



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

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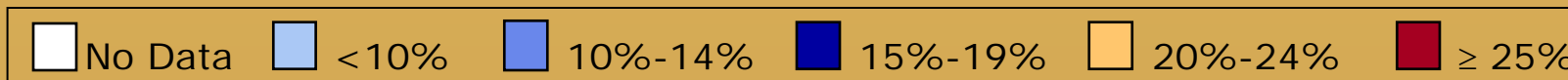
*IAAE Meetings, Queensland, Australia, August 2006*

Alston, Sumner, Vosti UCD/AIC/ARE



# Obesity\* Trends Among U.S. Adults: 1991, 1996, 2003

(\*BMI  $\geq 30$ , or about 30 lbs overweight for 5'4" person)

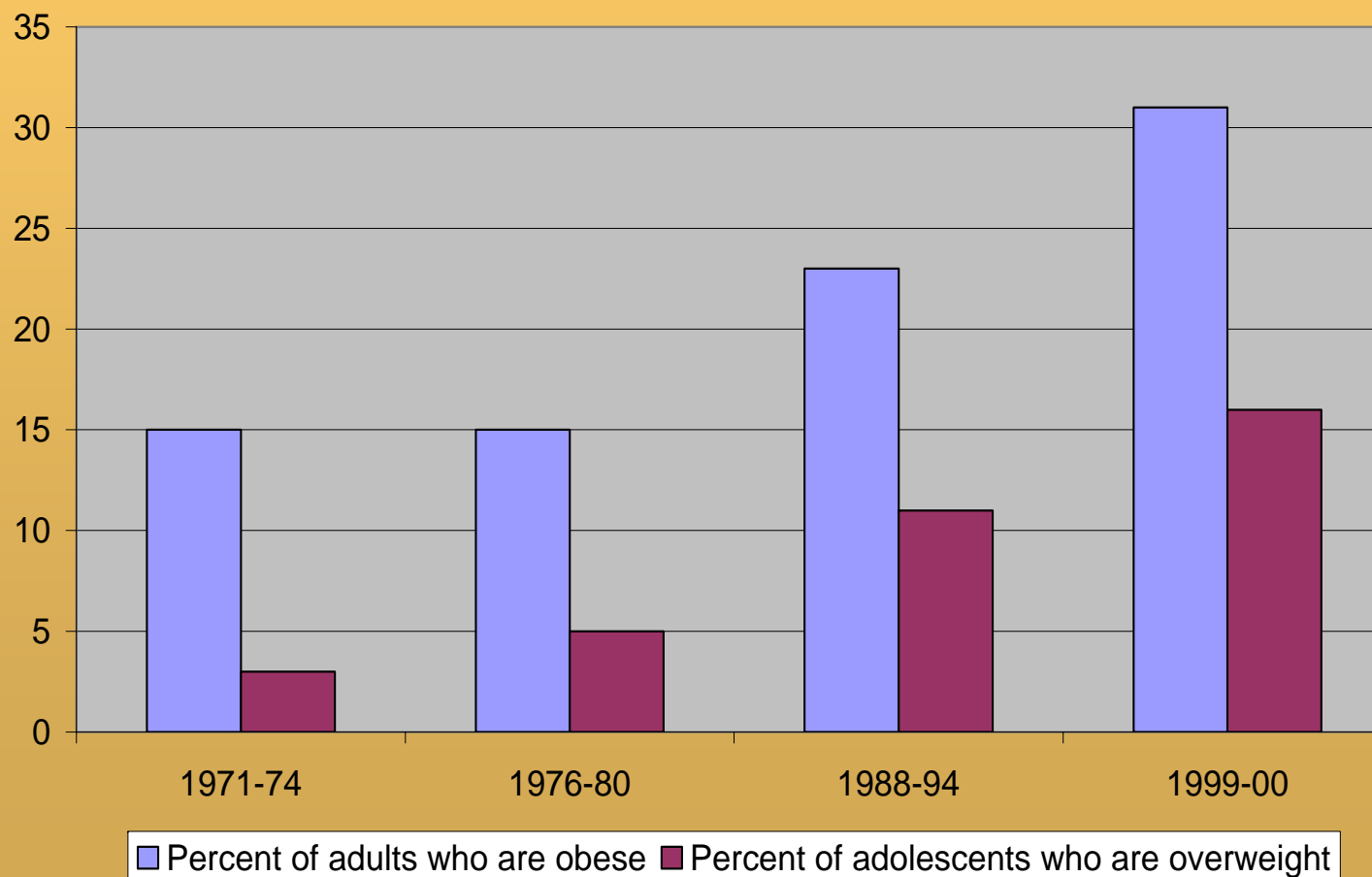


Source: Behavioral Risk Factor Surveillance System, CDC.



# Adolescent Population Is of Particular Concern

Obesity has risen rapidly since the mid-1970s





# 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?



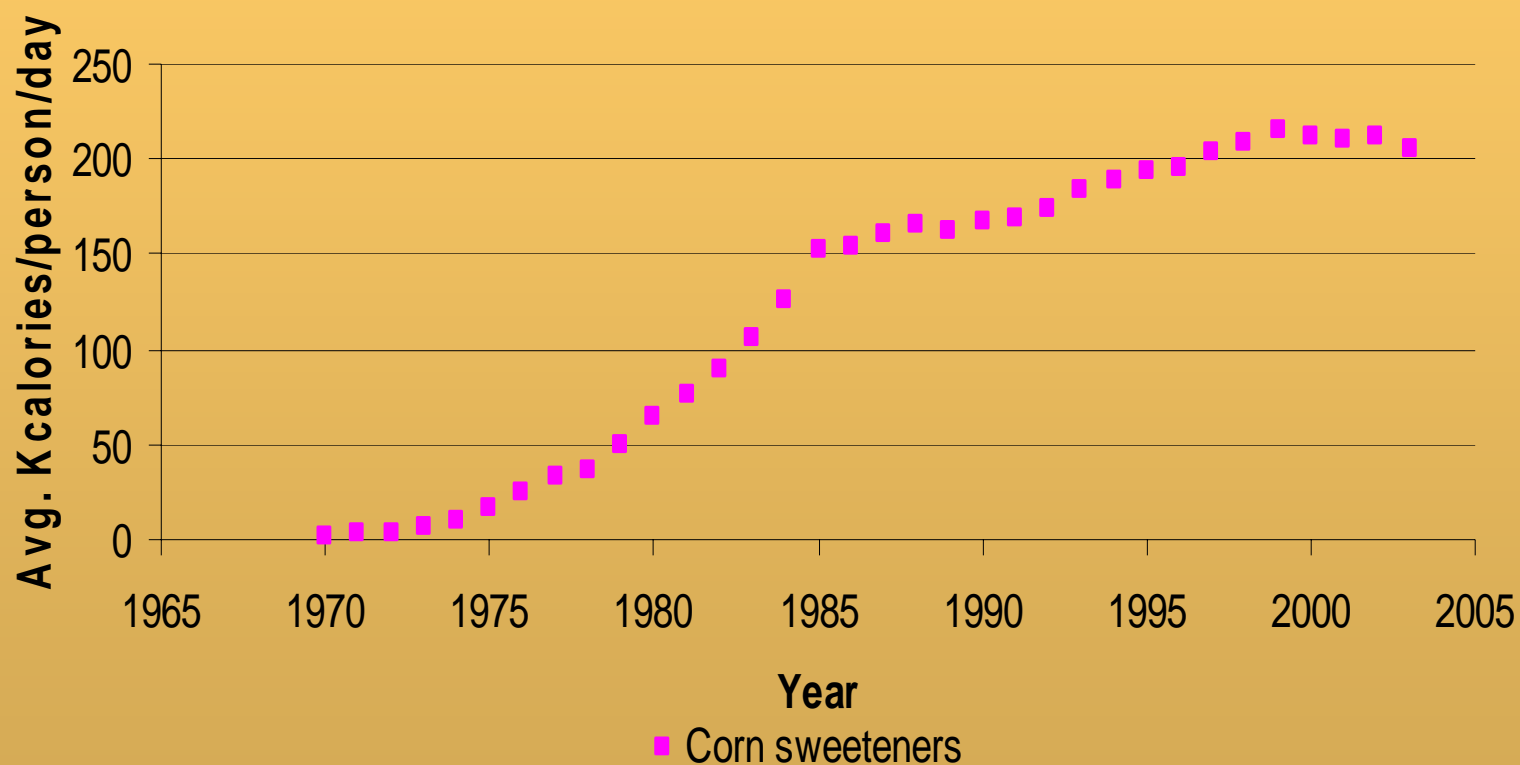
# Is Agricultural Policy (Partially) Responsible?

- “[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'

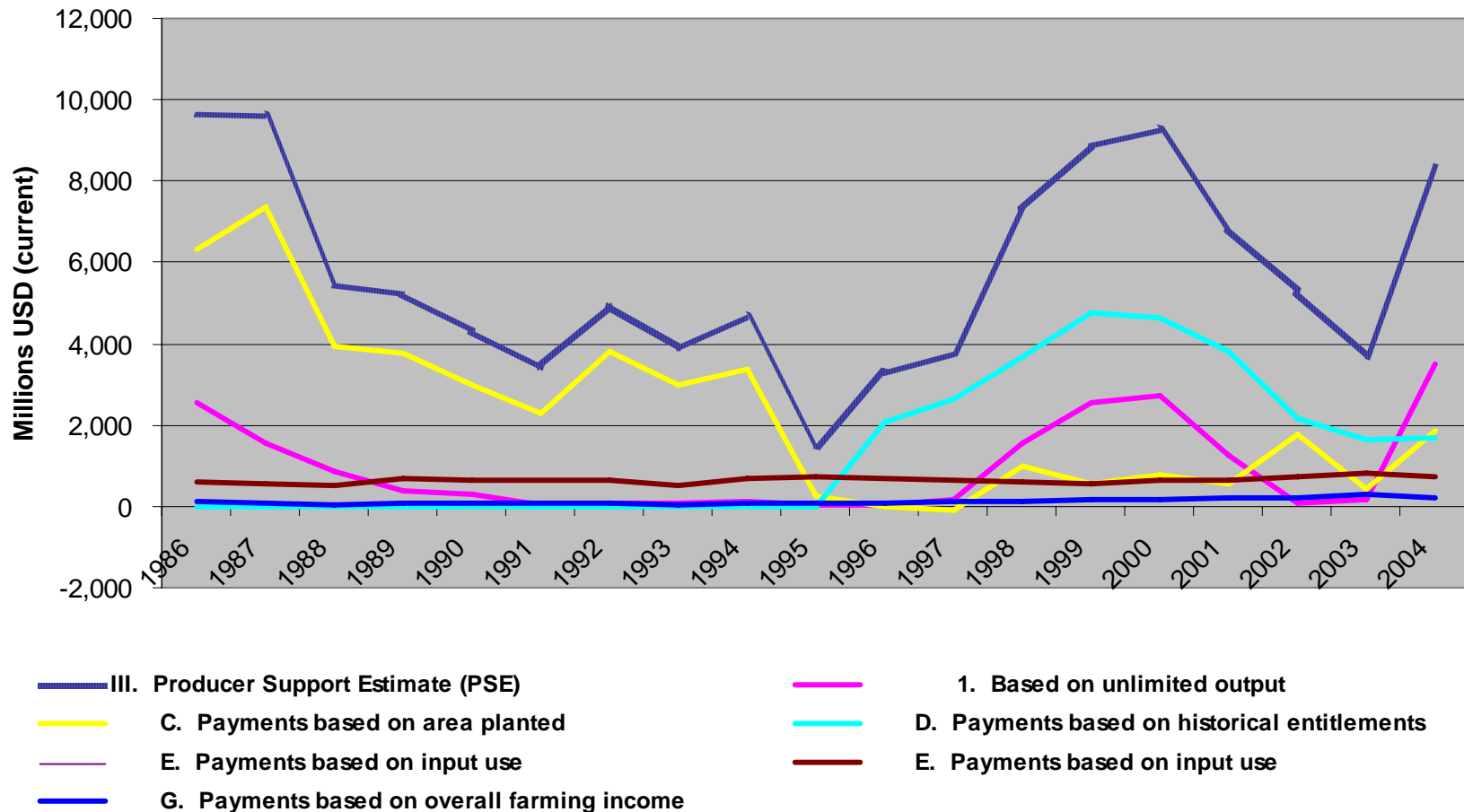
## Trends in Consumption of Corn Sweeteners





# The Suspected Culprit – Corn Policy

## Support to Corn Producers -- Absolute



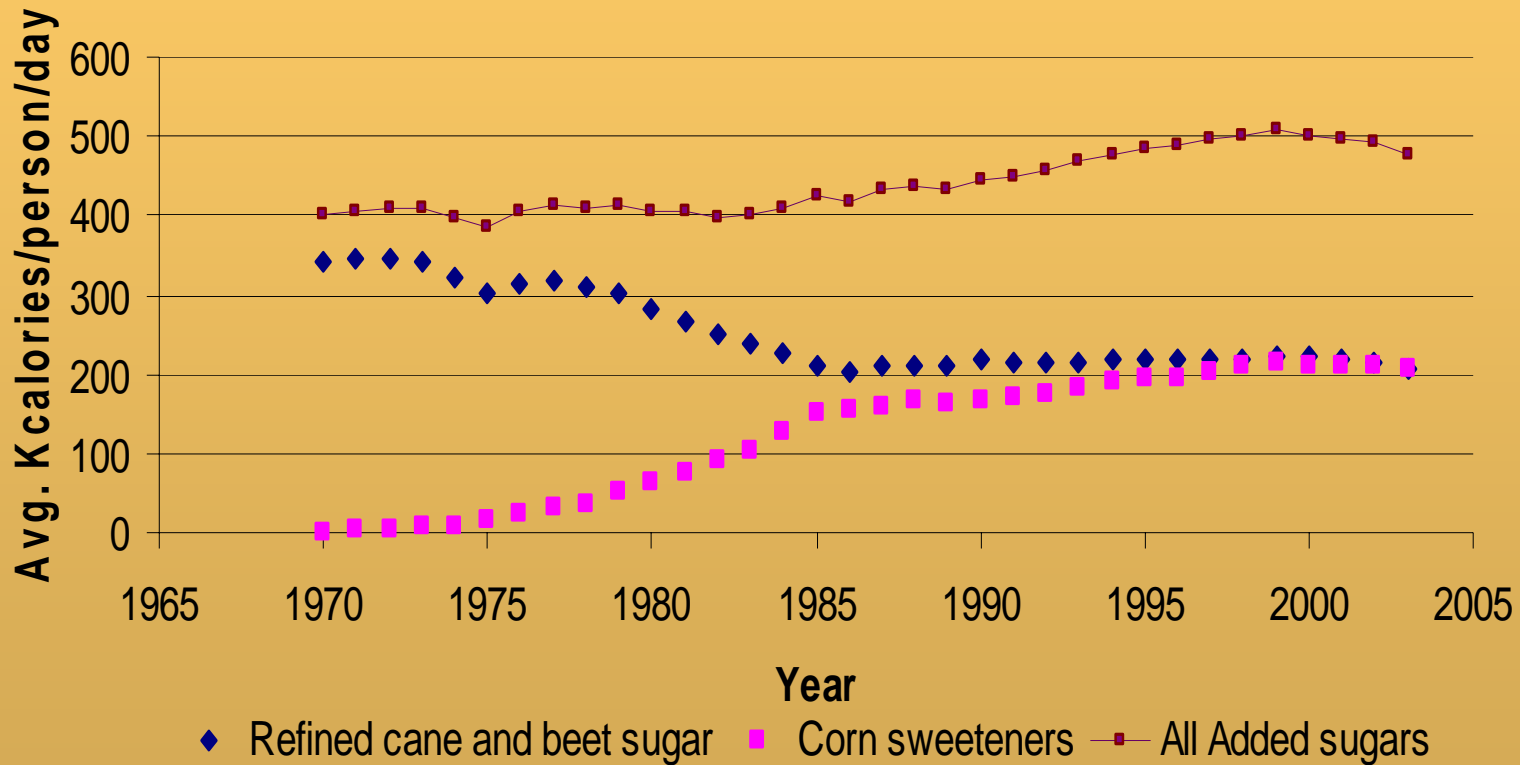
Source: OECD

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# The More Complete Story

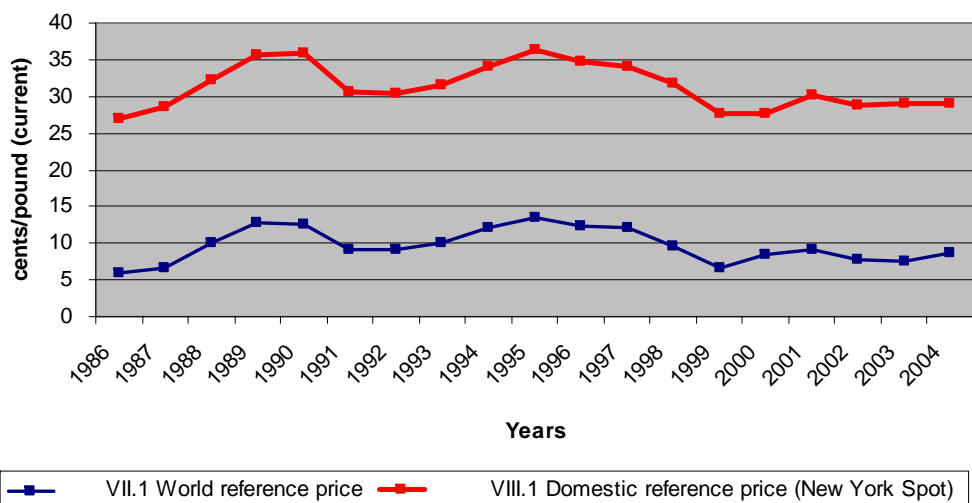
## Trends in Consumption of Selected Sweeteners



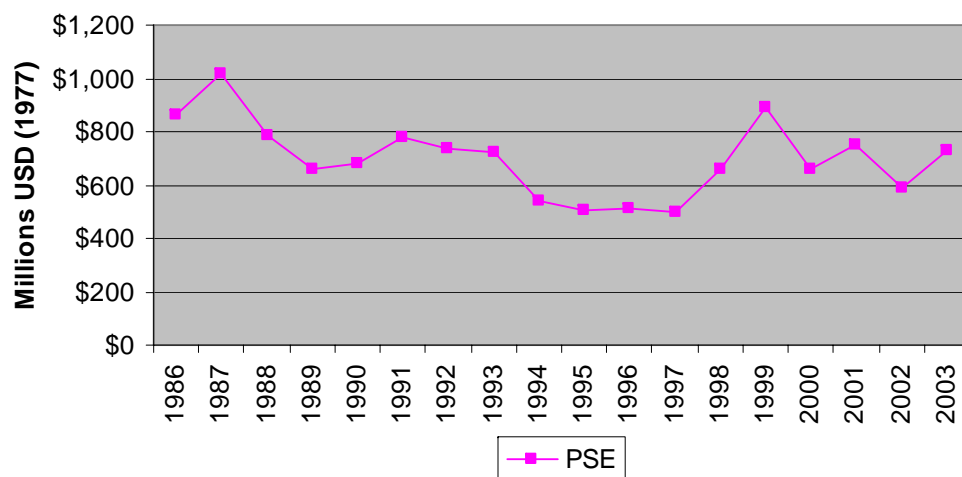


# White Sugar Policy – What Role?

Sugar Prices in the USA -- 1986-2004



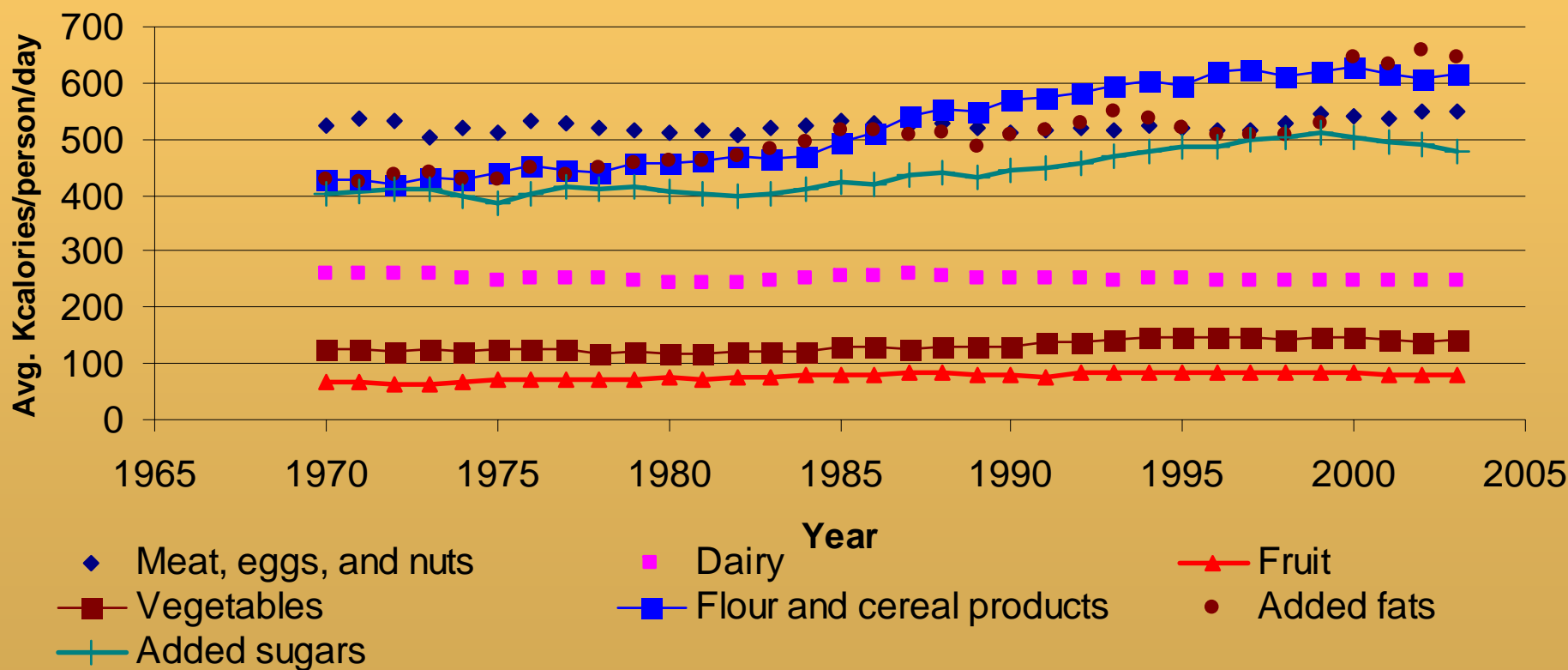
Support to Sugar Producers -- Absolute





# The Much More Complete Story

## Calories from Different Food Groups





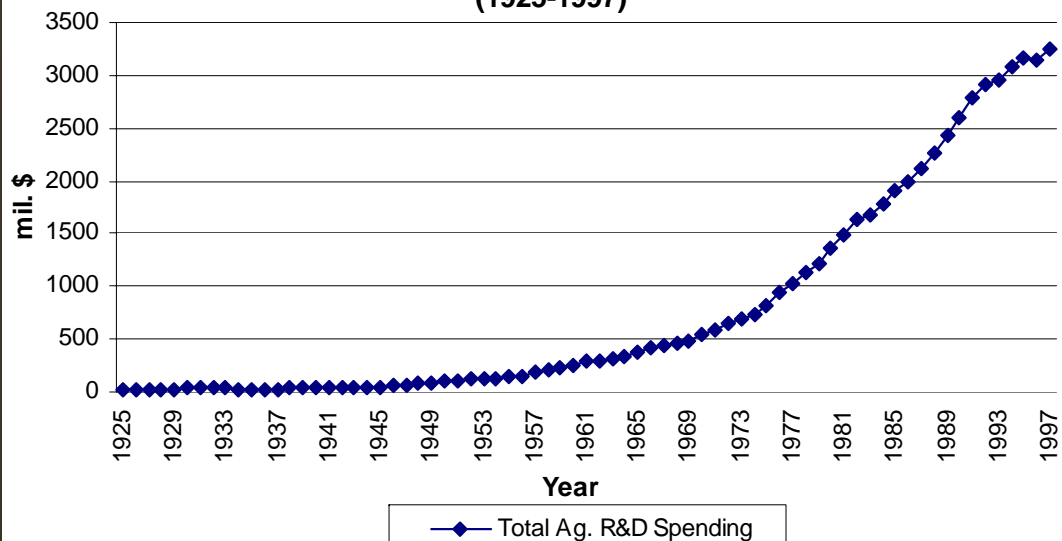
# Types and Magnitudes of Agricultural Outlays

| USDA Program   | Expenditure<br>in 2004     | Percent of<br>Total |
|--|----------------------------|---------------------|
|  | <i>billions of dollars</i> | <i>percent</i>      |
| Food, Nutrition, and Consumer Services                             | 45.4                       | 40.2                |
| Farm Service Agency ( <i>mainly farm commodity programs</i> )      | 27.4                       | 24.3                |
| Rural Development  | 15.5                       | 13.7                |
| Natural Resources and Environment                                  | 8.4                        | 7.4                 |
| Foreign Agricultural Service                                       | 6.4                        | 5.7                 |
| Risk Management ( <i>mainly crop insurance</i> )                   | 4.1                        | 3.6                 |
| Research, Education and Economics<br>( <i>mainly ag. R&amp;D</i> ) | 2.5                        | 2.2                 |
| Marketing and Regulatory Programs                                  | 1.8                        | 1.6                 |
| Other  | 1.4                        | 1.2                 |
| <b>TOTAL</b>   | <b>112.9</b>               | <b>100.0</b>        |

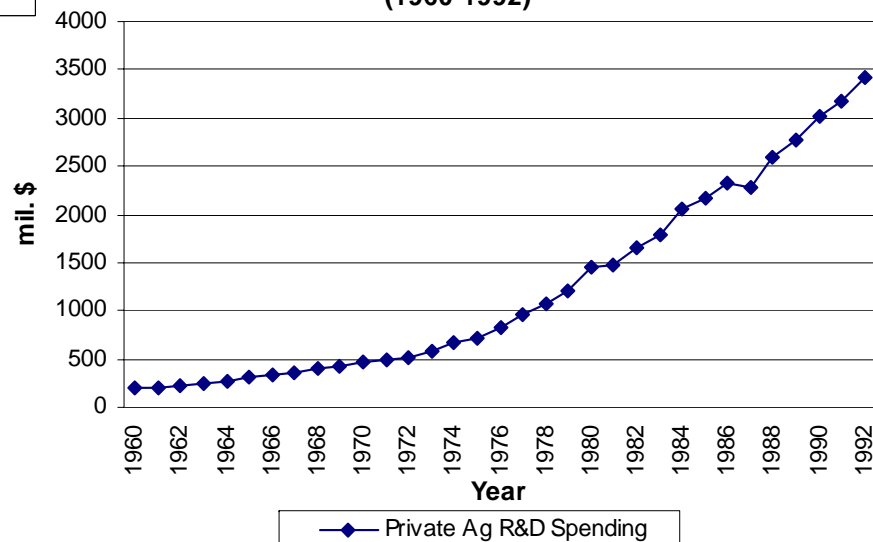


# Trends in Agricultural R&D Spending

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

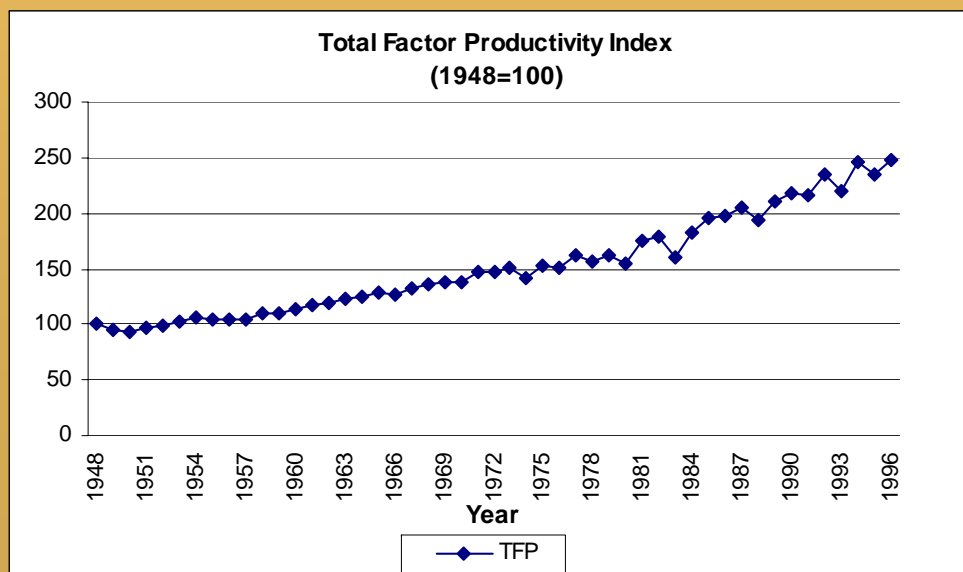
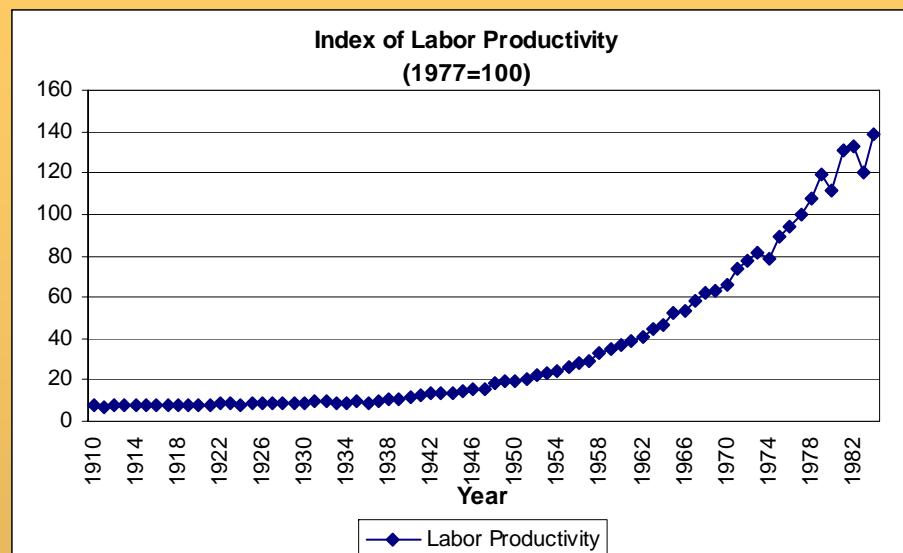
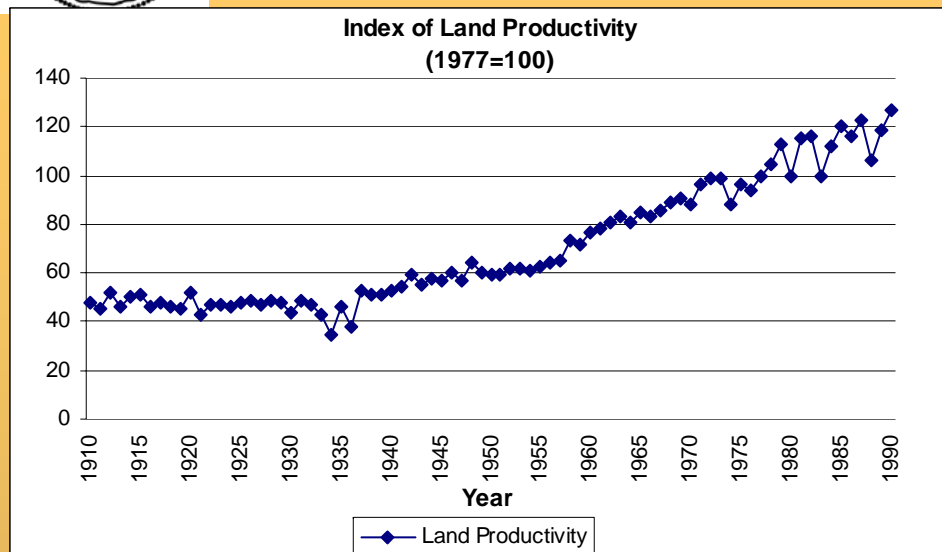


### Total Private Sector Spending on Ag R&D (1960-1992)



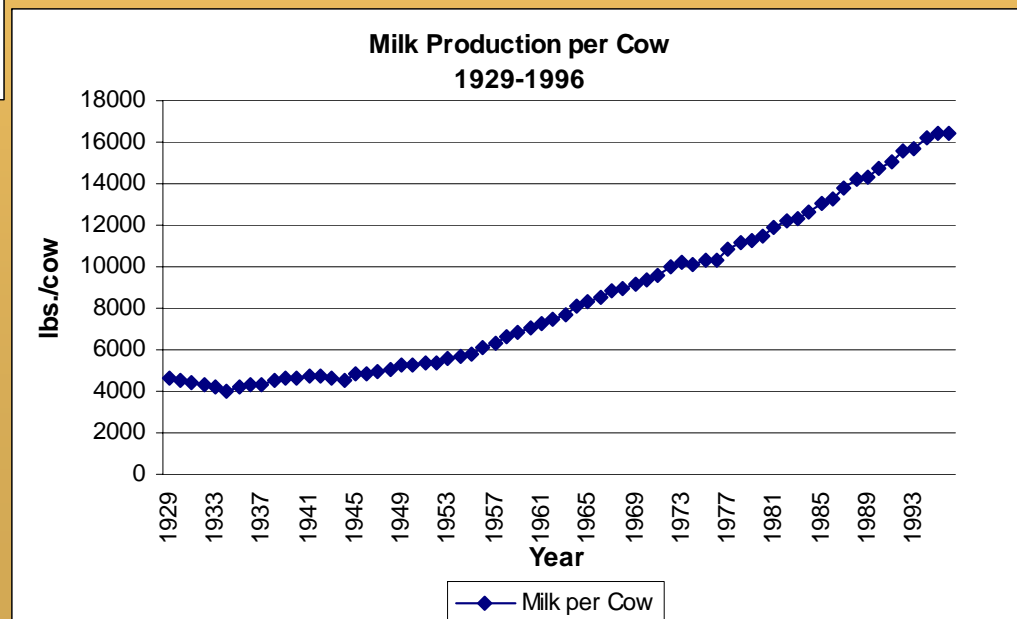
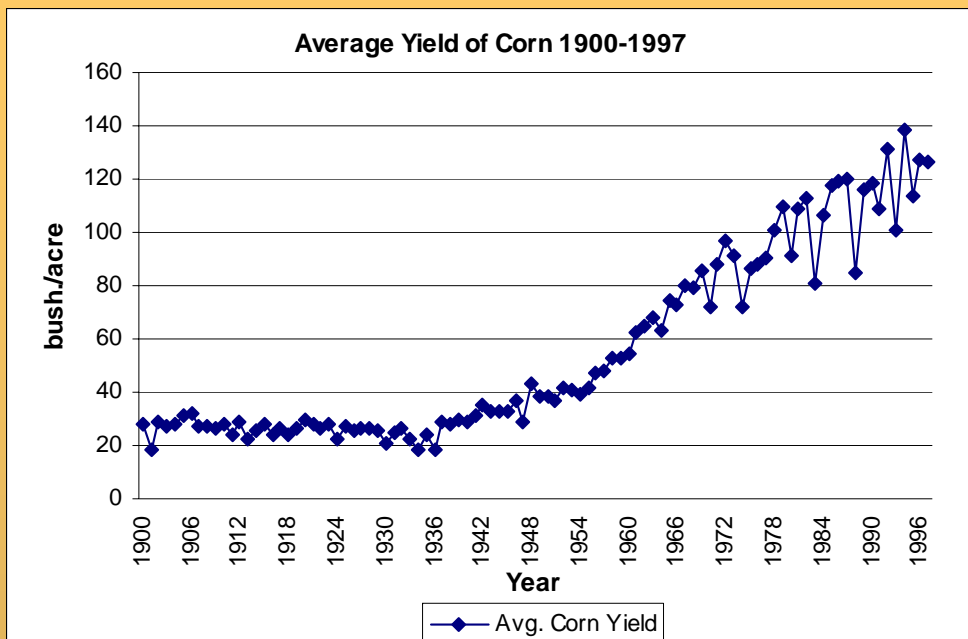


# Trends in Aggregate Productivity Measures





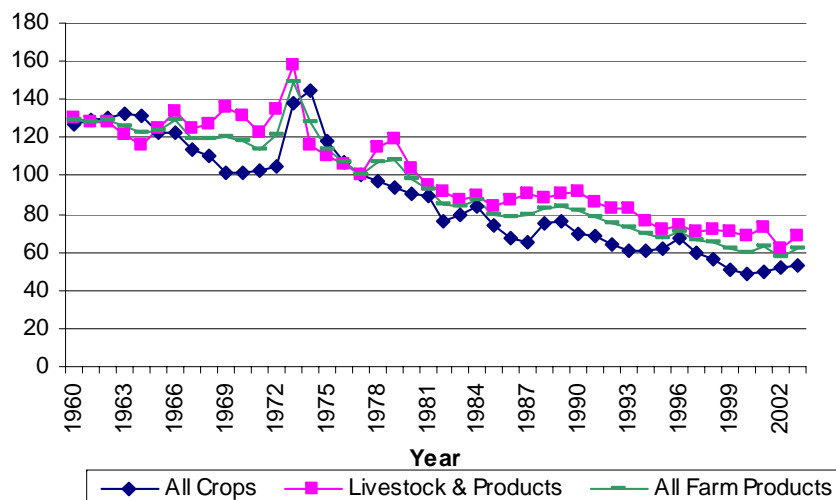
# Trends in Crop/Product Productivity



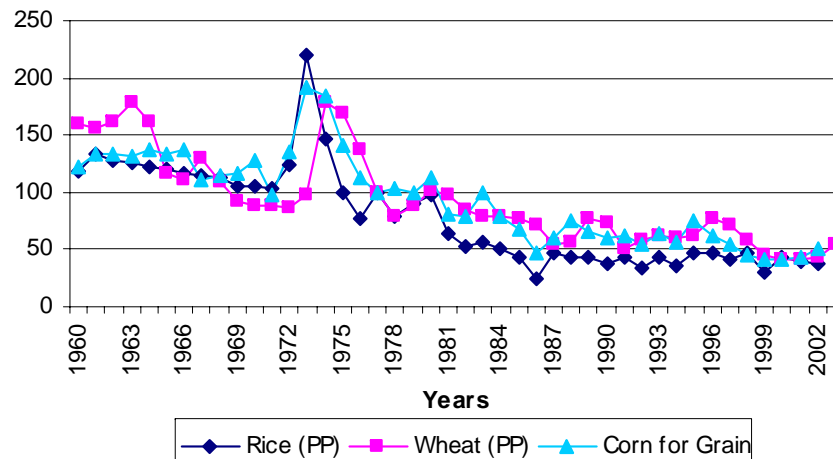


# Trends in Prices Received By Farmers

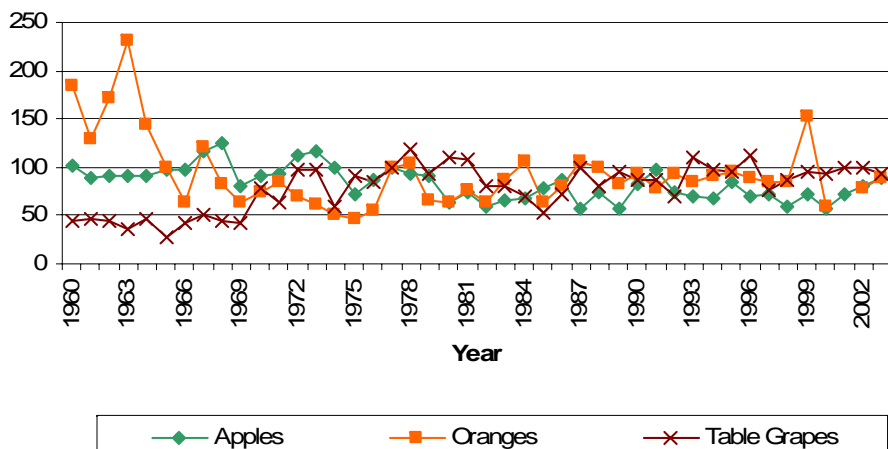
Prices received Deflated with prices paid (Commodities, services, interest, taxes, wages) (1977=100)



Deflated Prices Received for Selected Grains (1977=100)



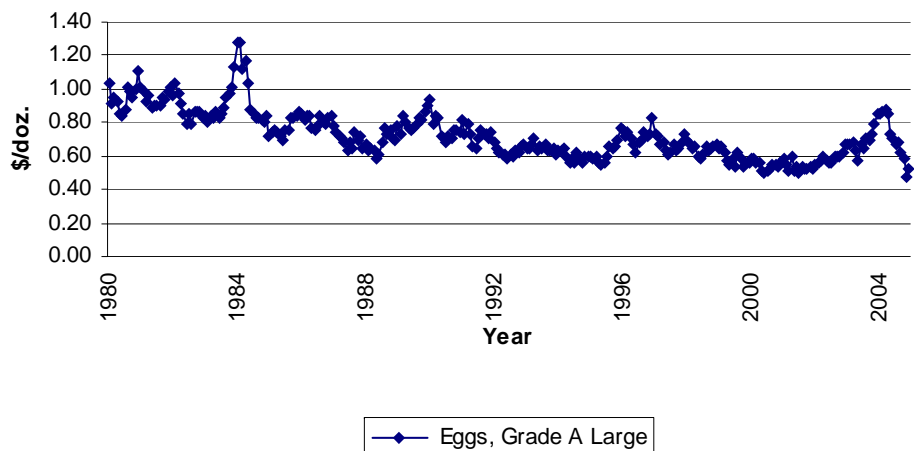
Deflated Prices Received for Selected Fruits (1977=100)



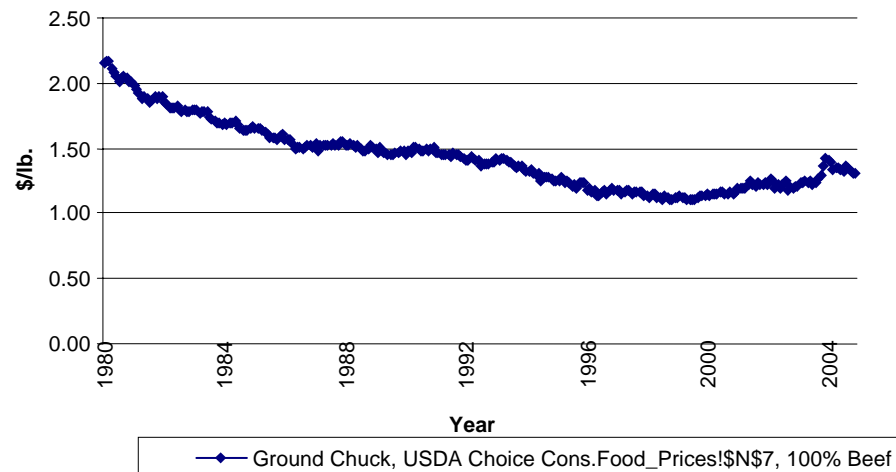


# Prices Paid By Consumers – Basic Stuff

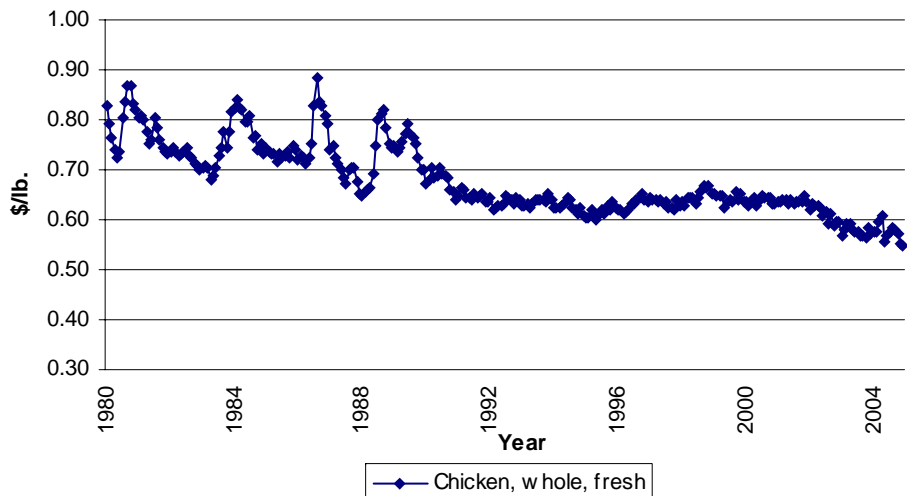
Consumer Prices for Eggs Deflated by CPI (food at home)



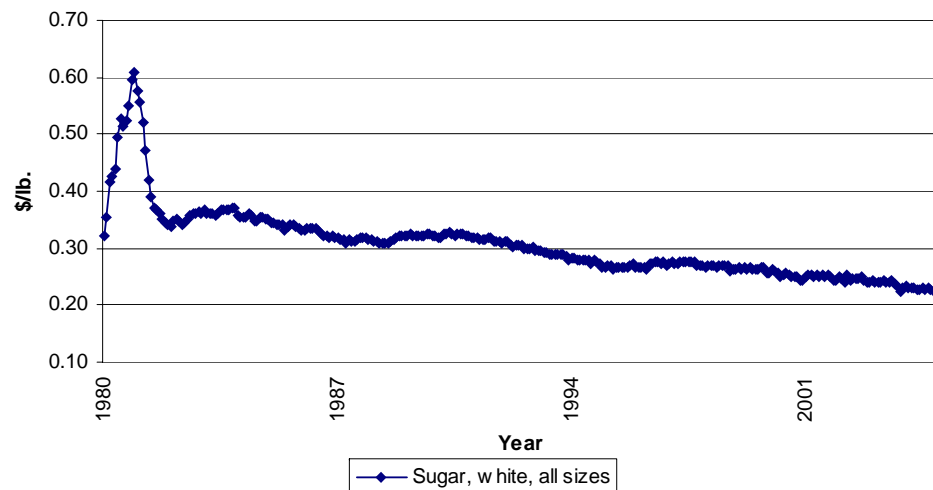
Consumer Prices for Ground Beef Deflated by CPI (food at home)



Consumer Prices for Chicken deflated by CPI (food at home)

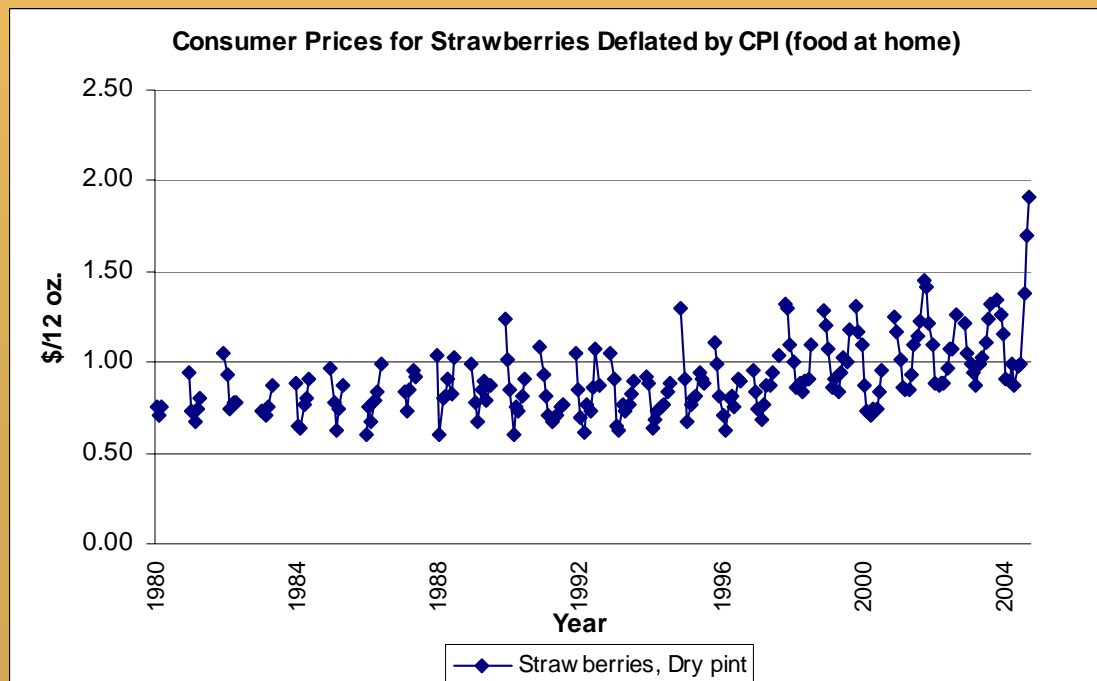
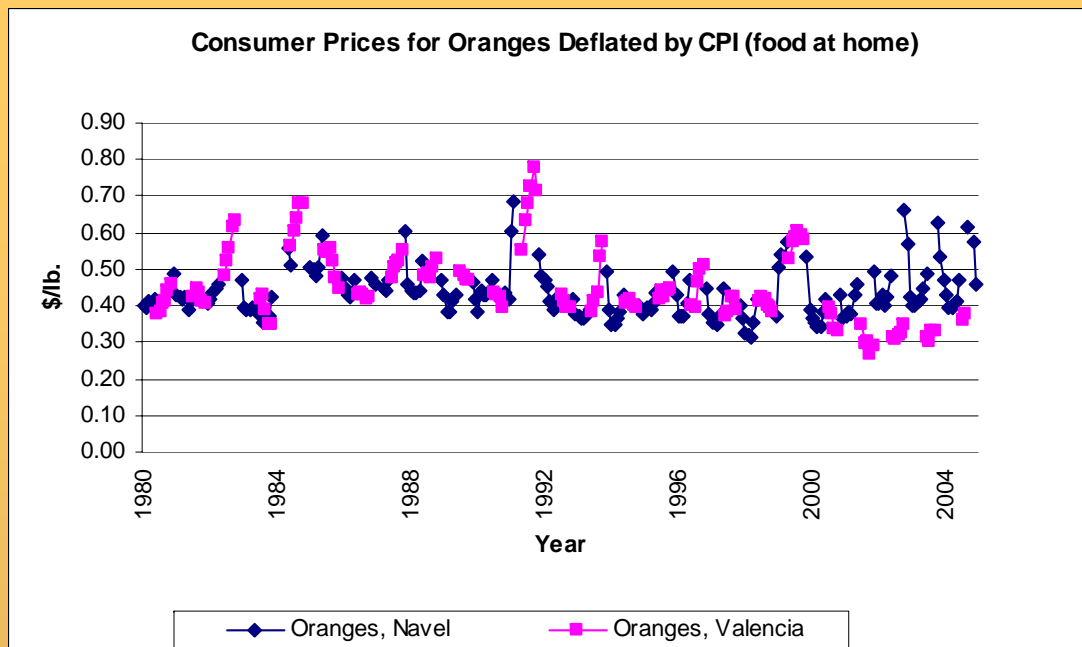


Consumer Prices for White Sugar Deflated by CPI (food at home)





# Prices Paid By Consumers – Fresh Fruits and Vegetables





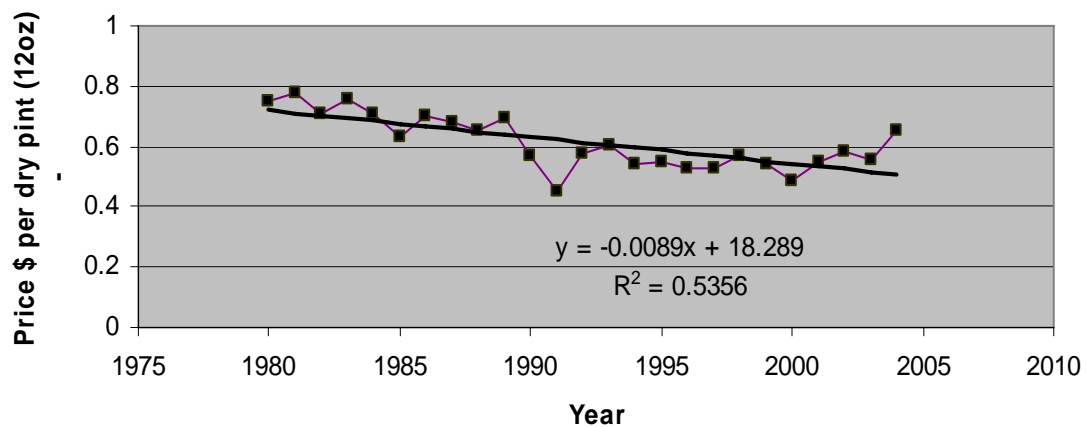
# Getting the Price Story Right: Strawberries

| Year | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1980 |       |       |       | 0.653 | 0.608 | 0.66  |       |       |       |       |       |       |
| 1981 |       |       | 0.886 | 0.69  | 0.637 | 0.696 | 0.77  |       |       |       |       |       |
| 1982 |       |       | 1.016 | 0.914 | 0.73  | 0.778 | 0.775 |       |       |       |       |       |
| 1983 |       |       |       | 0.728 | 0.708 | 0.752 | 0.863 |       |       |       |       |       |
| 1984 |       |       | 0.912 | 0.663 | 0.648 | 0.78  | 0.827 | 0.943 |       |       |       |       |
| 1985 |       |       | 1.016 | 0.809 | 0.646 | 0.774 | 0.913 |       |       |       |       |       |
| 1986 |       |       | 0.637 | 0.797 | 0.718 | 0.84  | 0.899 | 1.081 |       |       |       |       |
| 1987 |       |       |       | 0.937 | 0.824 | 0.955 | 1.071 | 1.029 |       |       |       |       |
| 1988 |       |       | 1.181 | 0.693 | 0.919 | 0.937 | 1.059 | 0.971 | 1.216 |       |       |       |
| 1989 |       |       | 1.218 | 0.966 | 0.831 | 1.055 | 1.117 | 0.986 | 1.087 |       |       |       |
| 1990 |       | 1.638 | 1.338 | 1.109 | 0.781 | 0.987 | 0.965 | 1.081 | 1.21  |       |       |       |
| 1991 |       | 1.467 | 1.268 | 1.112 | 0.976 | 0.924 | 0.948 | 0.961 | 1.014 | 1.035 |       |       |
| 1992 |       | 1.43  | 1.173 | 0.96  | 0.831 | 1.048 | 0.988 | 1.185 | 1.473 | 1.19  |       |       |
| 1993 |       | 1.467 | 1.26  | 0.908 | 0.874 | 1.066 | 1.013 | 1.069 | 1.151 | 1.261 |       |       |
| 1994 |       | 1.318 | 1.262 | 0.91  | 0.983 | 1.047 | 1.085 | 1.108 | 1.209 | 1.286 |       |       |
| 1995 |       | 1.926 | 1.34  | 1.001 | 1.14  | 1.18  | 1.209 | 1.398 | 1.355 | 1.316 |       |       |
| 1996 | 1.692 | 1.505 | 1.236 | 1.082 | 0.957 | 1.226 | 1.247 | 1.164 | 1.42  | 1.409 |       |       |
| 1997 |       | 1.514 | 1.317 | 1.179 | 1.073 | 1.213 | 1.383 | 1.375 | 1.488 |       | 1.654 |       |
| 1998 | 2.135 | 2.08  | 1.751 | 1.613 | 1.386 | 1.413 | 1.346 | 1.454 | 1.469 | 1.779 |       |       |
| 1999 |       | 2.102 | 1.96  | 1.751 | 1.419 | 1.49  | 1.375 | 1.557 | 1.679 | 1.664 | 1.948 |       |
| 2000 | 2.167 | 1.935 | 1.825 | 1.45  | 1.218 | 1.187 | 1.246 | 1.263 | 1.416 | 1.619 |       |       |
| 2001 |       | 2.14  | 2.01  | 1.737 | 1.482 | 1.465 | 1.486 | 1.628 | 1.916 | 1.996 | 2.137 | 2.526 |
| 2002 | 2.498 | 2.137 | 1.941 | 1.551 | 1.527 | 1.552 | 1.545 | 1.695 | 1.873 | 1.884 | 2.224 |       |
| 2003 |       | 2.153 | 1.871 | 1.762 | 1.678 | 1.568 | 1.776 | 1.84  | 1.986 | 2.246 | 2.41  |       |
| 2004 | 2.481 | 2.332 | 2.124 | 1.661 | 1.672 | 1.847 | 1.629 | 1.817 | 1.843 | 2.6   | 3.185 | 3.602 |

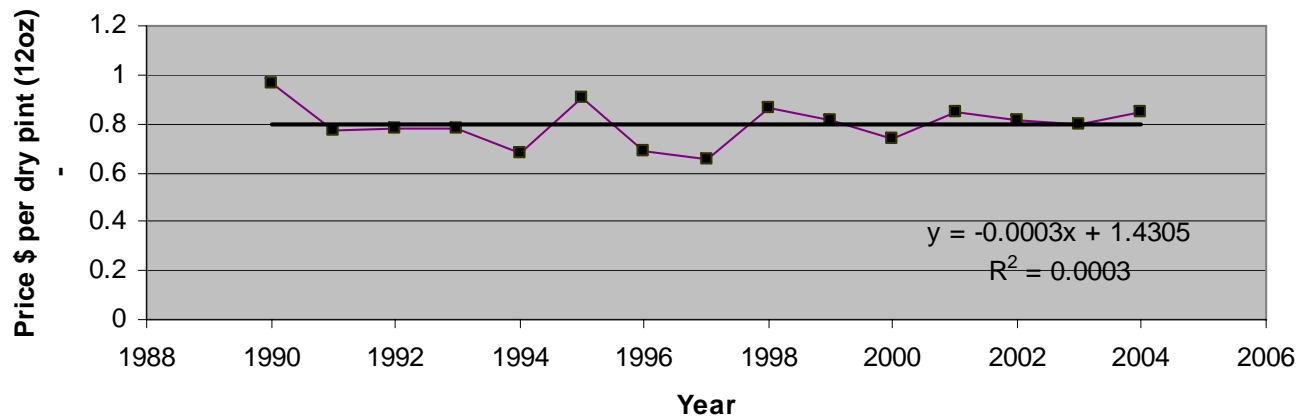


# A Closer Look at Strawberry Prices

June Strawberry Prices  
(BLS data)



Feb Strawberry Prices  
(BLS data)



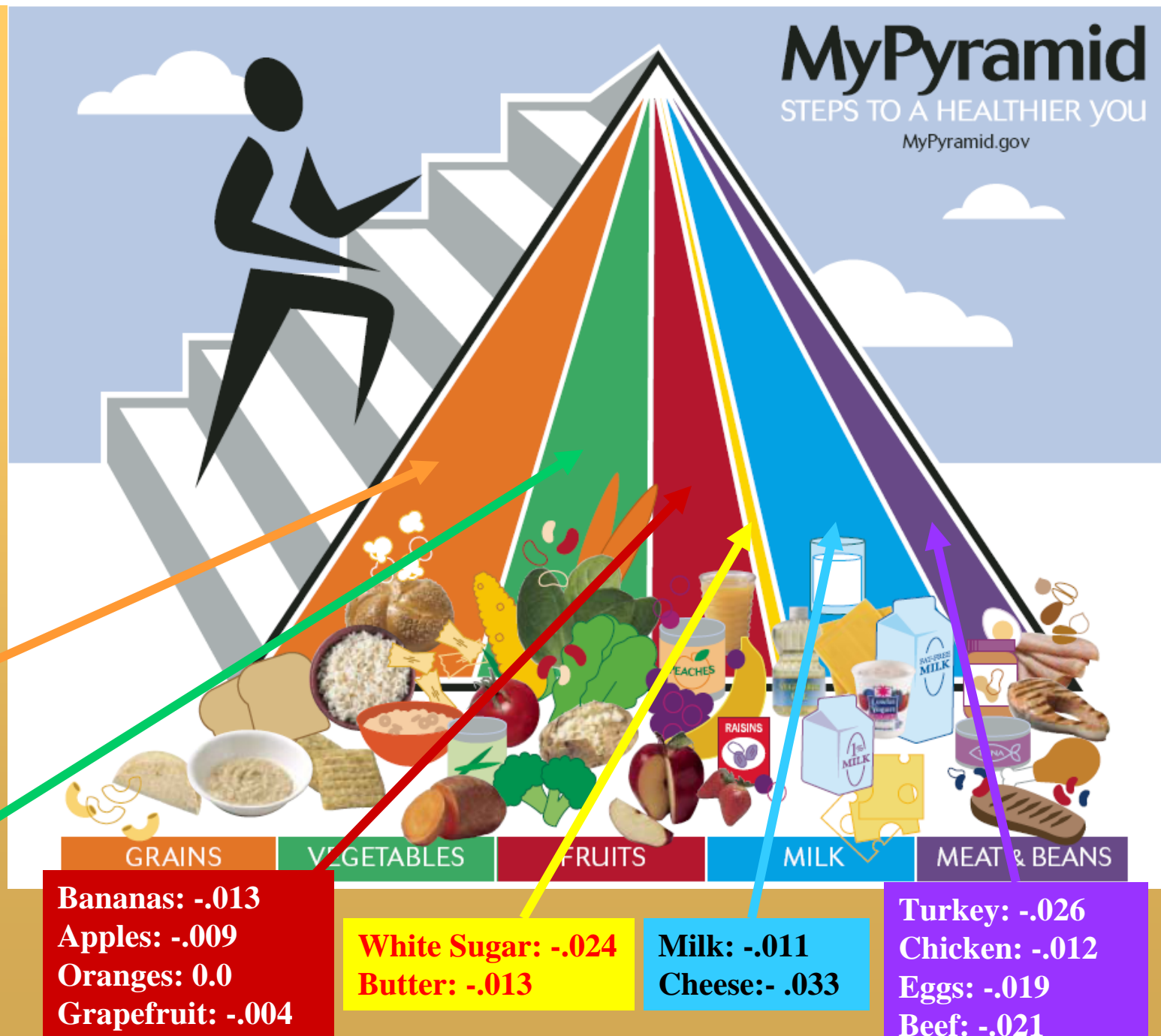


# MyPyramid

STEPS TO A HEALTHIER YOU

MyPyramid.gov

## Consumer Prices for Foods



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

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

Bananas: -.013  
 Apples: -.009  
 Oranges: 0.0  
 Grapefruit: -.004

White Sugar: -.024  
 Butter: -.013

Milk: -.011  
 Cheese: -.033

Turkey: -.026  
 Chicken: -.012  
 Eggs: -.019  
 Beef: -.021

Statistics report proportional changes in real prices over 1980-2003

Alston, Sumner, Vosti UCD/AIC/ARE



# 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



# 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**
  - Price responses are generally low
  - Micro-management of food prices might not be wise
- **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





# Next Steps in Research and Outreach

- **Review Trends**
  - Food consumption, food prices, commodity prices, and food and agricultural policies
- **Analyze the Effects of Alternative Subsidy and R&D Policies on Commodity Prices**
  - Retrospectively – Delphi method
  - Prospectively – FAPRI model
- **Analyze the Effects of Prices on Consumption and Nutrition**
  - Complete demand system
  - Food composition tables



## **Next Steps in Research and Outreach (cont.)**

- **Case Study of the Sweeteners Industry**
  - **Multi-market model**
- **Case Study of Proposed Changes to the WIC Program**
  - **On WIC participants' consumption of fresh fruits and vegetables (FFV)**
    - **California Latino family experiment**
  - **On demand for FFV**
  - **On prices FFV in the short and long term**
  - **On farmers – FFV supply response**
- **Curriculum Development**
- **Policy Guidance to WIC**