



Are Healthy Alternatives Available for All? Some Insights From An Agricultural Economics Perspective

**Stephen Vosti
UC Davis Team**



**Agricultural
Issues Center**

USDA (NRI-CSREE # 2006-55215-16720)



**Department of
Agricultural and
Resource
Economics**

ECOR Workshop on Poverty and Obesity, March 2007

Vosti et al., UCD/AIC/ARE



Overview of Presentation

- **‘Availability’**
 - How we think about it and some measures of it
 - Historical record, driving forces, and one ‘smoking gun’
- **‘Alternatives’**
 - How we think about them
- **Food Choices**
 - Where ‘Availability’ and ‘Alternatives’ Meet
- **Role of Public Policy in Changing Food Choices**
 - Special attention paid to the Food Stamp Program
- **Parting Thoughts**
 - Time/income constraints
 - Relative poverty
 - Fat traps
 - Positive deviance approach

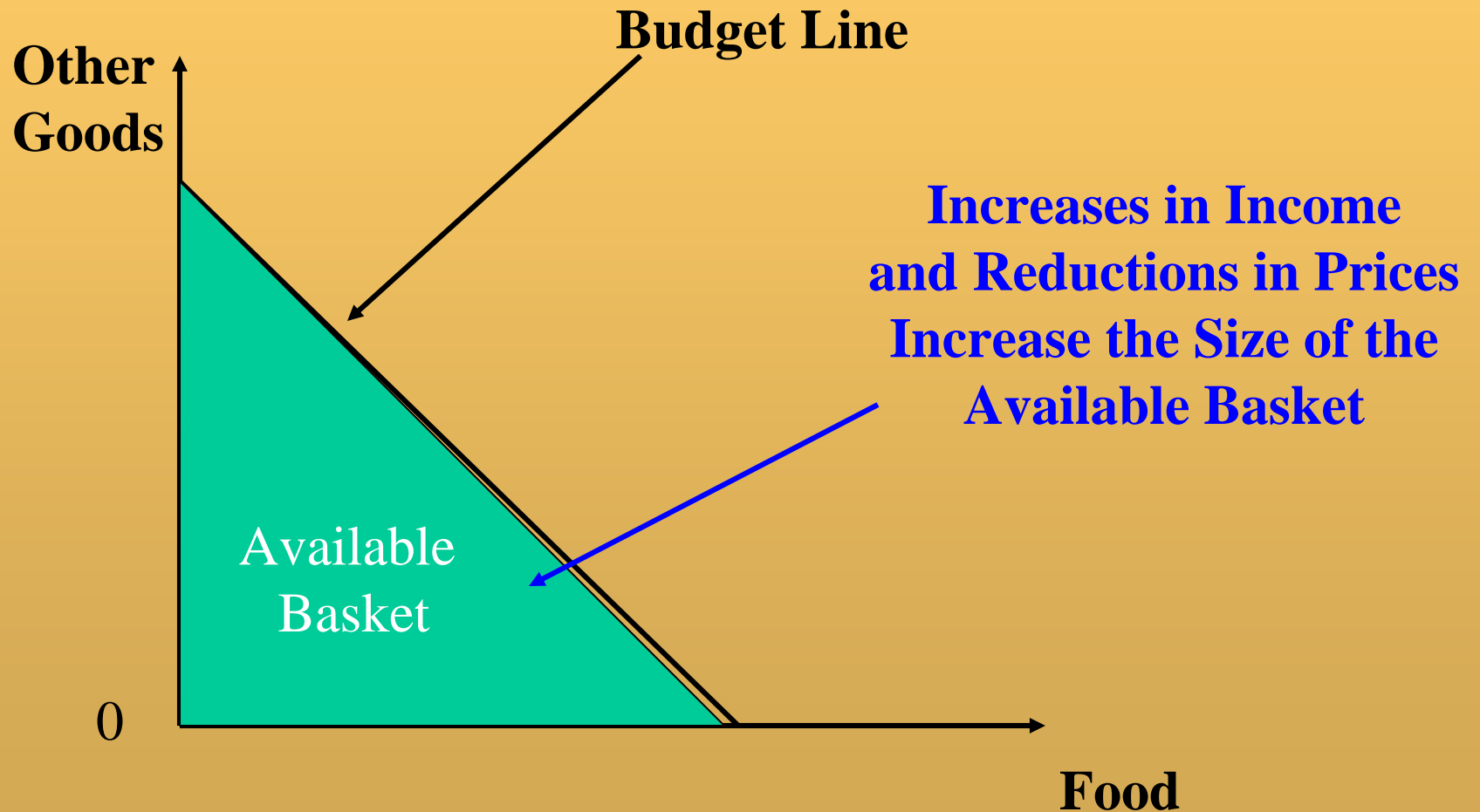


'Availability'

- **Economic Determinants of Food Availability**
 - **Resources available -- income & time**
 - **Product options**
 - **Relative prices**



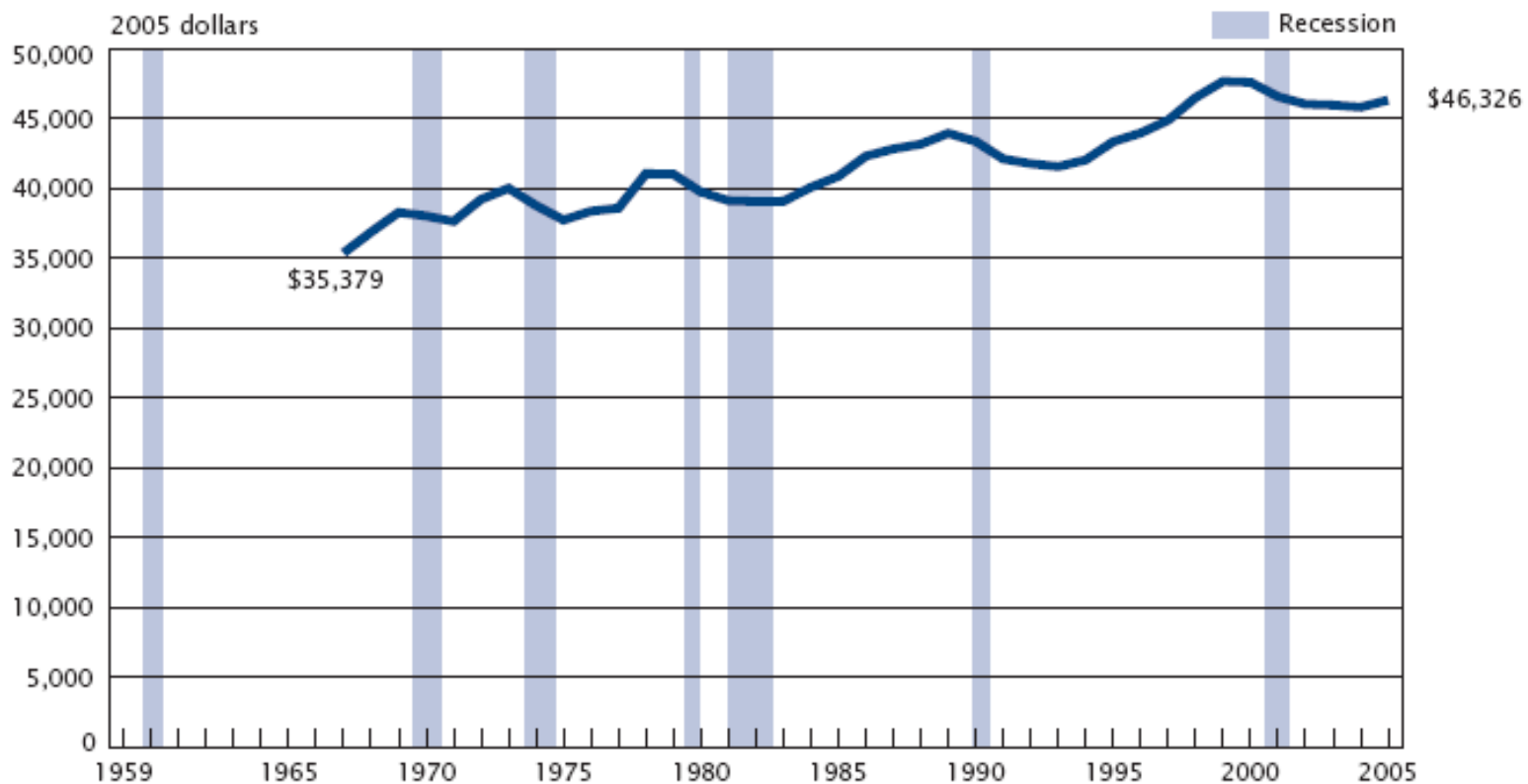
Economic 'Availability' of Food and Other Goods





Trend In Real Income Is Positive

Figure 1.
Real Median Household Income: 1967 to 2005



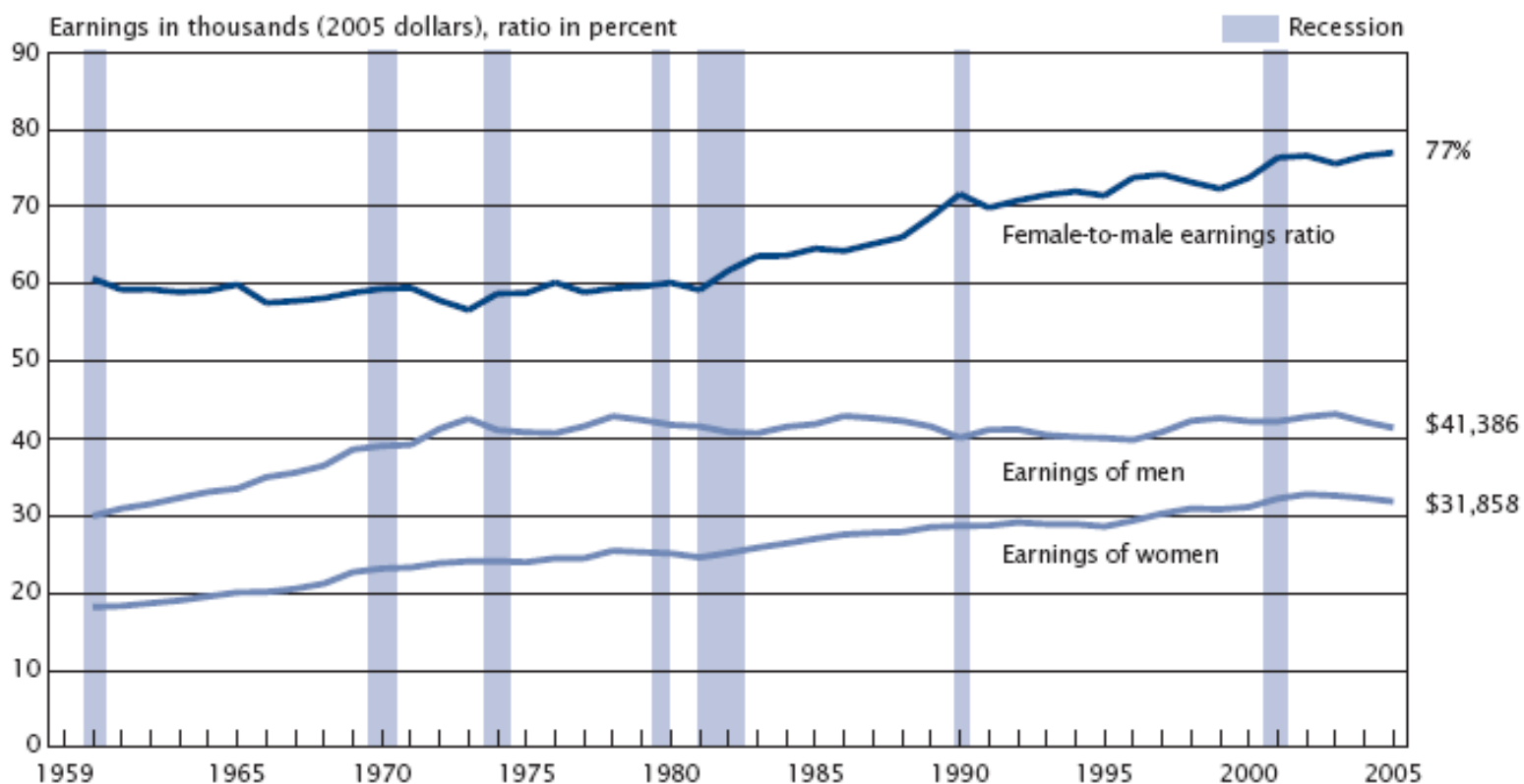
Note: The data points are placed at the midpoints of the respective years. Median household income data are not available before 1967.

Source: U.S. Census Bureau, Current Population Survey, 1968 to 2006 Annual Social and Economic Supplements.



Real Wages for Females Have Increased Since the 1970s, but Not for Males

Figure 3.
Female-to-Male Earnings Ratio and Median Earnings of Full-Time, Year-Round Workers 15 Years and Older by Sex: 1960 to 2005



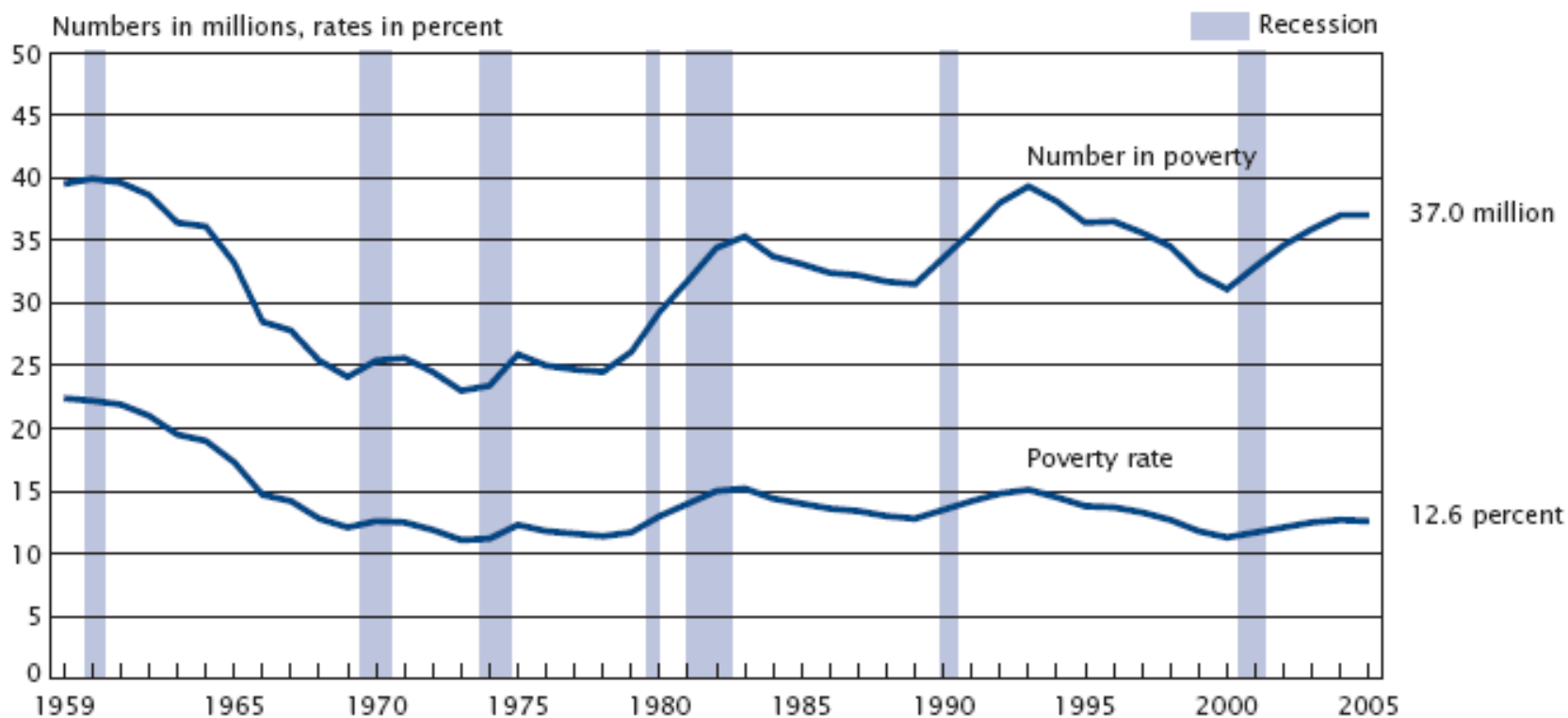
Note: The data points are placed at the midpoints of the respective years. Data on earnings of full-time, year-round workers are not readily available before 1960.

Source: U.S. Census Bureau, Current Population Survey, 1961 to 2006 Annual Social and Economic Supplements.



Poverty Rates Are Flat Since the Early 1980s, Number of Poor Has Trended Upward Since Then

Figure 4.
Number in Poverty and Poverty Rate: 1959 to 2005



Note: The data points are placed at the midpoints of the respective years.

Source: U.S. Census Bureau, Current Population Survey, 1960 to 2006 Annual Social and Economic Supplements.

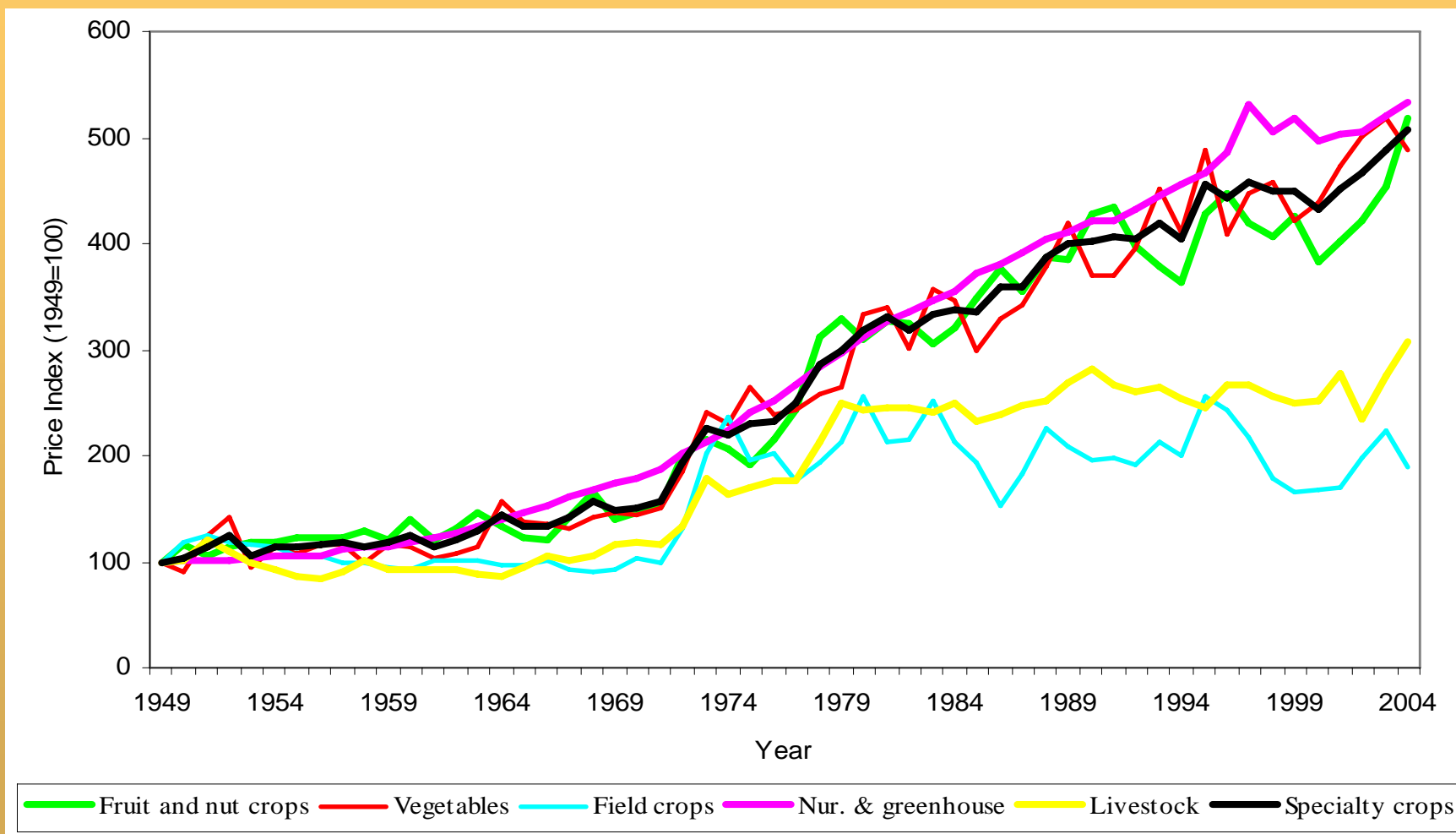


Changes in Food Prices

- **What We Know**
- **Driving Forces**



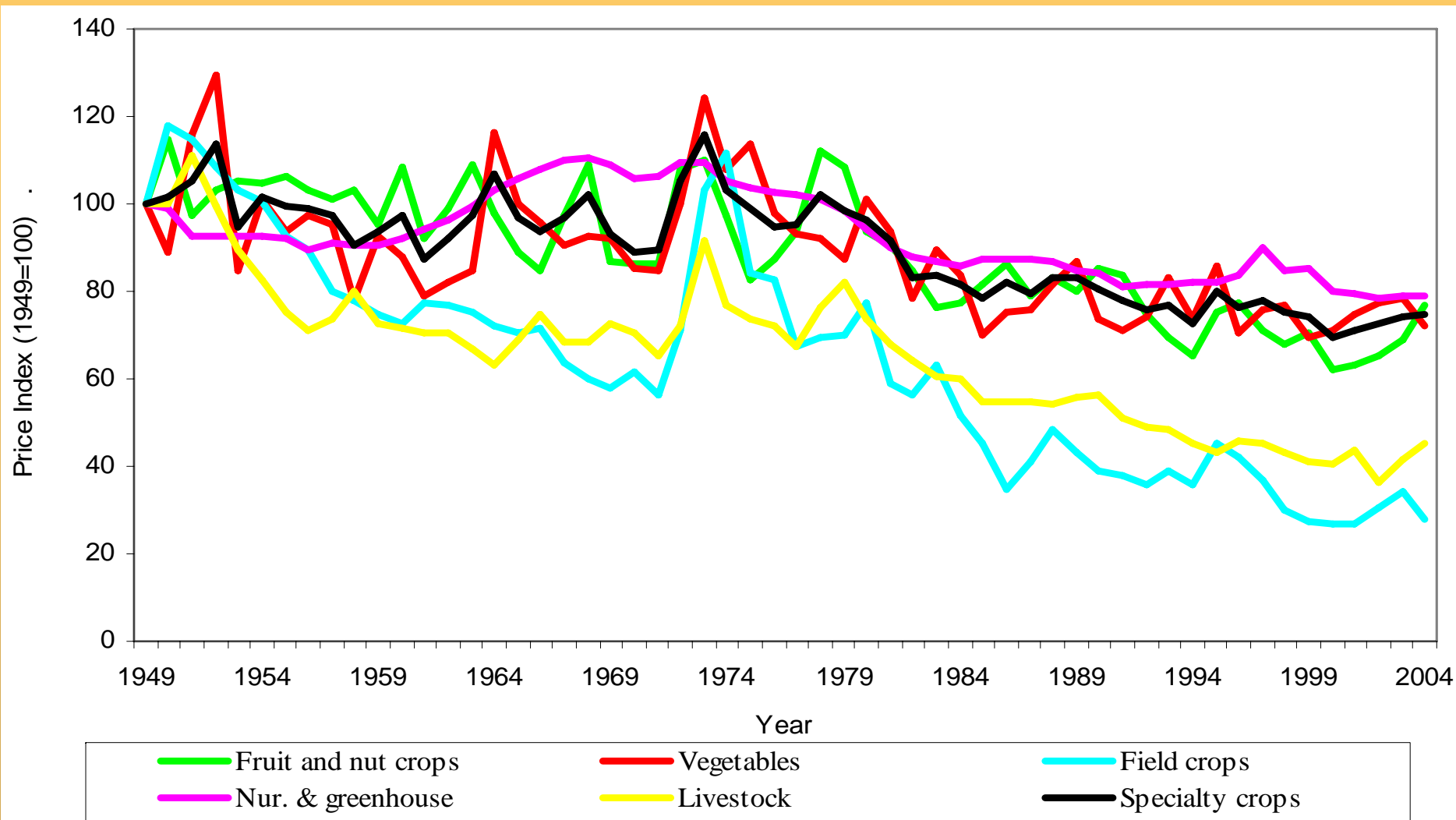
Nominal Commodity Prices Received by Farmers Have Increased



Source: Alston, J. M. and P. G. Pardey. 2006. Public Funding for Research into Specialty Crops. Paper Prepared for the CAL-MED Workshop, USDA ERS



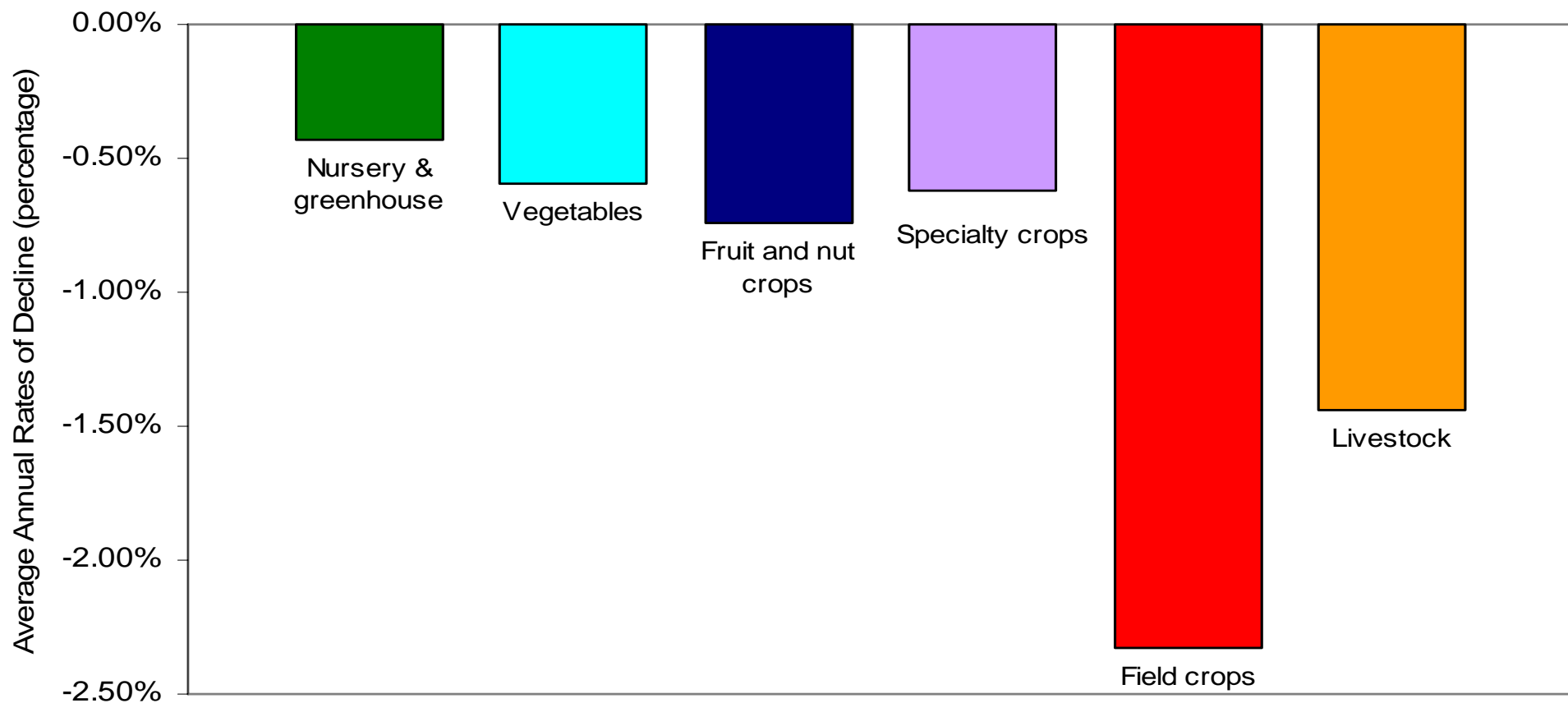
Real Commodities Prices Received By Farmers Have Generally Declined



Source: Alston, J. M. and P. G. Pardey. 2006. Public Funding for Research into Specialty Crops. Paper Prepared for the CAL-MED Workshop, USDA ERS



Real Prices Received by Farmers Have Fallen, But Unevenly Across Crop Types



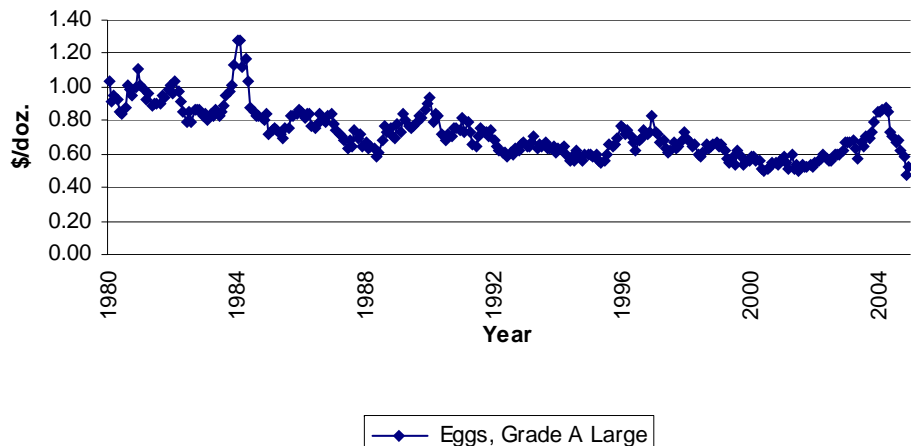
Source: Alston, J. M. and P. G. Pardey. 2006. Public Funding for Research into Specialty Crops. Paper Prepared for the CAL-MED Workshop, USDA ERS

Vosti et al., UCD/AIC/ARE

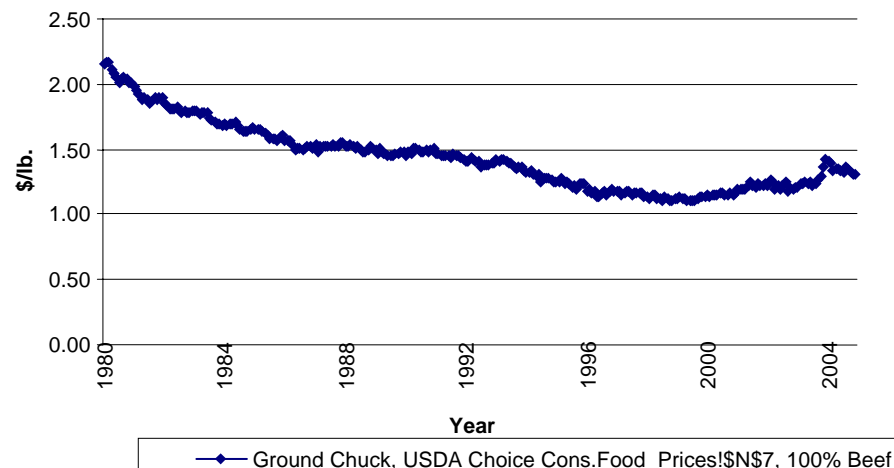


Prices Paid By Consumers Have Also Generally Fallen, but Less Swiftly Than Commodity Prices

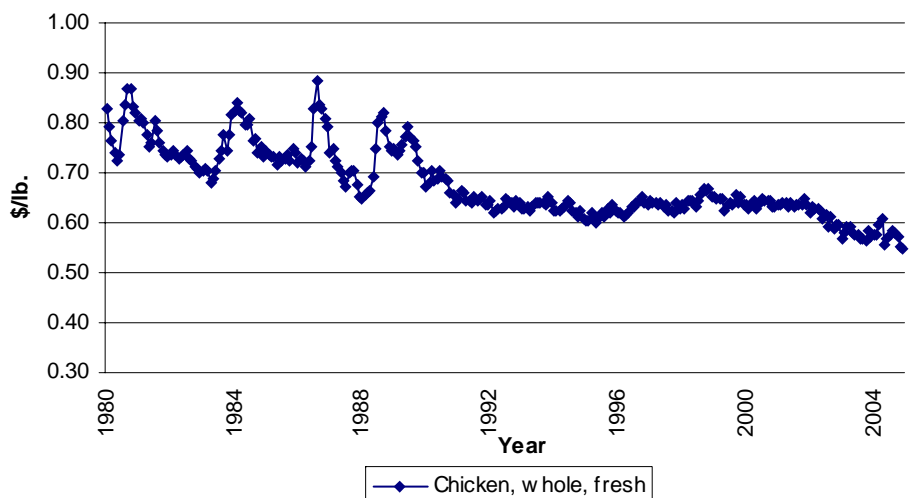
Consumer Prices for Eggs Deflated by CPI (food at home)



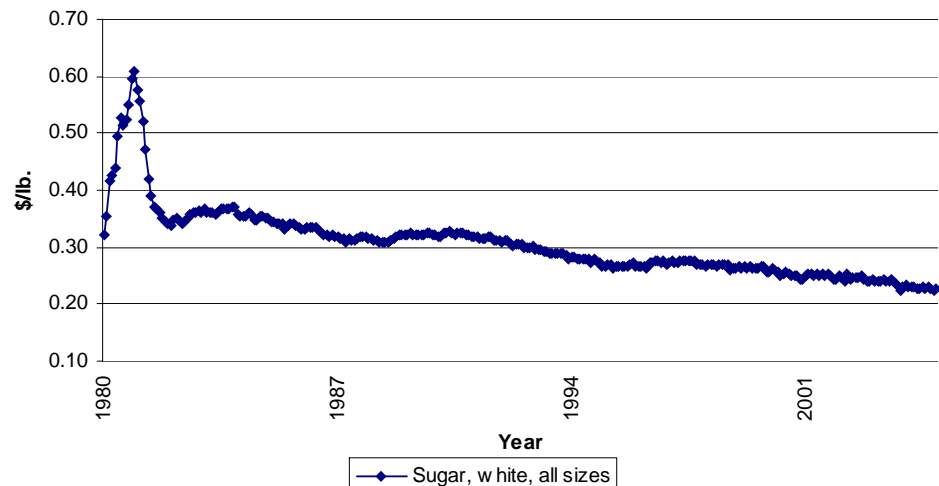
Consumer Prices for Ground Beef Deflated by CPI (food at home)



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



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





MyPyramid

STEPS TO A HEALTHIER YOU

MyPyramid.gov

Almost All Consumer Prices for Foods Have Fallen, Some More Swiftly Than Others

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: Data sources USDA

Vosti et al., UCD/AIC/ARE



Food Prices in Terms of the Wage Rate in Manufacturing Have Fallen

- **12-Item Food Basket (60% of the historical price)**
 - 1955: 3 hours*
 - 1997: 1.75 hours
- **3-Pound Chicken (40% of the historical price)**
 - 1958: 35 minutes
 - 1997: 14 minutes
- **Soft Drink (53% of the historical price)**
 - 1950: 2.8 minutes
 - 1997: 1.5 minutes
- **Pizza (88% of the historical price)**
 - 1958: 57 minutes
 - 1997: 50 minutes

*Number of hours of work in the manufacturing sector required to purchase each item, by year.

Source: Federal Reserve Bank, Dallas Texas

Vosti et al., UCD/AIC/ARE



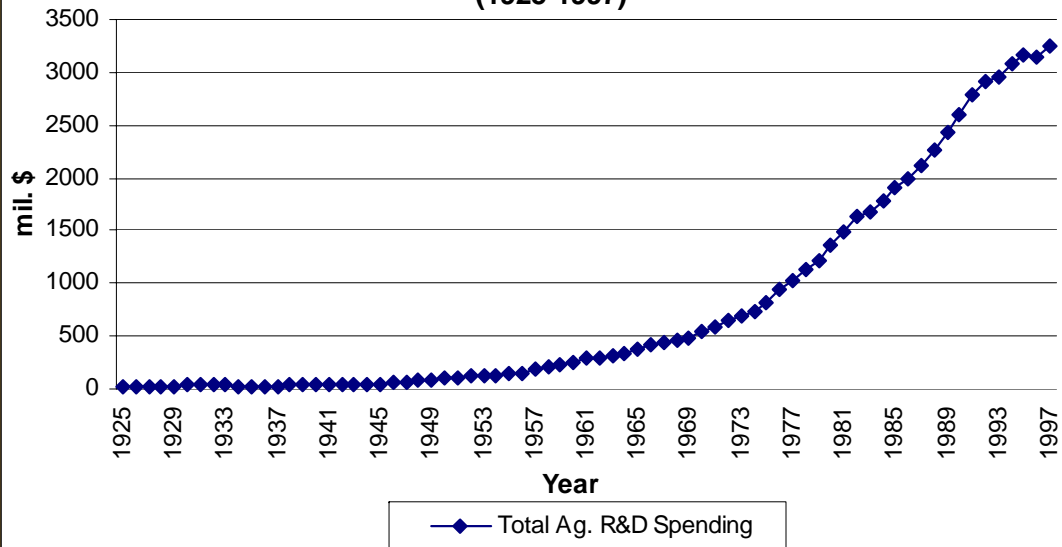
Factors Determining Food Price Trends

- **Agricultural Research and Development**
- **Productivity Increases**
 - Returns to land, labor, and total inputs
- **Smoking Guns**
 - **Commodity policies**
 - E.g., corn program

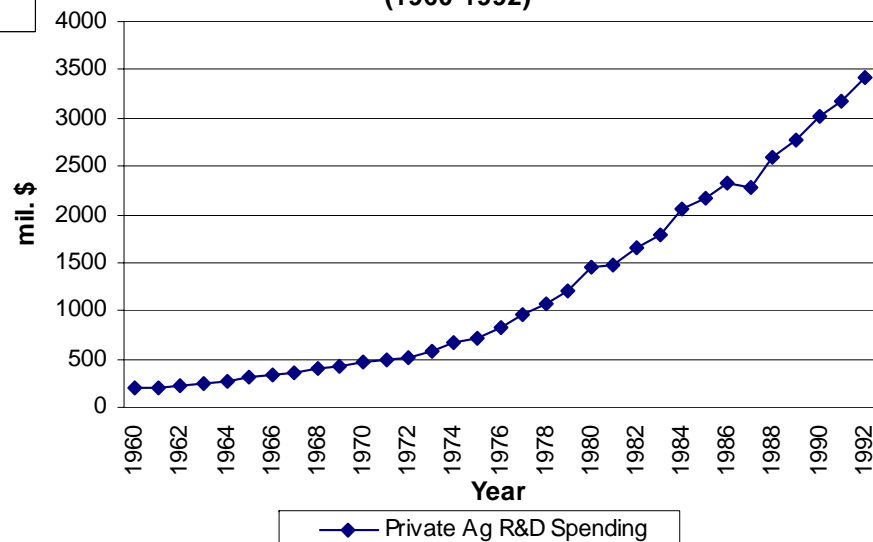


Public Sector and Private Sector Trends in Agricultural R&D Spending

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

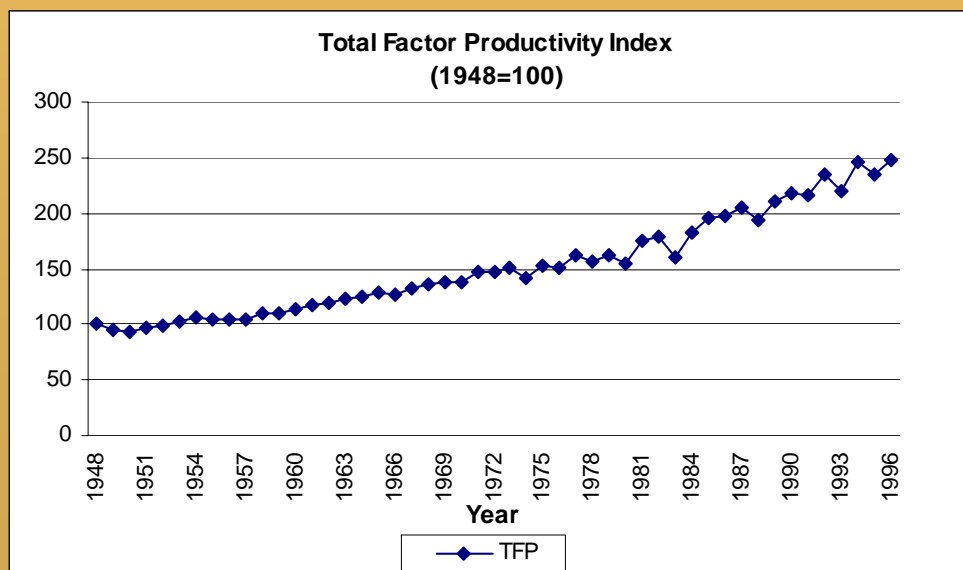
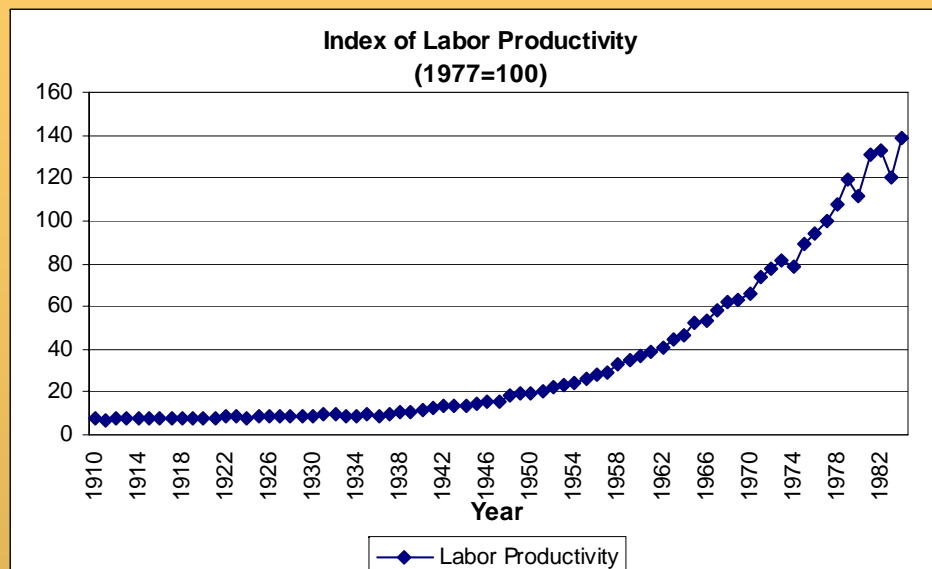
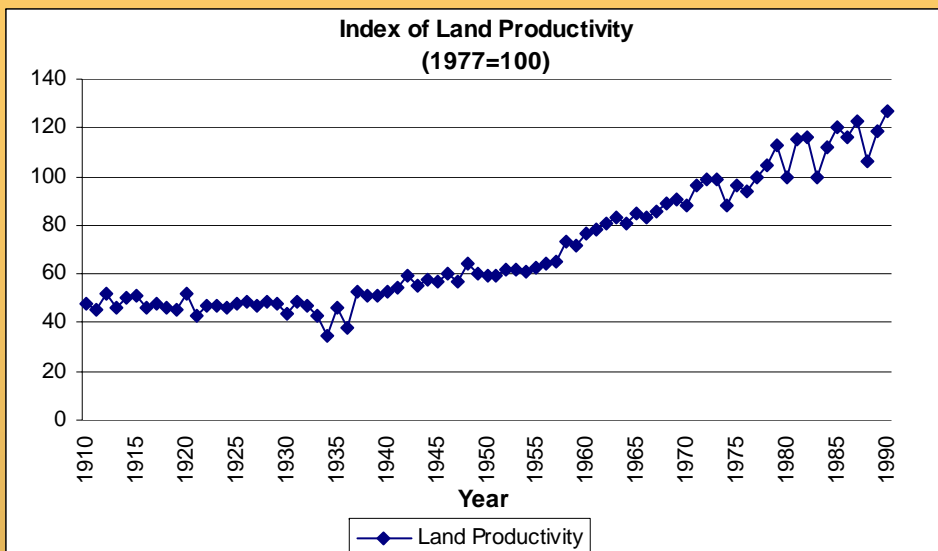


Total Private Sector Spending on Ag R&D (1960-1992)



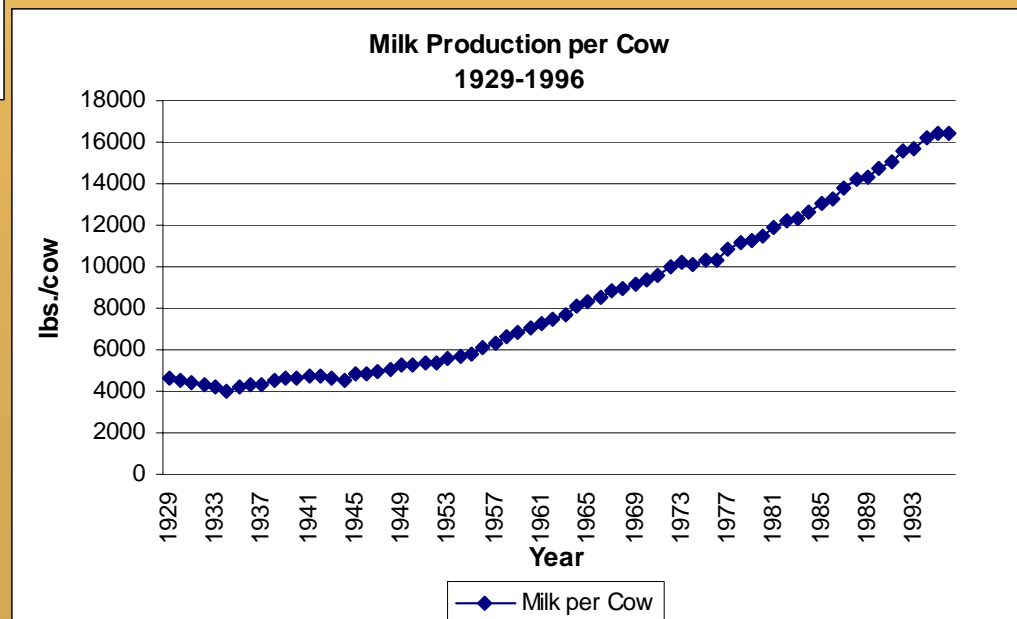
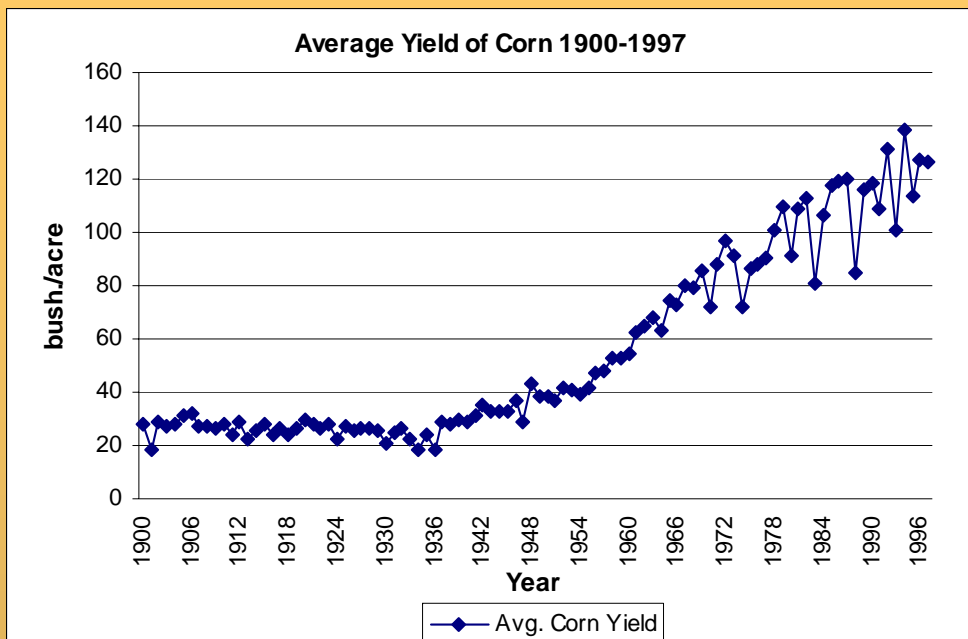


Trends in Aggregate Agricultural Productivity





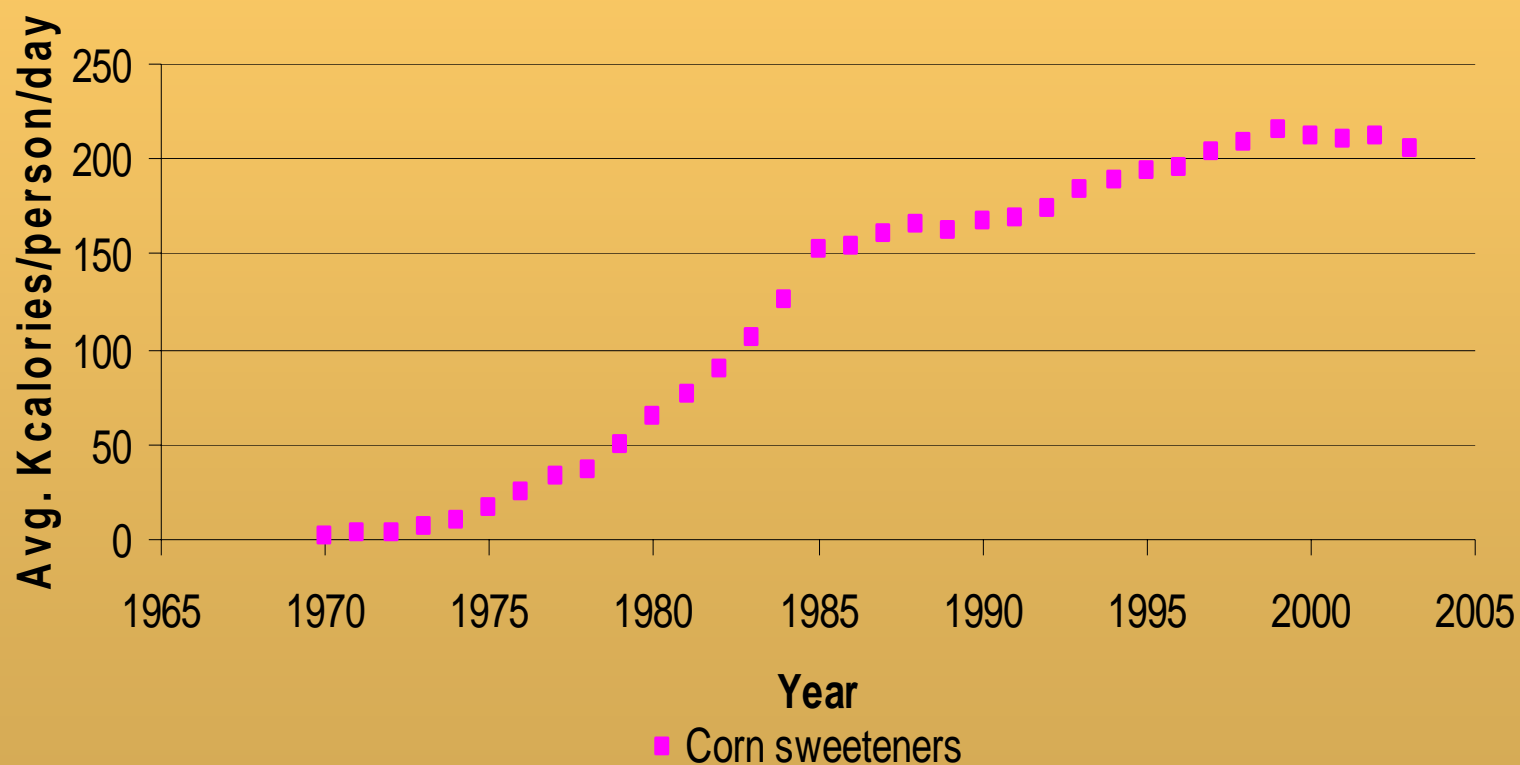
Trends in Crop/Product Productivity





One 'Smoking Gun'

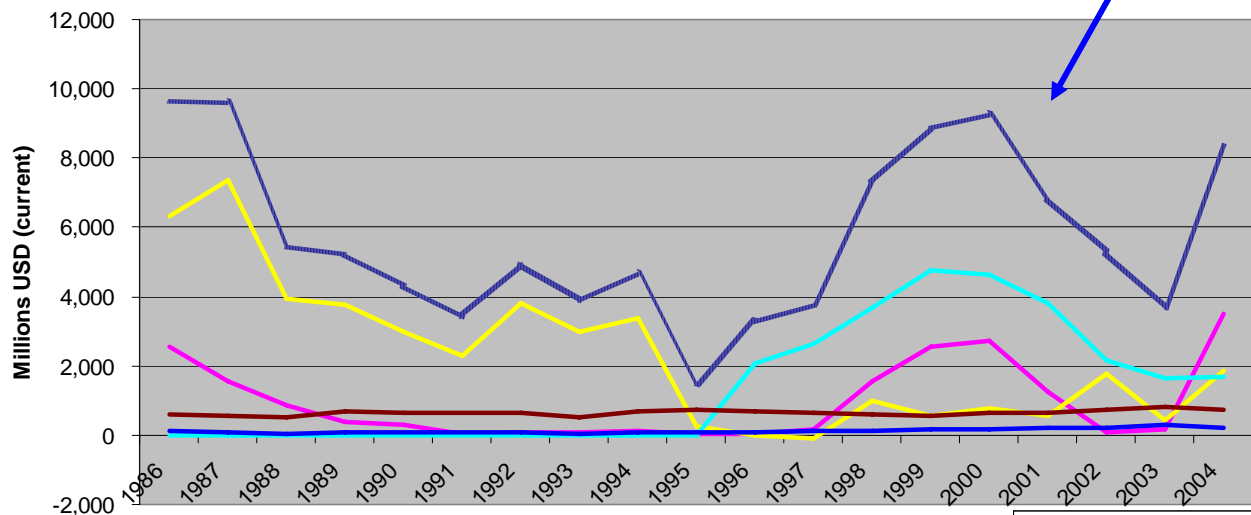
Trends in Consumption of Corn Sweeteners





The Suspected Culprit – Payments to Corn Producers

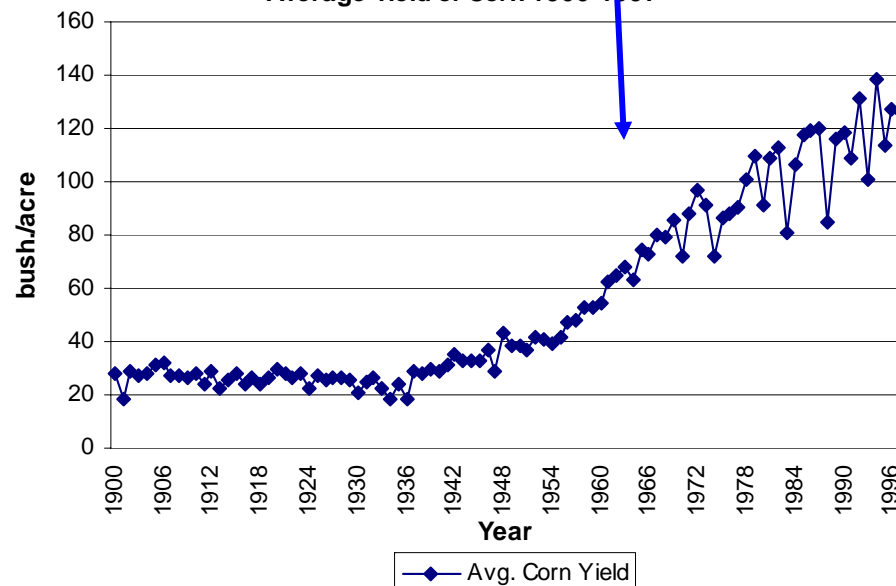
Support to Corn Producers -- Absolute



- III. Producer Support Estimate
- C. Payments based on area planted
- E. Payments based on input use
- G. Payments based on overall farming income
- 1. Based on unlimited
- D. Payments based on h
- E. Payments based on i

The Real Culprit – Productivity Growth in Corn

Average Yield of Corn 1900-1997



Source: OECD

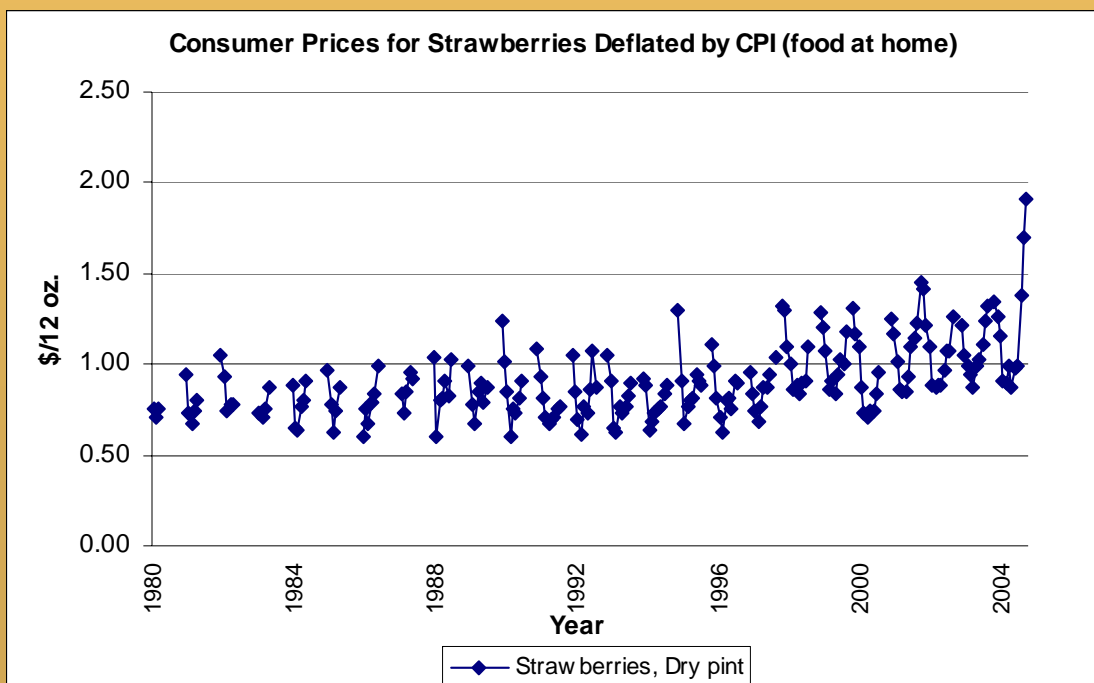
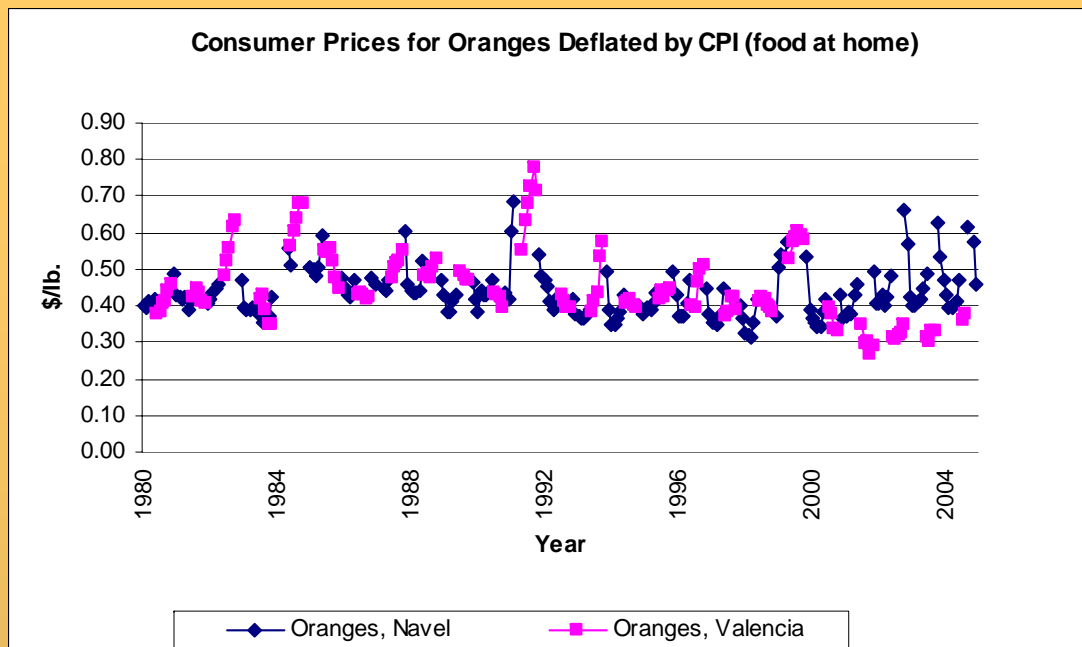


What We Don't Know About Changes In Food Prices

- **Changes in Product Availability**
 - E.g., seasonality of availability
- **Changes in Product Characteristics**
 - E.g., taste, shelf-life, nutritional value



Prices Paid By Consumers for Some Fresh Fruits and Vegetables Seem to Trend Upwards





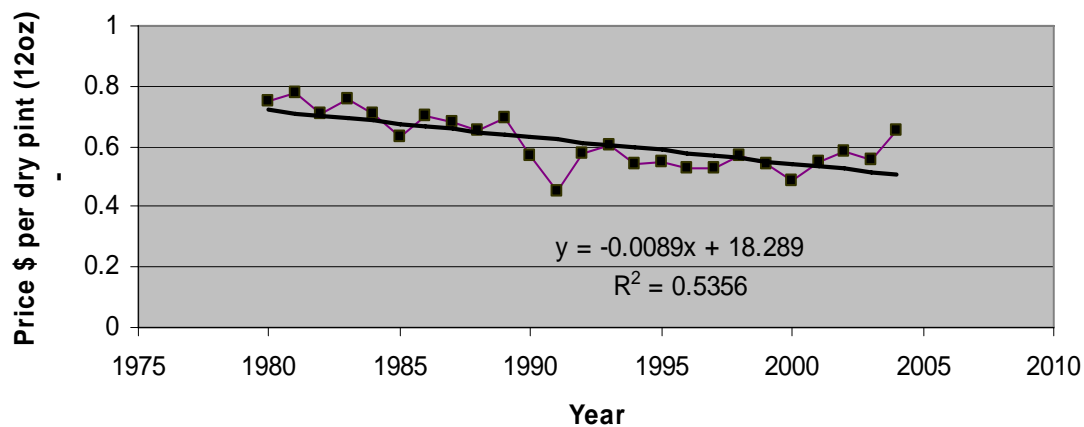
But The Data Can Be Very Spotty: Strawberries

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

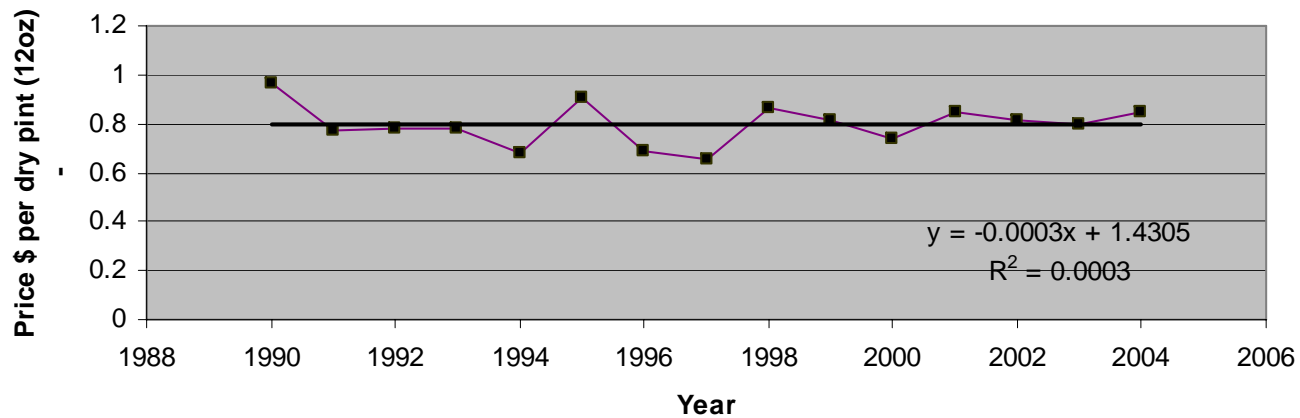


Controlling for Seasonality, Prices May Indeed Decline

June Strawberry Prices (BLS data)



Feb Strawberry Prices (BLS data)





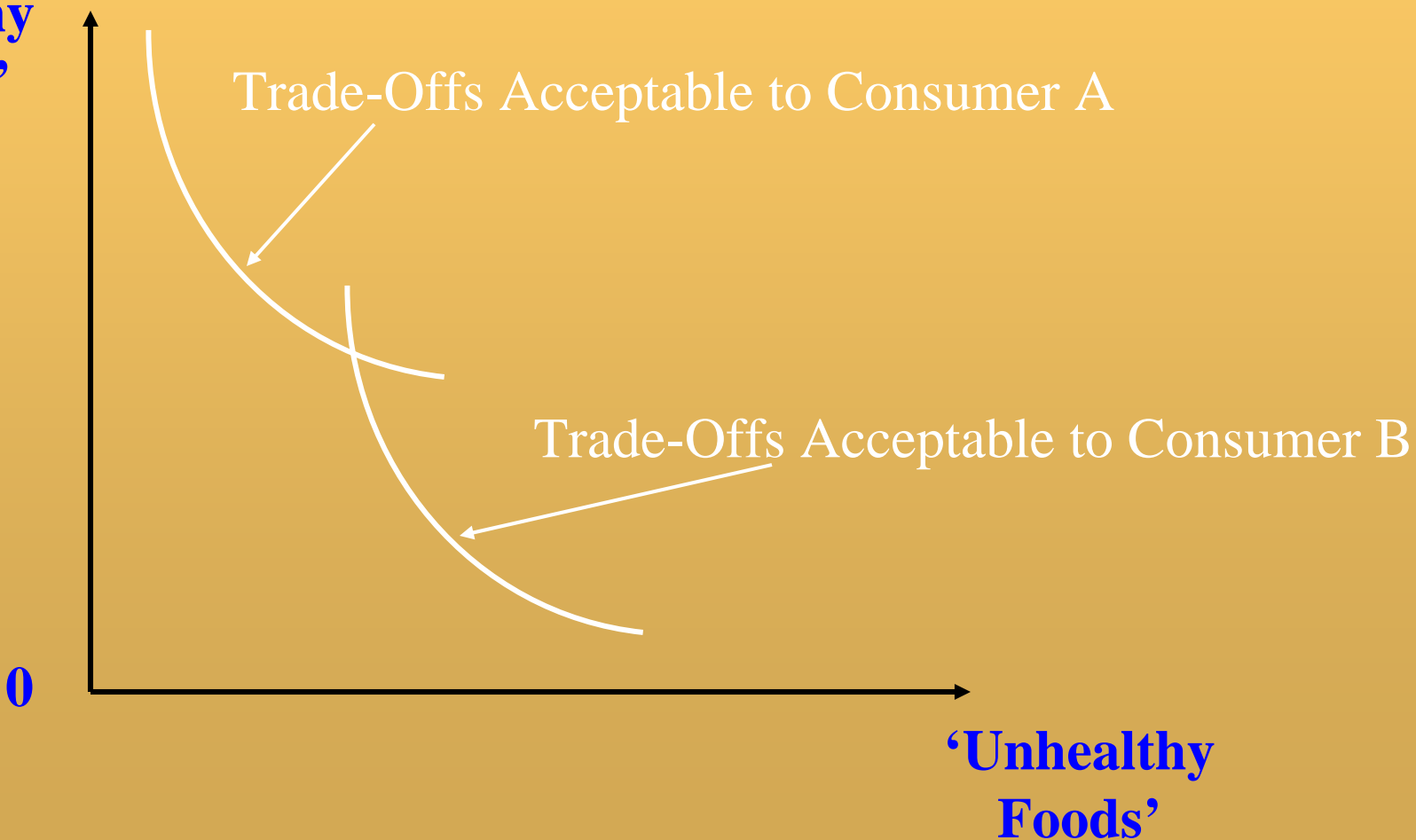
Economics of 'Alternatives'

- **Consumer Preferences Determine the Trade-Offs Consumers Are Willing to Make**



'Alternatives' In the Eyes of Consumers

'Healthy Foods'



'Unhealthy Foods'



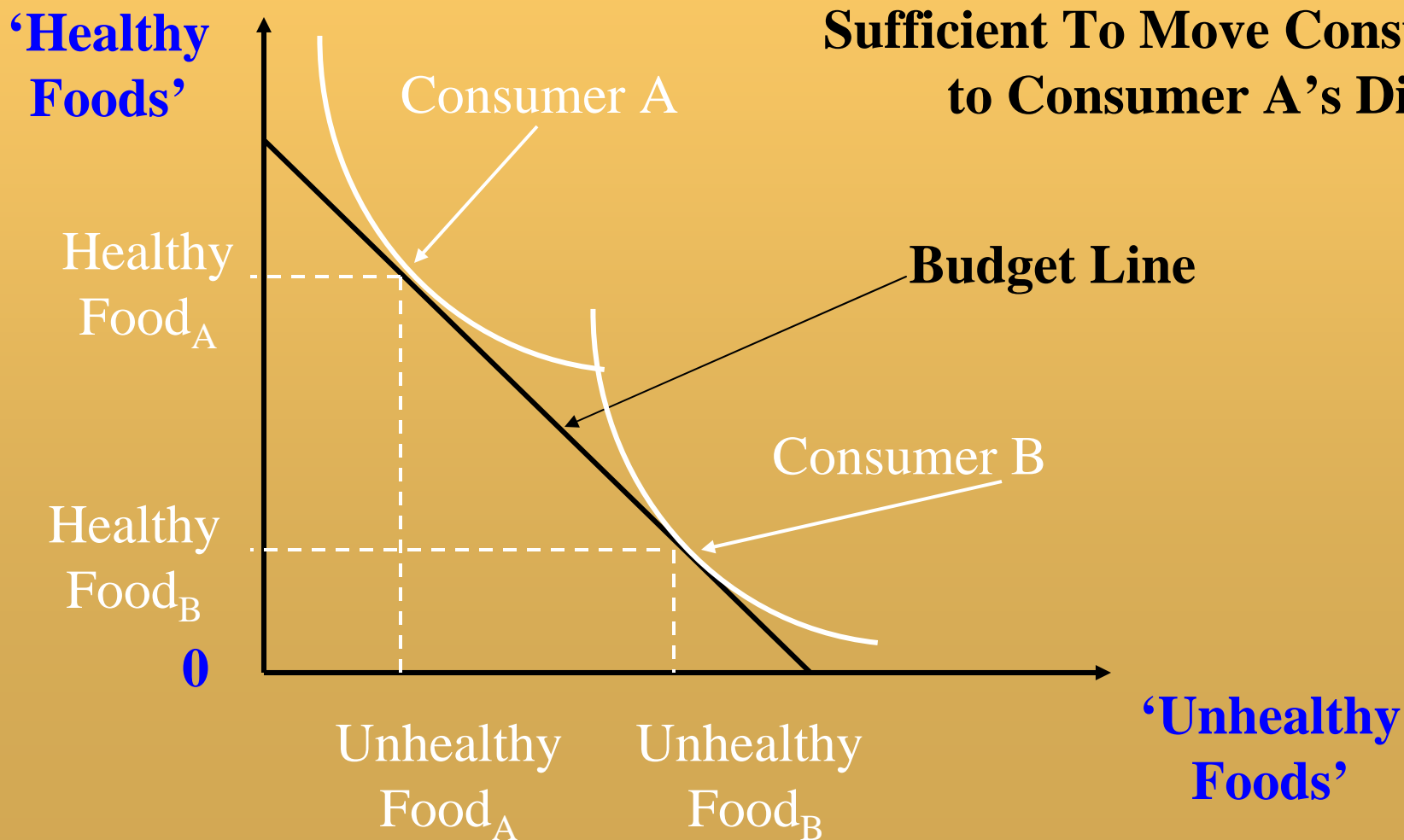
Food Choices – Where ‘Availability’ and ‘Alternatives’ Meet

- **Determinants of Food Choices**
 - ‘Availability’
 - Income
 - Product options
 - Relative prices
 - ‘Alternatives’
 - Consumer preferences



Faced With Identical Incomes and Relative Prices, Food Choices Can Differ Greatly

**‘Fat Taxes’ May Not Be
Sufficient To Move Consumer B
to Consumer A’s Diet**





Public Policy Instruments for Changing Food Choices

- **Change Incomes**
 - Targeted groups
 - Poor, children -- WIC
 - Special currencies
 - Poor – Food Stamp Program
- **Change Relative Prices**
 - Tax ‘fat foods’
 - Make ‘healthy foods’ cheaper
- **Change Product Options**
 - E.g., allowable foods for the Food Stamp Program
- **Change Food Preferences**
 - Revised USDA Pyramid and other ad campaigns
- **No Policy Action Is Costless**
 - Some are more effective and more cost effective than others



A Policy Experiment: Changing the List of Allowable Foods in the Food Stamp Program

- **Proposed Changes**
 - Eliminate ‘unhealthy foods’
- **Examining Proposed Changes through an Ag Econ Lens**
 - Effects on demand for ‘healthy’ and ‘unhealthy’ foods
 - For FSP participants and others
 - Supply response by farmers and the food industry
 - Short, medium and long term
 - Combined demand/supply effects on food choices
 - Possible implications for nutrition outcomes
 - For FSP participants and others
 - Possible implications for participation in the FSP



Parting Thoughts

- Time & Income Constraints Combine to Limit Available Food Options
- Relative Poverty Rather Than Absolute Poverty May Be Important in Understanding Behavior and Crafting Anti-Obesity Policy
- Some Obese Individuals May Be Caught in 'Fat Traps' that Are Difficult to Escape
- Finding and Understanding Success Stories (Positive Deviance Approach) May Help Guide Food Policy