

# Are Food Prices the Answer to The Obesity Problem?

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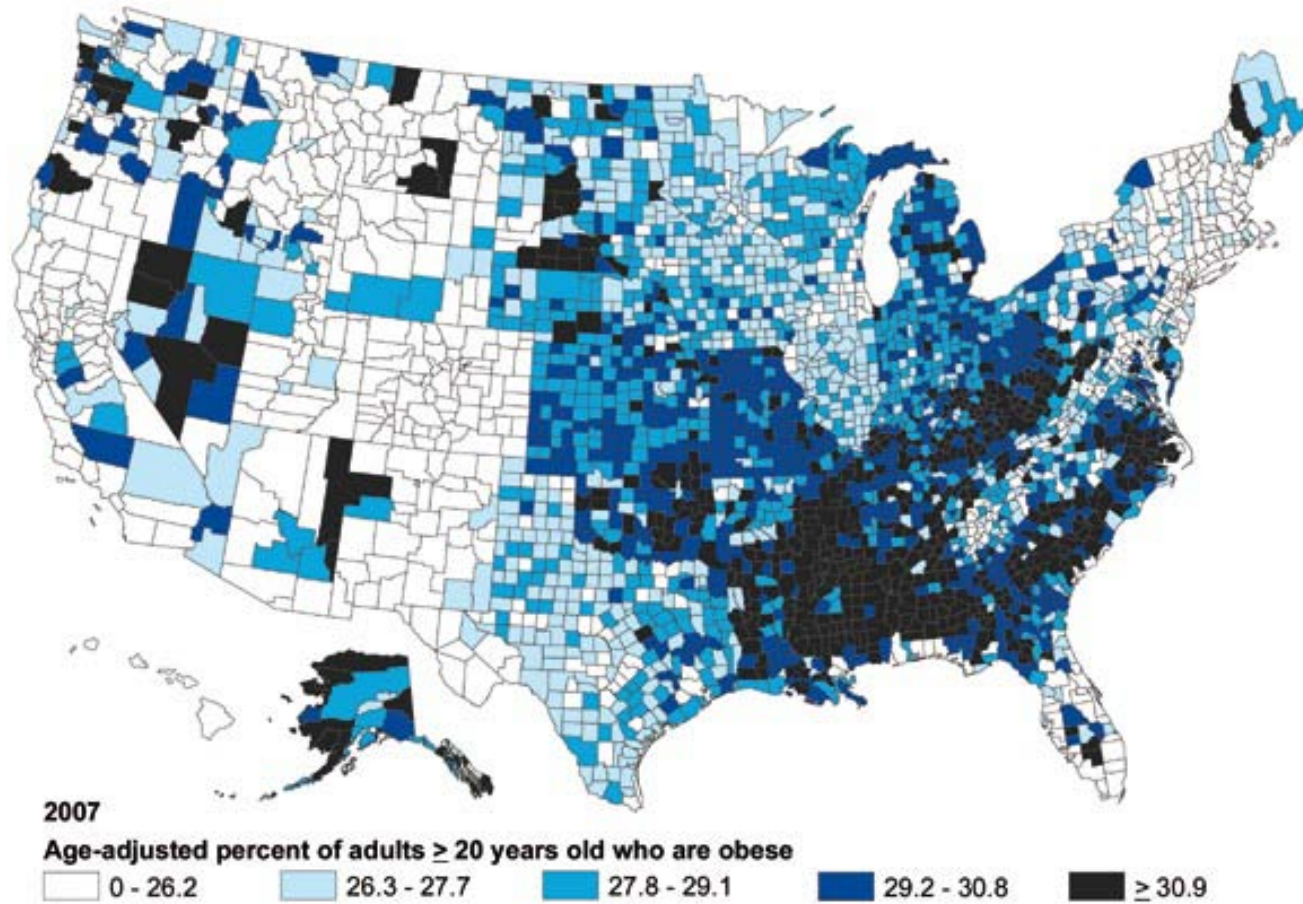
Presentation at the *Farm and Food Policy and Obesity  
Workshop*

UC Davis, May 21, 2010

# Overview

- Obesity causes
- Six economic variables:
  - How they influence food choice
  - Policy initiatives
- Highlight ERS research and data development

# Obesity by County, 2007



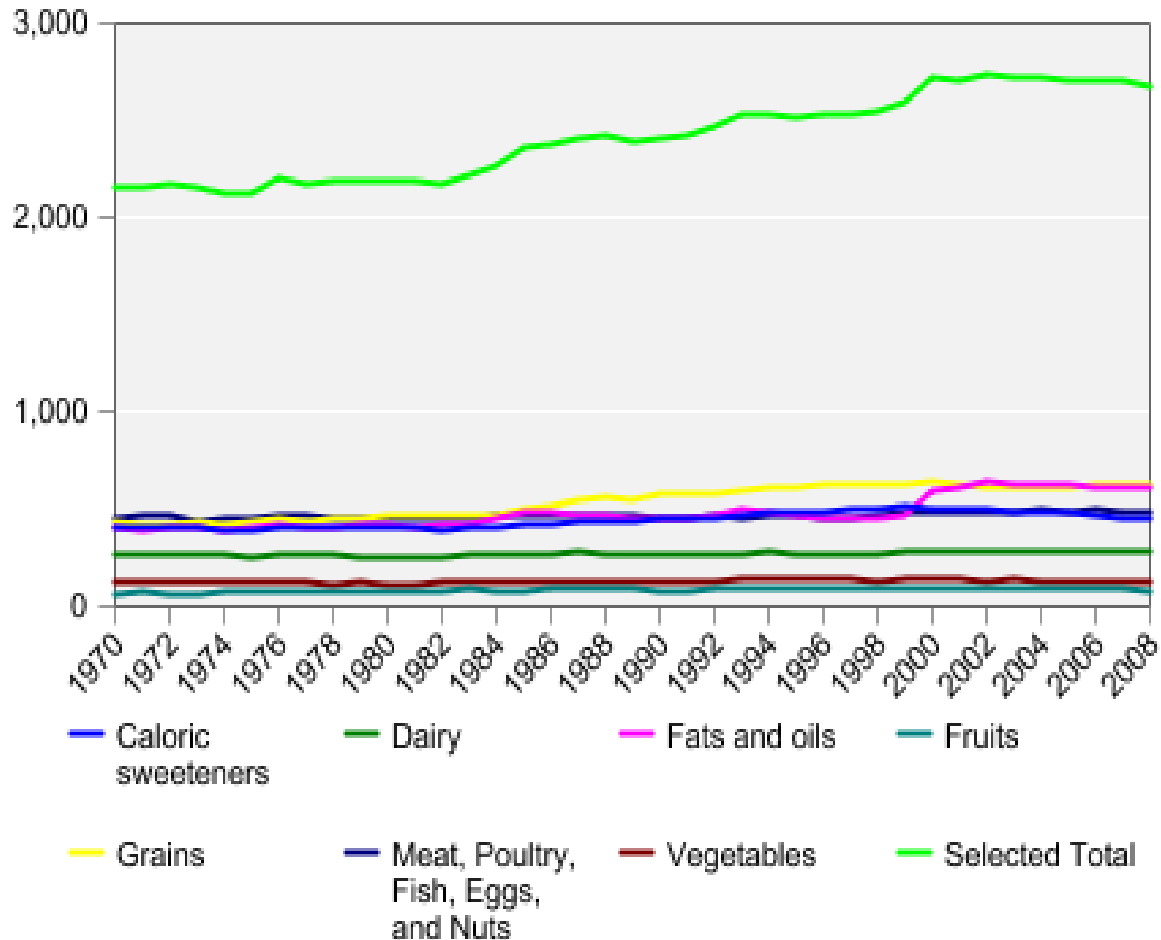
Source: CDC

# Why are We Getting Fatter? Official Reasons from the Surgeon General

- Overweight and obesity result from an energy imbalance. Eating too many calories and not getting enough physical activity.
- Body weight is the result of genes, metabolism, behavior, environment, culture, and socioeconomic status
- Behavior and environment play a large role causing people to be overweight and obese.

# Calorie Intake Increasing

U.S. per capita loss-adjusted food availability: Total Calories: All (Daily calories)

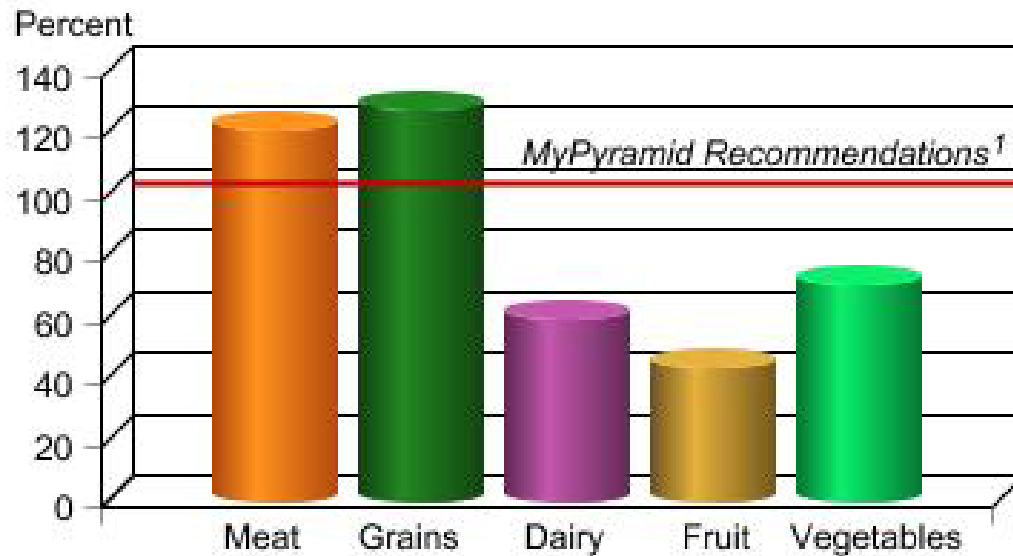


Total Calories per capita per day increased from 2,157 to 2,700 from 1979 to 2008.

Source: USDA/ERS

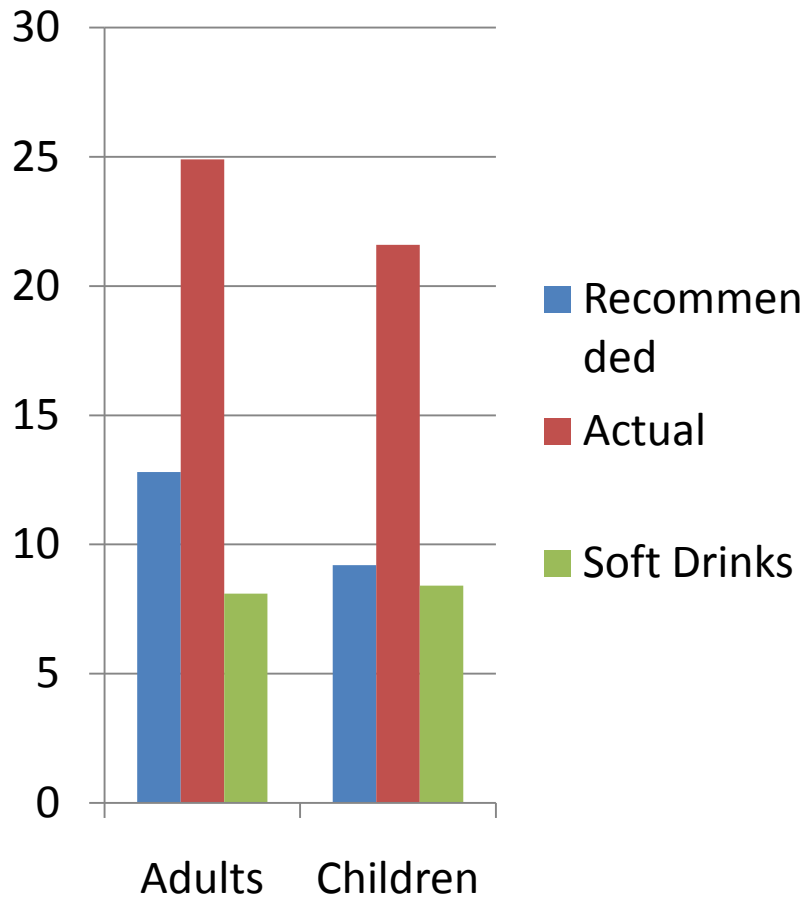
# Diet Quality

**American diets are out of balance with dietary recommendations**

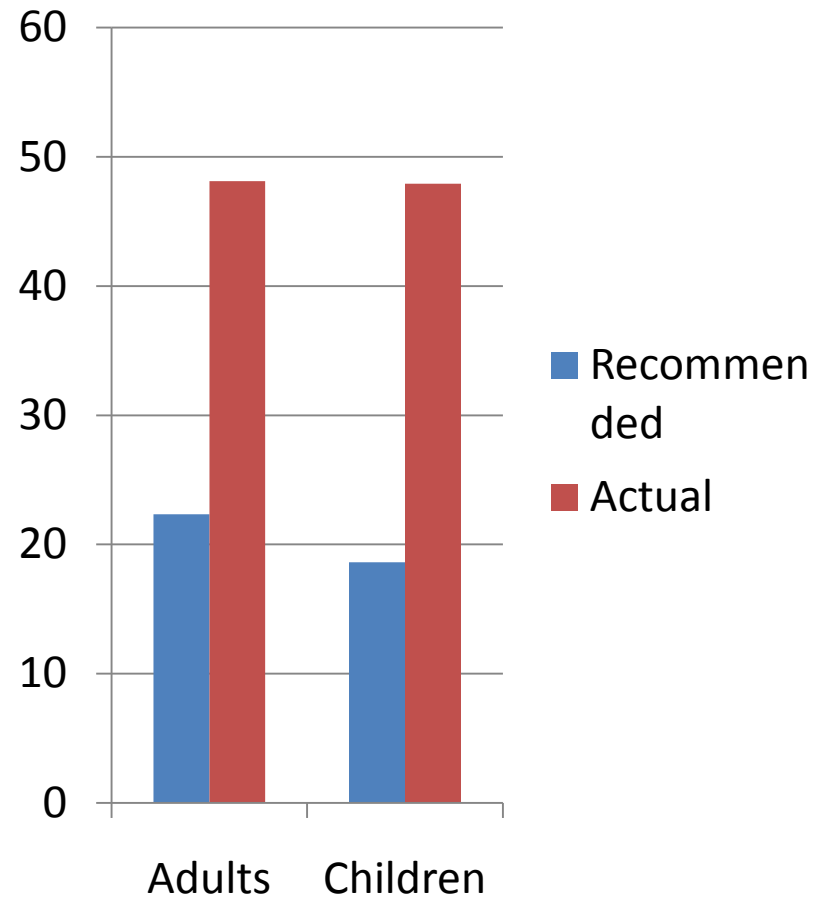


Note: Food availability data serve as proxies for food consumption.  
<sup>1</sup>2006 data based on a 2,000-calorie diet.  
Source: USDA, ERS.

# We eat too much added sugar and fat

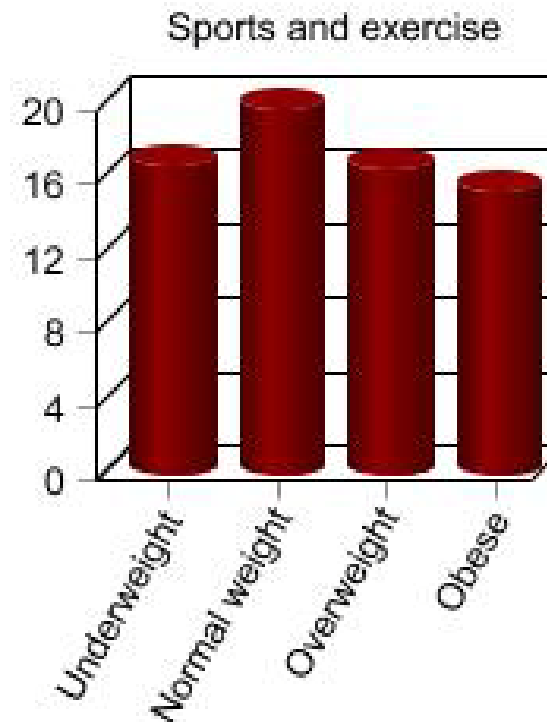
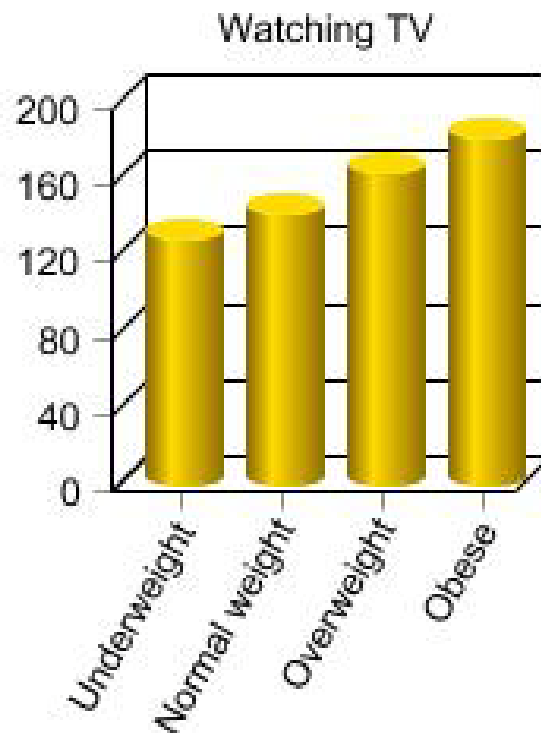


Added Sugar– Teaspoons per day



Fat– Grams per day

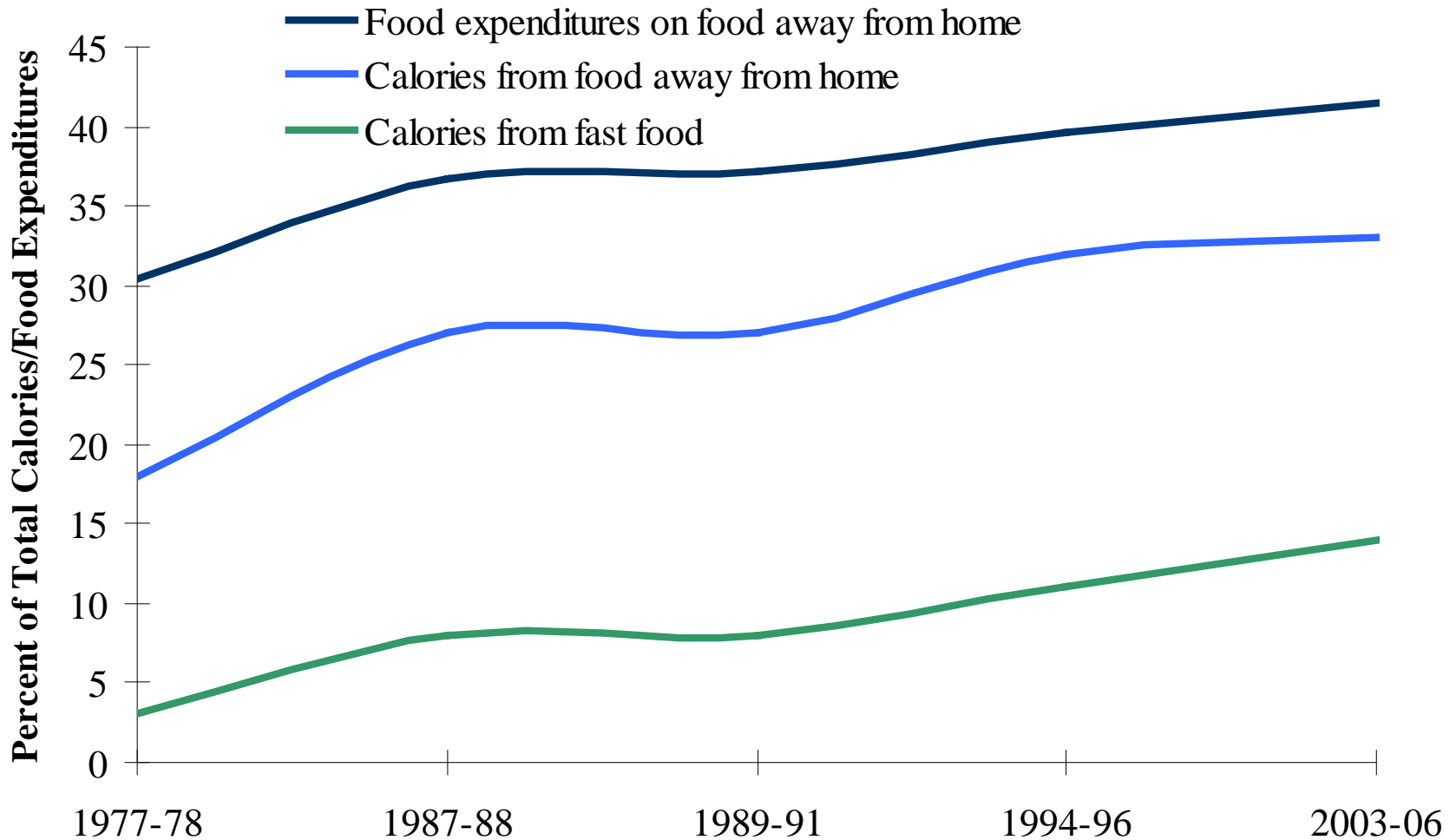
**In 2007, overweight and obese people spent more time watching television and less time in exercising and sports than others (average minutes per day)**



Note: Data for individuals, age 20 and older.

Source: Bureau of Labor Statistics American Time Use Survey and ERS Eating and Health Module.

# Food Away From Home



# FAFH and Diet Quality

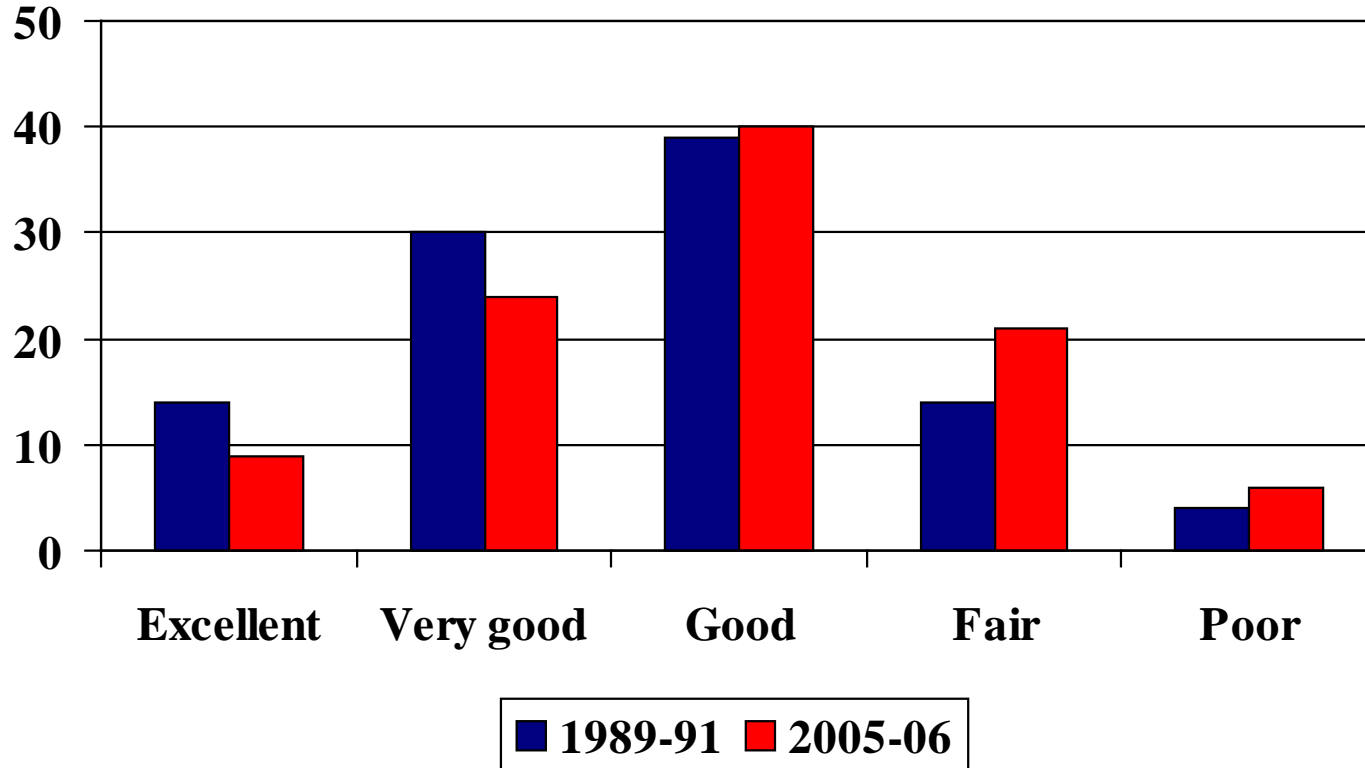
- Eating away from home associated with reduced diet quality and increased calories in many studies
- New data from NHANES support these associations
  - A meal away from home adds about 134 calories
  - Adds fat and reduces vegetables and whole grains

Source: Todd, Mancino, and Lin, 2010, The Impact of Food Away from Home on Adult Diet Quality, USDA/ERS, ERR90.

# Diet Knowledge

**When asked “How healthy is your overall diet?”  
fewer Americans rated their diets as excellent or very good**

Percent of adults 20 and older



Source: Calculated by USDA, Economic Research Service using data from the 1989-1991 Continuing Survey of Food Intakes by Individuals and the 2005-06 National Health and Nutrition Examination Survey.

# Summary: Obesity Causes

- Obesity rates are increasing
- The reasons are simple and obvious
  - Too many calories
  - Too many energy dense calories
  - Too little activity
  - Many structural reinforcements
- People know their diets are bad
- But changing behavior is hard

# What role do prices and other economic variables play?

- Prices of foods
- Income and food assistance
- Access and transactions costs
- Understanding and using information
- Opportunity cost of time
- Behavioral cues and making “good” decisions

How do consumers respond to changes in food prices?

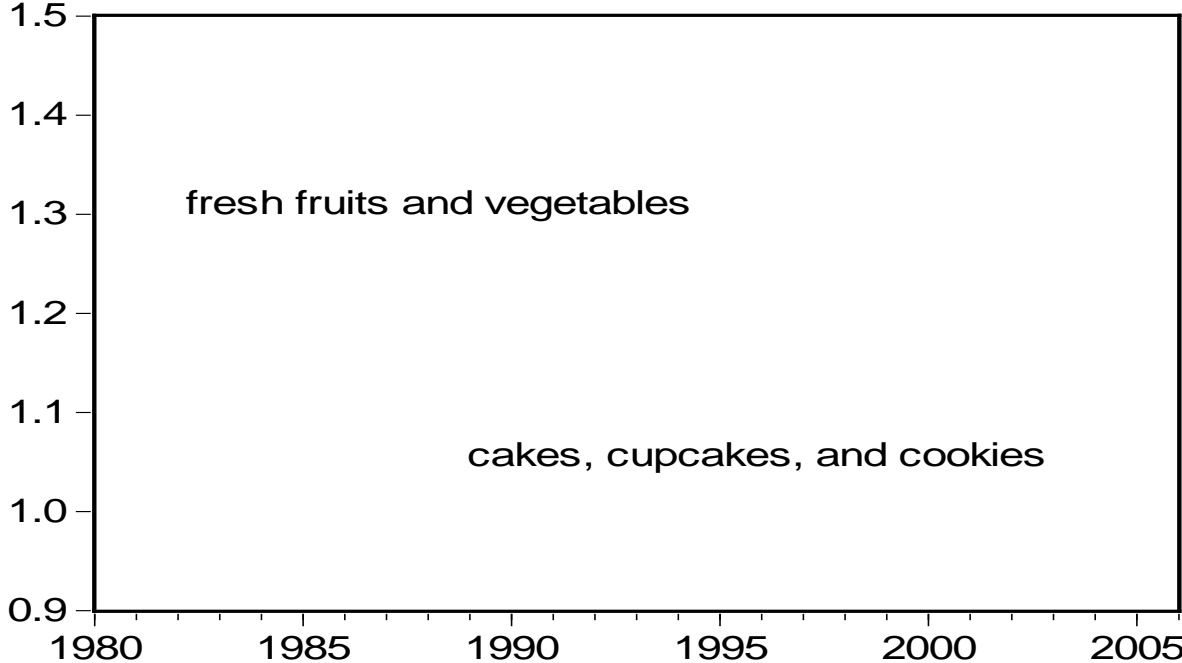
# **FOOD PRICES**

# Do Prices Matter?

- U.S. consumers have very inelastic food demand
  - Most foods have -0.2 to -0.5 own price E
- Non-price attributes are more important in determining choice
  - 75% of variability in meat demand driven by non-price factors (Tonsor and Marsh, AJAE, 2007)
- So how much can prices changes what we eat?

# Food is cheap but “bad” foods are getting cheaper

Consumer price index for fresh fruits and vegetables and for cakes, cupcakes, and cookies (both relative to CPI-U for all items)



Source: BLS Consumer Price Index-All Urban Consumers data.

# Fruits and Vegetables: Could Subsidies Help?

- A 10% decrease in the prices of fruits and vegetables leads to a 2-5% increase in consumption by low income households
- A 10% discount through coupons leads to more frequent purchases and a 2-10% increase in consumption
- These increases would still leave consumption levels well below recommendations

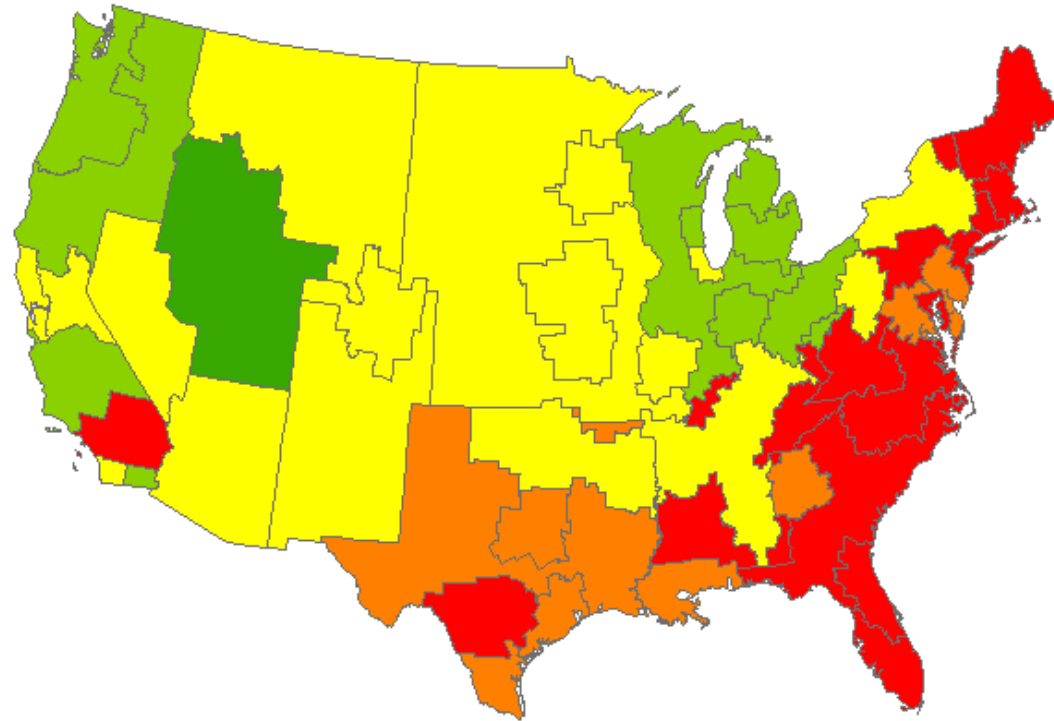
Source: Dong and Lin, 2009, Fruit and Vegetable Consumption by Low-Income Americans: Would a Price Reduction Make a Difference?, USDA/ERS, ERR70 and Dong and Leibtag, forthcoming.

# Sweetened Beverages: Would a Tax Help Reduce Consumption?

- Taxes would cause consumers to substitute non-taxed beverages such as bottled water, juice, and milk
- A 20% tax on caloric-sweetened soft drinks, juice drinks, and sports drinks would reduce consumption by 24% (Note: price elastic demand)
- It might reduce daily calorie intake and weight, especially for children

Source: Lin, Smith, and Lee, The Effects of a Sugar-Sweetened Beverage Tax: Consumption, Calorie Intake, Obesity, and Tax Burden by Income, AAEA Selected Paper for 2010 Meetings.

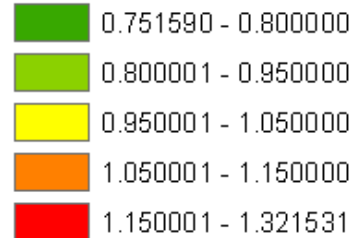
# Regional Prices Vary: Can They Help Us Understand Food Choice?



## Legend

price of low-fat milk relative to price of soda, relative to national ratio

market



Source: Quarterly Food At Home Price Database, 2006

Learn More at the  
Todd Presentation  
Tomorrow

What is the impact of food assistance programs on nutrition and health outcomes and how can these programs be more effective?

**INCOME**

# Is a Healthy Diet “Affordable”?

- Thrifty Food Plan prepared by USDA shows how to eat according to the Dietary Guidelines within the benefits provided by SNAP
- Take current consumption and alter to accord with cost and nutrition constraints
- TFP \$\$ only sufficient if consumers can tolerate a very high difference from current consumption (Wilde and Llobrera, J. Cons Affairs, 2009)

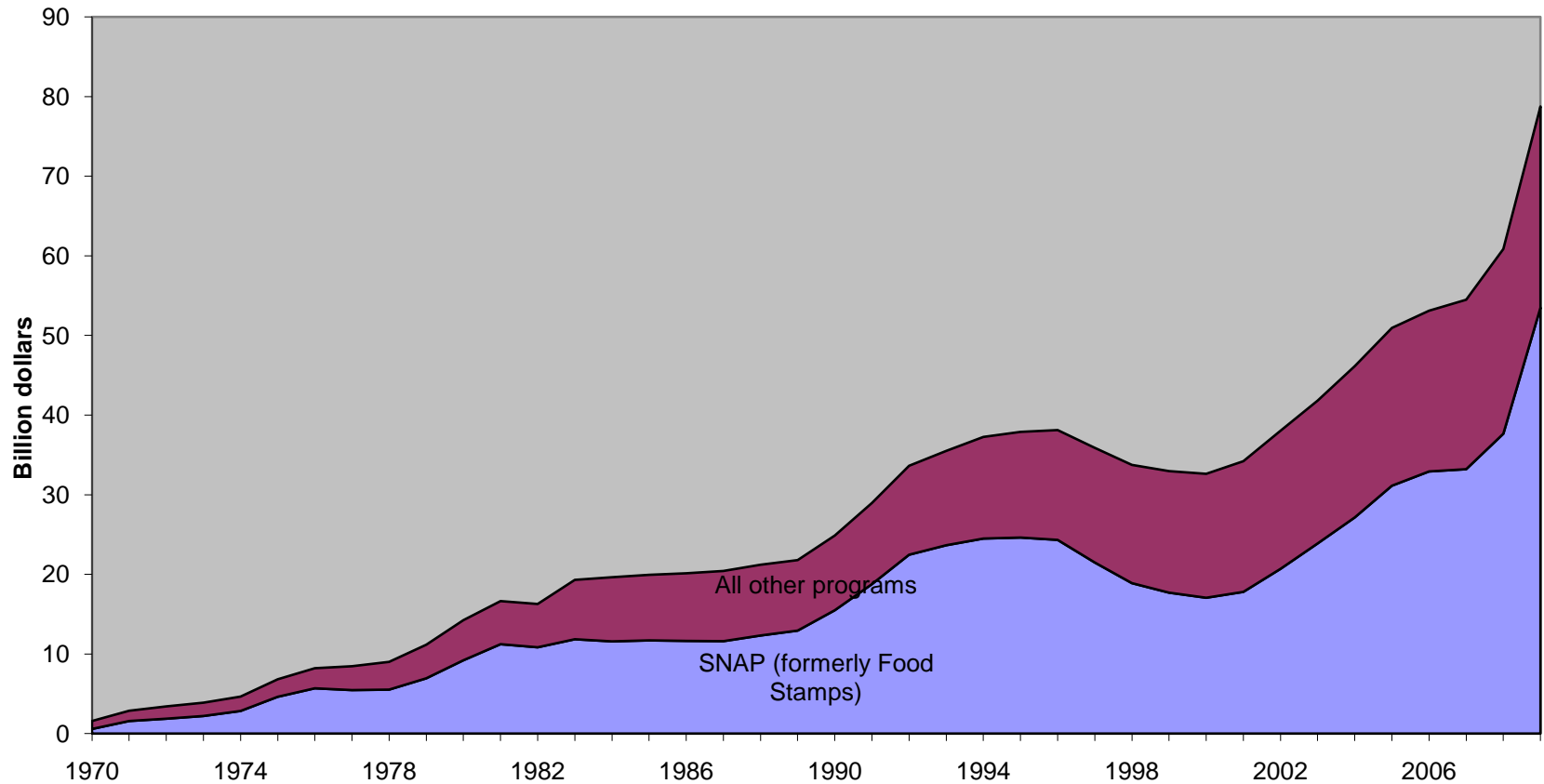
# Food Insecurity and Food Expenditures

- Food insecurity increased from 2000 to 2007, esp in second lowest income quintile
- Real food expenditures declined for low and middle income by 6%, and by 16% in second lowest quintile
- Increases in housing costs for second lowest quintile; declines in income for lowest quintile

Source: Nord, *Food Spending Declined and Food Insecurity Increased for Middle-Income and Low-Income Households from 2000 to 2007*, EIB61, USDA/ERS, 2009.

# Food Assistance Growing

USDA expenditures for food assistance, FY 1970-2009



# Food Assistance Importance in Safety Net is Growing

- Food assistance has become a much more important source of assistance to low income households with children
- Accounts for 56% of benefits in 2004, compared to 44% in 1990
- NSLBP accounts for half of calories consumed by low income children on school days

Source: Todd, Newman, and Ver Ploeg, 2010, Changing Participation in Food Assistance Programs Among Low-Income Children After Welfare Reform, USDA/ERS, ERR 92.

# Can Food Assistance Improve Food Choice?

- 2008 Farm Bill mandated Healthy Incentives Pilot Program for SNAP
- National Academy of Science recommendations:
  - WIC foods change in 2010 to reduce fat, increase F&V, whole grains
  - School lunch nutrition guidelines to be revised next year to emphasize similar changes

What is the role of food access and the local food environment in food choices and health outcomes?

**ACCESS**

# “Built” Environment

- Public Health literature emphasizes the role of our built environment in encouraging obesity
- Long commutes, little physical activity
- Lack of access to healthy food in low income neighborhoods
- Too much access to unhealthy food (“food swamps”)

# Food Access Local Evidence

- New Orleans: about 1/5 of city does not have access to all 6 fruits and vegetables in the TFP within 2 kilometers (Rose)
- Indianapolis: Greater BMI associated with density of fast food outlets within .5 miles; controlled for endogeneity and spatial correlation (Chen)

Source: Understanding the Economic Concepts and Characteristics of Food Access, National Poverty Center and ERS Conference, January 2009.

# National Assessment of Access

- Mandate by 2008 Farm Bill for ERS study of “food deserts”
- ERS looked at low income neighborhoods where households are more than a mile from a supermarket
- About 4% of the US population are at risk of having inadequate access
- Learn more at Ver Ploeg presentation tomorrow

Source: Access to Affordable and Nutritious Food—  
Measuring and Understanding Food Deserts and Their Consequences:  
Report to Congress, 2009, USDA/ERS, AP-036.

# Policy Efforts to Address Access

- NYC: “Healthy Bucks” in corner stores double SNAP
- Detroit: Fair Food offers Farmer’s Market incentives for SNAP
- Philadelphia: Fresh Food Initiative to support grocery store development

How do consumers respond to new information?

**INFORMATION**

# Nutrition Labels

- Current label format since 1994 with only modest changes
- Research shows those who use labels tend to have better diets (eg., Kim, Nayga, Capps, JARE, 2000)
- New regulations will mandate Front of Package (FOP) labels with simpler summary indicators
- FOP in UK found to improve comprehension









# Information Influences Supply as Well as Demand

- Mandatory disclosure motivates food producers to change product formulation
- Trans fat example:
  - Disclosure mandatory on Jan 1, 2006
  - Rapid substitutions in major brands to claim “no trans fat”
- Information likely to have long term effects in food markets

# Calorie Labels in Restaurants

- Recent Affordable Care Act will mandate
- 6% calorie decline at Starbucks and no profit loss (Bollinger et al., NBER, 2010)
- Combining with menu that makes healthier items easier to order makes a bigger difference in experiments (Loewenstein and Downs, AER, 2009)

TRY OUR NEW  
**HANDY MENU CALCULATOR**

<u>THE ITEM</u>	<u>THE PRICE</u>	<u>THE CALORIES</u>	<u>THE RATIONALIZATION</u>
	\$1.43	300	I'LL JUST ADD A FEW MINUTES TO MY WORKOUT
	\$2.00	272	WILL REALLY LEARN TO COOK, EAT AND ENJOY KALE
	\$3.24	610	I CAN JOG THIS OFF
	\$4.36	1027	WILL TAKE THIS TO GO, PUT ON MY SLANKET AND WRITE MY WILL
	\$7.05	340	I AM DRUNK AND THIS IS THE BEST FRANK I HAVE EVER EATEN
	\$2.98	461	... CAN'T THINK RIGHT NOW
	\$5.49	867	THING IS, I QUITE LIKE THE SHAPE OF PEARS
	99¢	501	DO THEY MAKE SPANX FOR MEN?

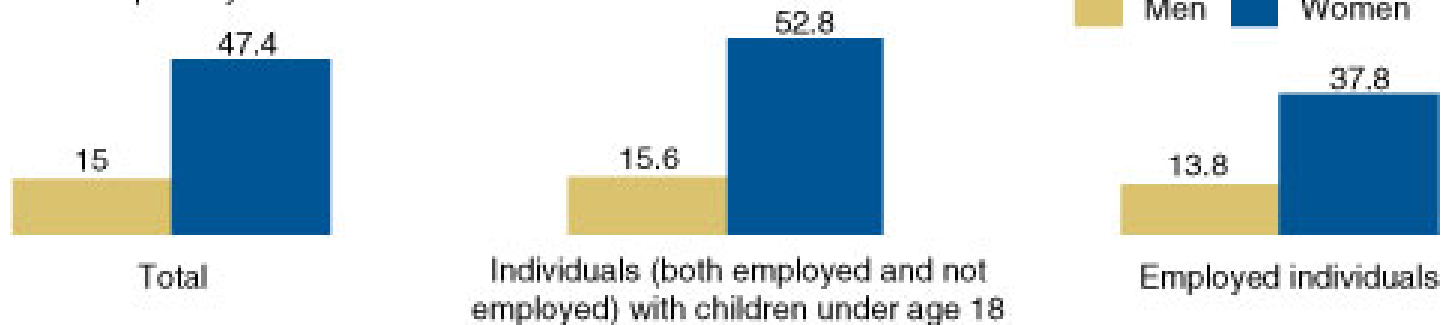
Can we make healthy food more convenient?

**TIME**

# Time Spent in Food Preparation Has an Opportunity Cost

Women also spend more time on food preparation and cleanup than men

Minutes per day



Source: Bureau of Labor Statistics 2003 data and estimates for individuals age 15 or older.

Employed individuals spend less time in food preparation

# Convenience Can Influence Demand

- Fresh carrot consumption increased in the 1990s after baby carrots, convenient packaging
- Technology to prevent browning of apple slices in packs made them a regular feature at McDonald's

How can behavioral economics help us to understand consumer choices and to improve program and policy effectiveness?

## **BEHAVIORAL CUES**

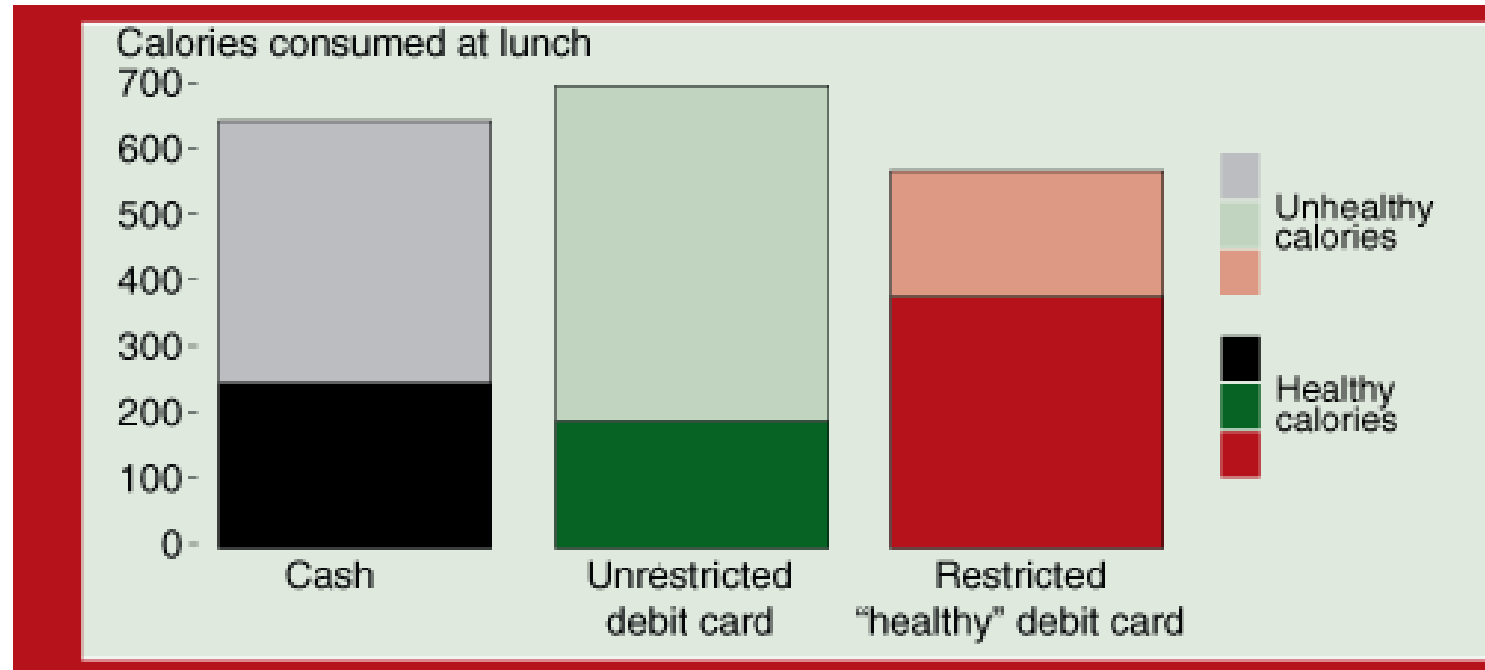
# Irrationality in Food Choice?

- Hyperbolic discounting
  - “I’ll diet tomorrow”
- Self-control is limited
- “Framing” can make less healthy choice seem reasonable
- Need “cues” or “defaults” to encourage healthy choices

See Mancino and Kinsey, 2009, Is Dietary Knowledge Enough? Hunger, Stress, and Other Roadblocks to Healthy Eating, USDA/ERS, ERR62, for a review

# Using Pre-Commitment to Encourage Healthy Choices

**Restricted card users ate fewer total calories, and more calories from healthy foods**



Source: USDA, Economic Research Service.

*Source: When Nudging in the Lunch Line Might Be a Good Thing, Lisa Mancino And Joanne Guthrie, Amber Waves, March 2009.*

# Summing Up: Policy Instruments Go Beyond Prices

Variable/ Constraint	Potential / Actual Policy
Prices	Taxes and Subsidies
Income	Food Assistance
Access	Local Investments
Information	Labeling
Time	New Product Investments
Behavior	Cues, Defaults

# Summing Up

- No single answer to improving America's eating habits
- Taxes or subsidies would have an impact
- Other factors also play an important role
- Multiple changes in food environment needed to improve our food choices

*THANK YOU!*

**FOR MORE INFORMATION:**

**[HTTP://WWW.ERS.USDA.GOV/BRIEFING/DIETQUALITY/](http://www.ers.usda.gov/briefing/dietquality/)**