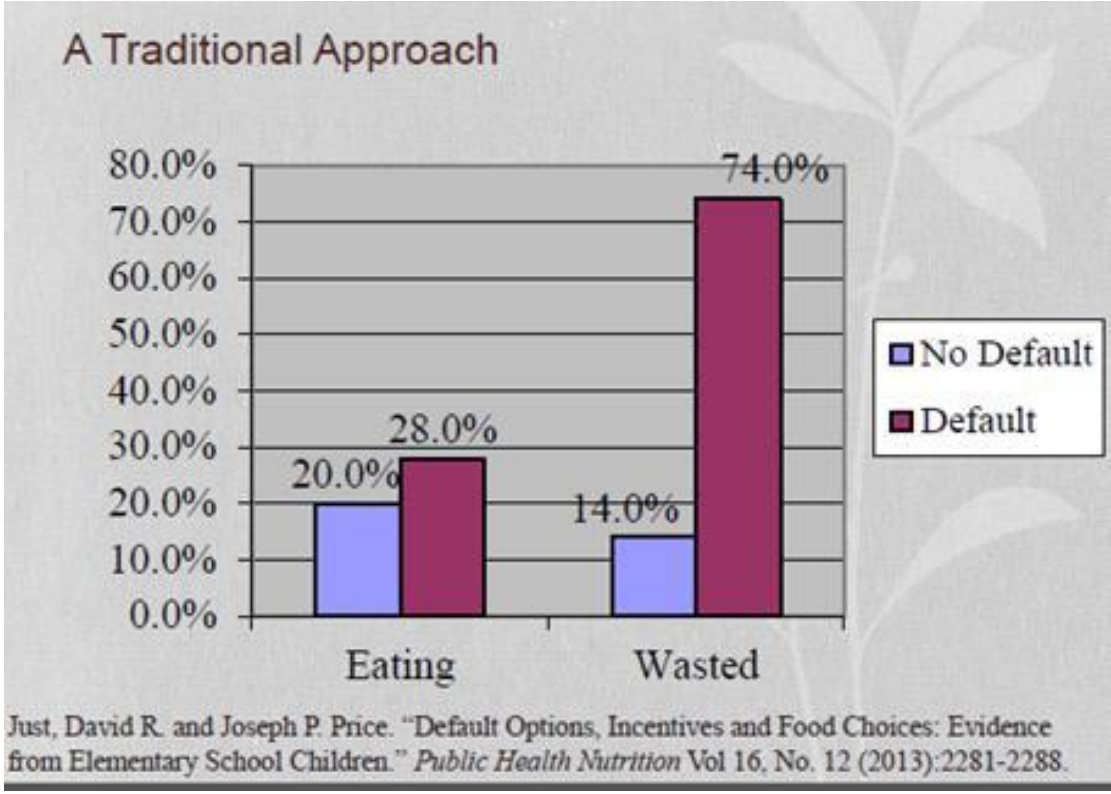
Food selection and intake decisions are generally separate.



Be careful of the net effect of your intervention: What is your goal?

The average serving of fruits and vegetables costs $0.20

Default increases servings taken by 0.86 per child ($0.20 x 0.86 = $0.17)



But waste also increases. If you offer a default to ten children to increased by one the number who eat it, cost is $1.72 and 70% is wasted.

Food is Just One Application

- Environmental standards
- Producer compliance
- Consumer compliance
- Driver safety
- Revenue generation
- Adapting to social change

We know psychological or neurological biases cause people to make irrational choices.

"Nudging" is the research-supported idea that we can steer people towards better decisions by presenting choices in different ways.


The Economist World politics Business & finance Economics Science & tecl

Free exchange

Nudge nudge, think think

The use of behavioural economics in public policy shows promise

Paul Ferraro, Applying Behavioral Economics to Improve Environmental Programs, Carey Business School & Whiting School of Engineering, Johns Hopkins University.

Sent a clear and direct letter to non-payers of vehicle taxes.

It said “pay your tax or lose your car” – Doubled response
Sometimes they included a picture of the car. – Tripled response

In a French technical drawing class, boys did better if they called it geometry.
Girls did equally well if they called it drawing. Teachers take notice.

Britain encouraged residents towards energy efficiency.
Figured out why? Did not want to clean the attic.
Gave them a nudge to correct it: offer by insulation firms to clean it.

Organ donation. In Denmark they would like to require drivers to make a choice to help them overcome procrastination over an unpleasant choice.

Danish Nudging Network experimented with green arrows pointing to stairs were put next to railway-station escalators, in the hope of encouraging people to take the healthier option. Did not work.

Another experiment had a series of green footprints leading to rubbish bins. These signs reduced littering by 46% during a controlled experiment in which wrapped sweets were handed out.

Why difference? No social norms about escalator use but are about littering.

Differences in culture can have a big impact, too. “Nudge” described an example in America, where telling high users of energy how their consumption compared with that of their neighbors prompted them to use less. This approach is now being tested in Britain. But hopes are low that it will work in France where they do not tend to comply as easily with social norms.

Sometimes it doesn't work.

Even if it doesn't work, nudging:

- Encourages the use by government of plain language
- Favors the design of policies that actually take account of real-world behavior; and
- Allows the testing of ideas on a small scale before wider implementation.

What works

Small inexpensive changes

Subtle nudges in the right direction

Reframing the decision

Changes that patrons will seldom even notice

Like what?

Move the healthier foods to the front.

Provide signage / branding on the healthier foods.

Put the healthy foods in a more accessible and visible place.

Just some of what we really don't understand

- Replications uncommon: "The truth wears off". Persistence is poorly understood.
- Mechanisms for observed behavioral changes are poorly understood.
- Empirical evidence for form and prevalence of some behavioral phenomena not as clear as assumed, making welfare analysis difficult.
- What happens when people know what you're trying to do?

Uncertainty is particularly increased because we often don't publish "no effect" work.

What experiments would be interesting in China?

What are the research questions?

How does the culture including behavioral and attitudinal reality affect this question and how it can be best addressed?

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