Obstacles we face when trying to make healthy choices

...and can the government help?

“Navigating the new health care market” – Consumer Issues Conference 2013

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What can we do to stay healthy?

Leading contributors to premature death

<table>
<thead>
<tr>
<th>Diet and Physical Inactivity</th>
<th>310,000-580,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>260,000-470,000</td>
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<tr>
<td>Alcohol</td>
<td>70,000-110,000</td>
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<tr>
<td>Microbial Agents</td>
<td>90,000</td>
</tr>
<tr>
<td>Toxic Agents</td>
<td>60,000-110,000</td>
</tr>
<tr>
<td>Firearms</td>
<td>35,000</td>
</tr>
<tr>
<td>Sexual Behavior</td>
<td>30,000</td>
</tr>
<tr>
<td>Motor Vehicles</td>
<td>25,000</td>
</tr>
<tr>
<td>Drug Use</td>
<td>20,000</td>
</tr>
</tbody>
</table>

Source: Center for Science in the Public Interest

Costs on society of diet related illnesses

<table>
<thead>
<tr>
<th>Disease</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>$180 Billion</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>$112 Billion</td>
</tr>
<tr>
<td>Obesity</td>
<td>$117 Billion</td>
</tr>
<tr>
<td>Diabetes</td>
<td>$117 Billion</td>
</tr>
<tr>
<td>Stroke</td>
<td>$49 Billion</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>$47 Billion</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>$14 Billion</td>
</tr>
</tbody>
</table>

Source: Center for Science in the Public Interest

It seems like a good idea to...
Focus of today

Why don’t we eat healthy?

• Too expensive?
• Too time consuming?
• Behavioral factors (preferences, habits, self-control)?
• Lack of knowledge how to eat and cook healthy?

The price of healthy eating

It is more expensive (even though it doesn’t have to be).

• A UK study: vegetarian diets high in fruit and vegetables cost more than a traditional diet (Drewnowski, 2003)
• A DK study: low fat diets for children cost more than a traditional diet (Stender et al., 1993)
• A French study: diets high in vitamins and minerals cost more (Andrieu et al., 2003)

Expected pattern

Generally, low income earners eat less healthy than high income earners.

Diets are highly linked to socio economic status.

Solution – change prices via taxes?

We could change relative prices by implementing a tax reform, e.g. taxes on unhealthy food/ingredients and/or subsidizes of healthy food/ingredients.

This has been done in some countries: e.g. Denmark, France, Hungary, Finland.

What would the impact be?

• None, if taxes are small (results from both field experiments and economic models based on expenditure data).
• To significantly improve diets, price changes will have to be large.
• An example: to reach Swedish dietary guidelines on fiber consumption alone, we would need to half the price of products with high fiber content and double the price of unhealthy products.
What would the impact be?

- Tax reforms are complicated. Taxing one nutrient/food group may increase consumption of others.
- Generally, it is more efficient to tax nutrients than food products.
- Some evidence suggests that low income earners will change diets the least.

The impact of the Danish fat tax

Still a lot of unknowns, but a few results emerge:

- Little change in diet.
- Hoarding prior to the tax.
- More of imported fatty products.

Do we lack knowledge?

90% of the respondents believed that the following were either ‘very important’ or ‘quite important’ for healthy diets:

- limiting fat
- limiting saturated fat
- limiting sugar
- eating lots of whole grain foods
- eating lots of fruit and vegetables
- limiting salt
- drinking lots of water
- eating a balanced diet

...so we do know the basics.

Maybe we do not know the content of the food we eat?

- We eat out more than ever before (around 50% of food expenditure is spent on food away from home).
- Studies (e.g. Lin et al., 1999; 2002; Guthrie et al., 2002) find that food away from home is generally higher in calories, fat, saturated fat, sodium and cholesterol, while lower in fibre, calcium and iron.
- Portion sizes are bigger and energy density is generally higher than in food prepared at home.
- Evidence shows we eat more when portion sizes are bigger and if food is energy dense, we underestimate the calorie content more.

Consumers underestimate calories

- A study in New England (Block et al., 2013) of food purchased at fast food restaurant chains in 89 restaurants:
  - McDonald’s, Burger King, Wendy’s, KFC, Subway and Dunkin’ Donuts.
  (Note: at the time of data collection, none of the chains routinely printed calorie content on menus.)
- Researchers collected receipts from participants to calculate the calorie content of their meals, and asked participants to estimate the calorie content of their meal.
Results:

- The mean calorie content of meals was 836 for adults, 756 for adolescents and 733 for children.
- On average, adults, adolescents, and parents of school-age children underestimated calorie content by 175 calories, 259 calories and 175 calories, respectively.
- Two thirds of all participants underestimated the calorie content of their meals.
- Approximately one quarter underestimated the calorie content by at least 500 calories.
- Participants consuming high calorie meals underestimated by a greater amount than small calorie meals. Underestimation was greater among Subway diners than at any other chain.
- Could live in an *illusion* that the number of calories of food away from home is lower than it actually is.

Kyureghian et al. (2007) find that a 10 percent increase lunches eaten away from home would make the average person obese.

Lunch experiment

- Examined the impact on lunch consumption from a healthy label.
- Estimate the impact on meal sales from the healthy label, while controlling for all other observable factors (content, price, advertisement, order of menu, Weekday, etc).

Results:

- We could not find a positive impact on meal sales from the healthy label.

What mattered most was:
- where on the menu the meal was placed (top placed meals sold more), and
- the composition of the meal, or “the taste”. Poultry meals were big sellers (increased sales of a meal by almost 40 percent).

Impact of menu labelling

- Consumers generally do not look for information provided by nutritional labels when making food purchases (Grunert et al., 2010a; 2010b). Need to make labels highly visible – eg. menu labelling.
- A few studies examine the impact of the mandatory calorie labeling introduction in New York and other states (e.g. Downs et al., 2009, Elbel et al., 2009, 2011, and Vadiveloo, 2011).
- Findings are mixed. Generally, calorie consumption seems to remain unchanged (or only slightly change) after point-of-purchase-labeling is imposed.

Do we *want* to know?

- Do we deliberately ignore calorie information to be able to underestimate the amount of calories we consume?
Experimental results

(1) ~ 60% ignore costless calorie information
(2) They ate ~ 40% more calories than the informed group
(3) Determinants: ignorance is driven by low self-control. Men are more likely to choose ignorance.

Strategic self-ignorance

Participants

148 subjects from the Stockholm region, told that they would fill out a survey, would be served lunch at site, and privately weighed and measured.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
<th>Number of observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>39.950</td>
<td>12.704</td>
<td>20</td>
<td>61</td>
<td>139</td>
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<tr>
<td>Female</td>
<td>0.534</td>
<td>0.501</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Highest education</td>
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<tr>
<td>High School Education</td>
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<tr>
<td>University Education</td>
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<td>0.501</td>
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<tr>
<td>Other Education</td>
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<td>0.399</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Income/month, in SEK</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>≤ 10,000</td>
<td>0.102</td>
<td>0.304</td>
<td>0</td>
<td>1</td>
<td>147</td>
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<tr>
<td>10,001–20,000</td>
<td>0.327</td>
<td>0.471</td>
<td>0</td>
<td>1</td>
<td>147</td>
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<tr>
<td>20,001–30,000</td>
<td>0.286</td>
<td>0.453</td>
<td>0</td>
<td>1</td>
<td>147</td>
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<tr>
<td>&gt;30,000</td>
<td>0.122</td>
<td>0.329</td>
<td>0</td>
<td>1</td>
<td>147</td>
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<tr>
<td>Body mass index (BMI)</td>
<td>25.182</td>
<td>4.185</td>
<td>18</td>
<td>48</td>
<td>148</td>
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<tr>
<td>Present bias</td>
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<td>0.366</td>
<td>0</td>
<td>1</td>
<td>146</td>
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<td>Taste is Number 1</td>
<td>0.415</td>
<td>0.495</td>
<td>0</td>
<td>1</td>
<td>142</td>
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<tr>
<td>Health is Number 1</td>
<td>0.197</td>
<td>0.399</td>
<td>0</td>
<td>1</td>
<td>142</td>
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<td>Guilt - Based Info Dislike</td>
<td>0.597</td>
<td>0.492</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Health Interest</td>
<td>9.185</td>
<td>5.066</td>
<td>-4</td>
<td>23</td>
<td>146</td>
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<tr>
<td>Hours of exercising</td>
<td>11.941</td>
<td>12.911</td>
<td>0</td>
<td>85</td>
<td>148</td>
</tr>
<tr>
<td>Ready meals:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| a good with transparent instant utility (taste) and non-transparent impact on future utility (calorie content).
| Two meal alternatives, one low calorie and one high calorie: |
| Roast beef and noodles (490 calories) |
| Chicken and bulgur (900 calories — same as average fast food meal) |

Experiment outline

(1) Basic info: fill out a survey. For lunch: choose between two meals, 490 resp. 900 calorie meal, consume at site.
(2) Rate the expected taste of meal alternatives, state preferred meal.
(3) Control group: provided info on low resp. high calorie meal. Treatment group: offered the choice of free info on low resp. high calorie meal.
(4) Offered to revise meal choice.
(5) Complete survey and eat their meal.
(6) Participants and their leftovers were weighed and measured.

Experimental results

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Ignored Free Information</th>
<th>Chose High Calorie Meal Base to Information</th>
<th>More Calories Consumed by High Calorie Meal Consumers Prior to Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>55</td>
<td>36/55 (65%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>93</td>
<td>54/93 (58%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>558</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

54/93 (58%) Subjects Who Ignore info
52/98 Subjects Who Chose info
Experimental results

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Ignored Free Information</th>
<th>Chose High Calorie Meal Prior to Information</th>
<th>Mean Calories Consumed by High Calorie Meal Consumers Prior to Information</th>
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<tr>
<td>Control</td>
<td>55</td>
<td>N/A</td>
<td>36/55 (65%)</td>
<td>558</td>
</tr>
<tr>
<td>Treatment</td>
<td>93</td>
<td>54/93 (58%)</td>
<td>Subjects Who Ignore info (28/56): 798</td>
<td>Subjects Who Chose info (27/56): 546</td>
</tr>
</tbody>
</table>

3/5 subjects choose to ignore free calorie information.

Why are prices and info inefficient?

...because other factors are more important in determining food choice.

- Behavioral factors -- self-control problems.
- Habits
- Preferences
- Social environment
- Food environment

*When the opportunity cost is high (i.e. taste is good), making healthy choices requires more of self-control.*

Opportunity cost

Unhealthy=tasty

- Programmed to like sweet, salty and fatty food.
- Energy dense food tastes better than food lower in calories (Drewnowski, 1998)
- Modern energy dense food is sweeter, saltier and fattier than anything nature could produce on its own.

...and we even *believe* unhealthy food tastes better

- Raghunathan (2006) found that the less healthy a food is portrayed to be, (1) the better is its inferred taste and (2) the more it is enjoyed when consumed.
- Crackers were portrayed as containing a high amount of "bad fat" (saturated fat) or a high amount of "good fat". The inferred tastiness was significantly higher for crackers portrayed as containing the "bad fat".
- Participants were offered Mango Lassi (an East Indian delicacy similar to a milkshake), where half of participants were told it was healthy, while the other half was told it was unhealthy. People who were told it was unhealthy enjoyed consuming it more.
The trade-off between health and taste

How does health weigh compared to taste in food demand?

Experiment on chips and bread: 5 types of chips, 4 types of bread

- Participants ranked taste for each type (1-5, where 5=very good)
- Some types were labelled as healthier (low fat and “healthy symbol” labelled)
- Elicited participants’ willingness to pay (WTP) for each product.

Results:

- Taste scores had a large impact on WTP: e.g. when consumers’ experienced taste from potato chips improves by one unit, the average WTP for a 150 gram bag of chips increases by $0.30.
- An impact of healthy labels on WTP could not be confirmed.

How can we help ourselves make healthy choices?

- Reduce the opportunity cost of healthy eating – ensure healthy meals are tasty
- Increase the search cost of unhealthy choices – reduce the impact of impulses (ensure there is a special effort involved in getting the unhealthy food)
- Establish good habits – this will reduce the amount of self-control needed to choose healthy

What can policy do to help us make healthy choices?

- Reduce the opportunity cost of healthy eating – ensure tasty healthy meals (school boards, etc)
- Help us establish good habits, e.g. by encourage children to enjoy healthy, well-prepared meals
- Increase “the search cost” of unhealthy choices – reduce the impact of impulses (ensure there is no unhealthy food in schools)

Traditional public policies

...and public information is needed to remind us
...and it is good if the healthy food is affordable

But using information alone, or even combined with politically feasible taxes/subsidies, will not make a significant impact on healthy choices.