

# Pricing strategies for tobacco, healthy eating, and physical activity

Frank J. Chaloupka, Ph.D

Health Policy Center  
Institute for Health Research and Policy  
University of Illinois at Chicago

Communities Putting Prevention to Work: State and Territory Initiative  
Atlanta, GA, June 8, 2010

- Review of the evidence on the impact of tobacco taxes on tobacco use and its consequences
- Potential for using taxes to promote healthy eating and reduce obesity
- Supported by RWJF, NCI, USDA, CDC, and other funders

Co-Investigators and key staff include:

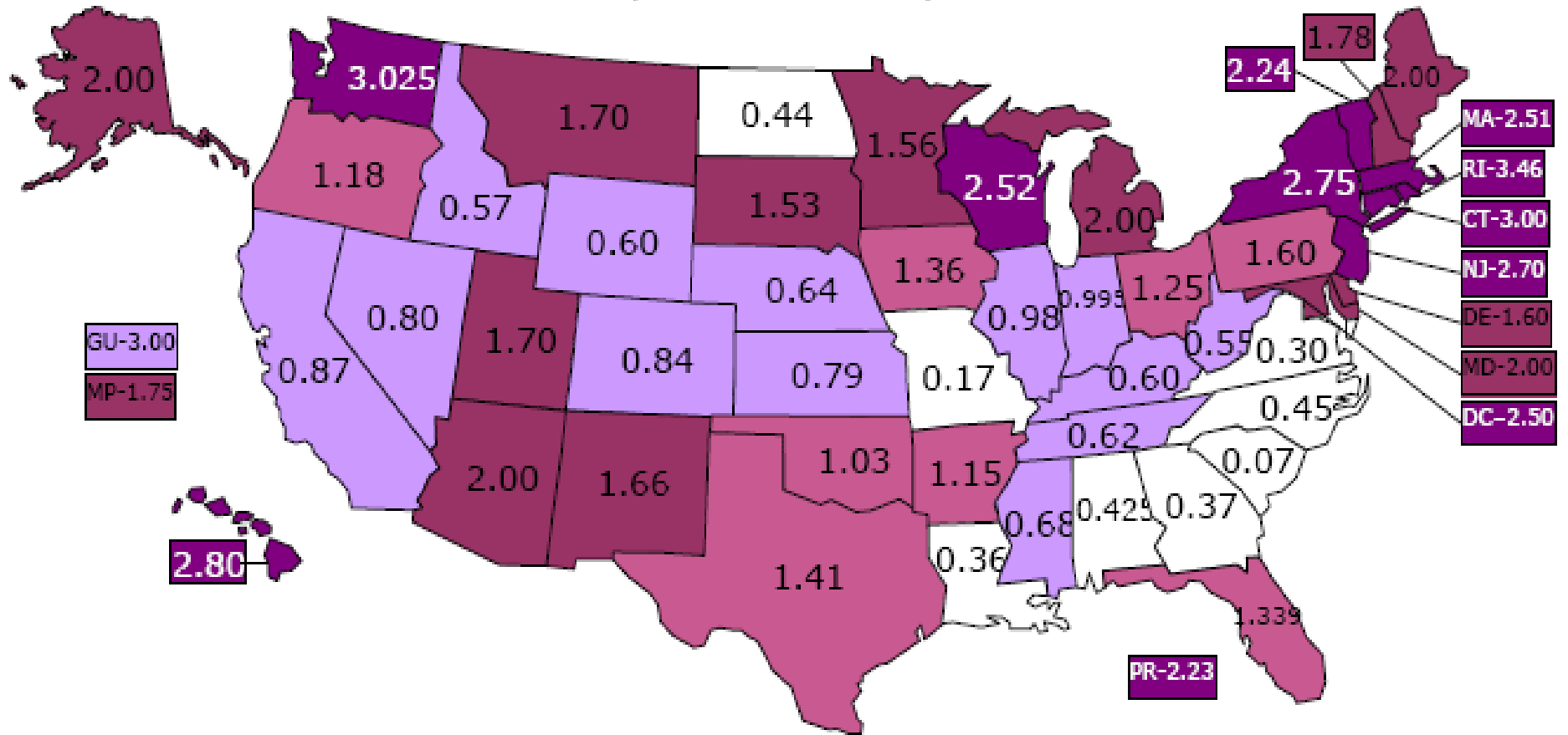
Jamie Chriqui, Lisa Powell  
 Sandy Slater, Lindsey Turner  
 John Tauras, Melanie Wakefield  
 Lloyd Johnston, Patrick O'Malley  
 Dianne Barker, Leah Rimkus,  
 Glen Szczypka, Euna Han  
 Jidong Huang, Sherry Emery  
 and many others.....

# TOBACCO TAXES AND TOBACCO USE

# Cigarette Taxes in the US, July 2010



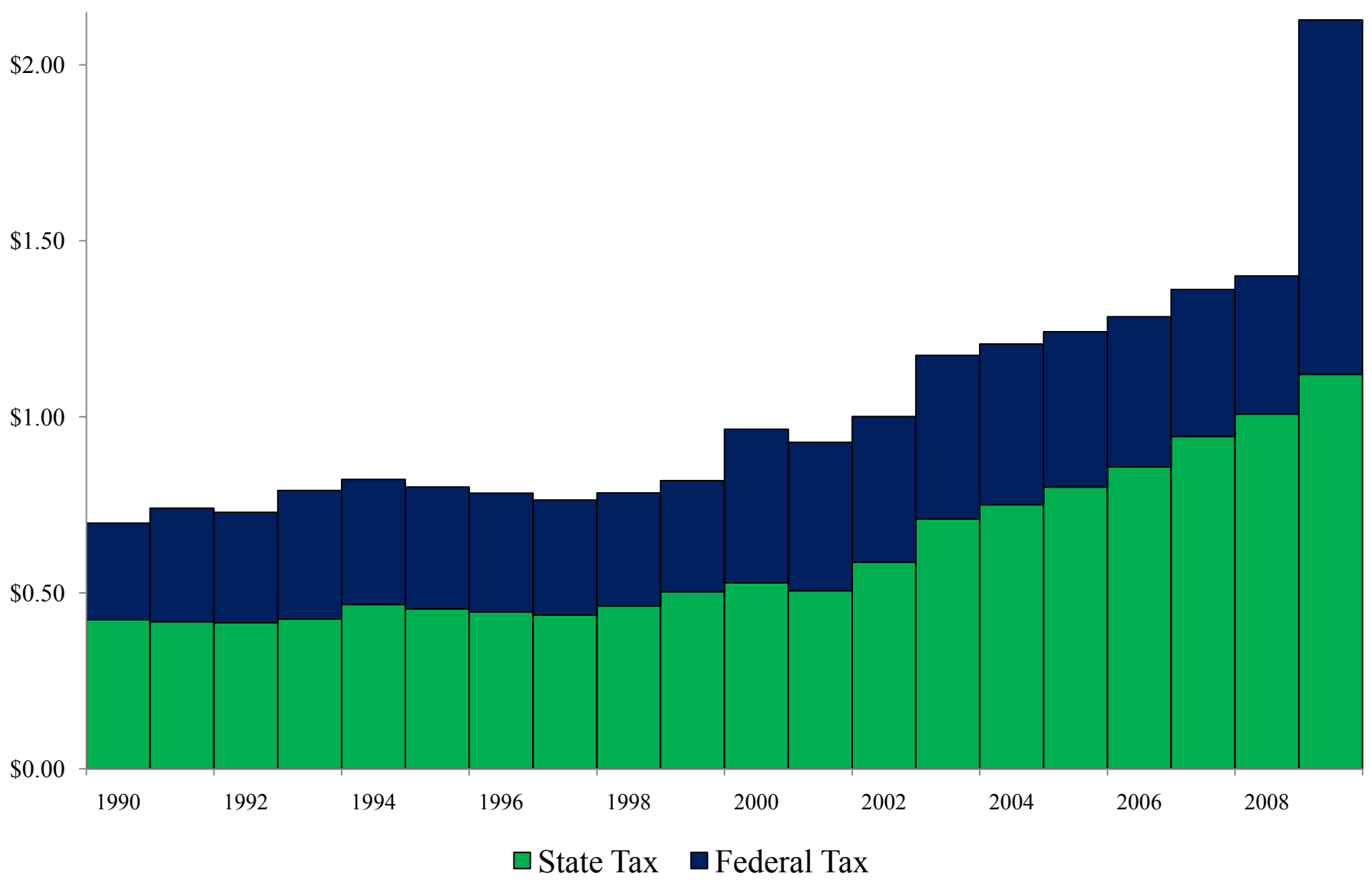
State Cigarette Excise Tax Rates  
 July 2010  
 (amounts in dollars)



Source: NCSL; \* Hawaii, New Mexico, South Carolina and Utah's excise tax increase goes into effect July 1, 2010.

# State and Federal Cigarette Taxes

## Inflation adjusted, 1990-2009

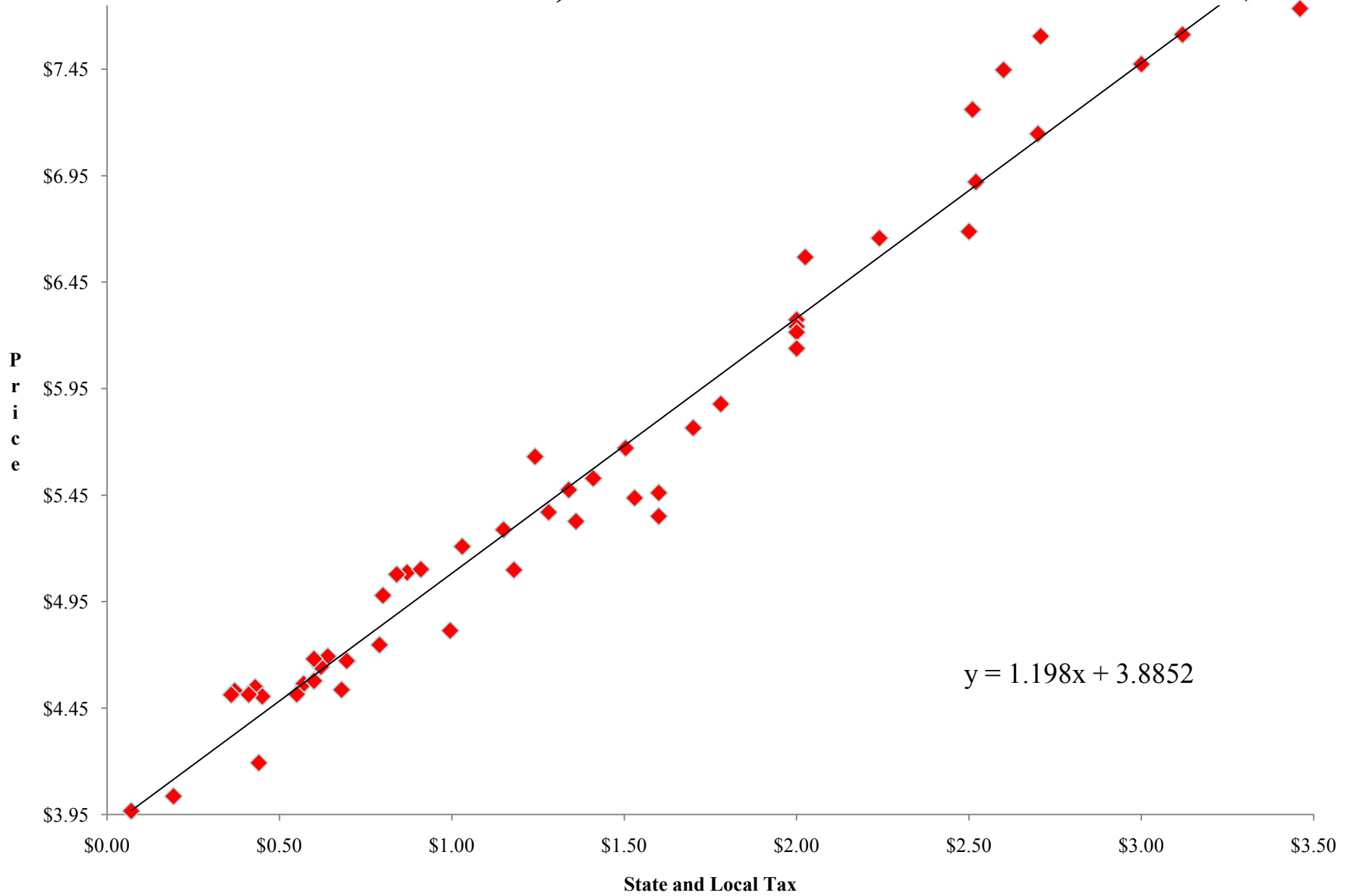


Source: *Burden on Tobacco*, 2009, and author's calculations

# State and Local Cigarette Taxes and Average Price per Pack

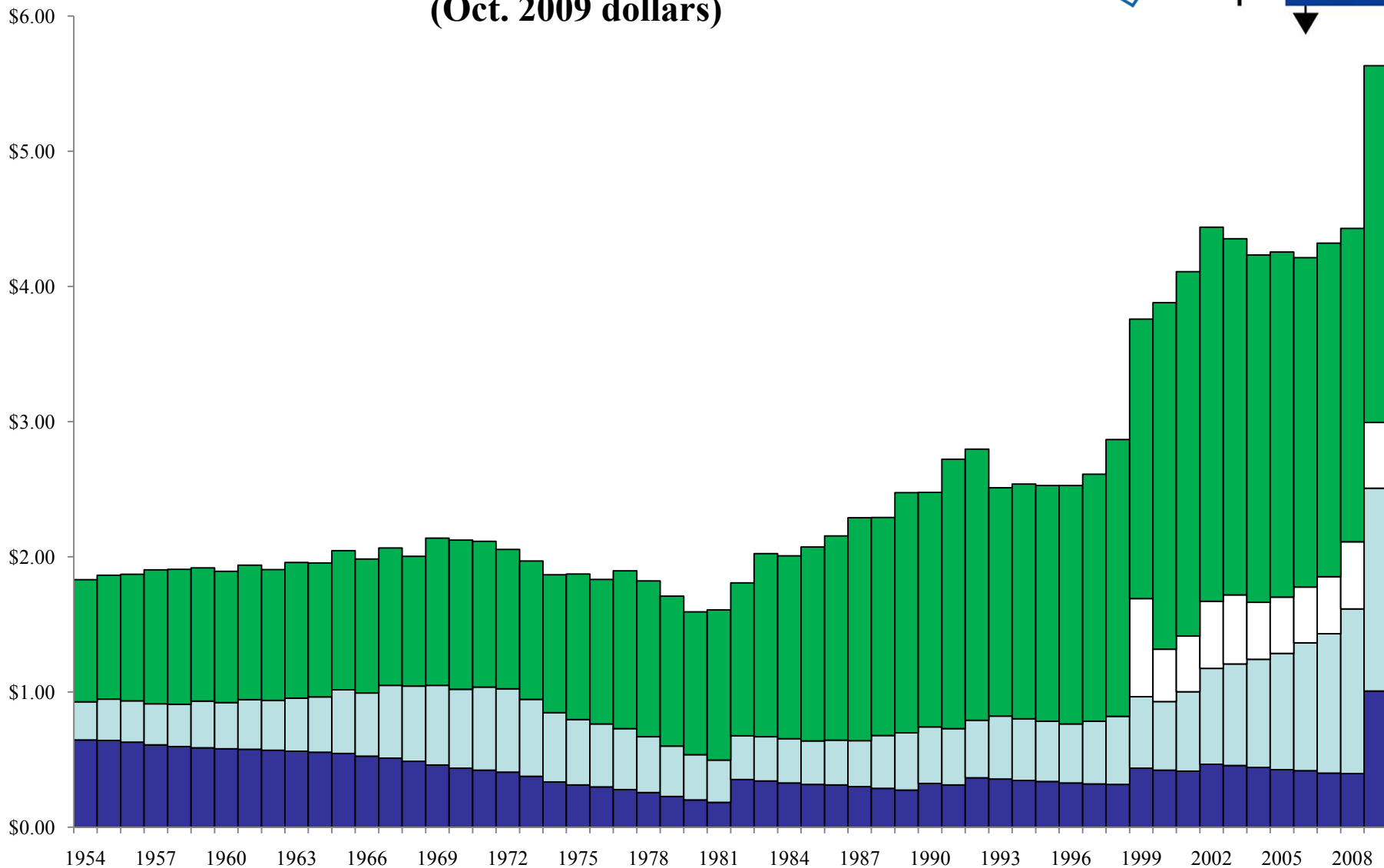
## November 1, 2009

impac **TEEN**



# Cigarette Taxes & Prices, United States, 1954-2009

(Oct. 2009 dollars)



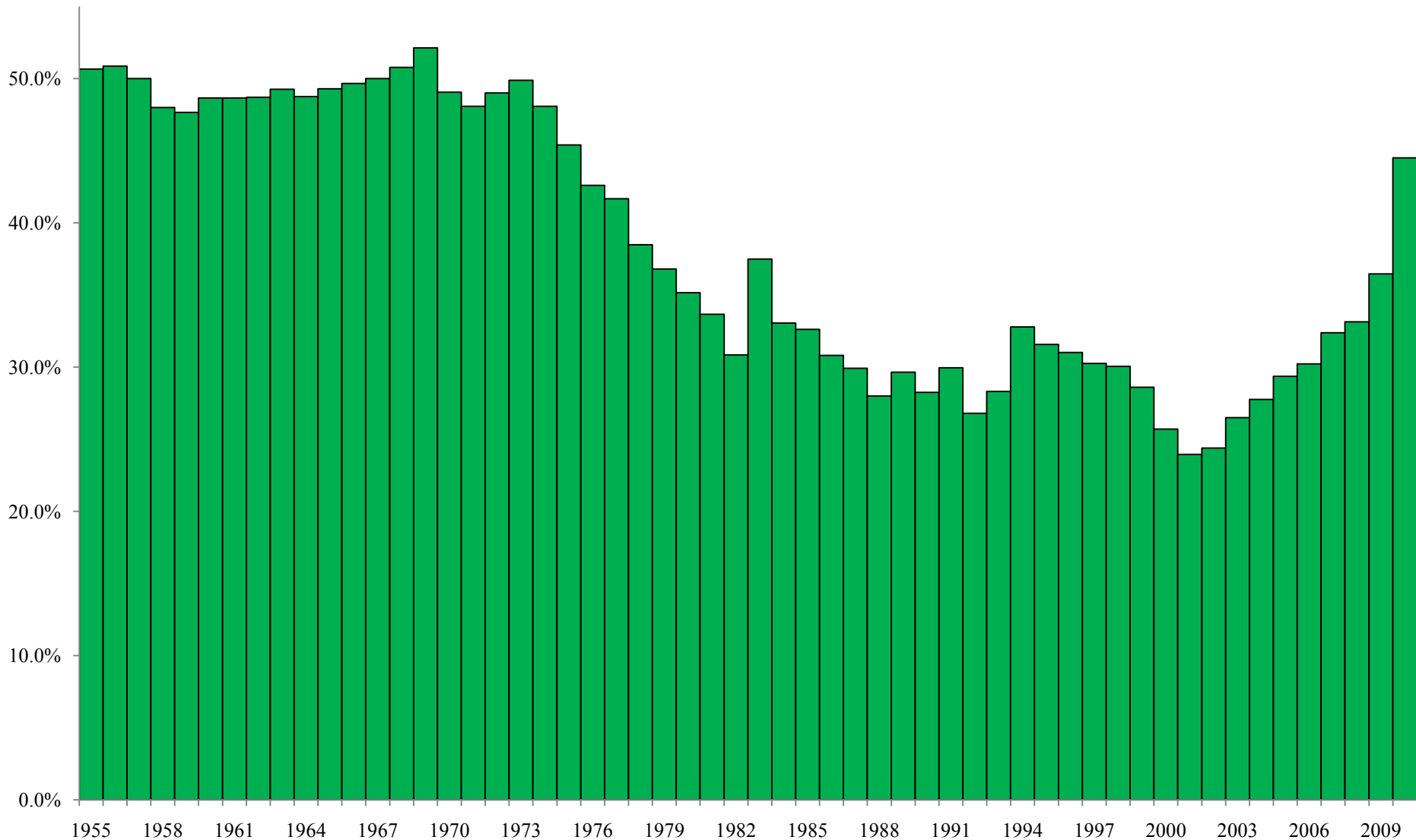
■ Federal Tax   ■ State Tax   □ MSA Costs   ■ Industry Price

Source: *Tax Burden on Tobacco*, 2009, and author's calculations

**UIC**



# State and Federal Cigarette Taxes as a Percentage of Cigarette Prices, United States, 1955-2009

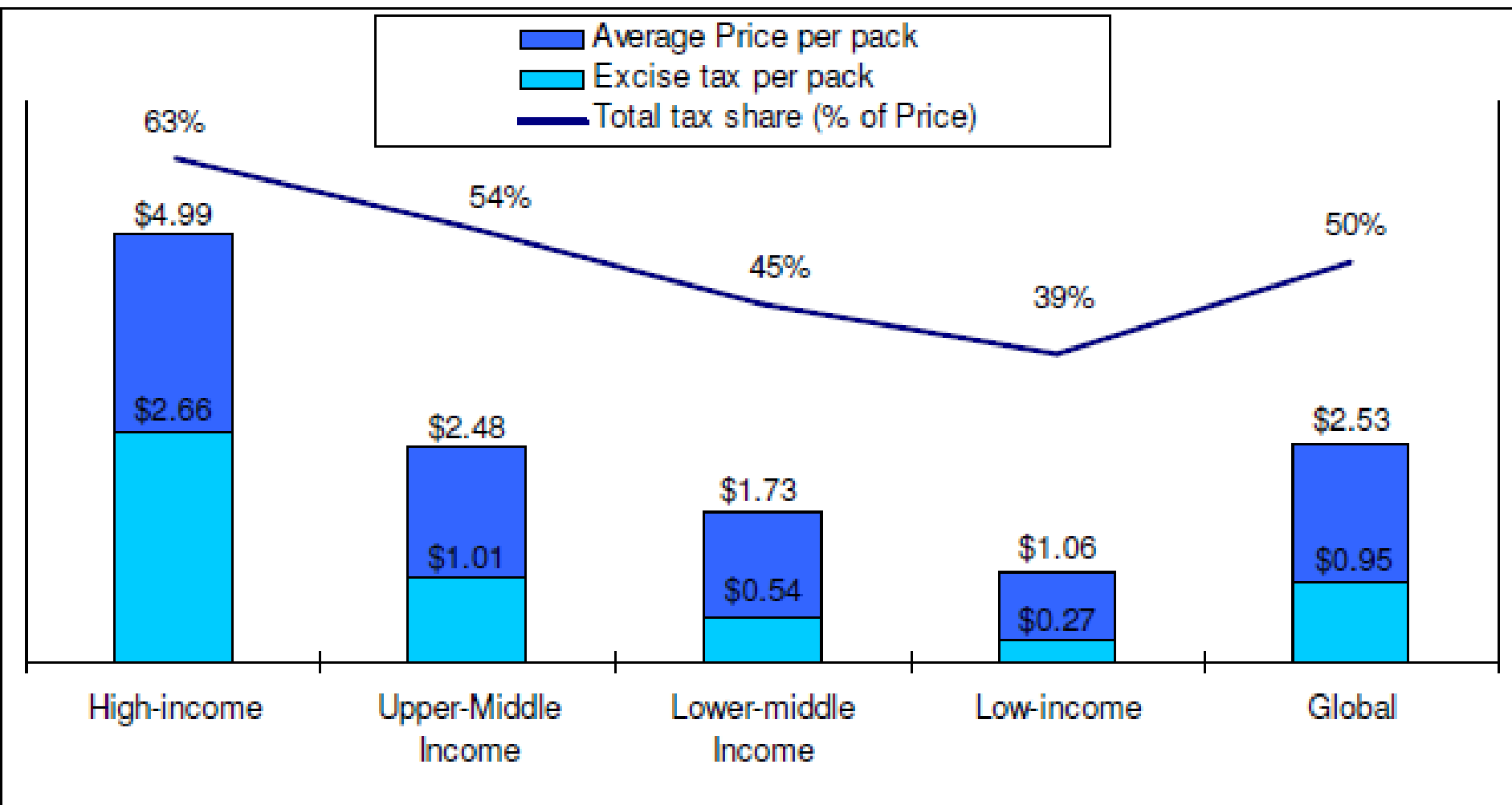


Source: *Tax Burden on Tobacco*, 2009, and author's calculations

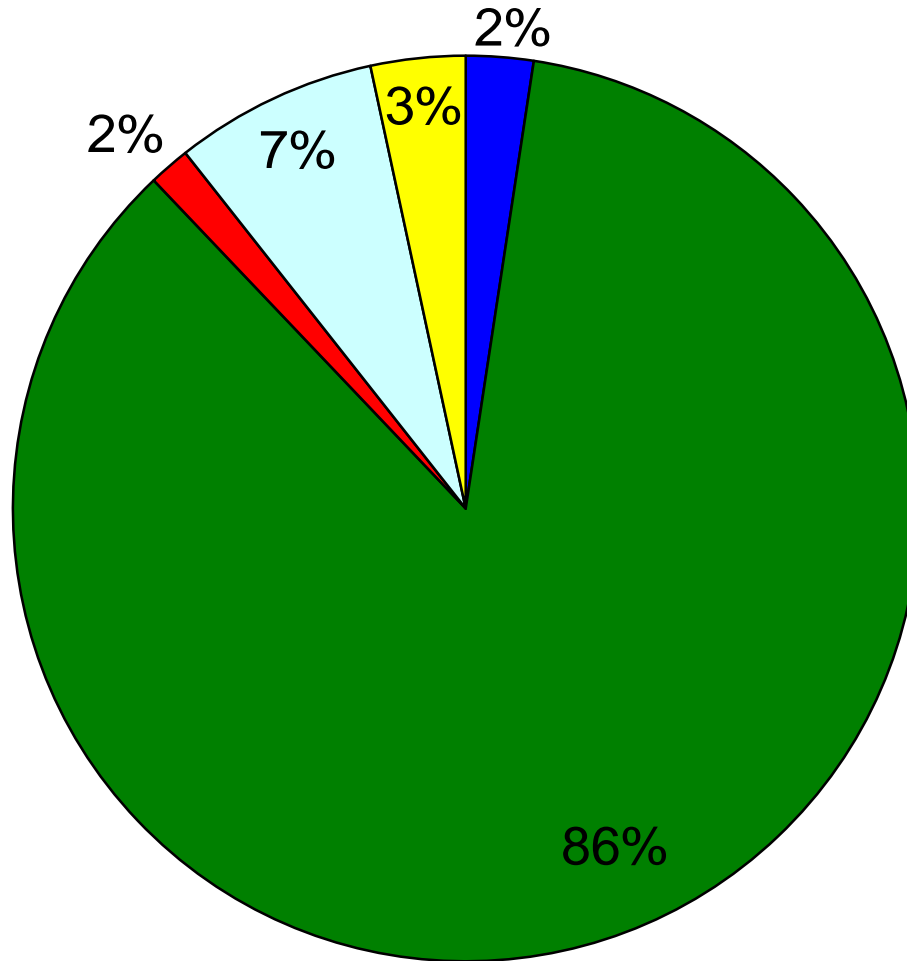
# Taxes and Tobacco Product Prices Globally

- Tax levels and prices, vary widely across countries

Price and Tax by Income Level, 2008

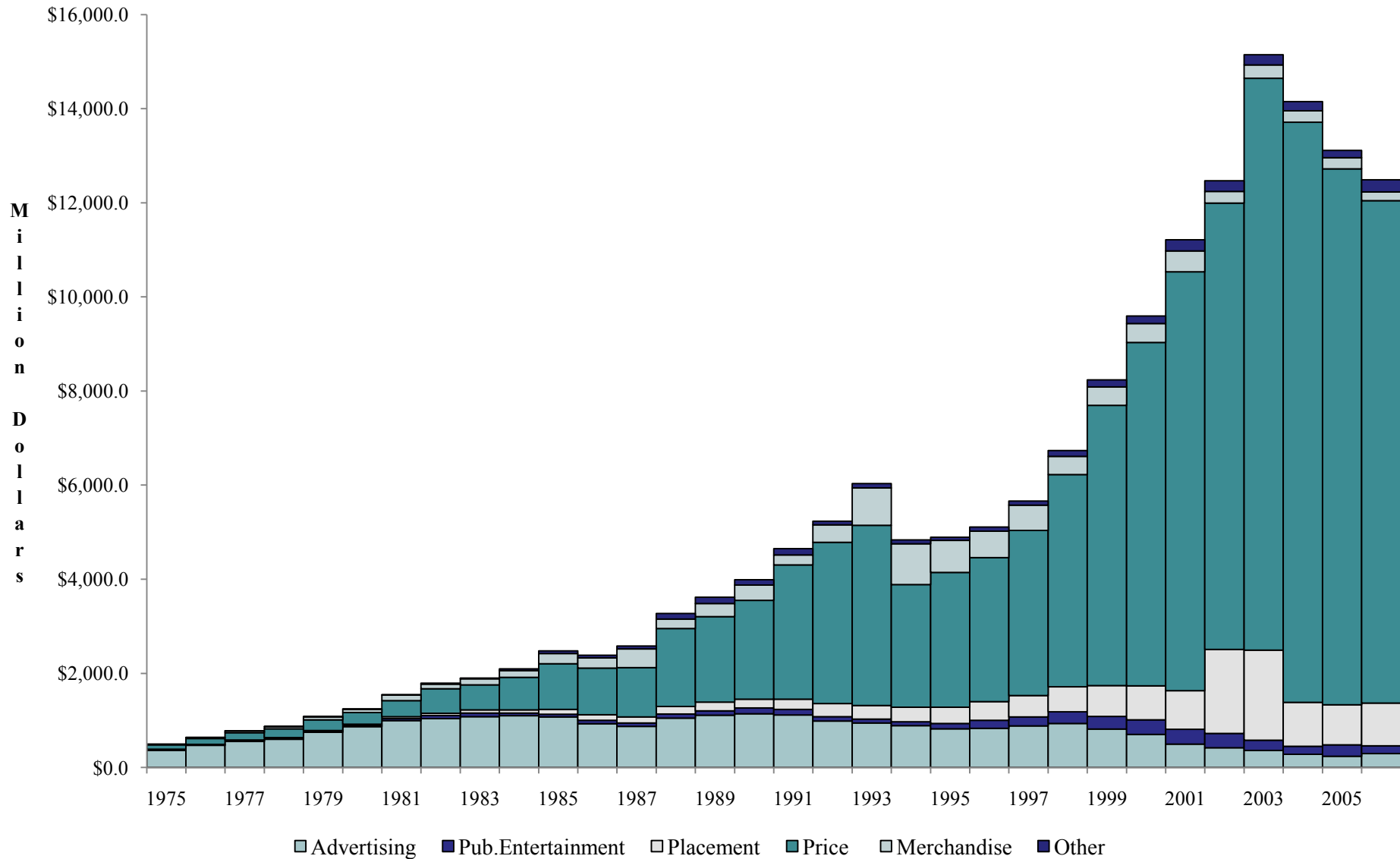


# 2006 Cigarette Marketing Expenditures by Type



■ image ■ price ■ merchandise ■ promotional allowances ■ other

# Cigarette Marketing Expenditures by Type, 1975-2006



Source: Federal Trade Commission, 2009

On February 4th, 2009, the Federal Government enacted legislation to fund the expansion of the State Children's Health Insurance Program (SCHIP) that increases excise taxes on cigarettes by 158%.

As a result, you will see the price of all cigarettes, including ours, increase in retail stores.

We know times are tough, so we'd like to help. We invite you to register at [Marlboro.com](http://Marlboro.com) to become eligible for cigarette coupons and special offers using this code: **MAR1558**

Thank You,

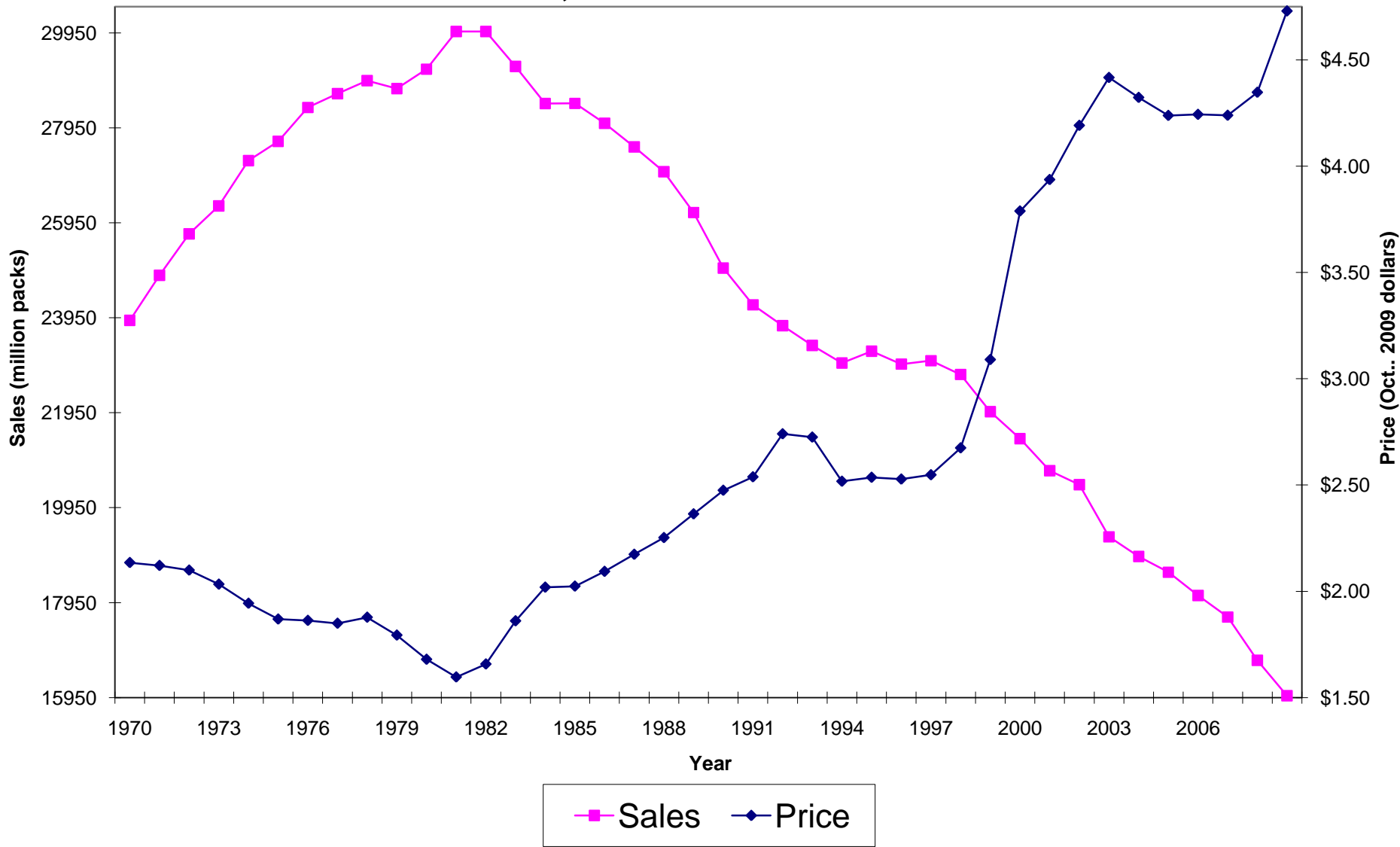
Philip Morris USA

## Higher taxes and prices:

- lead current smokers to quit
  - prevent relapse
  - keep kids from taking up tobacco use
  - reduce consumption among continuing users
  - induce other changes in purchase and use behaviors
- 
- Estimates from high-income countries indicate that 10% rise in price reduces overall cigarette consumption by about 4%
    - Most elasticity estimates in range from -0.25 to -0.5, clustered around -0.4

# Cigarette Prices and Cigarette Sales, United States, 1970-2009

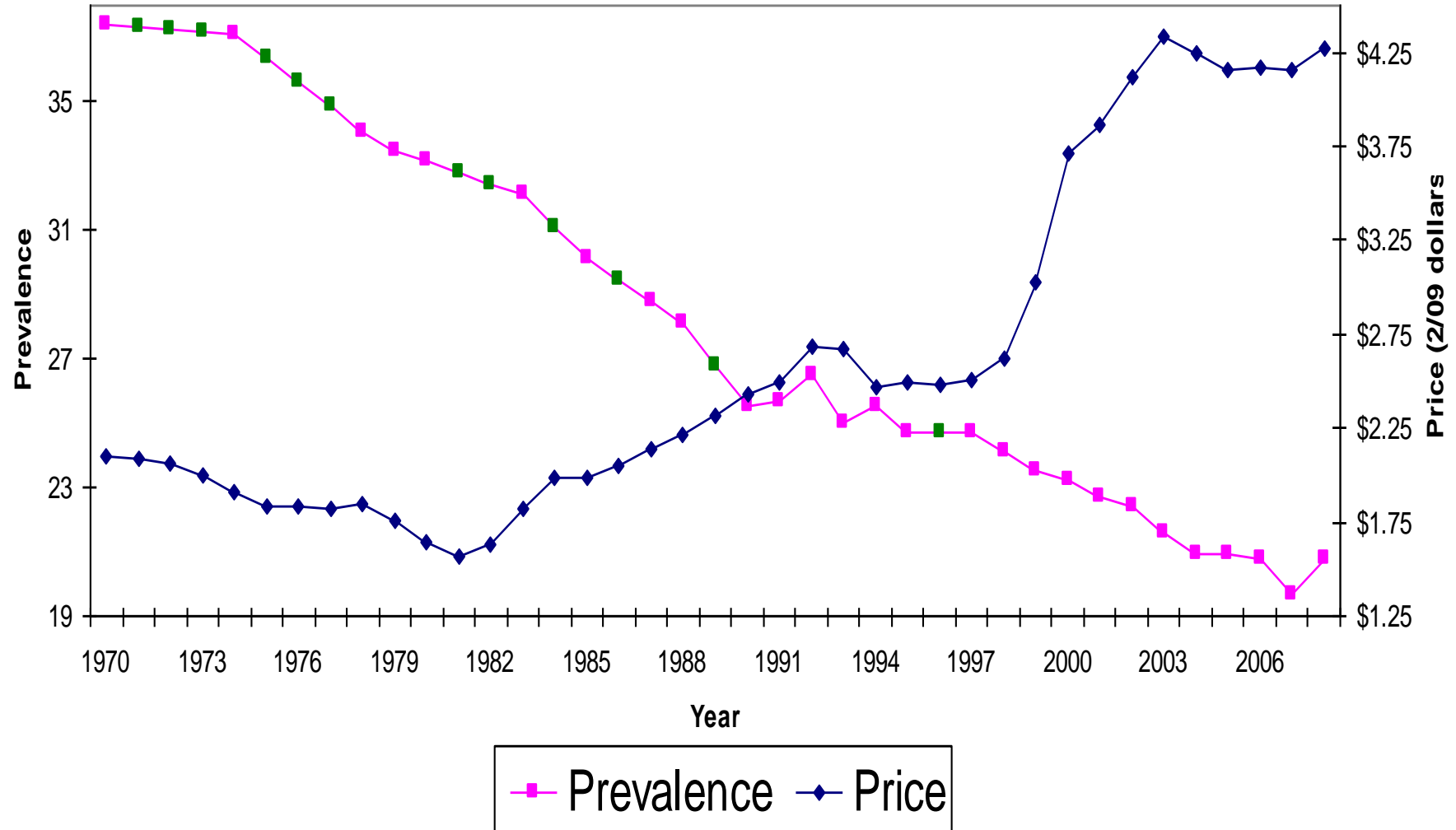
impact **TEEN**



Source: *Tax Burden on Tobacco*, 2010, and author's calculations

**UIC**

# Cigarette Prices and Adult Smoking Prevalence, United States, 1970-2008

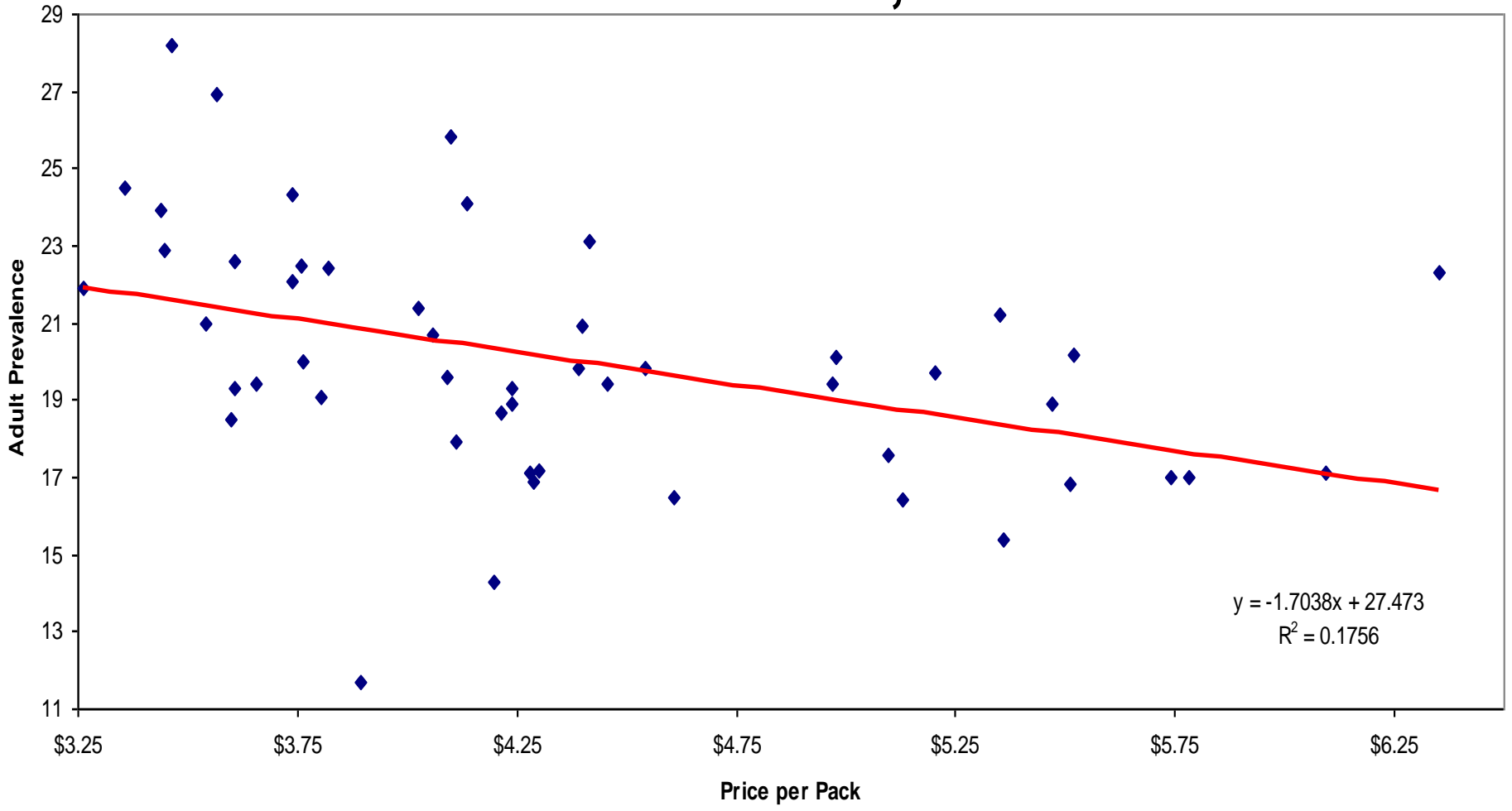


Source: NHIS, *Tax Burden on Tobacco*, 2009, and author's calculations

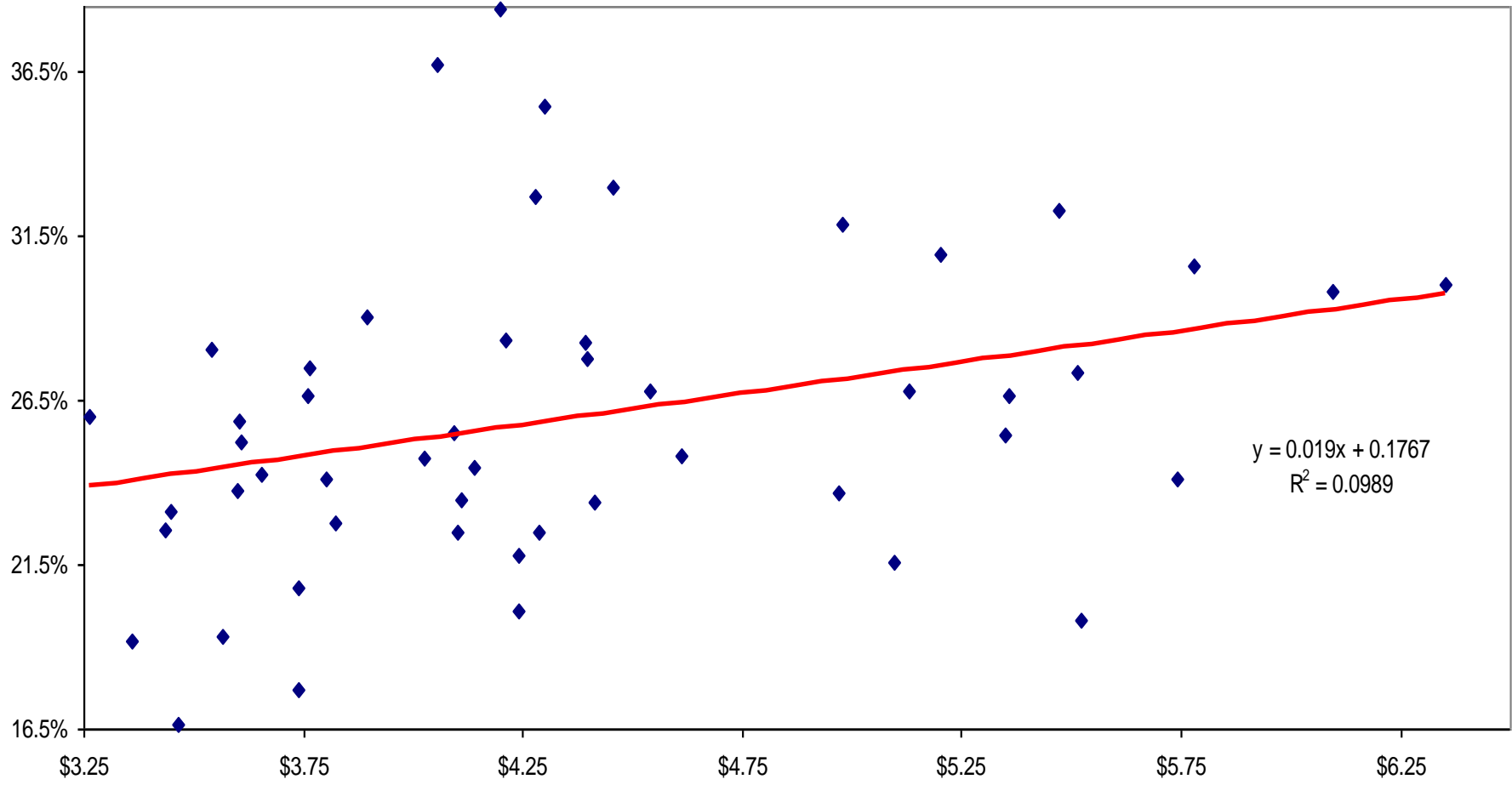
Note: green data points for prevalence are interpolated assuming linear trend



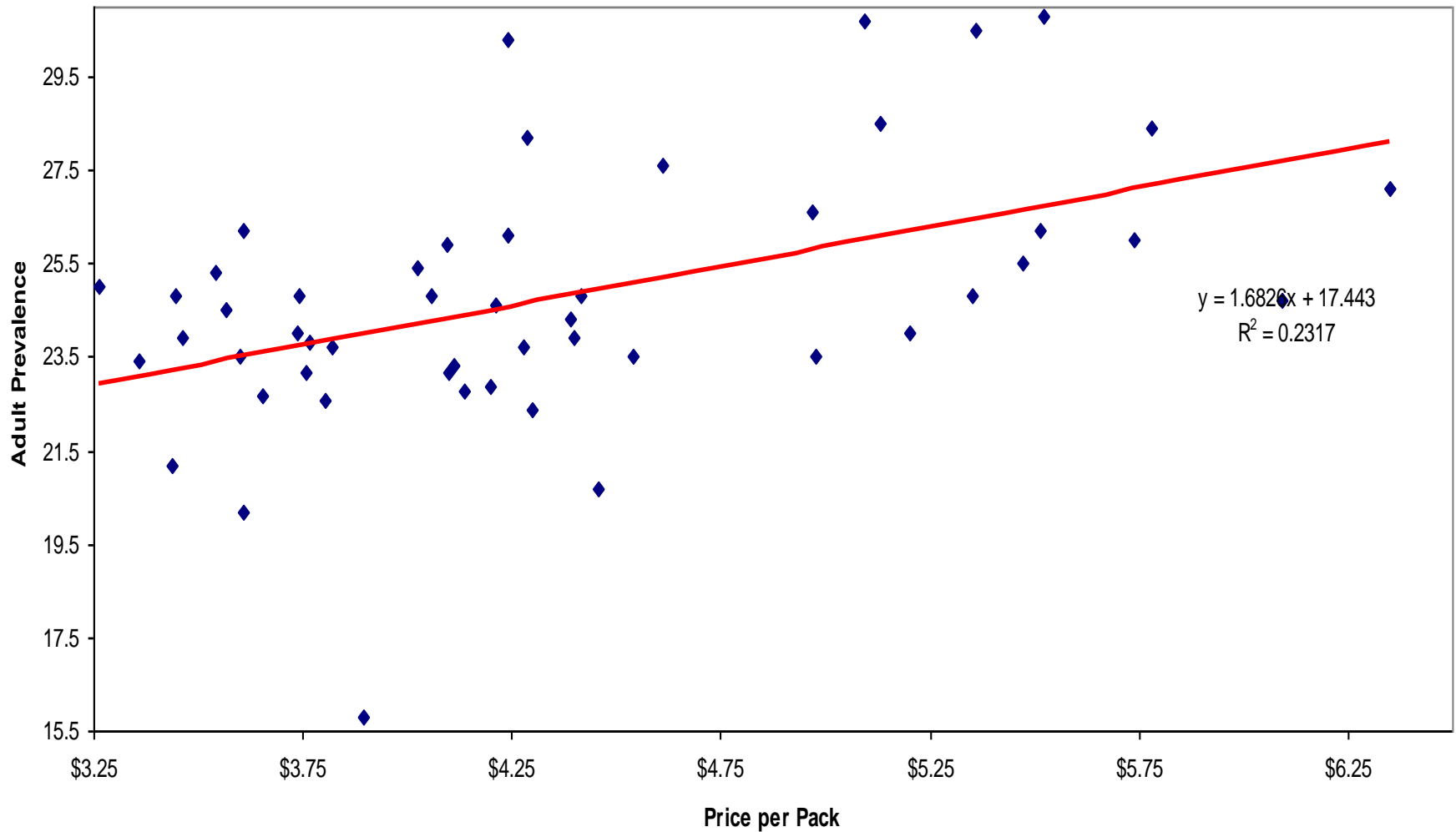
# Cigarette Prices and Adult Prevalence, 50 States & DC, 2007



# Cigarette Prices and Non-Daily Smoking Rates, 50 States & DC, 2007

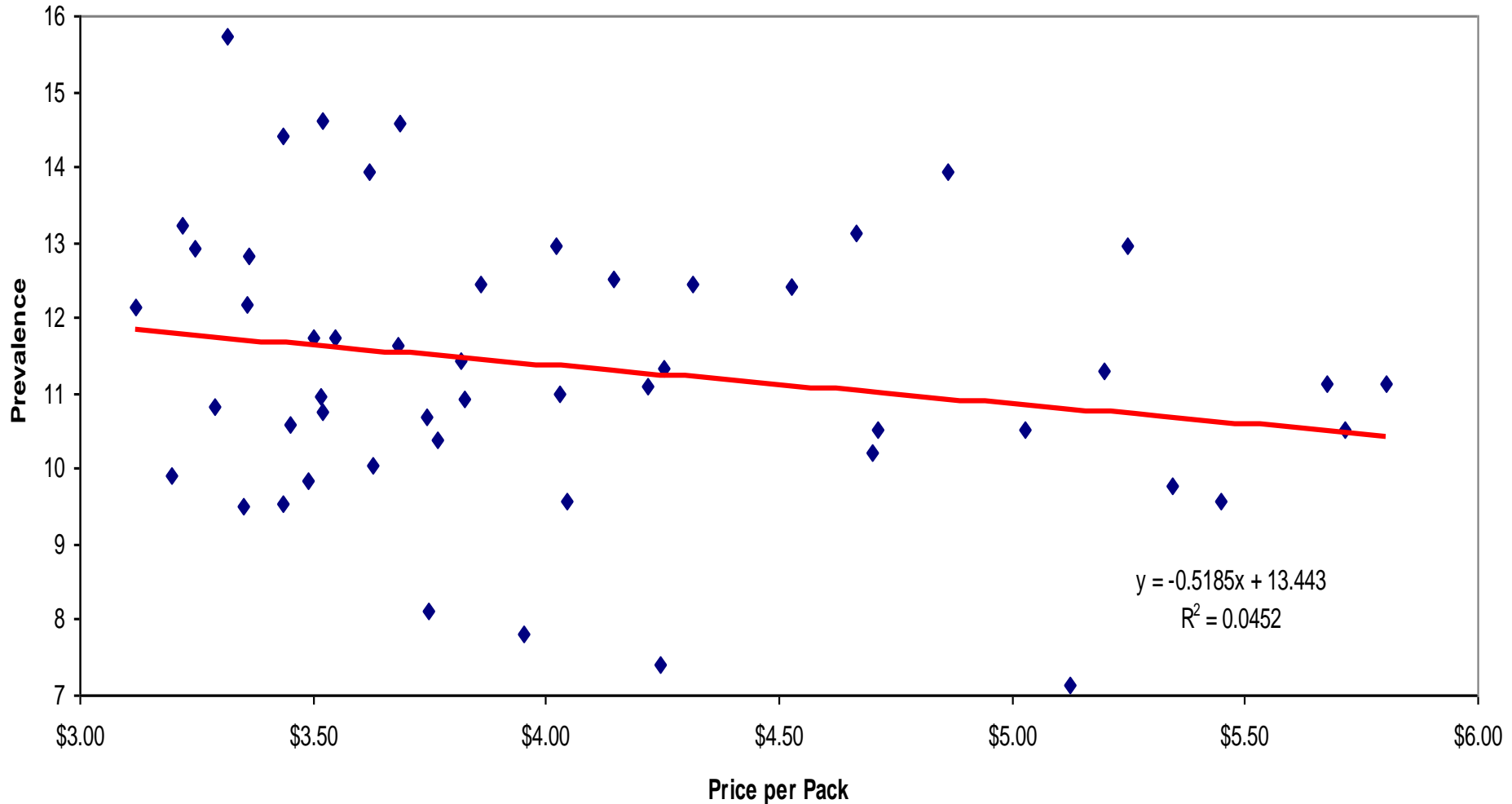


# Cigarette Prices and Former Smoking Rates, 50 States & DC, 2007

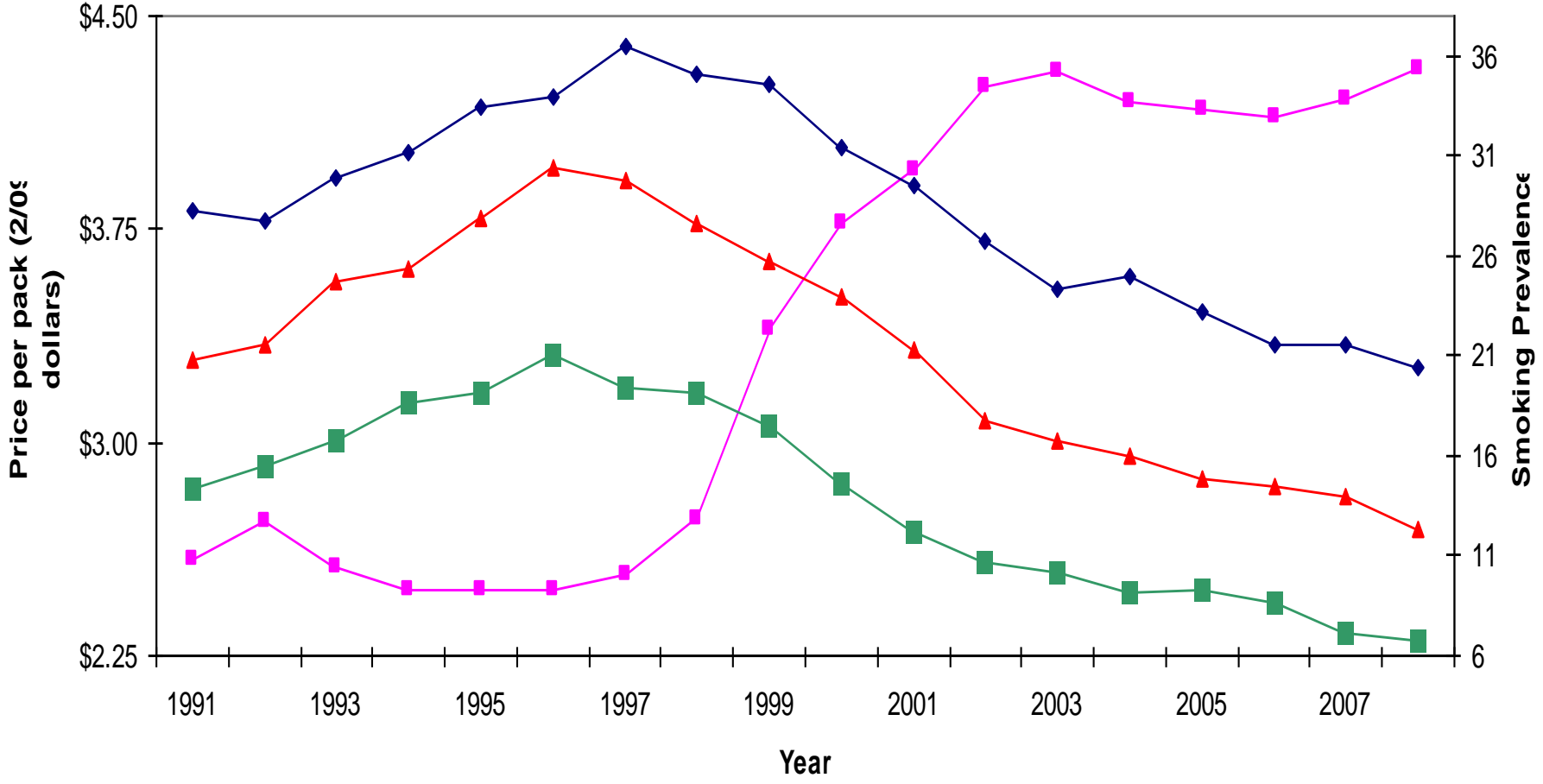


- Proportion of disposable income youth spends on cigarettes likely to exceed that for adults
- Peer influences much more important for young smokers than for adult smokers
  - about 1/3 of overall impact of price on youth accounted for by indirect impact through peers
- Young smokers less addicted than adult smokers
- Young people tend to discount the future more heavily than adults
- Other spillover effects
  - for example, through parental smoking

# Cigarette Prices and 12-17 Year Old Smoking Prevalence Rates, 50 States & DC, 2005/06



# Cigarette Price and Youth Smoking Prevalence, United States, 1991-2008



■ Cigarette Price  
 ◆ 12th grade prevalence  
 ▲ 10th grade prevalence  
 ■ 8th grade prevalence

Source: MTF, *Tax Burden on Tobacco*, 2009, and author's calculations

Based on our estimates, the recent \$0.6167 per pack increase in the Federal cigarette tax will:

- Reduce cigarette sales by over 900 million packs
- Generate almost \$9 billion in new revenues
- Lead over 1.15 million current smokers to quit
- Prevent over 1.45 million youth from taking up smoking
- Prevent almost 720,000 premature deaths caused by smoking
- Generate significant reductions in spending on health care to treat diseases caused by smoking

# COMPREHENSIVE TOBACCO CONTROL PROGRAMS



## General aims:

### Prevent initiation of tobacco use among young

- Increased prices, reduced access

- Increased antitobacco messages, reduced protobacco

### Promote cessation among young adults, adults

- Better access to cessation services

- Increased prices and strong smoke-free policies

- Increased antitobacco messages, reduced protobacco

### Eliminate exposure to secondhand smoke

- Strong smoke-free policies

- Strengthened anti-smoking norms

### Identify and eliminate disparities

- Intertwined with others; need for targeted approaches

## Components of a comprehensive program:

### State and community interventions

- Support for policy development and implementation

- Efforts to strengthen norms against tobacco

- Targeted efforts to reduce youth tobacco use, disparities

### Health communication interventions

- Mass-media countermarketing campaigns

- Efforts to replace tobacco industry sponsorship/promotion

- Targeted messaging/delivery

### Cessation interventions

- Array of policy, health system, and population-based measures

### Surveillance and Evaluation

### Administration and Management

## Earmarked tobacco excise tax revenues:

California, Proposition 99 - 1988

25 cent per pack tax increase; 25% of revenues fund CA tobacco control program

Massachusetts Question 1 – 1992

25 cent per pack tax increase; revenues support MA tobacco control program

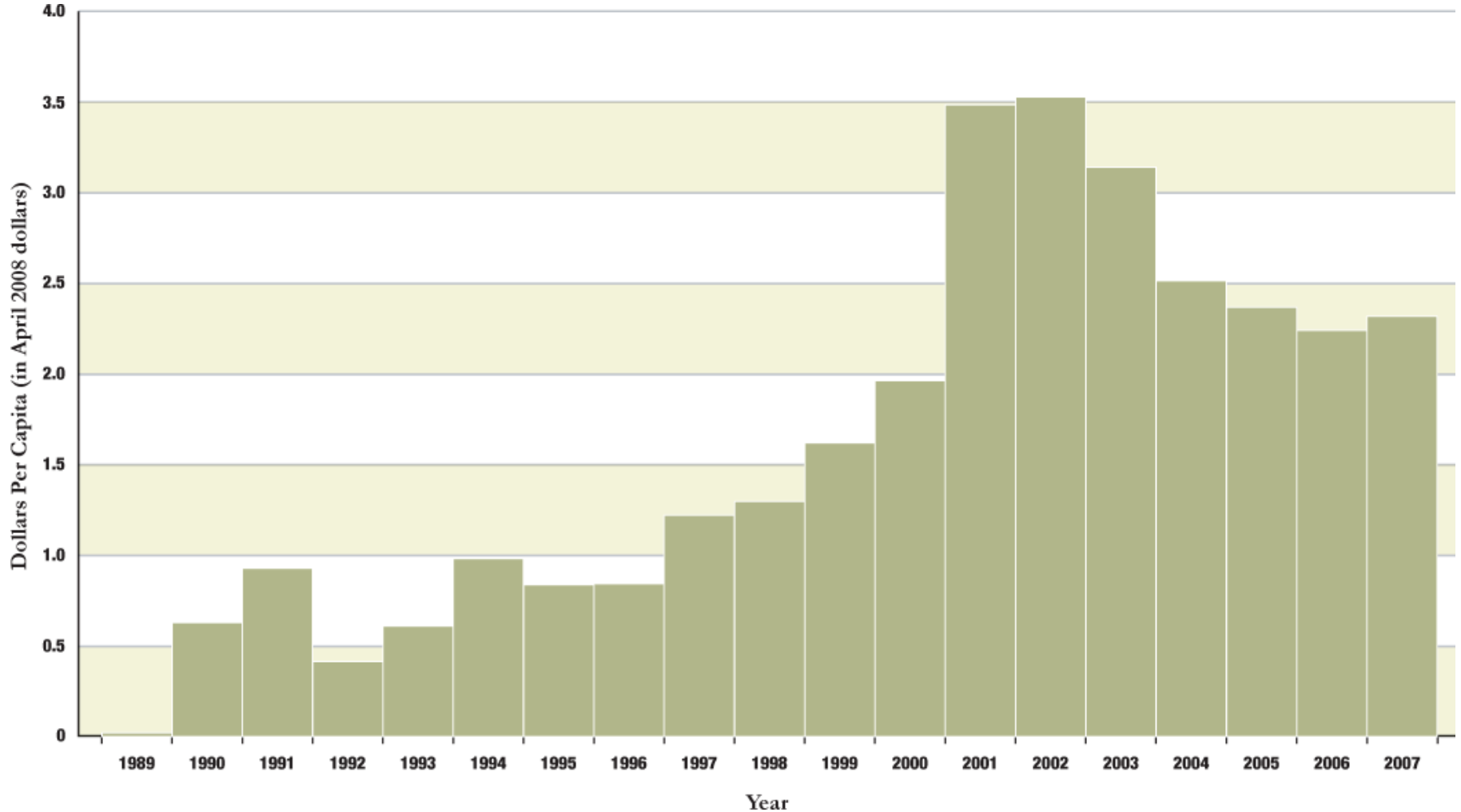
Arizona (1994), Oregon (1996) and other states

Earmarked tobacco excise tax revenues for state tobacco control programs

## Funds from Master Settlement Agreement payments to states

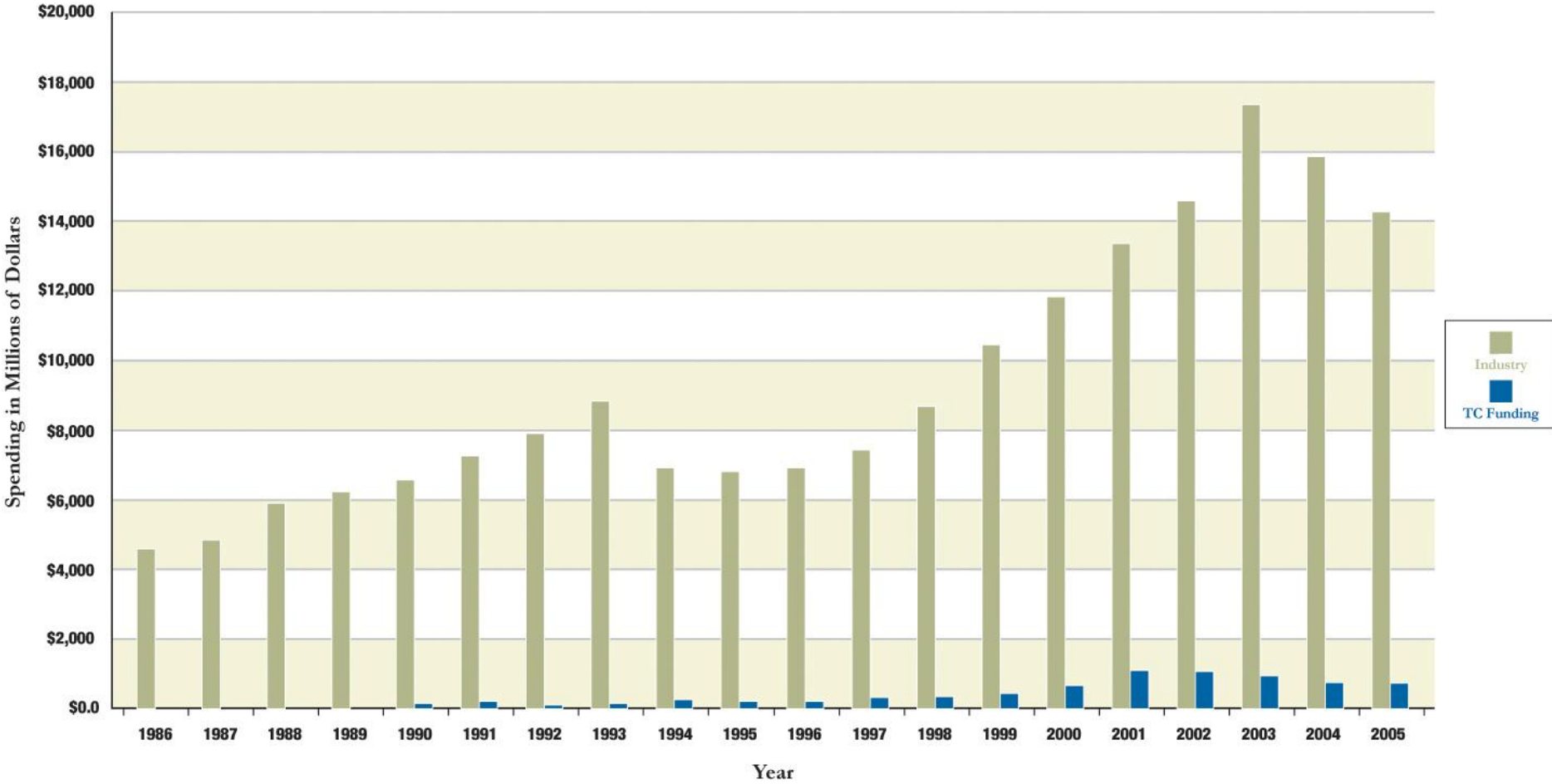
Many states dedicate some portion of state MSA payments to state tobacco control programs

# Per Capita Funding for State Tobacco Control Programs



Source: See pages 217 and 218.

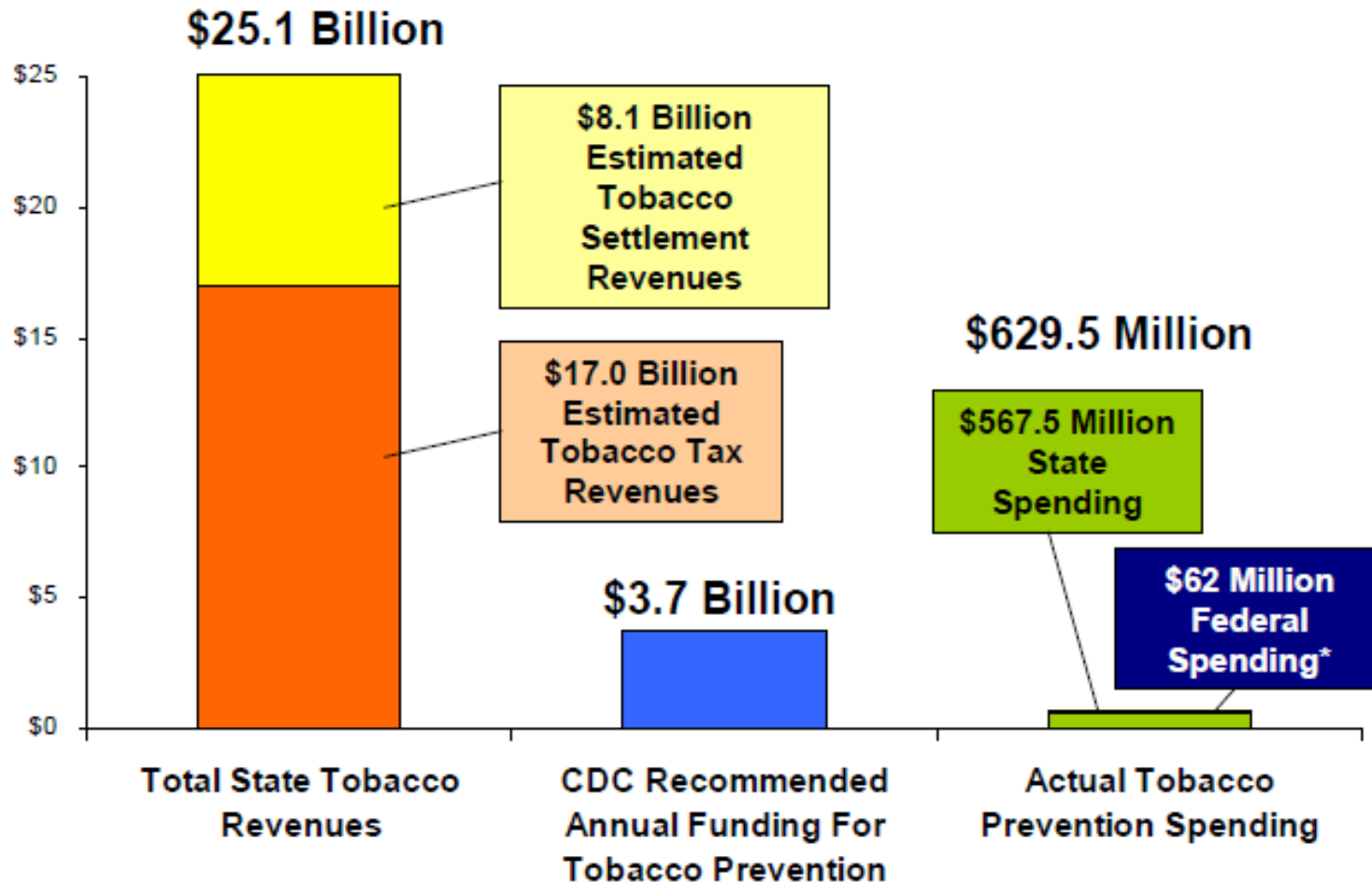
# Tobacco Industry Marketing vs. Tobacco Control Spending (in millions of dollars) – United States, 1986-2005



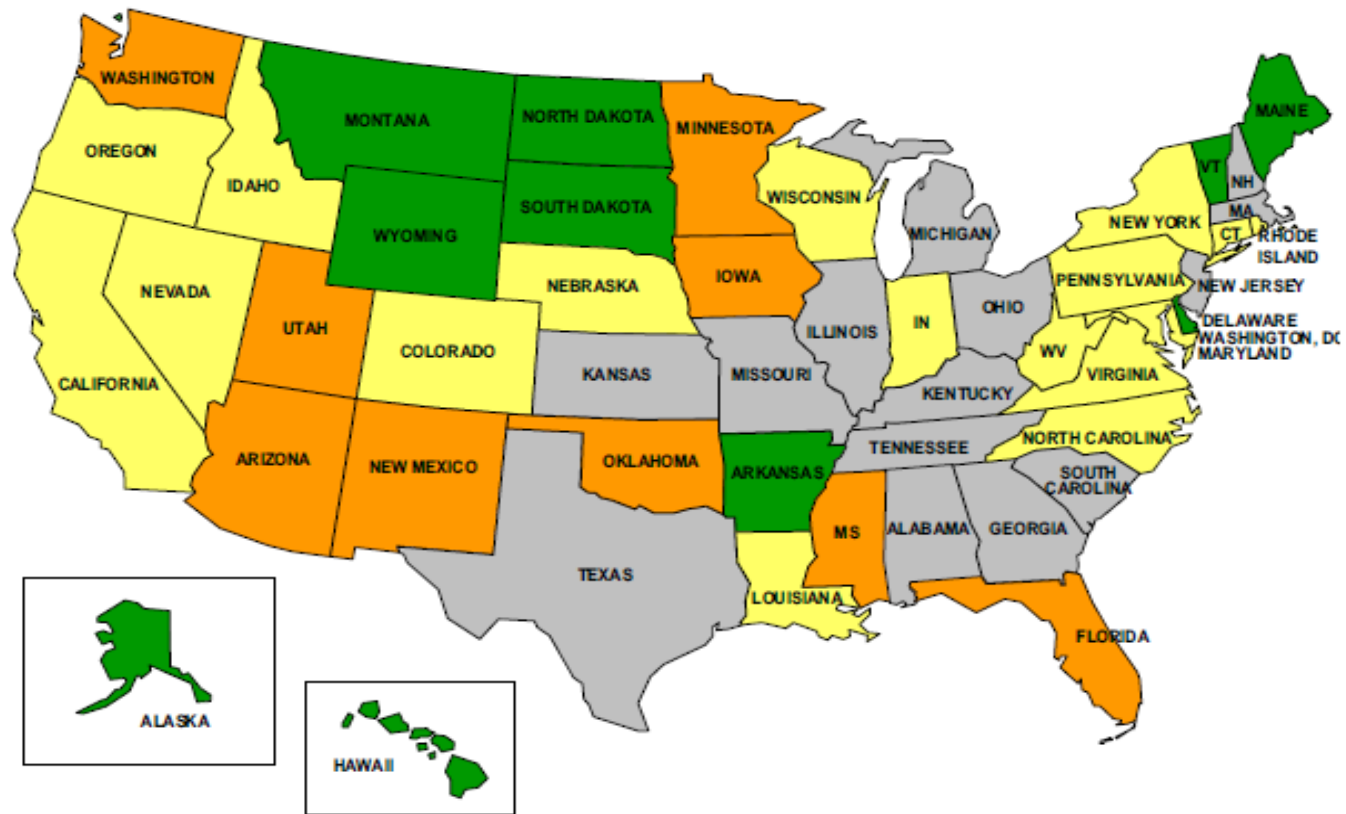
Source: FTC 2005 and Project ImpactTEEN; data are in July 2007 dollars.

# Comprehensive Programs

## FY 2010 tobacco revenues and funding



# FY2010 Funding for State Tobacco Prevention Programs



- States that are spending 50% or more of CDC recommendation on tobacco prevention programs.
- States that are spending 25% - 49% of CDC recommendation on tobacco prevention programs.
- States that are spending 10% - 24% of CDC recommendation on tobacco prevention programs.
- States that are spending less than 10% of CDC recommendation on tobacco prevention programs.

## Impact of program funding:

### Significant reductions in state tax paid cigarette sales

Estimated up to 8.7% decline in sales by 2000 if states had funded programs at \$6 per capita

### Significant reductions in youth smoking prevalence – 1992

Estimated that program funding in the 1990s had reduced youth prevalence by about 2%

Had states funded at levels recommended by CDC, estimated that prevalence could have been reduced by more than 13%

### Significant reductions in adult smoking prevalence

Simulated effects of funding at CDC recommended minimum, maximum by state; estimate that adult prevalence would have been 5.4%-17.4% lower (2.2 to 7.1 million smokers)

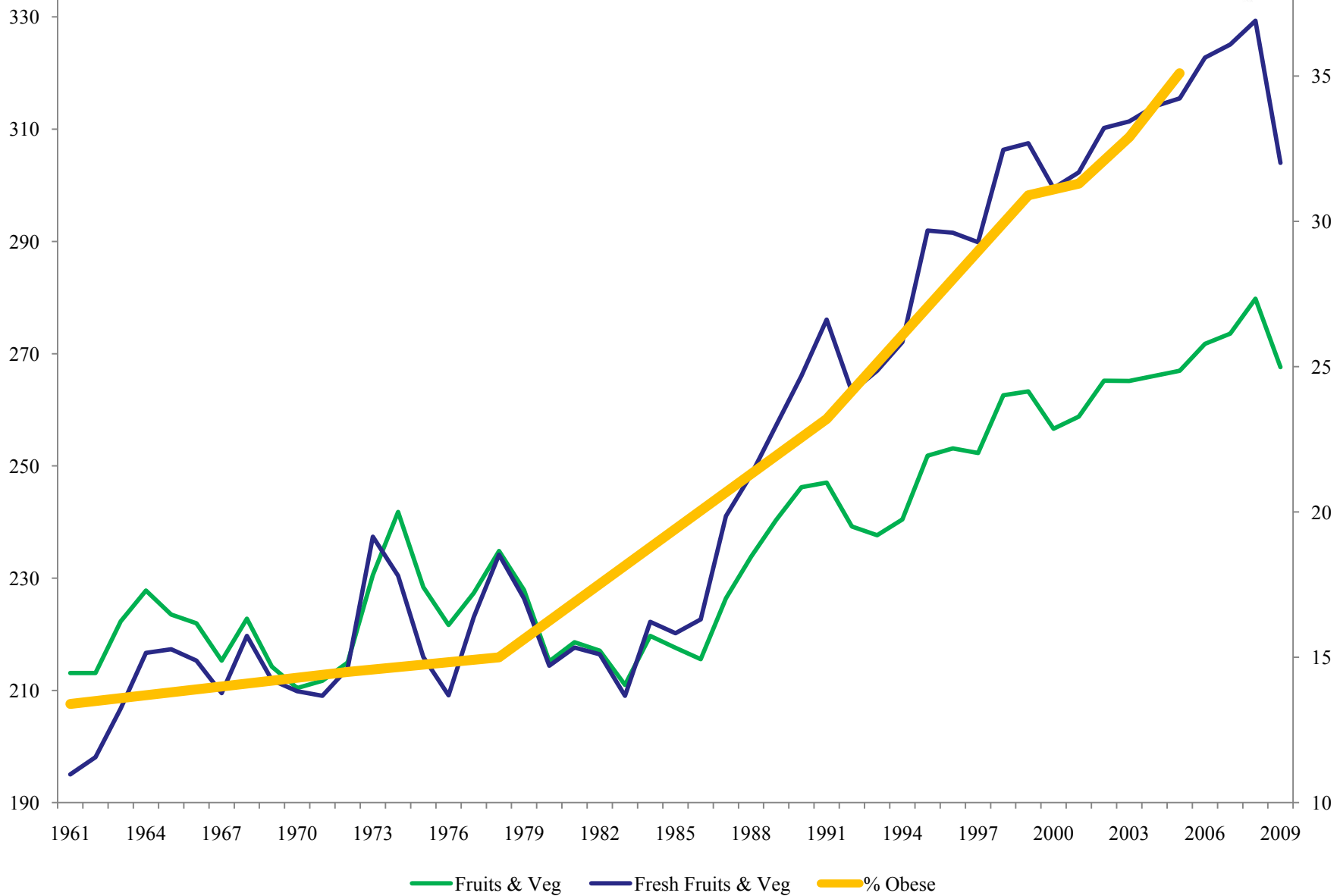


# FOOD PRICES, OBESITY TRENDS AND POLICY OPTIONS

# Selected Food Price Trends, 1961-2009

Inflation Adjusted

impact **TEEN**



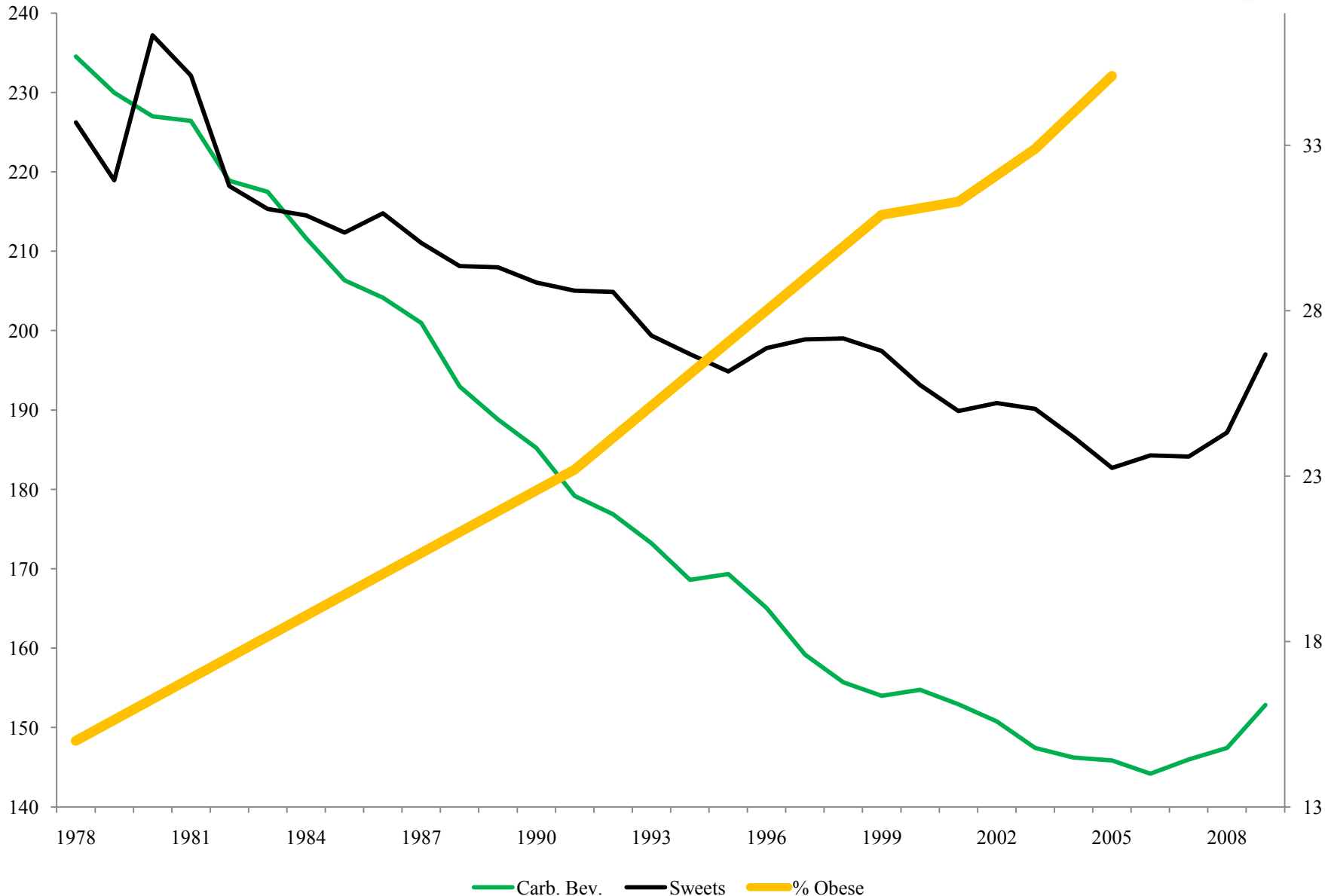
Source: BLS; NHES-I 1960-62; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06



# Selected Food Price Trends, 1978-2009



Inflation Adjusted



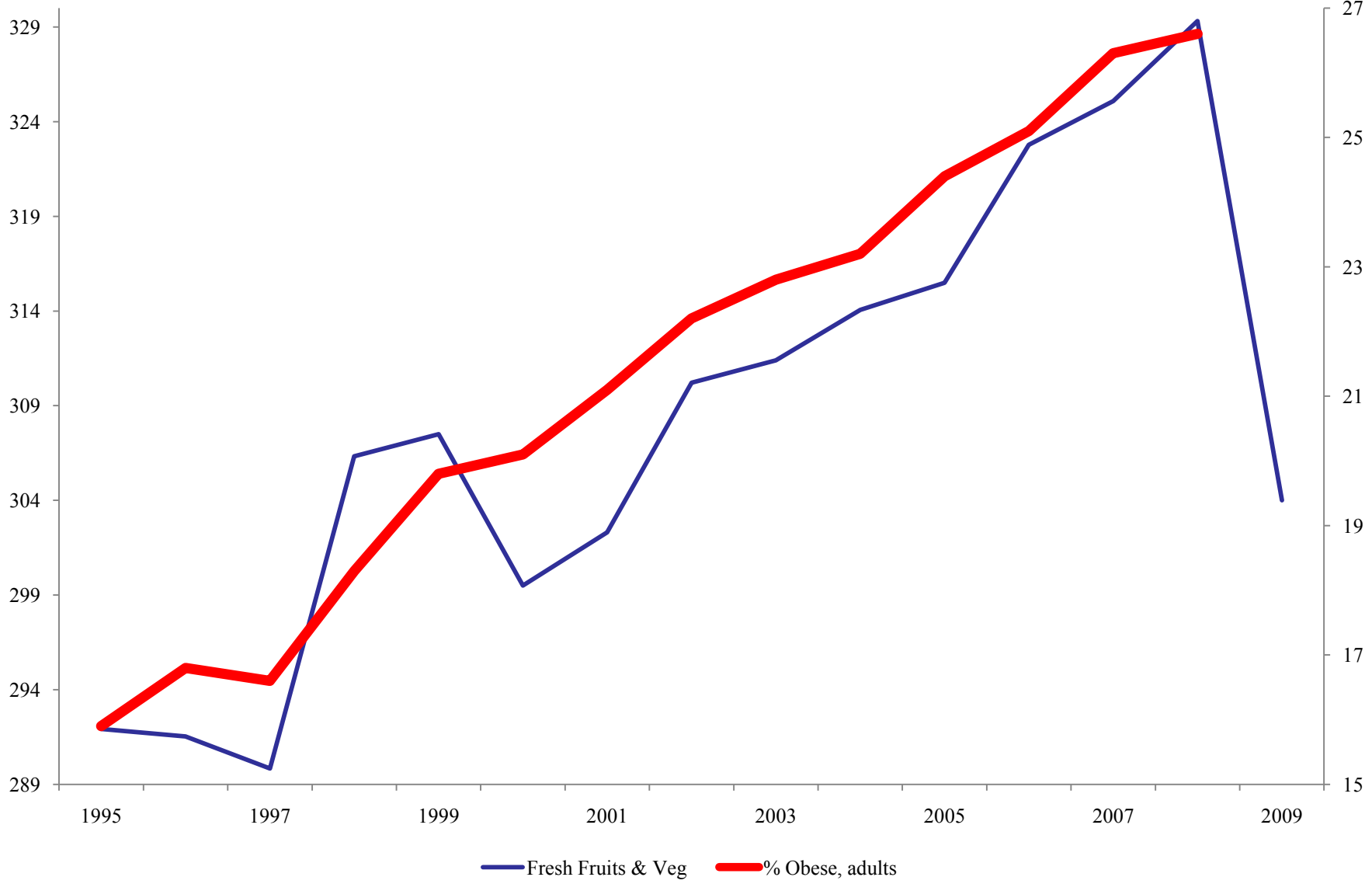
Source: BLS; NHES-I 1960-62; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06



# Food Prices and Obesity Prevalence

1995-2009, Inflation Adjusted

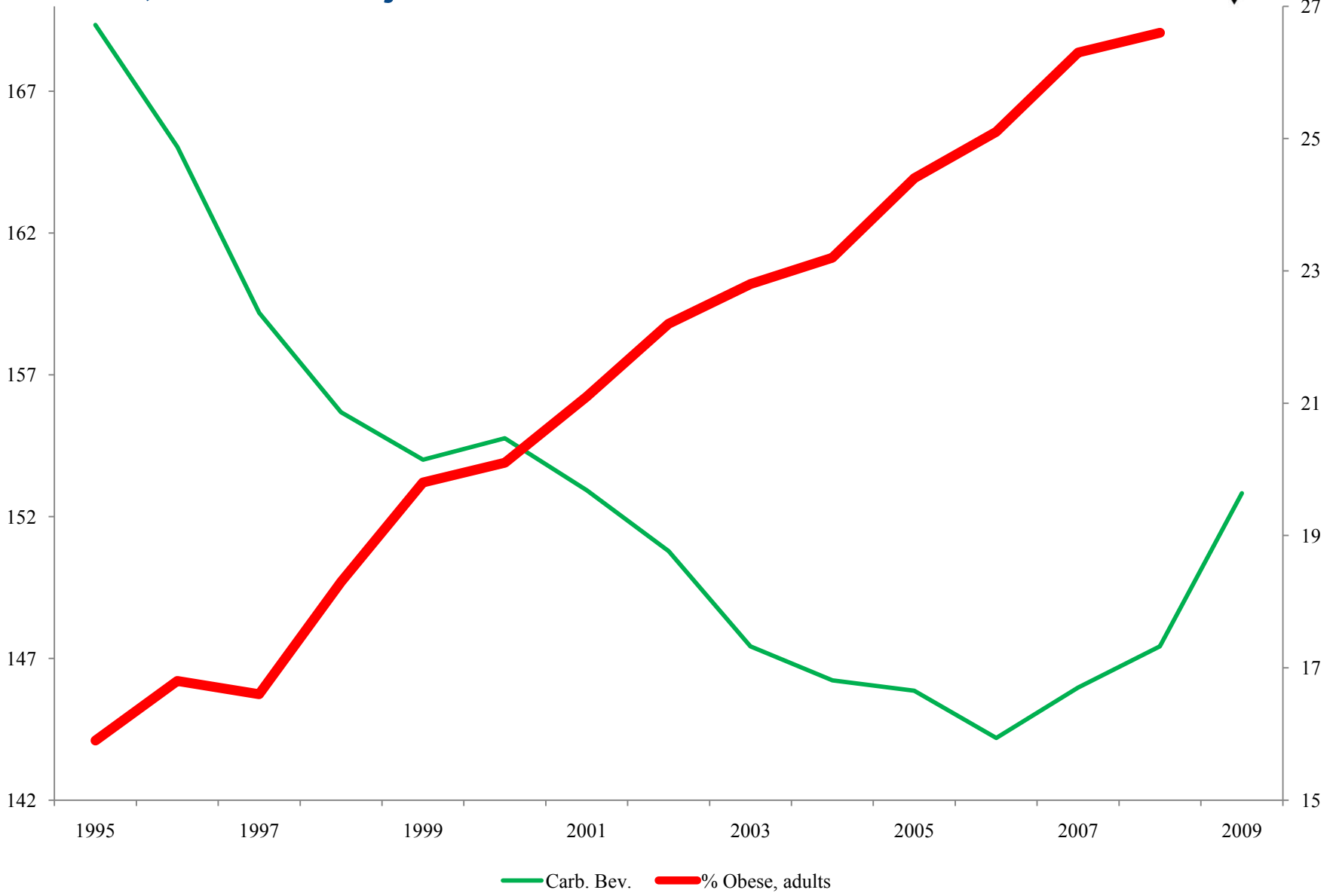
impact **TEEN**



Source: BRFSS 2009, BLS 2009 and authors' calculations

# Food Prices and Obesity Prevalence

1995-2009, Inflation Adjusted



Source: BRFSS 2009, BLS 2009 and authors' calculations



Extensive economic research on the impact of food and beverage prices on consumption of various products; estimates suggest 10% own-price increase would reduce:

- Cereal consumption by 5.2%
- Fruit consumption by 7.0%
- Vegetable consumption by 5.9%
- Soft drink consumption by 7.8%
- Sweets consumption by 3.5%
- Food away from home consumption by 8.1%

Relatively limited research to date on impact of food and beverage prices and weight outcomes:

- Higher prices for sugary foods would significantly reduce prevalence of overweight and obesity among adults (Miljkovic et al., 2008)
- 10% increase in fast food prices would reduce prevalence of adolescent obesity by almost 6% (Powell, et al., 2007)
- Weight outcomes among low-income populations and those with higher BMI more responsive to prices
  - BMI of kids in families below poverty level about 50% more responsive to F&V prices
  - BMI for kids at unhealthy weight levels 39% more responsive to F&V prices
  - BMI of adolescents at unhealthy weight levels about 4 times more responsive to F&V and fast food prices.

Emerging evidence on prices suggests that significant changes in relative prices of healthy and unhealthy foods could reduce BMI and likelihood of obesity

- Increases in prices of less healthy foods and beverages
  - taxes
  - elimination of corn subsidies
  - disallow purchases under food assistance programs
- Reductions in prices of more healthy foods and beverages
  - subsidies
  - expanded or favored treatment under food assistance programs



# Policy Options: Sugar Sweetened Beverage Taxes



## Sugar-Sweetened Beverage Taxes and Public Health

Healthy Eating  
Research

Bridging the Gap

A Research Brief, July 2009

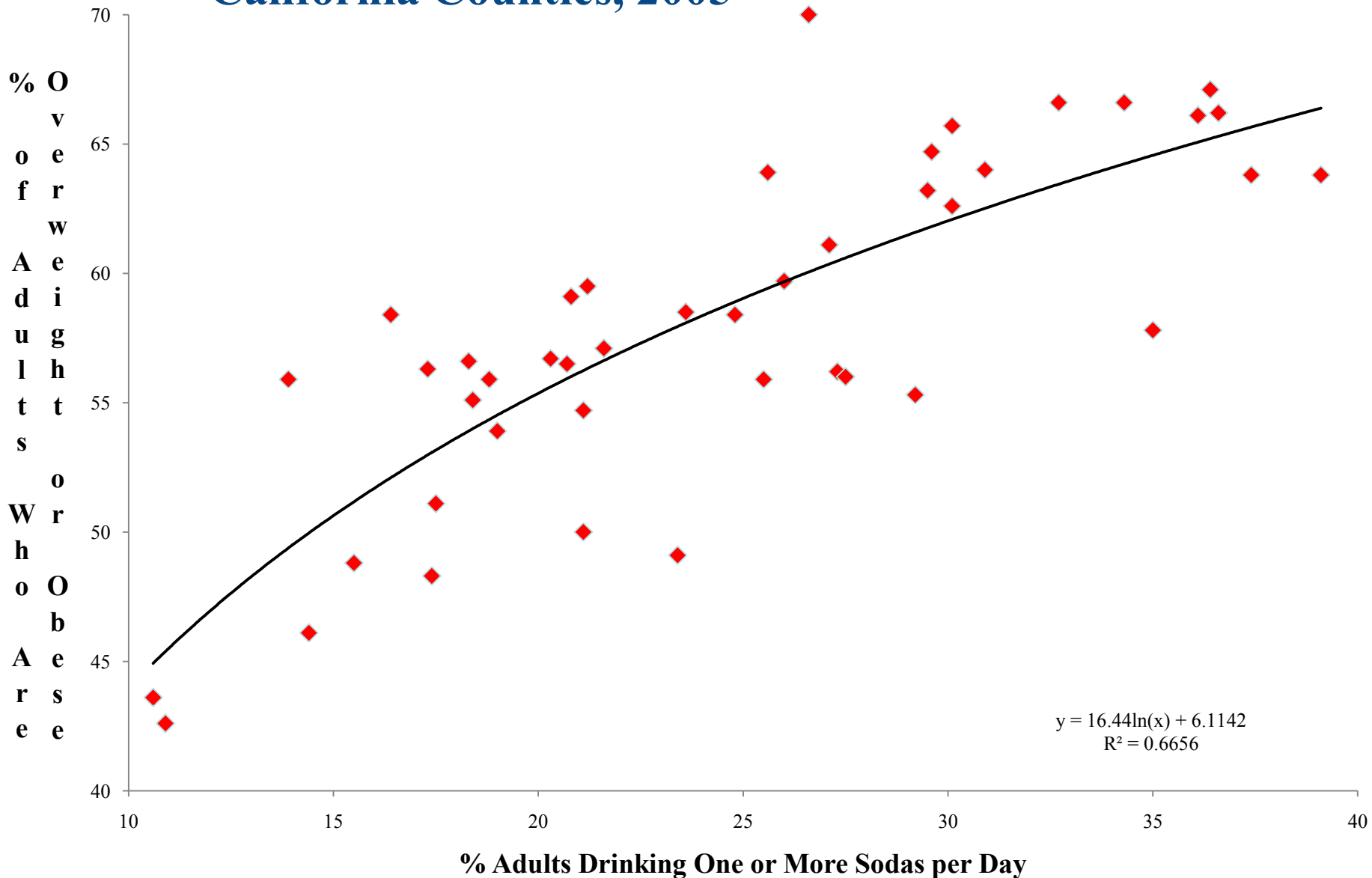
*The NEW ENGLAND JOURNAL of MEDICINE*

HEALTH POLICY REPORT

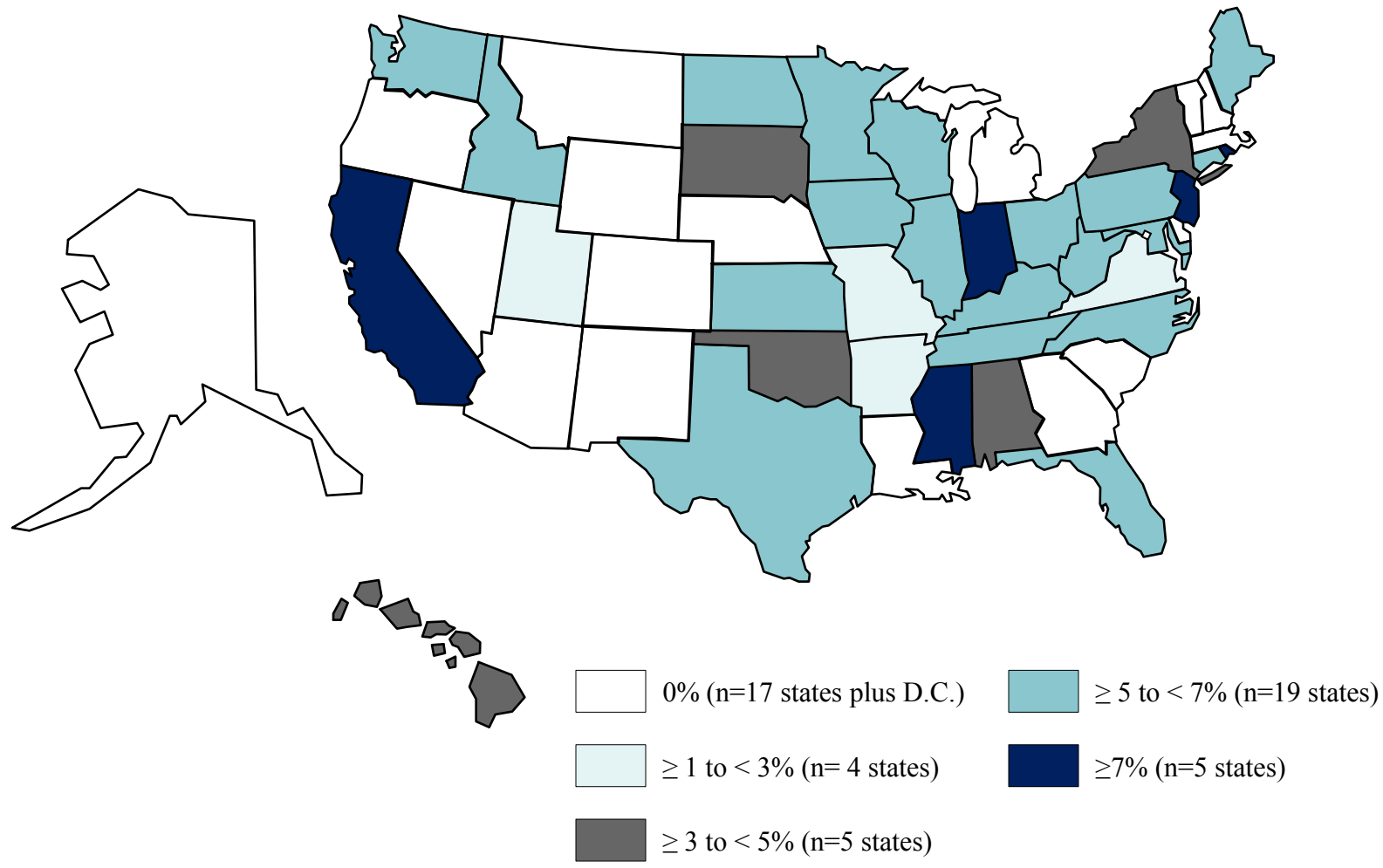
## The Public Health and Economic Benefits of Taxing Sugar-Sweetened Beverages

Kelly D. Brownell, Ph.D., Thomas Farley, M.D., M.P.H., Walter C. Willett, M.D., Dr.P.H.,  
Barry M. Popkin, Ph.D., Frank J. Chaloupka, Ph.D., Joseph W. Thompson, M.D., M.P.H.,  
and David S. Ludwig, M.D., Ph.D.

# Soda Consumption and Weight Outcomes California Counties, 2005



# Policy Options: State Sales Taxes on Regular and Diet Soda, 2010

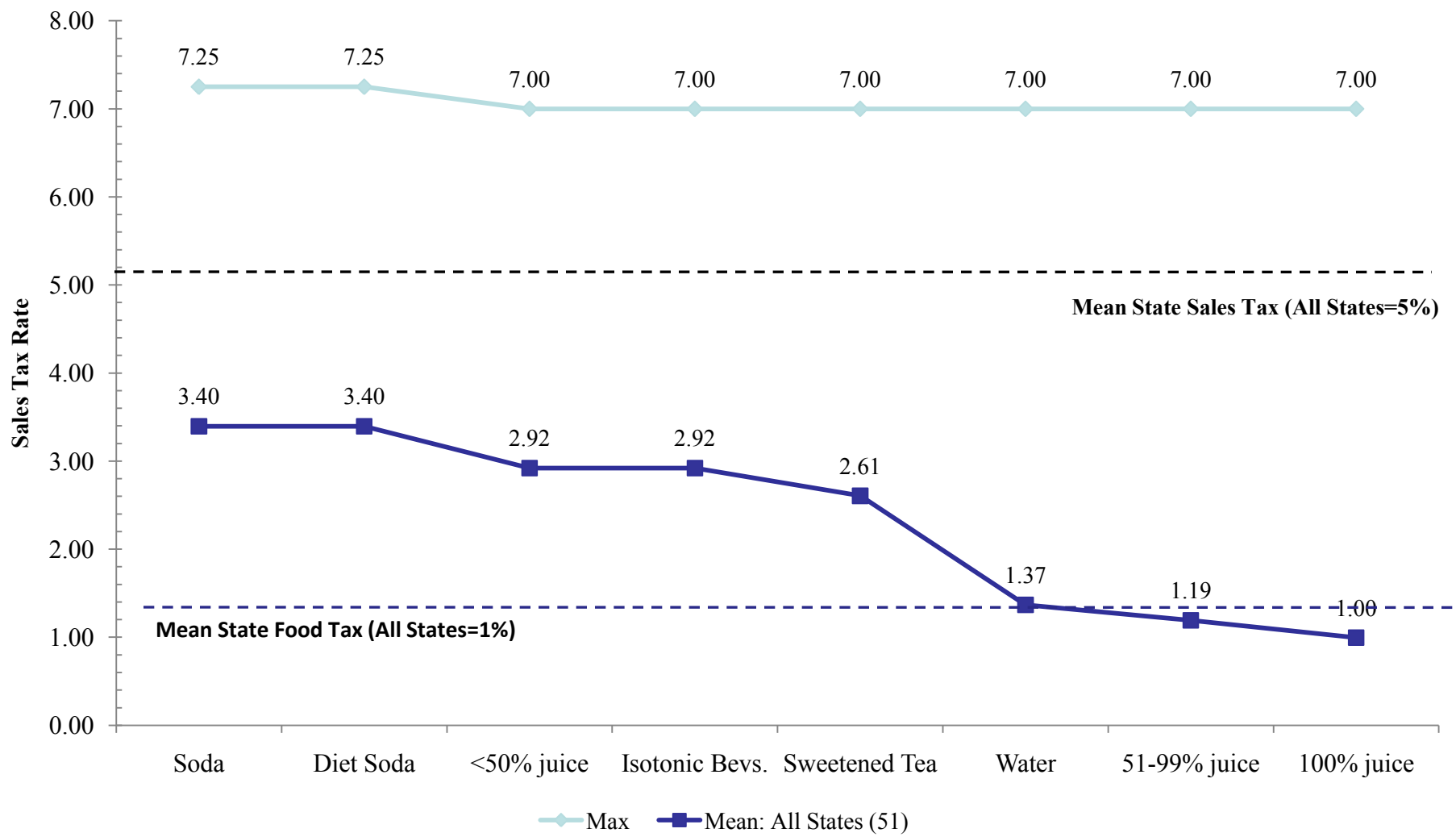


**Notes:** In addition to sales taxes, the following states currently apply excise taxes or other fees to bottles, syrups, and/or powders at the manufacturer, distributor, or retail level: AL, AR, RI, TN, VA, WA, and WV. Three states also impose a mandatory statewide local tax that is not reflected in the above data: CA (1%), UT (1.25%), VA (1%).

**Source:** Bridging the Gap Program, Health Policy Center, University of Illinois at Chicago, 2010. Data based on information compiled by The MayaTech Corporation.

# Policy Options: Sales Taxes

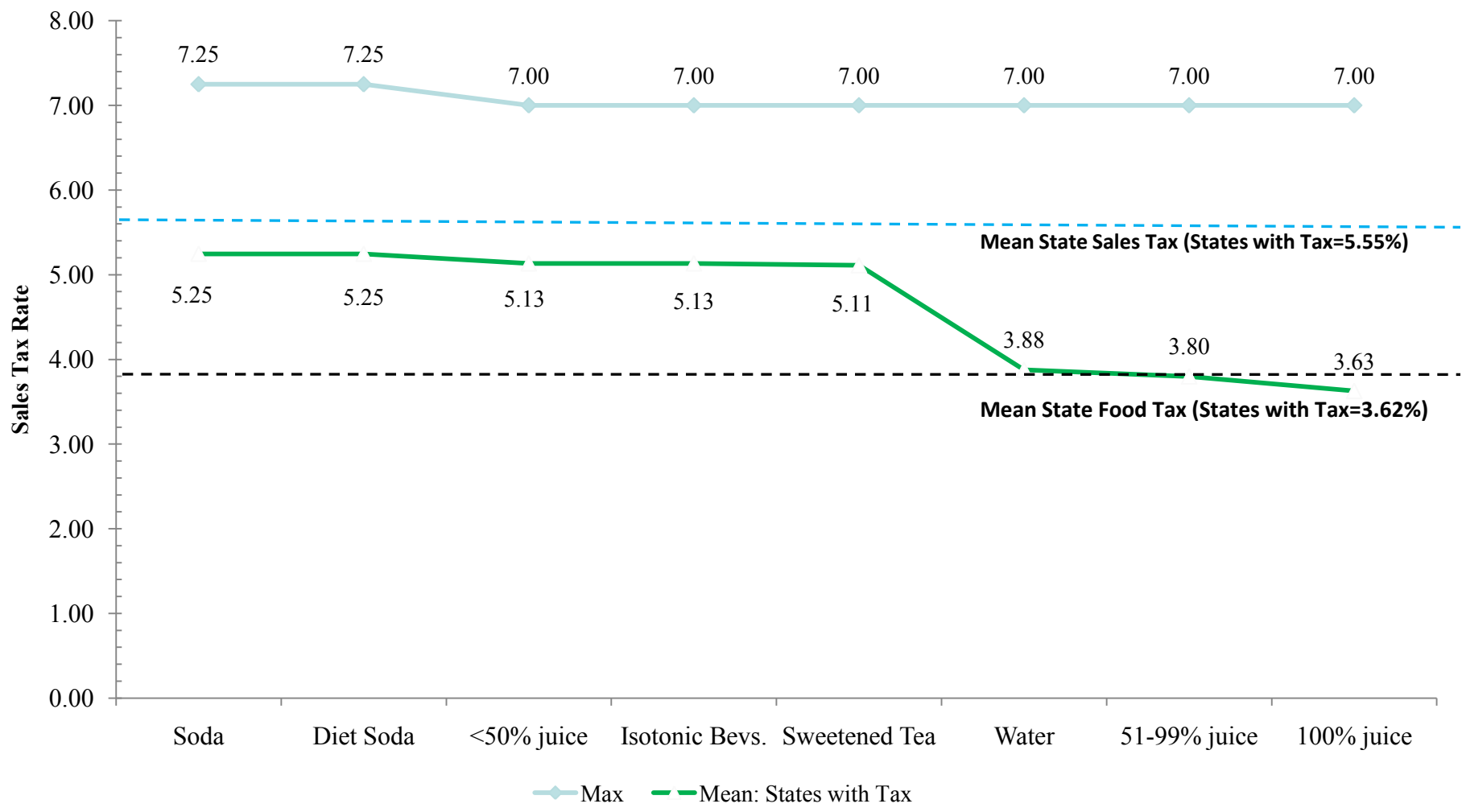
## Selected Beverages, All States, 2010



**Note:** Three states also impose a mandatory statewide local tax that is not reflected in the above data: CA (1%), UT (1.25%), VA (1%).

# Policy Options: Sales Taxes

## Selected Beverages, Taxing States, 2010



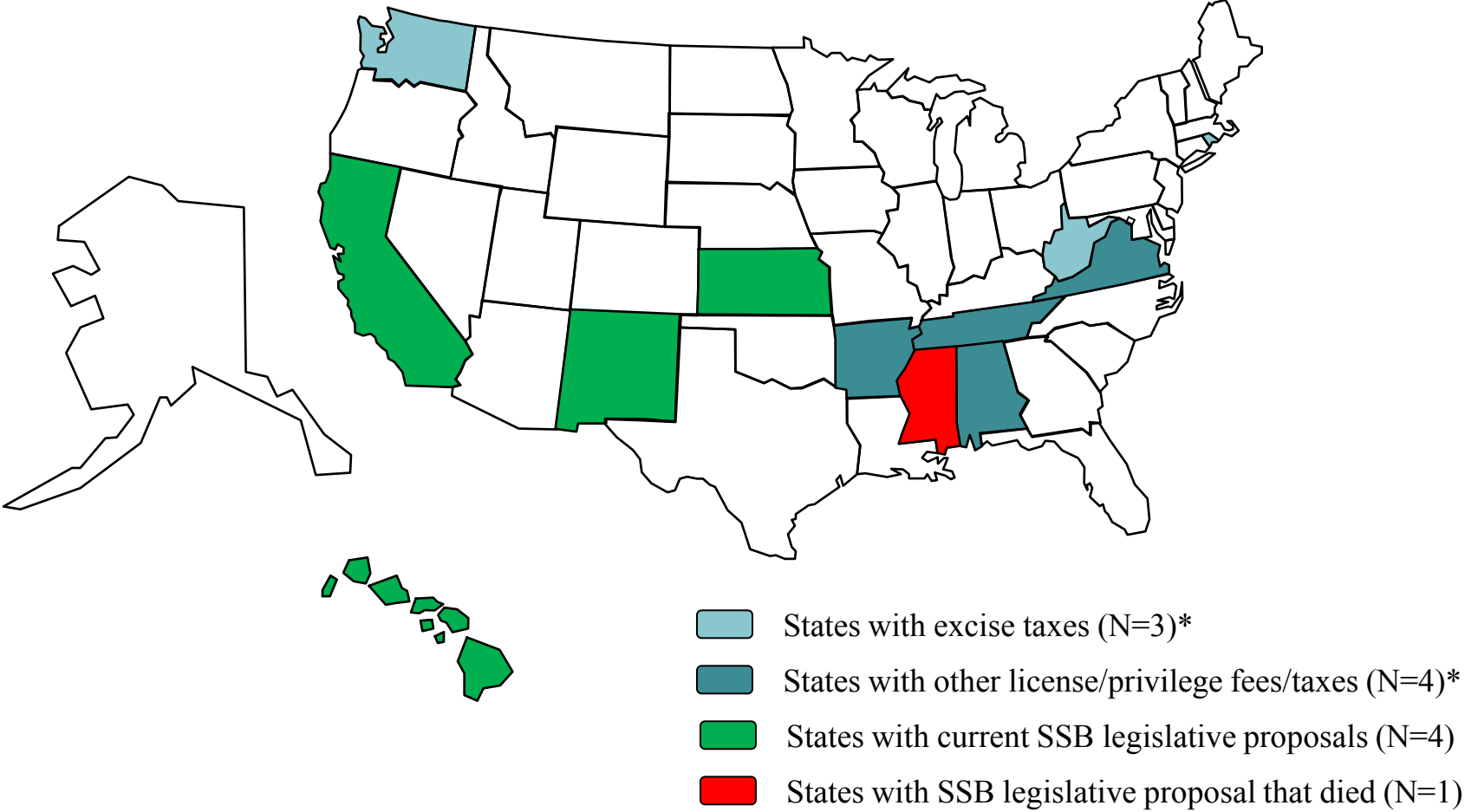
**Note:** Three states also impose a mandatory statewide local tax that is not reflected in the above data: CA (1%), UT (1.25%), VA (1%).

# State Approaches to SSB Taxation



Approach	Specific Tax/ Fee on Quantity of Sugar or Bev. Volume	Ad Valorem (% of price)	Upon Whom Tax Imposed	Where Tax Presented to Consumer
<b>Non-Sales Taxes</b>				
Tax all SSBs	X	X	Manufacturer Distributor Wholesaler Retailer	Shelf-price
Tax all Beverages (or selected including non-SSBs)	X	X	Manufacturer Distributor Wholesaler Retailer	Shelf-price
<b>Sales Taxes</b>				
Tax all SSBs		X	Consumer	Point of purchase
Tax all/selected Beverages		X	Consumer	Point of purchase

# States with Non-Sales\* Taxes on Selected Beverages (as of 1/1/10) or SSB-related Legislative Proposals in 2010



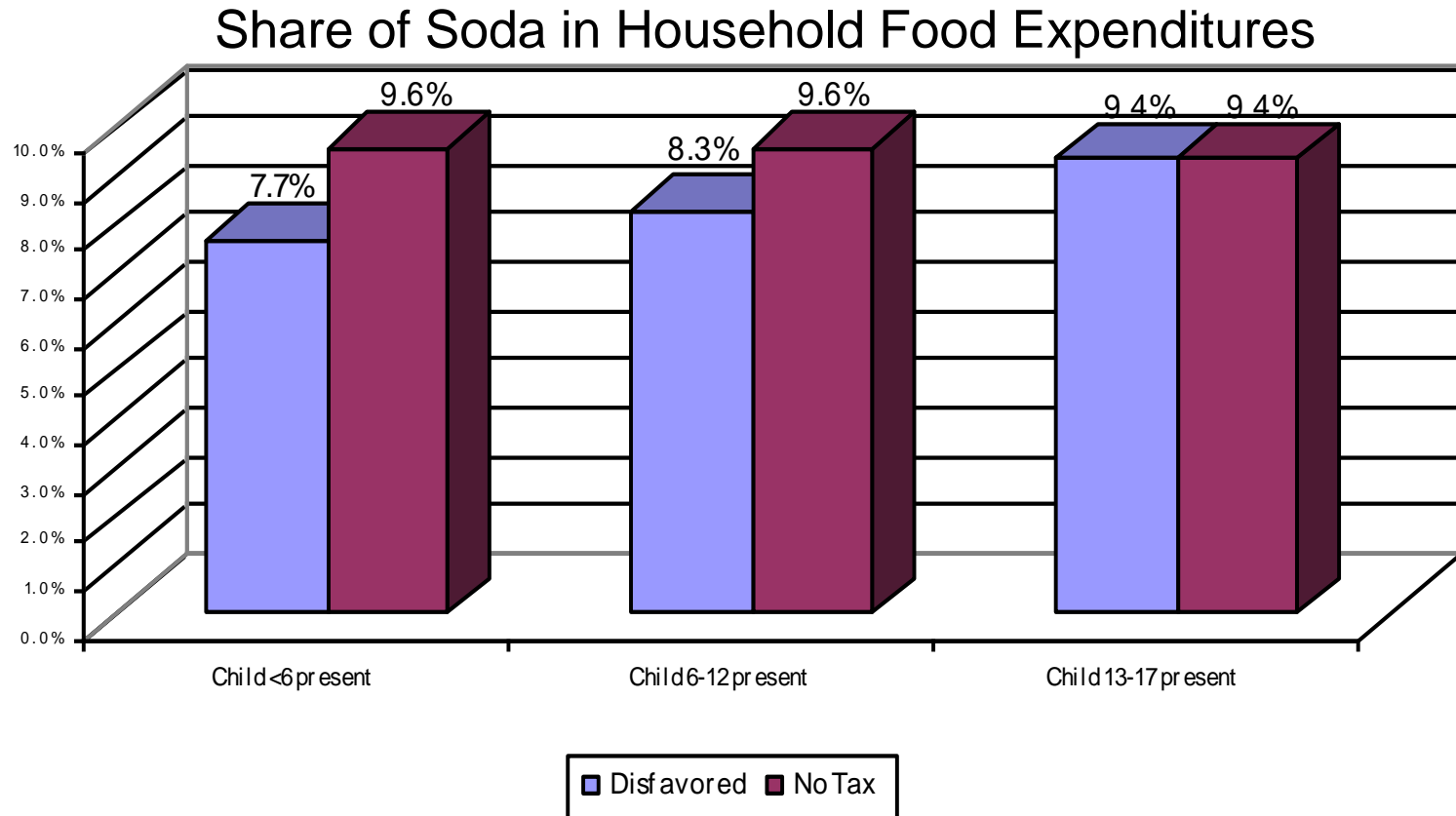
\*Additional excise/ad valorem (non-sales) taxes may be applied at the manufacturer, distributor, wholesaler, retailer levels and are applied to bottles, syrup, powders and/or mixes. Taxes apply to regular and diet soda, isotonic, and sweetened tea in AL, RI, AR, TN, WV. Taxes apply only to regular and diet soda in VA & WA.

# State SSB-related Legislative Activity, 2010 Legislative Session (includes carryover)

- 5 states have introduced SSB-specific excise/  
privilege tax bills during the current legislative  
session:
  - California and Kansas (tax upon sweetened beverage  
manufacturers at a rate of \$0.01/teaspoon sugar in  
SSB/concentrate)
  - Hawaii (1% gross proceeds on sale of SSBs)
  - Mississippi (\$0.02/ounce or \$2.56/gallon produced from  
syrup)—**Died in Committee**
  - New Mexico (\$0.005/ounce imposed on distributors)
- City-level tax proposals
  - Philadelphia - \$0.02/ounce – **Died in City Council**
  - Washington DC - \$0.01/ounce – **Died in DC Council**  
**(but did extend sales tax base to include SSBs)**



- Recent and ongoing research suggests
  - Household soda purchases lower in states where higher sales tax applies to sodas



- Recent and ongoing research suggests
  - Some children's soda consumption lower where sales taxes are higher; specifically those who are:
    - already overweight, African American, and/or in low income families
  - Likelihood of obesity not associated with presence or level of tax
  - Weight gain not affected by presence/level of tax, except for:
    - already overweight, African American, and/or in low income families

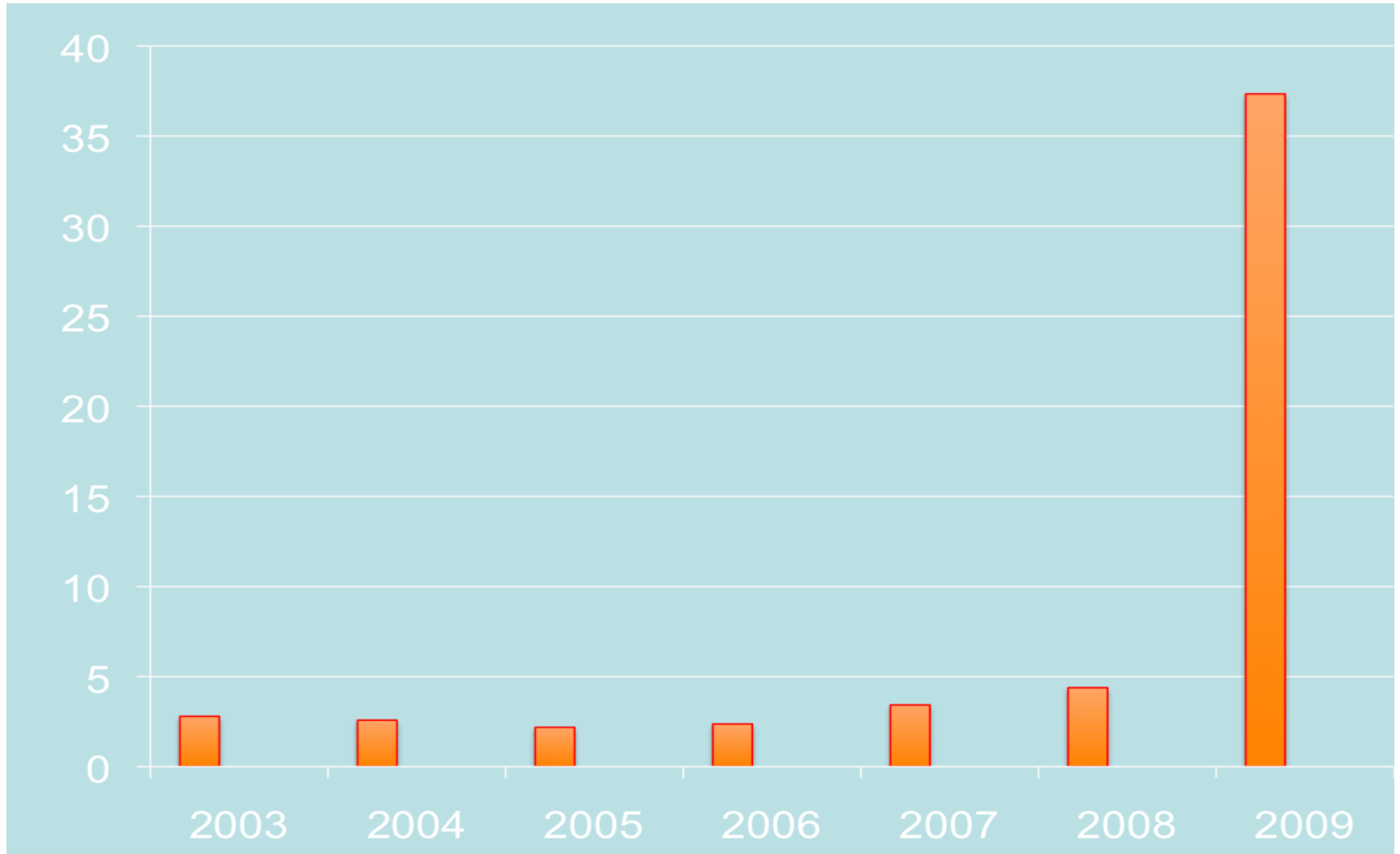
*Current taxes too low to significantly impact obesity*

- Revenue generating potential of tax is considerable
  - SSB Tax calculator at:  
<http://www.yaleruddcenter.org/sodatax.aspx>
  - Tax of one cent per ounce could generate:
    - \$14.9 billion nationally if on SSBs only
    - \$24.0 billion if diet included
  - Tax of two cents per ounce:
    - \$21.0 billion nationally, SSBs only
    - \$39.0 billion if diet included
- Earmarking tax revenues for obesity prevention efforts would add to impact of tax

- From a public health perspective, specific excise tax preferable to sales tax for several reasons:
  - More apparent to consumer
  - Easier administratively
  - Reduces incentives for switching to cheaper brands, larger quantities
  - Revenues more stable, not subject to industry price manipulation
  - Greater impact on consumption; more likely impact on weight outcomes
  - Disadvantage: need to be adjusted for inflation

# Policy Options: SSB Taxes

## Millions Spent Lobbying Coke, Pepsi & ABA



- Many of the same arguments used to oppose tobacco taxes
  - Won't generate expected revenues
    - Substitute to untaxed products
    - Cross-border shopping to avoid tax
  - Regressive
  - Will put many out of work
  - Won't affect obesity rates

- Increased tobacco taxes have been highly effective in reducing tobacco use and the death and disease it causes
  - Promote cessation, prevent initiation
  - Further reductions if revenues earmarked for comprehensive tobacco control programs
- Food/beverage prices significantly affect consumption; emerging evidence that relative prices of healthy/less healthy products affects weight outcomes
  - Greater impact on young people, those on lower incomes, and those already at higher weight
  - Existing, small taxes have little impact on weight outcomes
  - Potential for larger taxes to significantly influence obesity rates

For more information:

[www.bridgingthegapresearch.org](http://www.bridgingthegapresearch.org)

[www.impactteen.org](http://www.impactteen.org)

[www.yaleruddcenter.org/sodatax.aspx](http://www.yaleruddcenter.org/sodatax.aspx)

[fjc@uic.edu](mailto:fjc@uic.edu)