Farm Subsidies and Obesity in the United States

Julian M. Alston

Department of Agricultural and Resource Economics
University of California, Davis

Food Assistance and Nutrition Research Program Conference
USDA-ERS, Washington DC
December 7, 2007
Context

• Research on Agricultural Policy and Obesity
  - Cooperative Agreement, ERS
  - USDA-NRI Project (CSREES # 2006-55215-16720)
    ▪ June 2006 – May 2009

• Collaborators
  - UCD ARE -- Dan Sumner, Steve Vosti
  - UCD Nutrition -- Lucia Kaiser, Marilyn Townsend
  - ISU Economics -- Helen Jensen, John Beghin
  - Graduate Students

• Issues and Scope
  - Farm Subsidies
  - Agricultural R&D
  - Food & Nutrition Programs (WIC, Food Stamps)
Motivation

- One common and increasingly widespread idea is that farm subsidies contribute significantly to obesity and reducing these subsidies would go a long way to solving the problem (e.g., NYT, 2003, Michael Pollan):

  “[Our] cheap-food farm policy comes at a high price: … [with costs including] the obesity epidemic at home – which most researchers date to the mid-70s, just when we switched to a farm policy consecrated to the overproduction of grain.”

- This view has become accepted as a fact, in spite of:
  - No real evidence presented
  - Questions about the nature of effects
  - Grounds for skepticism about the size of effects
Farm Program Expenditures

CCC Outlays by Fiscal Year

- 1990 FACT Act
- 1996 FAIR Act
- 2002 FSRI Act
Budget for Commodity Subsidies
(FY 2005/06 – numbers vary with market conditions)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>$ billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed grains</td>
<td>8.6</td>
</tr>
<tr>
<td>Soybeans</td>
<td>2.2</td>
</tr>
<tr>
<td>Wheat</td>
<td>2.2</td>
</tr>
<tr>
<td>Cotton</td>
<td>2.5</td>
</tr>
<tr>
<td>Rice</td>
<td>0.9</td>
</tr>
<tr>
<td>Dairy</td>
<td>0.3</td>
</tr>
<tr>
<td>Other commodities</td>
<td>0.6</td>
</tr>
<tr>
<td>Disaster</td>
<td>0.3</td>
</tr>
<tr>
<td>Other</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>18.6</strong></td>
</tr>
</tbody>
</table>
Details of Policies Matter

- An array of policies for program crops

- Details differ by crop
  - direct payments (significantly “decoupled” from production)
  - marketing loans
  - counter-cyclical payments
  - crop insurance subsidies
  - export credit guarantees for buyers of US commodities

- Some farm prices are supported by barriers to imports at the expense of consumers
  - dairy
  - sugar
  - orange juice
  - beef (sometimes)
Implicit Model

● Simplistic model
  ■ Textbook subsidy => increase in producer price and production, a decrease in the consumer price, and an increase in consumption

● More detailed mechanism
  ■ Subsidies reduce market prices of farm commodities, especially those that are important ingredients of more fattening foods
  ■ Lower farm commodity prices lower costs of food manufacturing
  ■ Food industry passes these cost savings on to consumers yielding reductions in retail prices
  ■ Consumers respond by increasing their consumption of more-fattening foods

● Size of effect?
  ■ If effect at any step is small, total effect is small; if effect at every step is small combined effect is negligible
In reality . . . .

- Lower impact on production and prices than textbook model would indicate because
  - Other policies (e.g., acreage set-asides) have contained production response
  - Conservation Reserve Program removes 36 million acres (about 8 percent of cropland) from production.
  - A significant share of subsidies (~50%) are based on historical yields and acreage
  - Policies make some commodities more expensive for the food industry – especially sugar, dairy
Consequently...

- Effects on commodity prices are modest and mixed

- Effects on food prices are even smaller
  - Commodity costs are a small share of food costs
    - say 20% or less
  - Even with complete pass through, percentage effects on food prices would be small

- Effects on consumption must be very small given limited consumer demand response to price


<table>
<thead>
<tr>
<th>Commodity</th>
<th>% Quantity Change</th>
<th>% Price Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans</td>
<td>-2.86</td>
<td>-1.14</td>
</tr>
<tr>
<td>Wheat</td>
<td>-7.58</td>
<td>1.52</td>
</tr>
<tr>
<td>Corn</td>
<td>-3.79</td>
<td>0.26</td>
</tr>
<tr>
<td>Rice</td>
<td>-11.71</td>
<td>-3.87</td>
</tr>
<tr>
<td>Sugar</td>
<td>-33.31</td>
<td>-15.30</td>
</tr>
<tr>
<td>Fruit and Vegetables</td>
<td>4.42</td>
<td>-5.16</td>
</tr>
<tr>
<td>Beef Cattle</td>
<td>1.44</td>
<td>-3.31</td>
</tr>
<tr>
<td>Pigs and Poultry</td>
<td>0.41</td>
<td>-0.01</td>
</tr>
<tr>
<td>Milk</td>
<td>-0.45</td>
<td>-0.01</td>
</tr>
</tbody>
</table>
Alternative Estimates--Corn

- **Sumner (2005)** – elimination of policies just for corn, leaving all other farm subsidies in place
  - 9-10% decrease in corn production

- **Alston (2006)** – elimination of subsidies for program crops
  - 7.3% decrease in production of program crops if CRP stays
  - 5.0% decrease in production of program crops if CRP stays

- **ABARE (2006)** – elimination of all farm subsidies including import protection
  - 3.79% decrease in corn production
Corn Prices and Consumers

- **Corn and other feedstuffs**
  - < 40% of farm cost of meat

- **Farm cost of livestock**
  - ~ 20% of the retail cost of meat

- **A 5% decrease in corn price**
  - < 0.4 % decrease in retail price of meat
  - < 0.2 % increase in consumption of meat
Caloric Sweeteners

● What about High Fructose Corn Syrup (HFCS)?

● Growth in consumption of HFCS was caused mainly by restrictions on imports of sugar
  - Higher price of sugar
  - Switch from sugar to HFCS (reinforced by corn policy)

● Overall effect of sugar policy and corn policy
  - Higher price of caloric sweeteners
  - Less total consumption of caloric sweeteners
  - A change in the mix to consume more HFCS and less sugar
International Evidence

- Simple causation from farm subsidies to obesity is also inconsistent with patterns across countries
Farm Support in OECD Countries
[Total US$ 280 billion in 2004]
### International Comparisons (1)

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage of, Males and Females, 15 years and older who were Overweight or Obese in 2005</th>
<th>PSE 1986-01 average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overweight (BMI &gt; 25)</td>
<td>Obese (BMI &gt; 30)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>United States</td>
<td>75.6</td>
<td>72.6</td>
</tr>
<tr>
<td>Mexico</td>
<td>68.4</td>
<td>67.9</td>
</tr>
<tr>
<td>Australia</td>
<td>72.1</td>
<td>62.7</td>
</tr>
<tr>
<td>Canada</td>
<td>65.1</td>
<td>57.1</td>
</tr>
<tr>
<td>New Zealand</td>
<td>68.7</td>
<td>68.2</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>65.7</td>
<td>61.9</td>
</tr>
<tr>
<td>France</td>
<td>45.6</td>
<td>34.7</td>
</tr>
<tr>
<td>Korean Republic</td>
<td>40.2</td>
<td>43.8</td>
</tr>
<tr>
<td>Japan</td>
<td>27.0</td>
<td>18.1</td>
</tr>
<tr>
<td>Country</td>
<td>Male Overweight (BMI &gt; 25) (%)</td>
<td>Female Overweight (BMI &gt; 25) (%)</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>United States</td>
<td>75.6</td>
<td>72.6</td>
</tr>
<tr>
<td>Mexico</td>
<td>68.4</td>
<td>67.9</td>
</tr>
<tr>
<td>Australia</td>
<td>72.1</td>
<td>62.7</td>
</tr>
<tr>
<td>Canada</td>
<td>65.1</td>
<td>57.1</td>
</tr>
<tr>
<td>New Zealand</td>
<td>68.7</td>
<td>68.2</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>65.7</td>
<td>61.9</td>
</tr>
<tr>
<td>France</td>
<td>45.6</td>
<td>34.7</td>
</tr>
<tr>
<td>Korean Republic</td>
<td>40.2</td>
<td>43.8</td>
</tr>
<tr>
<td>Japan</td>
<td>27.0</td>
<td>18.1</td>
</tr>
</tbody>
</table>
Conclusion

● Farm subsidy policies have had
  ▪ small effects on commodity prices
  ▪ much smaller effects on retail prices
  ▪ even smaller effects on consumption

● Thus
  ▪ the effect of U.S. farm commodity subsidy policies on obesity must be very small – compared with other factors, negligible
  ▪ farm subsidies may be ineffective, wasteful, and unfair, but eliminating them would not make a dent in America’s obesity problem
Could it be something else?
• Thank You!