Are Agricultural Policies Making Us Fat? Likely Links Between Agricultural Policies and Human Nutrition and Obesity, and their Implications

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Presentation Outline

• Obesity in the U.S. – Trends, Costs and Presumed Causes
• One ‘Smoking Gun’ – HFCS and ‘Related’ Ag Policies
• A Broader Look at Agricultural Policy – Farm Subsidies and R&D
• Commodity Prices
• Food Prices
• Preliminary Conclusions and Implications for Research and Policy
• Lessons for Developing Countries
Obesity* Trends Among U.S. Adults
(*BMI ≥30, or about 30 lbs overweight for 5’4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.

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Economic Costs

• Direct
  – Increased health care costs
    • $78.5 billion in the U.S. in 1998
    • $7.8 billion in California alone, 1998-2000
      – 28% of total CA outlays for HHS in 2003-04

• Indirect
  – Morbidity costs
    • Lost productivity
    • Absenteeism
  – Mortality costs
    • Over 300,000 death per year attributable to obesity
    • Obese individuals have a 50 to 100% increased risk of premature death from all causes
Key Issues

• Why Is Obesity on the Rise?
  – Long-Term and Worsening Energy Imbalance
    • Energy Intake > Energy Expenditure

• Mechanisms Affecting of This Imbalance
  – Types and sources of food consumed
  – Food portions
  – Energy expenditure patterns

• Drivers of Behavioral Changes
  – Opportunities
    • Increases in incomes and choices
  – Food preferences
  – Incentives
    • Changes in relative prices, especially for foods

• What Role of Agriculture and Agricultural Policy?
  – Getting us to this point?
    • Prices, quality, availability
  – Course correction?
Is Agricultural Policy (Partially) Responsible?

- “[Our] cheap-food farm policy comes at a high price: . . . farmers in the United States have managed to produce 500 additional calories per person every day; each of us is, heroically, managing to pack away 200 of those extra calories per day.” (Pollan 2003)
- “Commodity prices . . . are so low that restaurants have been able to double serving sizes without doubling prices.” (Davis 2003)
- “Why healthier foods are slipping out of reach of large segments of the US population is a question with many policy and political implications.” (Drewnowski and Barratt-Fornell, 2004)
One ‘Smoking Gun’

Trends in Consumption of Corn Sweeteners

http://www.ers.usda.gov/data/foodconsumption/FoodGuideIndex.htm#calories
The Suspected Culprit – Corn Policy

Support to Corn Producers -- Absolute

-2,000
0
2,000
4,000
6,000
8,000
10,000
12,000

Support to Corn Producers -- %

0
5
10
15
20
25
30
35
40
45
50

1. Based on unlimited output
2. Payments based on area planted
3. Payments based on historical entitlements
4. Payments based on input use
5. Payments based on input constraints
6. Payments based on overall farming income

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The More Complete Story

Trends in Consumption of Selected Sweeteners

http://www.ers.usda.gov/data/foodconsumption/FoodGuideIndex.htm#calories
White Sugar Policy – What Role?

Sugar Prices in the USA -- 1986-2004

Support to Sugar Producers -- Absolute

Support to Sugar Producers -- %
The Australian Story: Sugar Policy

Sugar Prices -- Australia

V. Consumption price (at farm gate)  
VII. Reference price (at farm gate)
The Australian Story: Obesity Trends

Figure 1: Projected increase in the prevalence of obesity (BMI ≥ 30) in South Australia
The Much More Complete Story

Calories from Different Food Groups

http://www.ers.usda.gov/data/foodconsumption/FoodGuideIndex.htm#calories

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### Types and Magnitudes of Agricultural Outlays

<table>
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<th>USDA Program</th>
<th>Expenditure in 2004</th>
<th>Percent of Total</th>
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<td></td>
<td>billions of dollars</td>
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<td>Food, Nutrition, and Consumer Services</td>
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<tr>
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Links Between Selected Agricultural Policies and Human Nutrition

- **Agricultural R&D**
  - Farm Production Costs
  - Commodity Prices
  - Food Industry
  - Food Prices
  - Food Intake
  - Genetic Factors
  - Nutritional Status

- **Agricultural Commodity Programs**
  - Farm Income
  - Disposable Income
  - Available Time
  - Information & Sociocultural Factors
  - Activity Levels

Genetic Factors, Food Industry, and Commodity Prices are linked to Agricultural R&D. Food Intake is linked to Nutritional Status. Food Prices are influenced by Commodity Prices and disposable income. Activity levels are influenced by information and sociocultural factors.
Trends in Agricultural R&D Spending

**Total Federal and State Spending on Ag. R&D**
(1925-1997)

- Year: 1925-1997
- Mill. $:
  - 0
  - 500
  - 1000
  - 1500
  - 2000
  - 2500
  - 3000
  - 3500

**Total Private Sector Spending on Ag R&D**
(1960-1992)

- Year: 1960-1992
- Mill. $:
  - 0
  - 500
  - 1000
  - 1500
  - 2000
  - 2500
  - 3000
  - 3500
  - 4000

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Trends in Aggregate Productivity Measures

Index of Land Productivity
(1977=100)

Index of Labor Productivity
(1977=100)

Total Factor Productivity Index
(1948=100)
Trends in Crop/Product Productivity

Average Yield of Corn 1900-1997

Milk Production per Cow 1929-1996
Trends in Prices Received By Farmers

Deflated Prices Received for Selected Fruits
(1977=100)

Prices received Deflated with prices paid (Commodities, services, interest, taxes, wages) (1977=100)

Deflated Prices Received for Selected Grains
(1977=100)

Deflated Prices Received for Selected Grains
(1977=100)
Prices Paid By Consumers – Fruits and Vegetables

**Consumer Prices for Oranges Deflated by CPI (food at home)**

- Oranges, Navel
- Oranges, Valencia

**Consumer Prices for Potatoes Deflated by CPI (food at home)**

- Potatoes, white

**Consumer Prices for Strawberries Deflated by CPI (food at home)**

- Strawberries, dry pint
## Getting the Price Story Right: Strawberries

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A Closer Look at Strawberry Prices

June Strawberry Prices (BLS data)

\[ y = -0.0089x + 18.289 \]

\[ R^2 = 0.5356 \]

Feb Strawberry Prices (BLS data)

\[ y = -0.0003x + 1.4305 \]

\[ R^2 = 0.0003 \]

Consumer Prices for Strawberries Deflated by CPI (food at home)

\[ \text{$/12 oz. Strawberries, Dry pint} \]
Consumer Prices for Foods

Statistics report proportional changes in real prices over 1980-2003

- White Sugar: -.024
- Butter: -.013
- Milk: -.011
- Cheese: -.033
- Turkey: -.026
- Chicken: -.012
- Eggs: -.019
- Beef: -.021

Lettuce: -.009
Tomatoes: +.004
Carrots: -.009
Potatoes: 0.0

White Bread: 0.0
Rice: -.029
Pasta: -.020

Bananas: -.013
Apples: -.009
Oranges: 0.0
Grapefruit: -.004
Food Prices in Terms of the Wages

• 12-Item Food Basket (60% of the historical price today)
  – 1955: 3 hours
  – 1997: 1.75 hours

• 3-Pound Chicken (40% of the historical price today)
  – 1958: 35 minutes
  – 1997: 14 minutes

• Soft Drink (53% of the historical price today)
  – 1950: 2.8 minutes
  – 1997: 1.5 minutes

• Pizza (88% of the historical price today)
  – 1958: 57 minutes
  – 1997: 50 minutes

Source: Dallas Fed
‘Disconnect’ Between Commodity & Food Prices

Wheat Prices Received by Farmers

Consumer Prices Deflated by CPI (food at home)
Preliminary Conclusions for USA and Policy Implications

• Agricultural Policy ➔ Commodity Prices
  – Commodity Support Programs
    • Effects on farmer income are large; Effects on commodity prices are small, varied and difficult to predict
  – Publicly Sponsored Agricultural Research
    • Chiefly responsible for past yield increases and price declines

• Commodity Prices ➔ Food Prices
  – Increasing ‘disconnect’ between commodity prices and food prices
  – Role of food industry needs to be better understood and exploited
    • Entry points for regulating in food preparation technologies and portion sizes

• Food Prices ➔ Caloric Intake
  – Micro-management of food prices might not be wise
  – Price responses are generally low

• Agricultural Policy for Dealing with Obesity
  – Increased yields, and improved quality/availability of fresh fruits/vegetables
    • Fragmented markets and social benefits call for public policy action

• Changes in Prices of Fruits/Vegetables Are Hard to Identify
  – Difficult to Defend the ‘Increasingly Out of Reach’ Hypothesis
Lessons for Developing Countries

• Too Early for USA ‘Blueprint’ for Controlling Obesity
  – Costs of Obesity Can Be Very Large
  – Improve Health Monitoring Now

• Decreases in Food Costs Are Necessary to Combat Hunger
  – Productivity growth in agriculture is essential
  – But ‘over-consumption’ of food may occur
  – Regulation of the food industry may be needed

• Commodity Prices Fall More Quickly than Food Prices
  – Structure of food industry and changes in all input costs matter greatly
  – Commodity price policies are poor tool for managing food prices

• Changes in Food Prices Are Not Easy to Track
  – Changes in food quality and availability complicate the issue

• “Healthy Diet” Is Still Mysterious
  – Identifying and clarifying site-specific objectives is important

• Food Preferences Matter Greatly
  – Policy based solely on food costs will likely fail