Implications of a “Healthier” U.S. Food Stamp Program

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“Proposed Modifications to the Food Stamp Program: Likely Effects and their Policy Implications”

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Outline

- Rising U.S. obesity – trends and linkages
- The U.S. Food Stamp Program (FSP)
- Proposed changes to the FSP
- Likely responses of consumers
- Potential market adjustments
- Likely nutrition consequences
- Conclusion: implications for the FSP
Main Points

- Restriction of food stamps to only healthy foods may have unintended consequences
  - If constraint is not binding (because “healthy” food expenditure exceeds food stamp value) no effect
  - If constraint is binding . . . .
    - Reduced participation by some eligible households
    - Reduced consumption of “unhealthy” foods by some FSP households => induced price changes and increased consumption of “unhealthy” foods by non-participants

- Targets and instruments
  - Use food stamps to provide food for the poor
  - Use other policies to encourage a healthy diet
Obesity in the United States

- Prevalence of overweight & obesity is high and rising
  - Children and adolescents – 5 % in 1976, 16 % in 2000
  - 66 % of all Americans in 2003-04 overweight (BMI > 25)
  - 33 % of all Americans in 2003-04 obese (BMI > 30)
  - Obesity rate doubled since 1971

- $78.5 billion in medical spending in 1998 attributable to overweight & obesity

- Obese or overweight individuals tend to be poor
  - Confounded with other demographic factors?
  - Link between obesity and poverty weakening?
  - Children from low-income households more likely to be overweight
  - Severity of overweight greater for low-income children
The Food Stamp Program

- Established in 1930s to
  - Stimulate consumption of surplus farm commodities
  - Provide additional calories to the food poor

- Eligible households: income < 130% of poverty line

- 50 % of eligible individuals have participated

- 26 million participants (from ~11 m. households) in 2005
  - 50 % children under 17, 17 % elderly, 23 % disabled non-elderly
  - 46 % in households headed by white adults

- FSP spent $31 billion in 2005
  - $ 93 per participant per month
  - $200 per participating household per month
  - $300 per household per month for families with children
### Average Income, Benefits, and Household Size for FSP Participants, 2005

<table>
<thead>
<tr>
<th>Participant Group</th>
<th>Monthly Income</th>
<th>Monthly FSP Benefit</th>
<th>Household Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Participant Population</td>
<td>648 $/household</td>
<td>209 $/household</td>
<td>2.3 persons</td>
</tr>
<tr>
<td>Households with Children</td>
<td>768 $/household</td>
<td>300 $/household</td>
<td>3.3 persons</td>
</tr>
<tr>
<td>Elderly Individuals</td>
<td>690 $/household</td>
<td>87 $/household</td>
<td>1.3 persons</td>
</tr>
<tr>
<td>Disabled Non-elderly Individuals</td>
<td>802 $/household</td>
<td>145 $/household</td>
<td>2.0 persons</td>
</tr>
<tr>
<td>Other Households</td>
<td>205 $/household</td>
<td>146 $/household</td>
<td>1.1 persons</td>
</tr>
</tbody>
</table>
Proposed Modifications to FSP

**Eliminate**
- White bread, cookies, cakes, muffins
- Cream, cream cheese, whole milk, cheese
- Fruit juice drinks, soft drinks, punch, sport drinks
- Most mixed prepared foods (pizza, frozen dinners)
- Savory snacks, sweet snacks
- Breaded and fried fish
- Fattier cuts of meat

**Keep**
- Wholegrain bread, pasta, hot and cold cereals
- Milk < 2% fat, cottage cheese, yogurts
- All forms of fruit and veg., 100% fruit and veg. juice
- Mixed prepared foods meeting dietary guidelines
- All beans and legumes, peanut butter
- Fresh, frozen, canned fish
- Low fat cuts of meat, eggs
Food Stamps and the Budget Constraint

Nonfood \( (x) \)

Food \( (f) \)

- Food Stamps
- Budget Constraint

Diagram with points A, B, C, D, and lines for different food and nonfood combinations.
“Healthy” Food Stamps and the Budget Constraint
Supply Response to Policy Change

The Market for “Healthy” Food

Price ($P_h$)

$P_{h,0}$
$P_{h,1}$
$P_{h,2}$

Healthy Food ($h$)

$0$ $h_0$ $h_2$ $h_1$

DH$_0(P_{u,0}, FSP_0)$
DH$_1(P_{u,0}, FSP_1)$
DH$_2(P_{u,2}, FSP_1)$

The Market for “Unhealthy” Food

Price ($P_u$)

$P_{u,0}$
$P_{u,1}$
$P_{u,2}$

Unhealthy Food ($u$)

$0$ $u_1$ $u_2$ $u_0$

DU$_0(P_{h,0}, FSP_0)$
DU$_1(P_{h,0}, FSP_1)$
DU$_2(P_{h,2}, FSP_1)$

SH

SU
Algebraic Model

- % changes in prices and quantities of healthy (H) and unhealthy food (U) as a function of
  - % increase in demand for healthy food by FSP participants ($\alpha_h$)
  - consumption of H and U by FSP participants ($H_f$ and $U_f$) and in total
  - budget shares of U for participants ($s_u$)
  - own and cross price elasticities of demand ($\eta$)
  - elasticities of supply ($\varepsilon$)

\[
d\ln P_h = (\varepsilon_u - \eta_{uu}) \left( \frac{H_f}{H} \right) \frac{\alpha_h}{D} + \eta_{hu} \left( \frac{U_f}{U} \right) \frac{\alpha_u}{D}
\]

\[
d\ln P_u = (\varepsilon_h - \eta_{hh}) \left( \frac{U_f}{U} \right) \frac{\alpha_u}{D} + \eta_{uh} \left( \frac{H_f}{H} \right) \frac{\alpha_h}{D}
\]

\[
D = (\varepsilon_h - \eta_{hh})(\varepsilon_u - \eta_{uu}) - \eta_{hu}\eta_{uh}.
\]
**Simulation Results – $\alpha_h = 10\%$**

<table>
<thead>
<tr>
<th>Elasticity of Demand</th>
<th>Percentage Changes in Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Participants</td>
</tr>
<tr>
<td>Healthy Food $(\eta_{hh})$</td>
<td>Unhealthy Food $(\eta_{uw})$</td>
</tr>
<tr>
<td>-0.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>-1.0</td>
<td>7.73</td>
</tr>
<tr>
<td>-1.5</td>
<td>7.86</td>
</tr>
<tr>
<td>-1.0</td>
<td>-0.5</td>
</tr>
<tr>
<td>-1.0</td>
<td>7.00</td>
</tr>
<tr>
<td>-1.5</td>
<td>7.11</td>
</tr>
</tbody>
</table>

$\varepsilon_u = 1.0, \varepsilon_h = 1.0, \eta_{hu} = 0.5, \eta_{uh} = 0.5, U_f = 0.5U, H_f = 0.5H, s_u = 0.5.$
Quantitative Speculation

- **Dynamics of supply response matters**
  - Second-round (price) effects smaller with increased length of run
- **Differs significantly among main commodities and foods**
  - Grains (annual)
  - Vegetables (annual)
  - Livestock (multi-year – meat, eggs, dairy products)
  - Fruit (perennial, many year)
- **Interdependent among commodities**
  - Through demand for land and other specialized factors
- **Complex**
  - Substantial change affecting multiple commodities together
  - Allowing for roles of policy and middlemen
- **Direction of effects, mostly predictable (from simple model)**
- **Detailed magnitudes are harder, some are ambiguous**
Mixed Effects of Modified FSP

- **Higher monitoring costs**
  - Will reduce resources available for food subsidies

- **More-binding constraints on purchases**
  - Will result in reduced participation rates

- **For continuing participants in the FSP**
  - Improved dietary quality
    - lower overall caloric density
    - more frequent consumption of fruit and vegetables
  - **MAYBE** lower caloric intake and less future obesity
Mixed Effects (continued)

- For an equal number of eligible non-participants (who will face higher relative prices of healthier foods, at least for a while), the converse
  - Lower dietary quality, with higher overall caloric density
  - MAYBE higher caloric intake and higher future rates of obesity

- For others who are not eligible for the FSP?
  - Similar (mostly undesirable) effects, as for eligible non-participants, but smaller
Conclusion

- Many of the poor are obese, and increasingly so

- The food stamp program (FSP)
  - Has been effective at increasing food expenditure and reducing food insecurity among low-income households
  - **BUT**
    - Allows participants to spend food stamps on calorie dense foods that have little nutritional value other than calories
  - **AND**
    - May have contributed to obesity among the poor

- Little evidence is available on
  - The effects of the current FSP
  - The impacts of past changes in the list of eligible foods
It seems natural to limit food stamps to be used only for “healthy” foods

BUT

Unintended effects may be important

- Administration costs will increase, reducing available resources
- Constraint will not bind on some participants => no effect
- Constraint will bind on others, and participation will decline
- Poorest will be most constrained and most affected
- Converse effects on an equal number of eligible non-participants
- Implications for obesity rates among the poor not clear

AND

Other policies may be more effective at combating obesity without compromising other purposes of the FSP