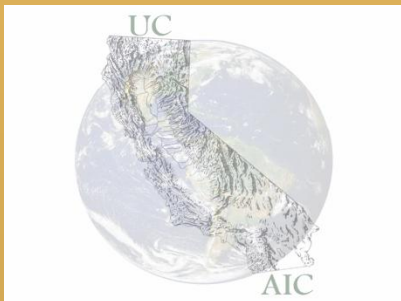




# Are Agricultural Policies Making Us Fat? Likely Links Between Agricultural Policies and Human Nutrition and Obesity, and their Implications

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**Daniel Sumner**  
**Stephen Vosti**

**Agricultural  
Issues  
Center**



**Department of Agricultural  
and Resource Economics**

*January 2006*

Alston, Sumner, Vosti UCD/AIC/ARE



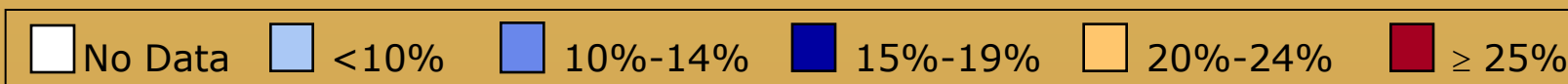
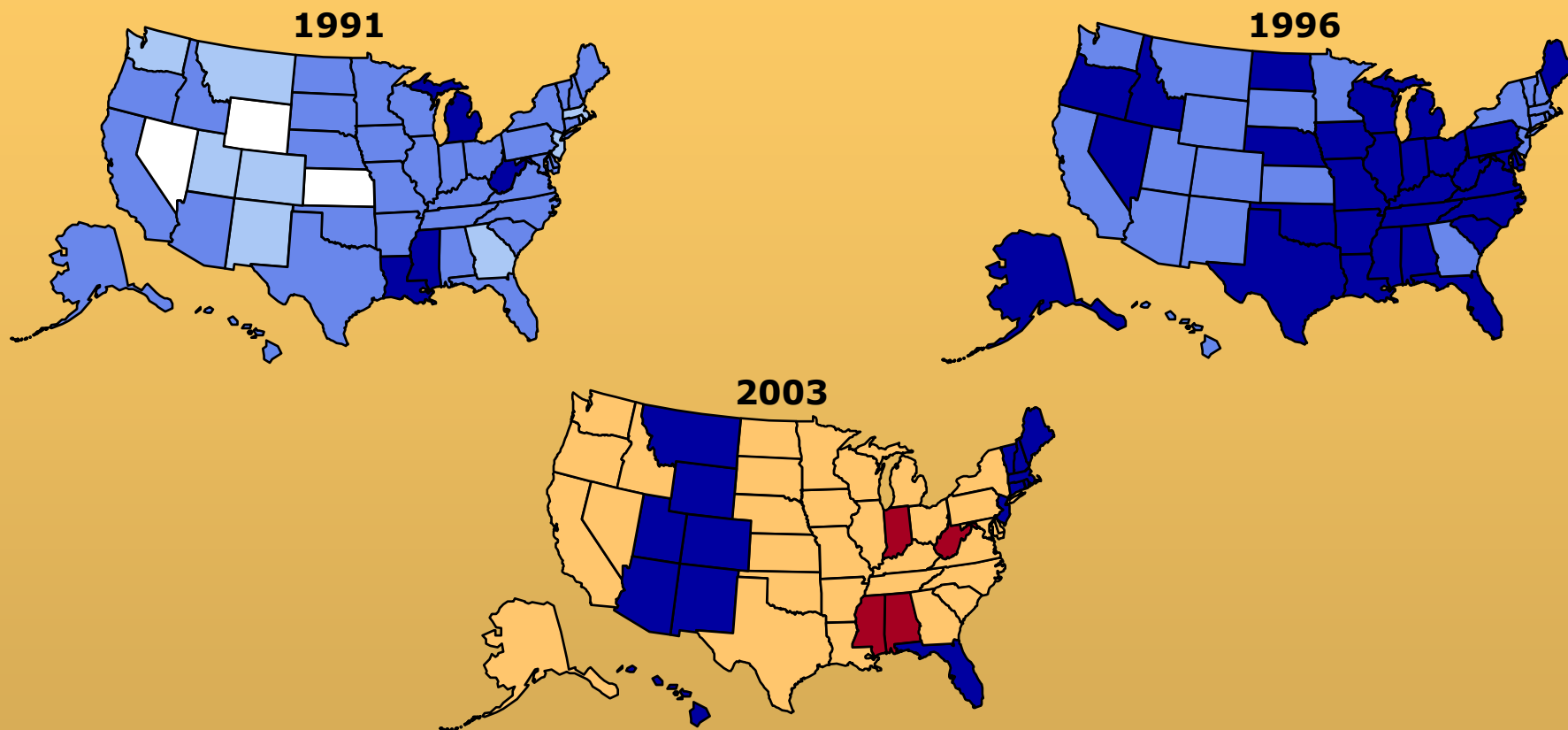
# Presentation Outline

- **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 BRFSS, 1991, 1996, 2003

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



Source: Behavioral Risk Factor Surveillance System, CDC.



# 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?



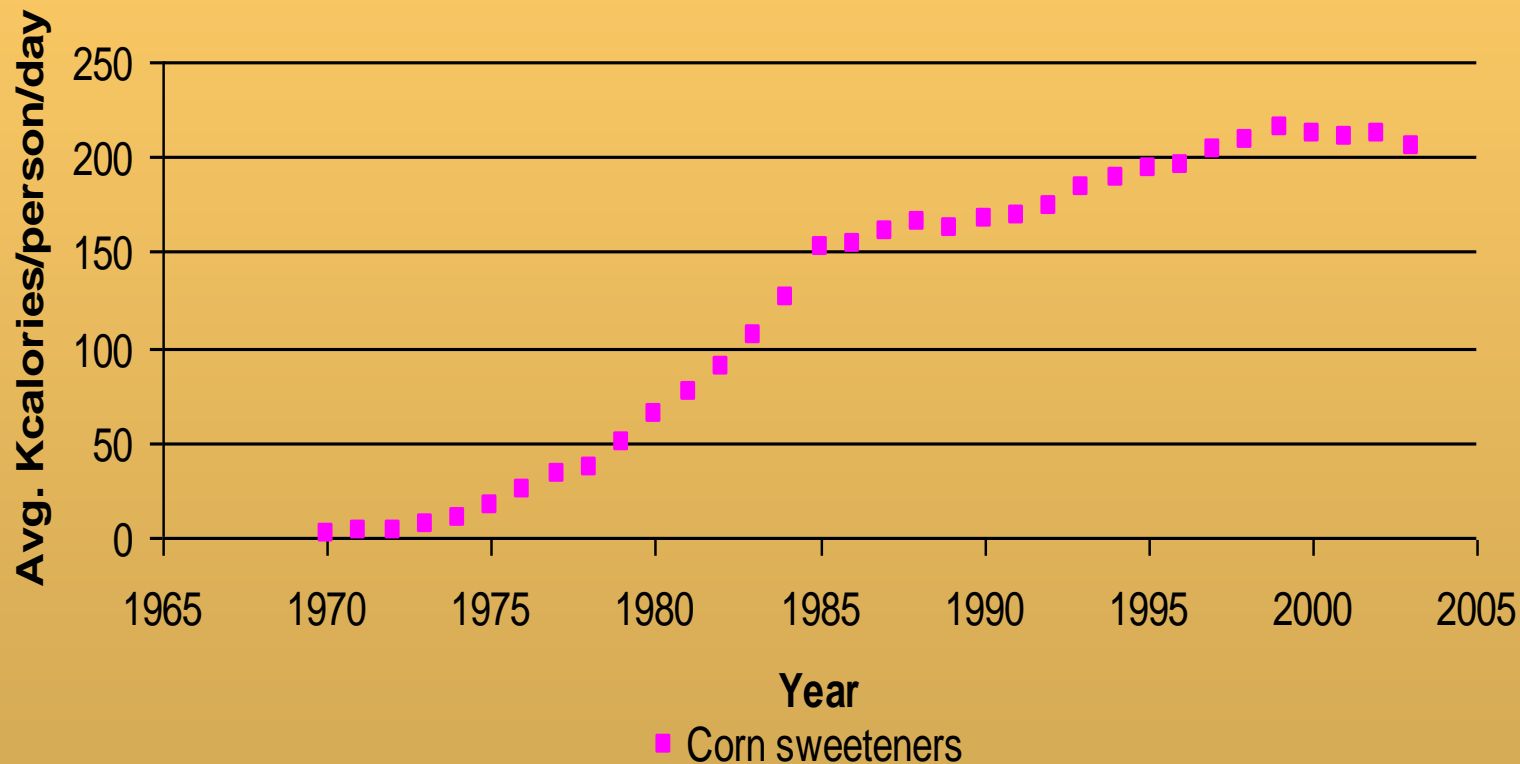
# Is Agricultural Policy (Partially) Responsible?

- “[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'

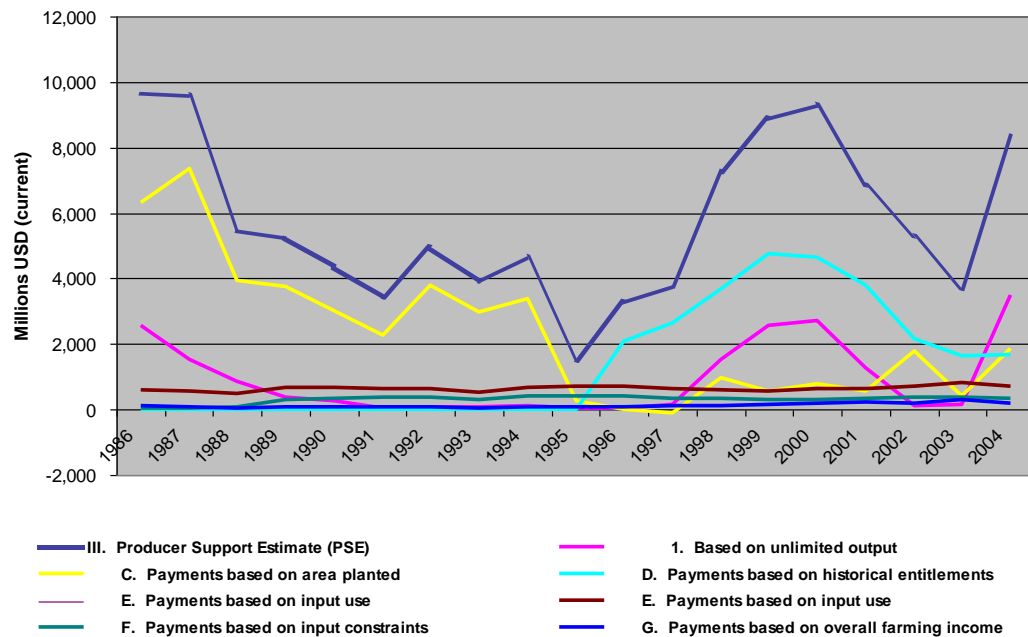
## Trends in Consumption of Corn Sweeteners



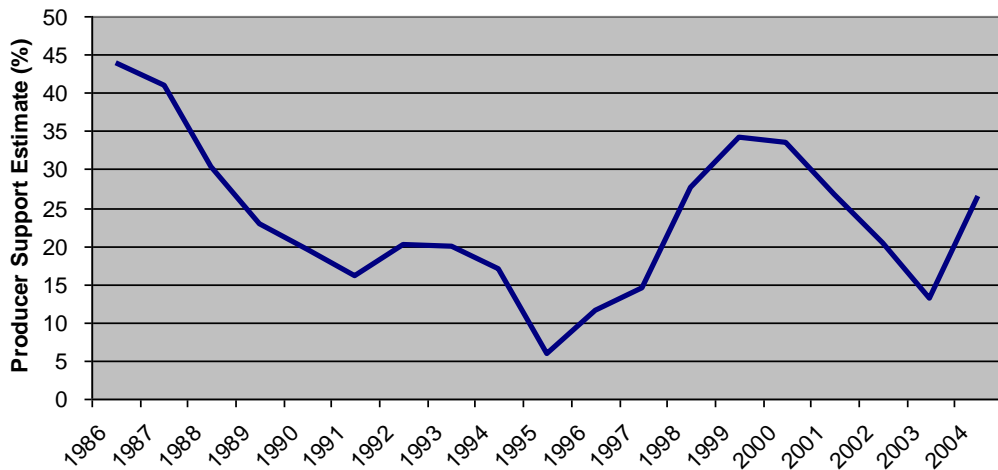


# The Suspected Culprit – Corn Policy

## Support to Corn Producers -- Absolute



## Support to Corn Producers -- %

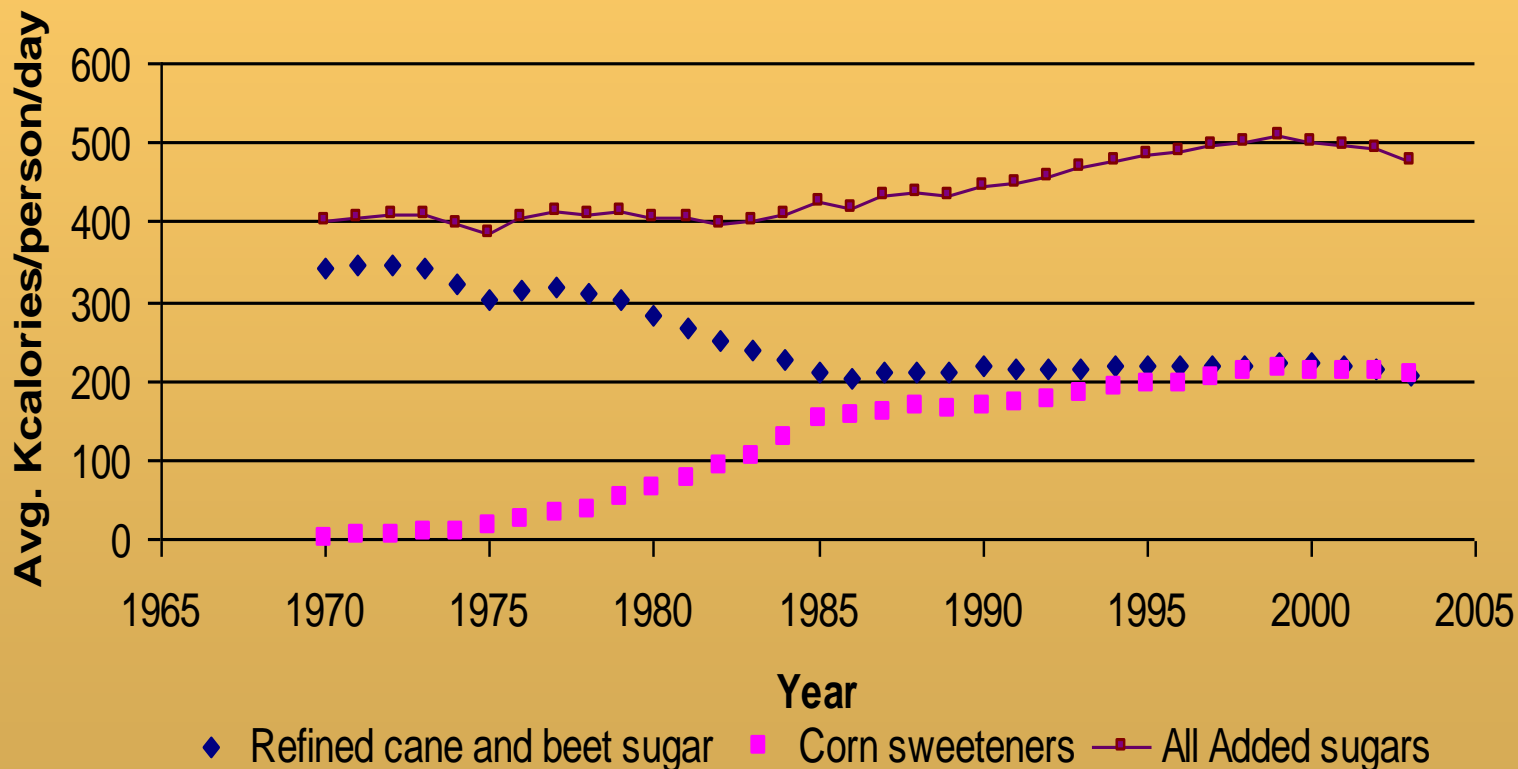






# The More Complete Story

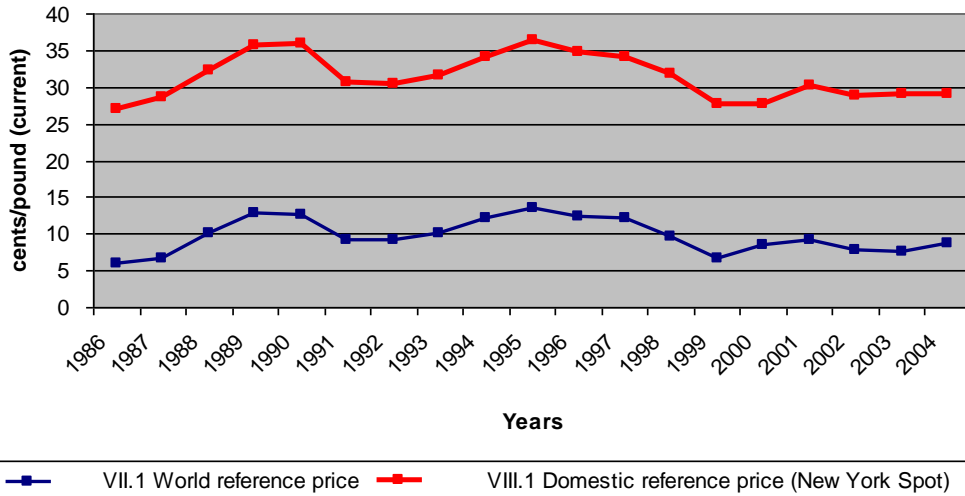
## Trends in Consumption of Selected Sweeteners



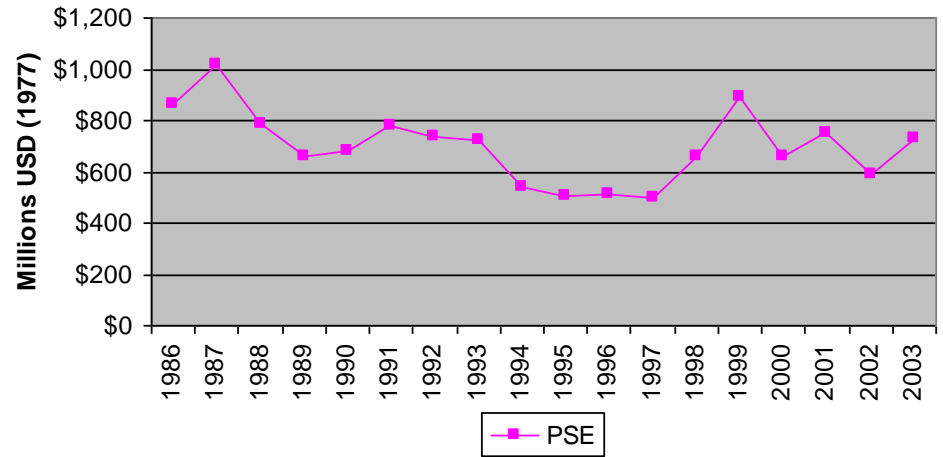


# White Sugar Policy – What Role?

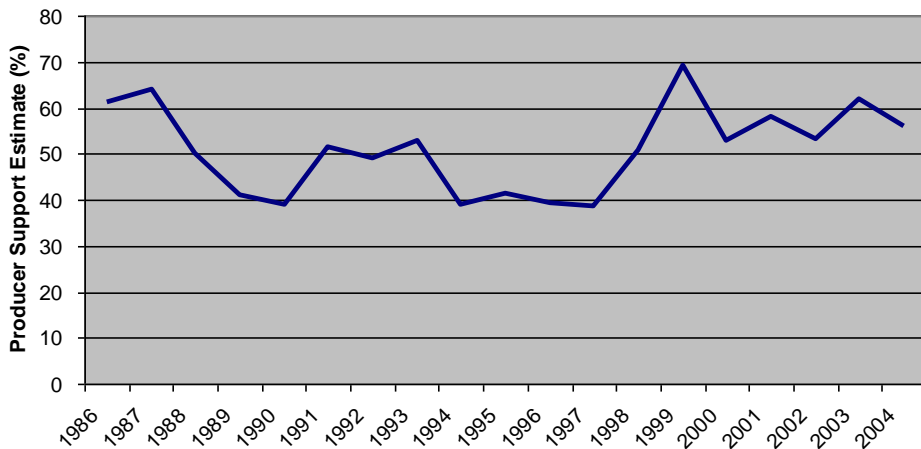
Sugar Prices in the USA -- 1986-2004



Support to Sugar Producers -- Absolute

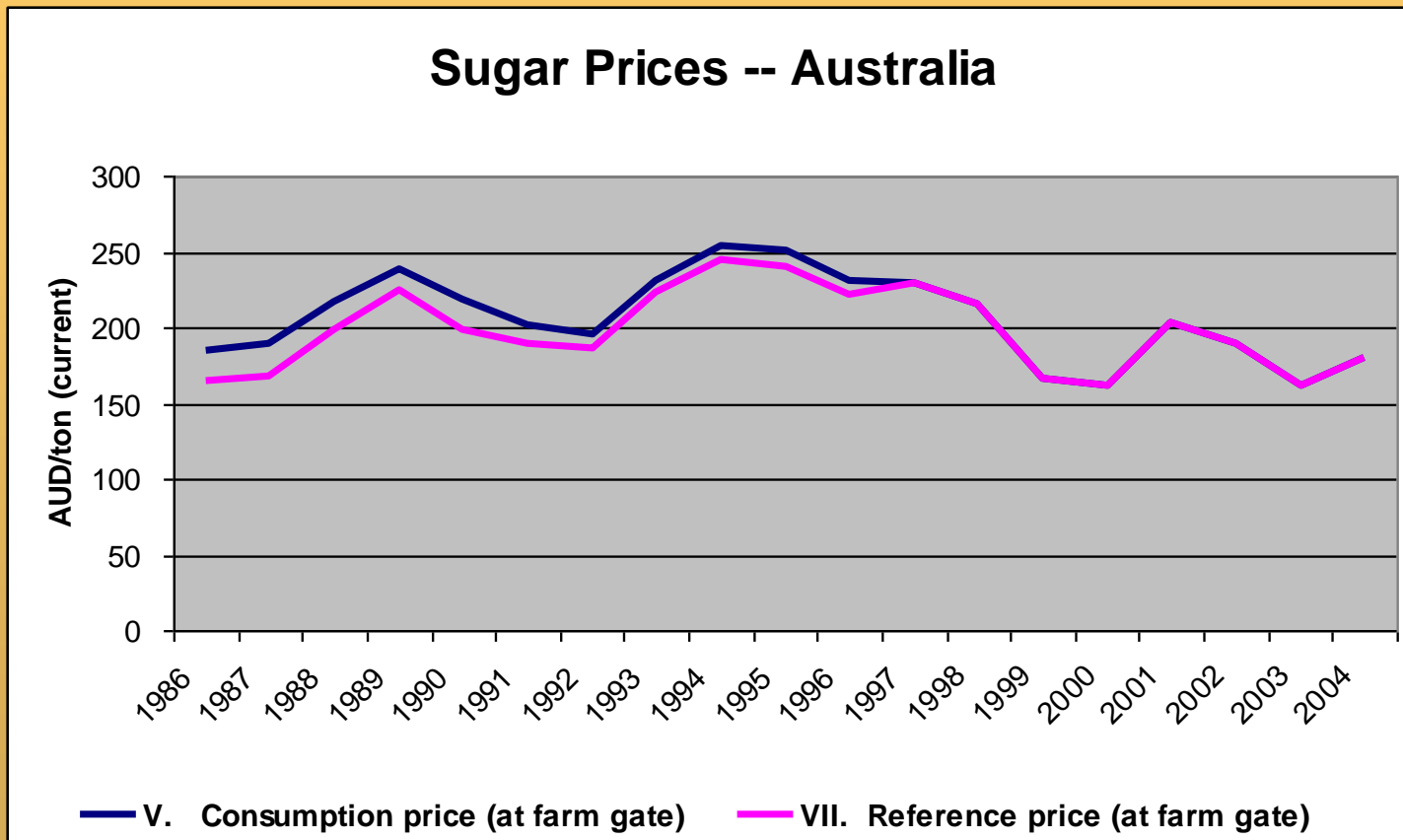


Support to Sugar Producers -- %





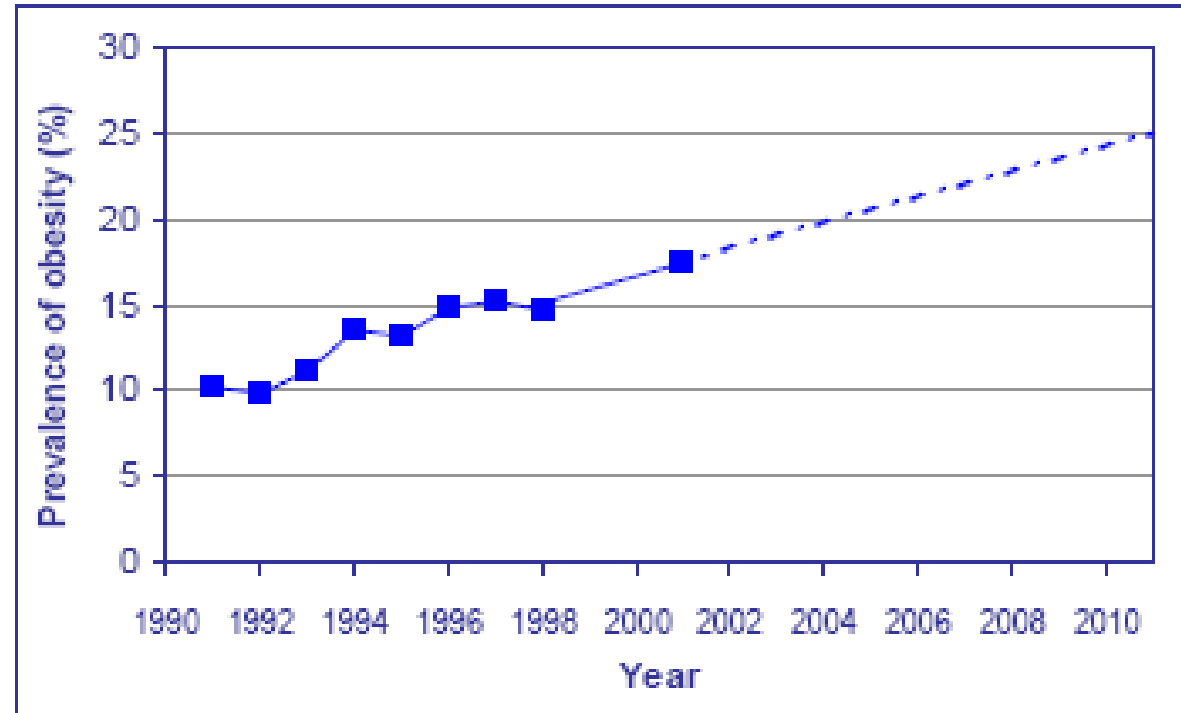
# The Australian Story: Sugar Policy





# The Australian Story: Obesity Trends

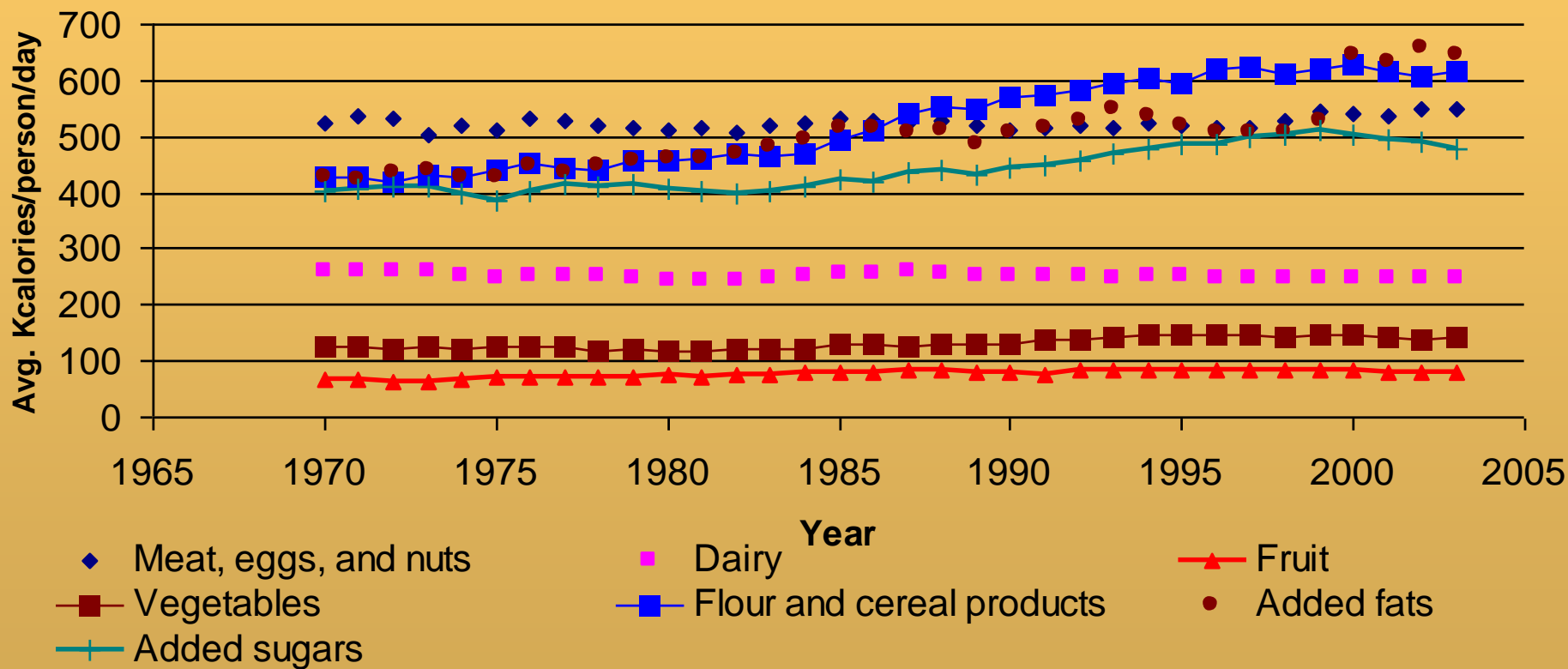
Figure 1: Projected increase in the prevalence of obesity (BMI  $\geq 30$ ) in South Australia





# The Much More Complete Story

## Calories from Different Food Groups





# Types and Magnitudes of Agricultural Outlays

USDA Program	Expenditure in 2004	Percent of 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 ( <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>

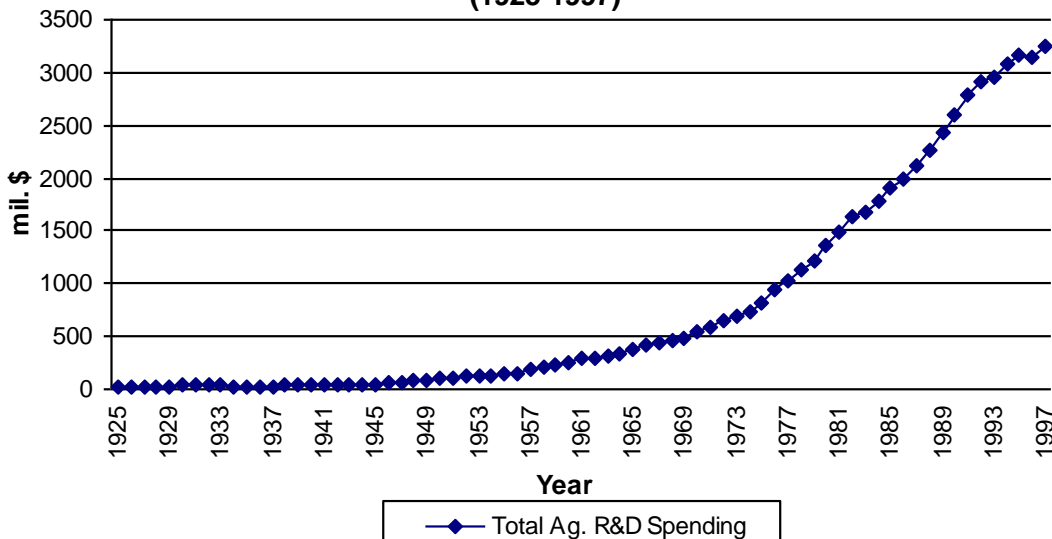




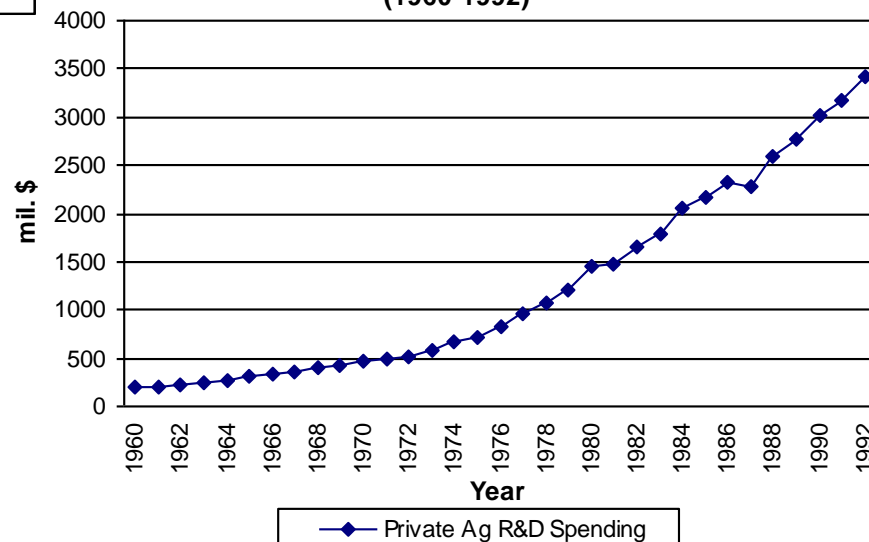


# Trends in Agricultural R&D Spending

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



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

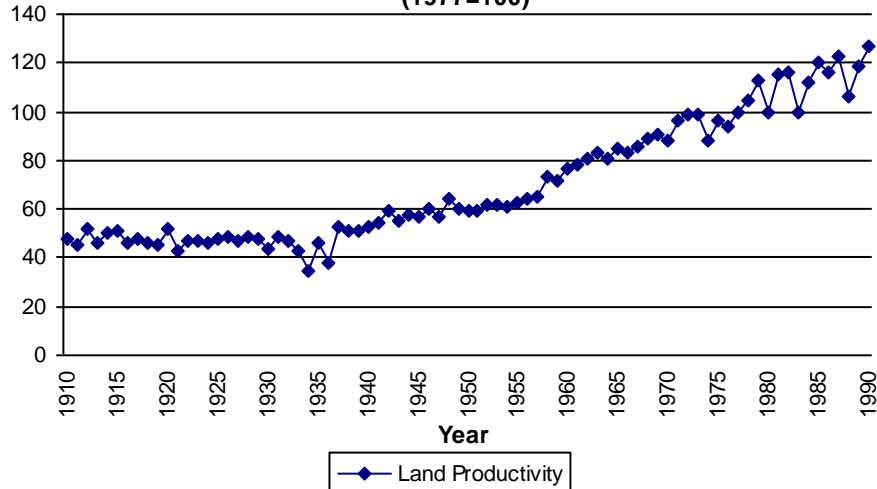




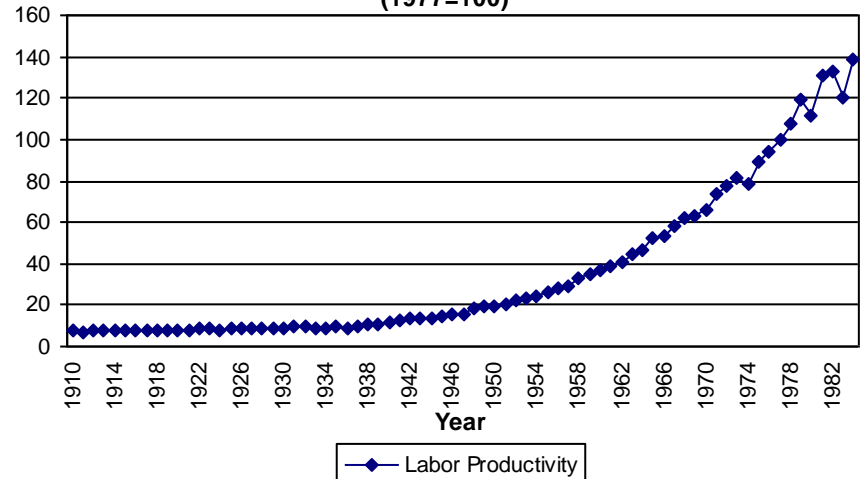


# Trends in Aggregate Productivity Measures

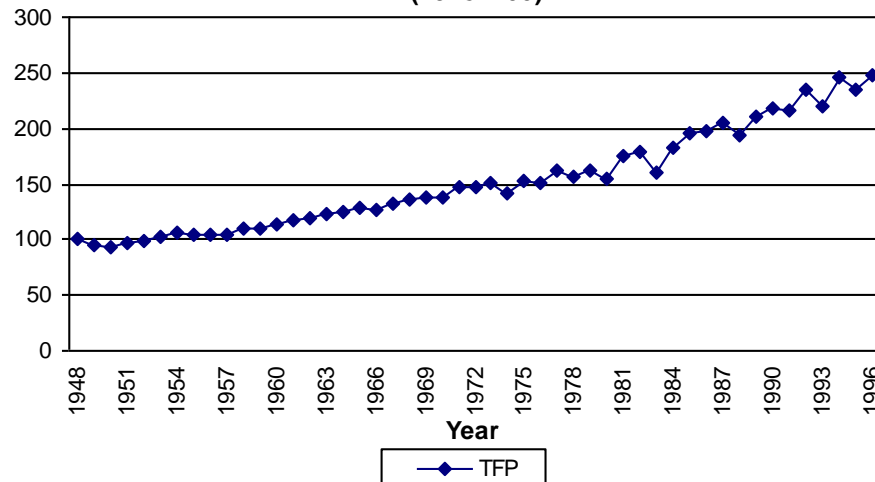
Index of Land Productivity  
(1977=100)



Index of Labor Productivity  
(1977=100)



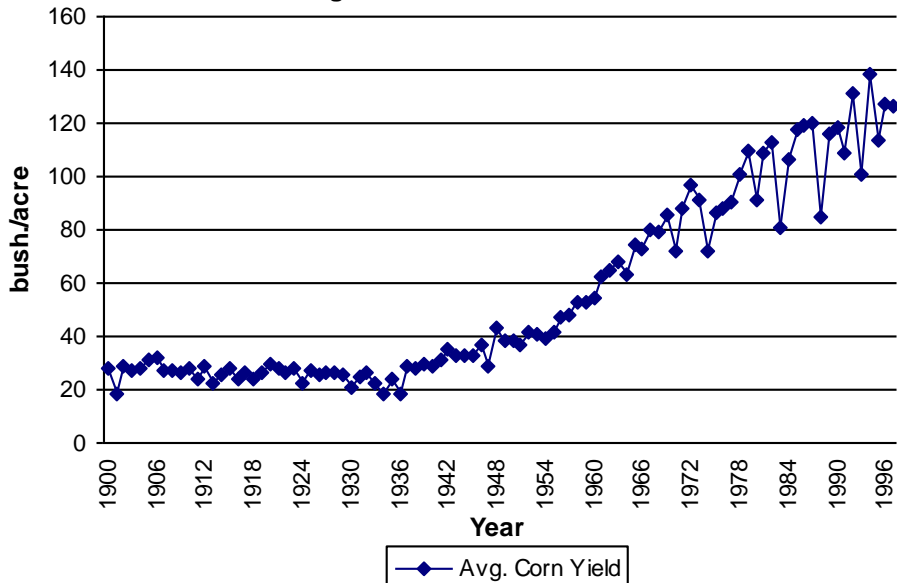
Total Factor Productivity Index  
(1948=100)



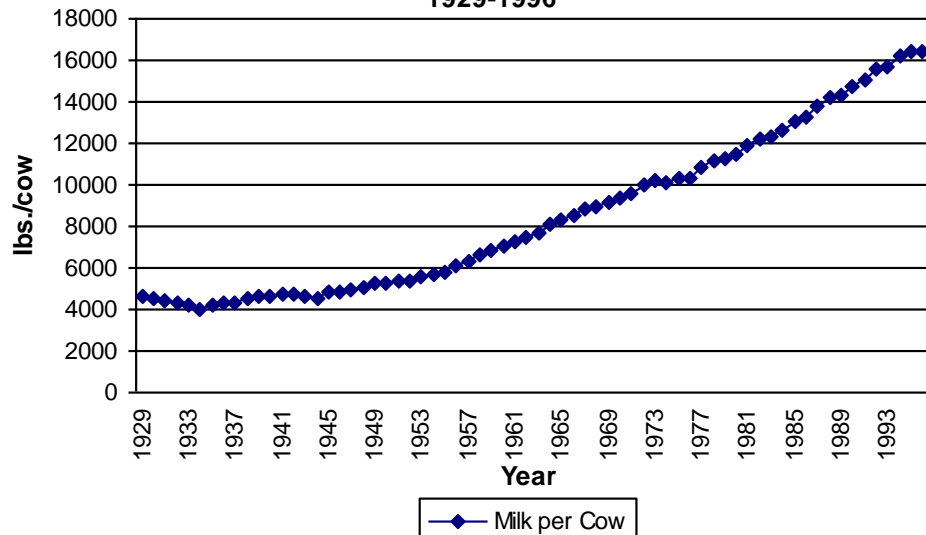


# Trends in Crop/Product Productivity

### Average Yield of Corn 1900-1997



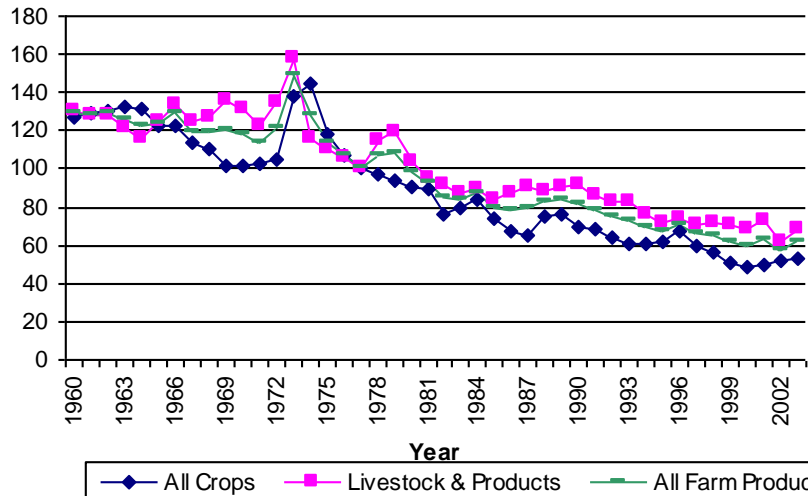
### Milk Production per Cow 1929-1996



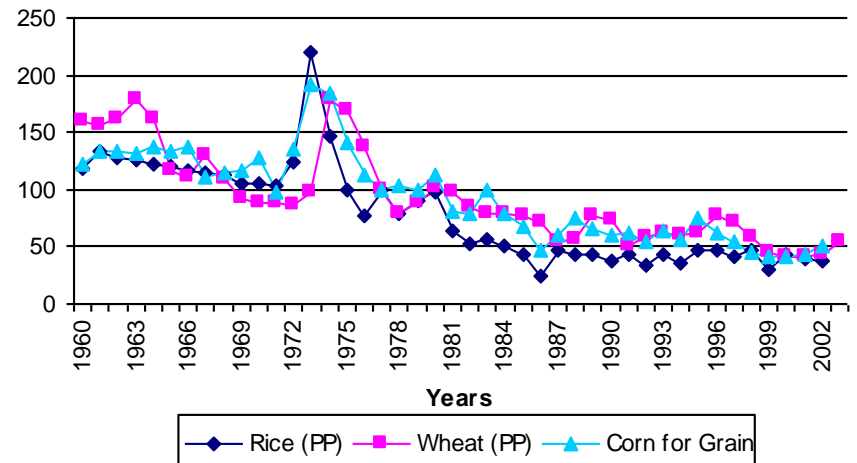


# Trends in Prices Received By Farmers

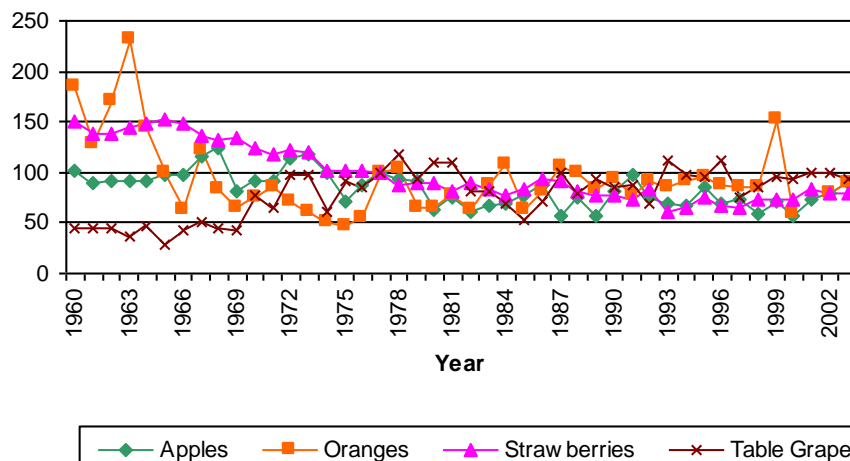
Prices received Deflated with prices paid (Commodities, services, interest, taxes, wages) (1977=100)



Deflated Prices Received for Selected Grains (1977=100)



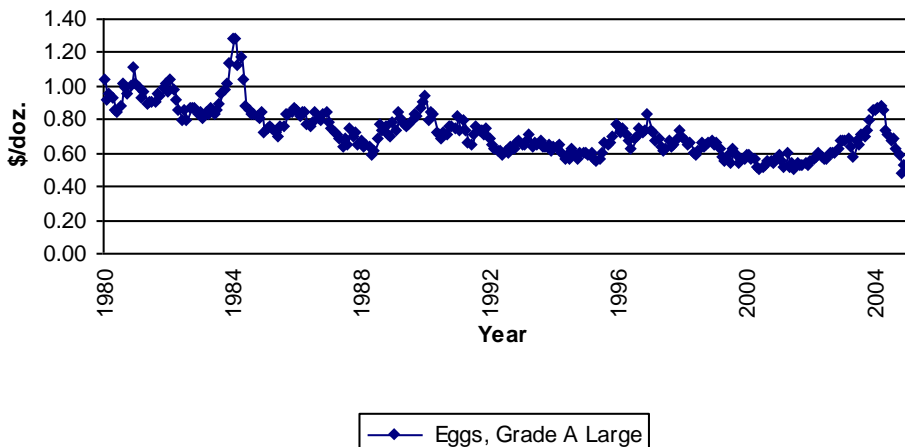
Deflated Prices Received for Selected Fruits (1977=100)



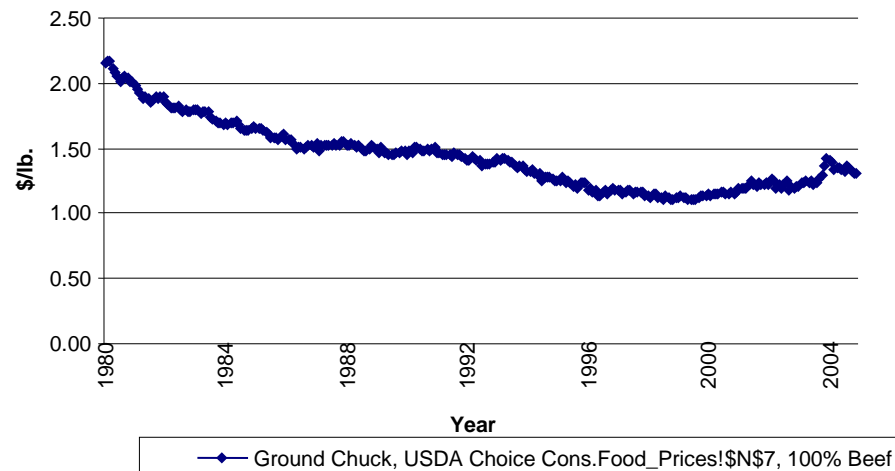


# Prices Paid By Consumers – Basic Stuff

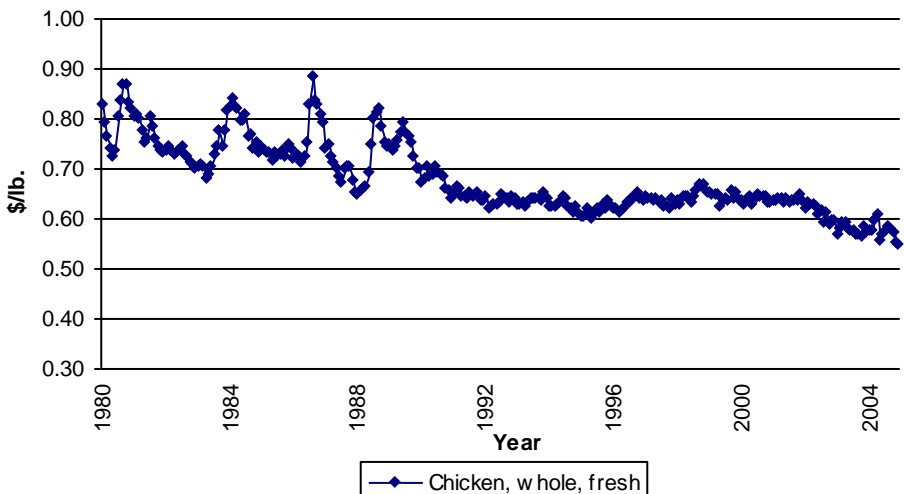
Consumer Prices for Eggs Deflated by CPI (food at home)



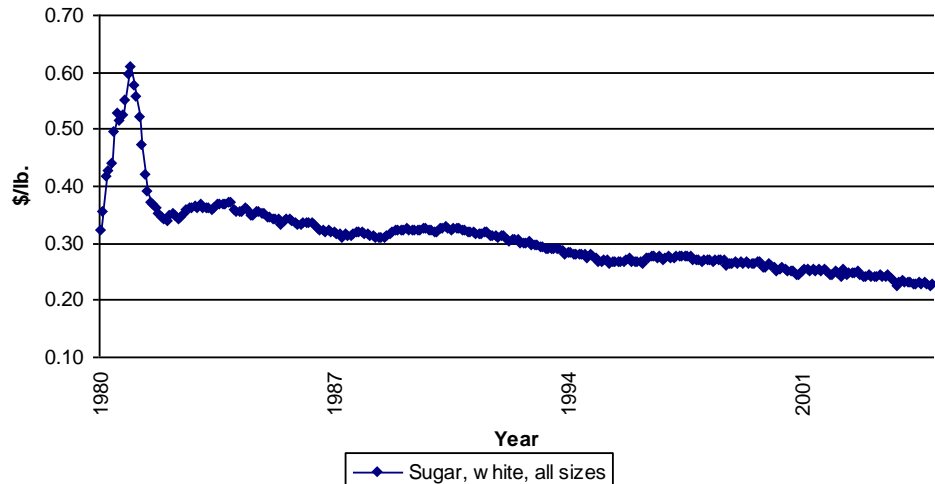
Consumer Prices for Ground Beef Deflated by CPI (food at home)



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

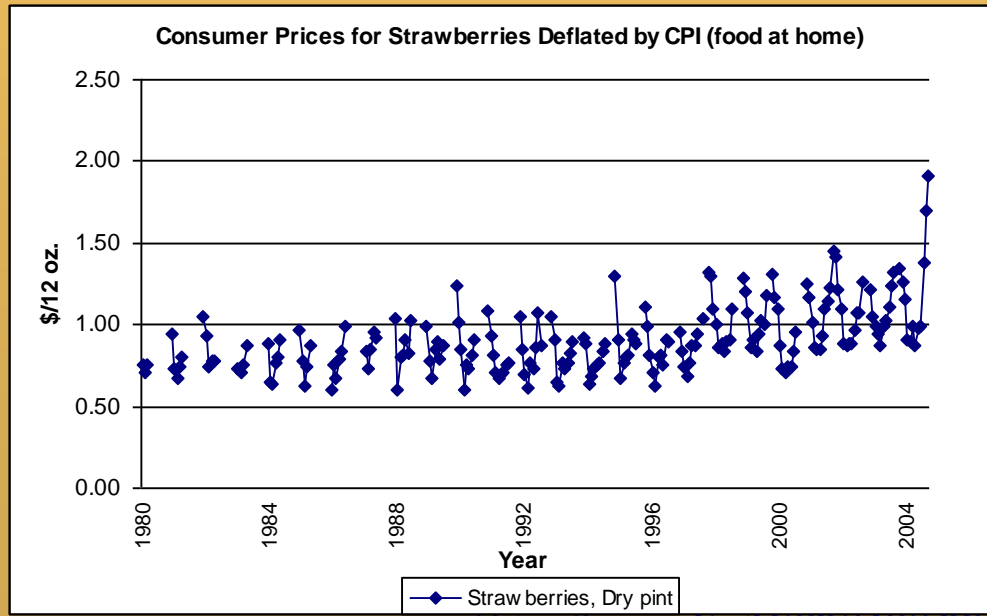
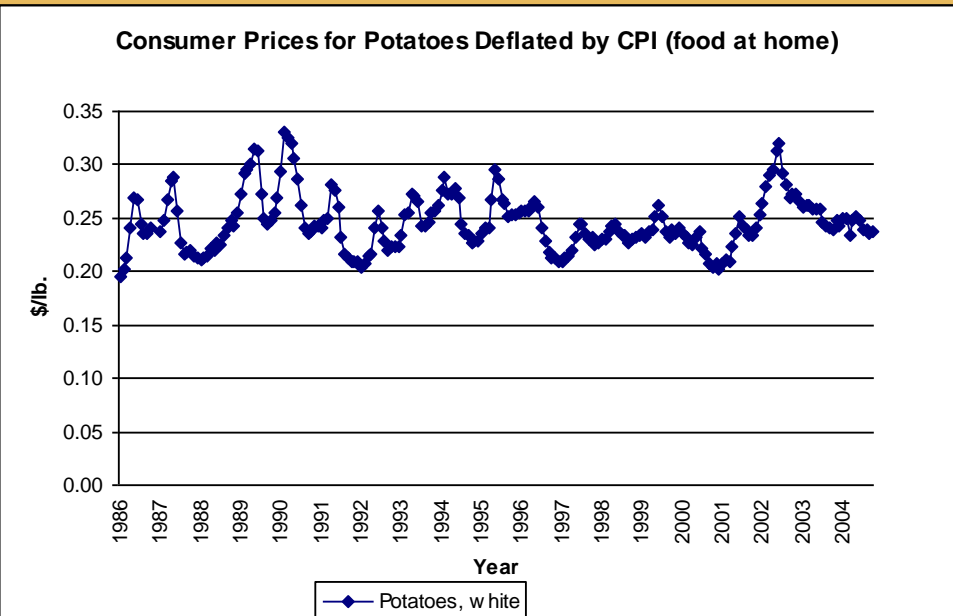
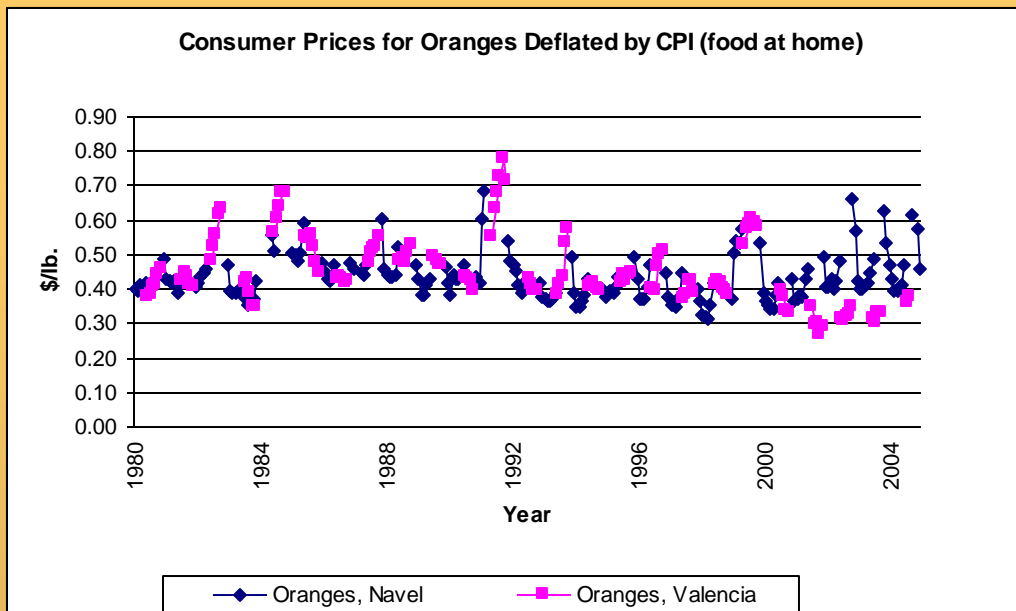


Consumer Prices for White Sugar Deflated by CPI (food at home)





# Prices Paid By Consumers – Fruits and Vegetables





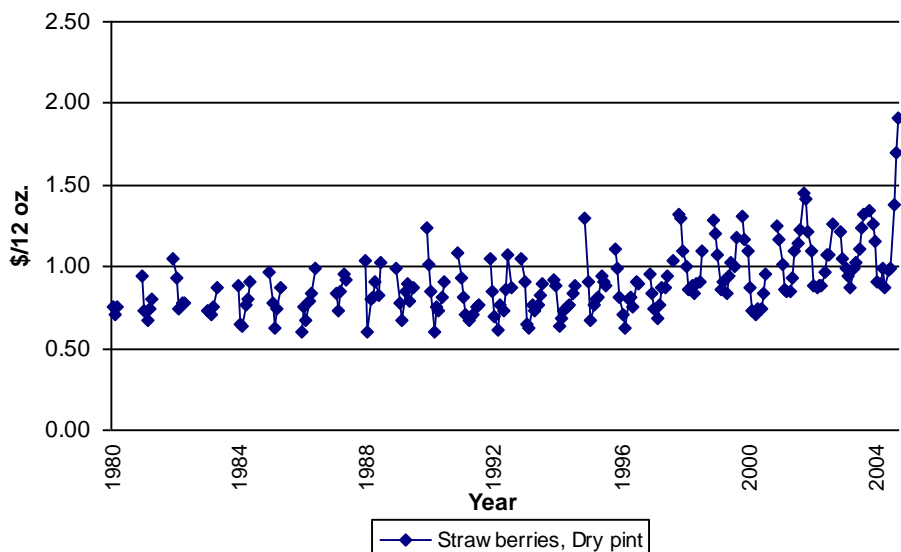
# Getting the Price Story Right: Strawberries

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

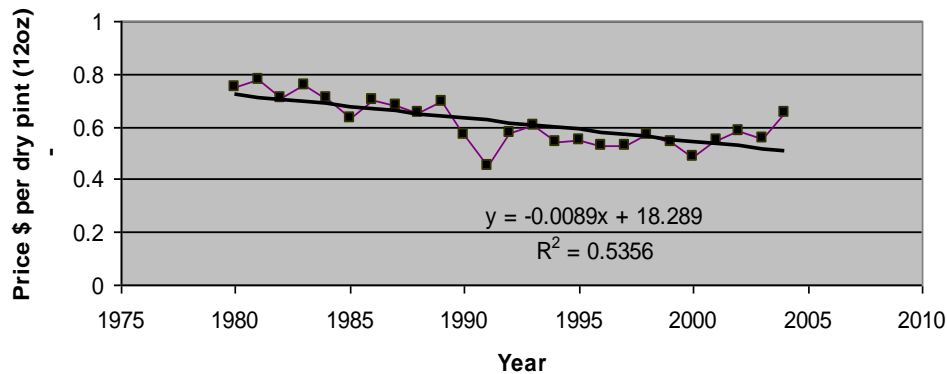


# A Closer Look at Strawberry Prices

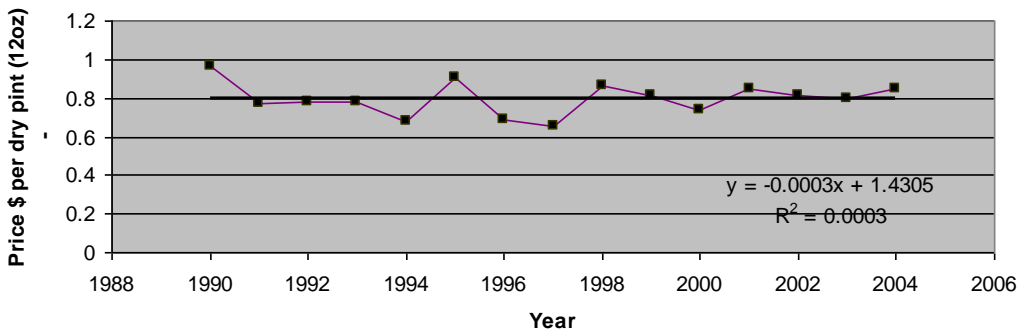
Consumer Prices for Strawberries Deflated by CPI (food at home)

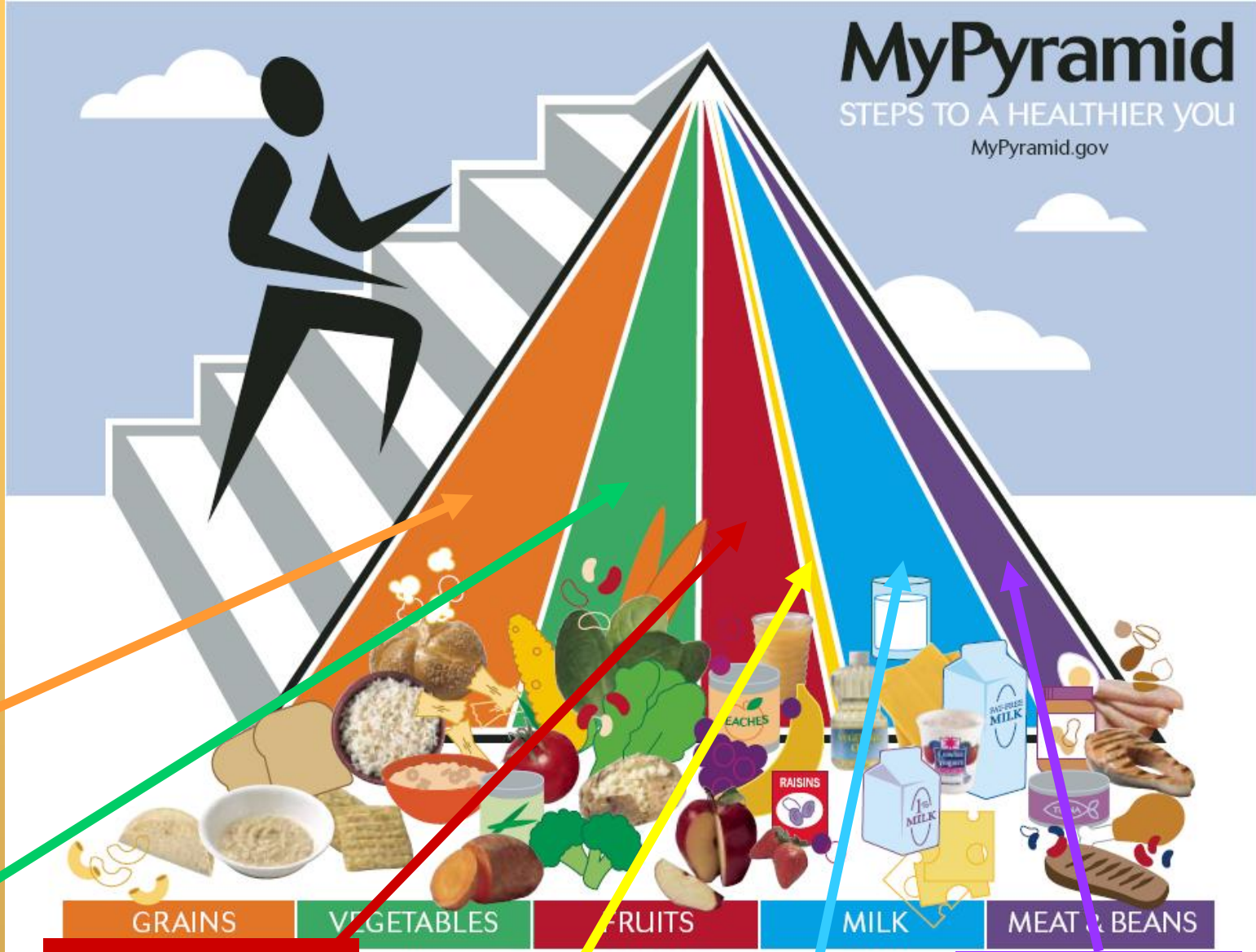


June Strawberry Prices  
(BLS data)



Feb Strawberry Prices  
(BLS data)





# 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**





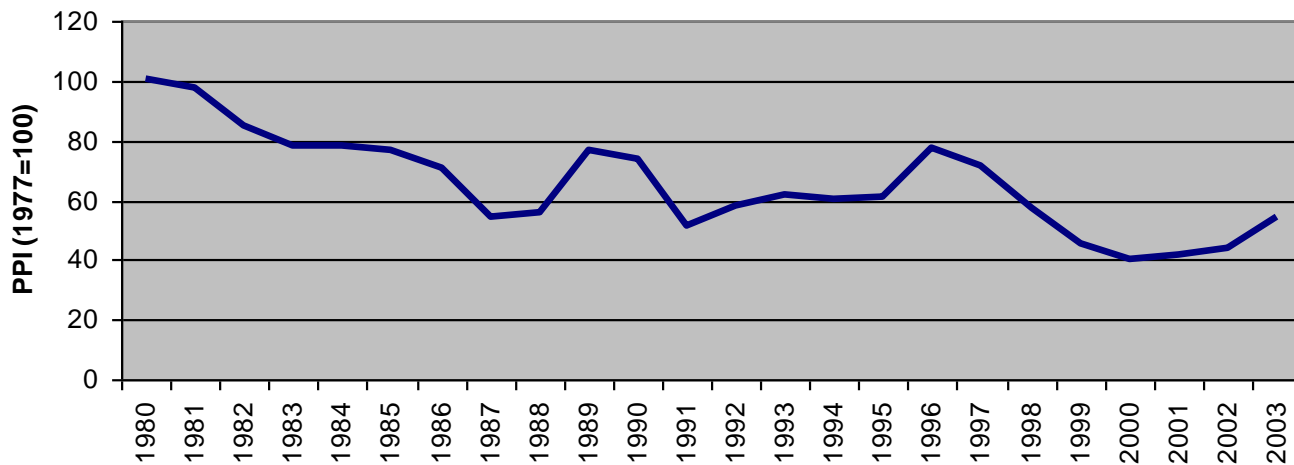
# Food Prices in Terms of the Wages

- **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

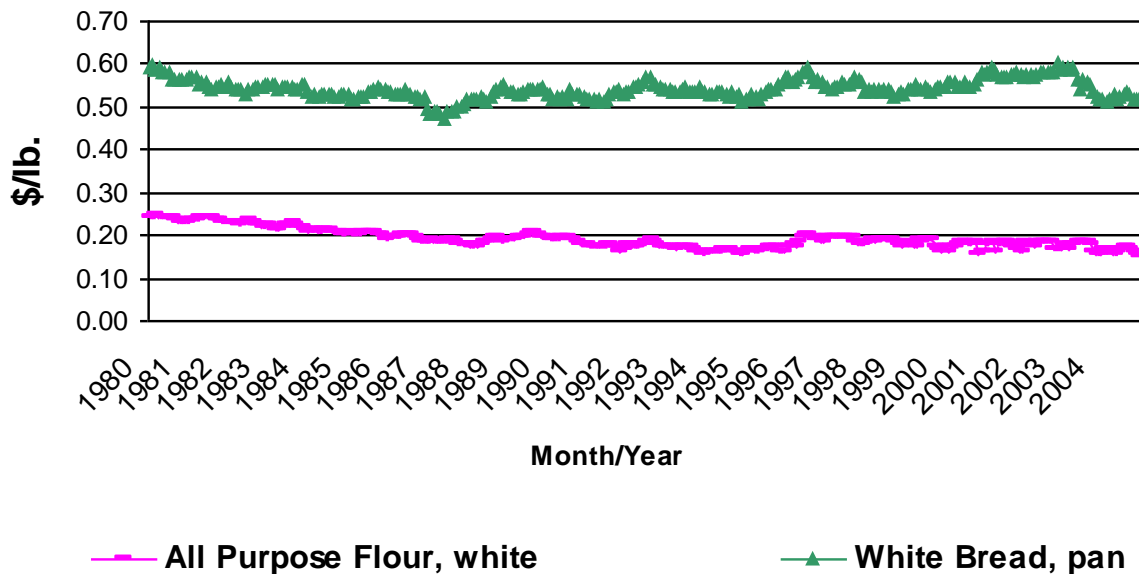


# 'Disconnect' Between Commodity & Food Prices

### 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