

Tax, Price and Health Behaviors

**Frank J. Chaloupka
University of Illinois at Chicago**

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"Sugar, rum, and tobacco, are commodities which are nowhere necessities of life, which are become objects of almost universal consumption, and which are therefore extremely proper subjects of taxation."

Adam Smith, An Inquiry into the Nature and Causes of The Wealth of Nations, 1776

Overview

- Overview of tobacco and alcohol taxation
- Impact of taxes/prices on tobacco and alcohol use, consequences of use
- Earmarking revenues for control programs
- Industry price marketing & policy options
- Counterarguments – Myths & Facts
- Implications for obesity prevention

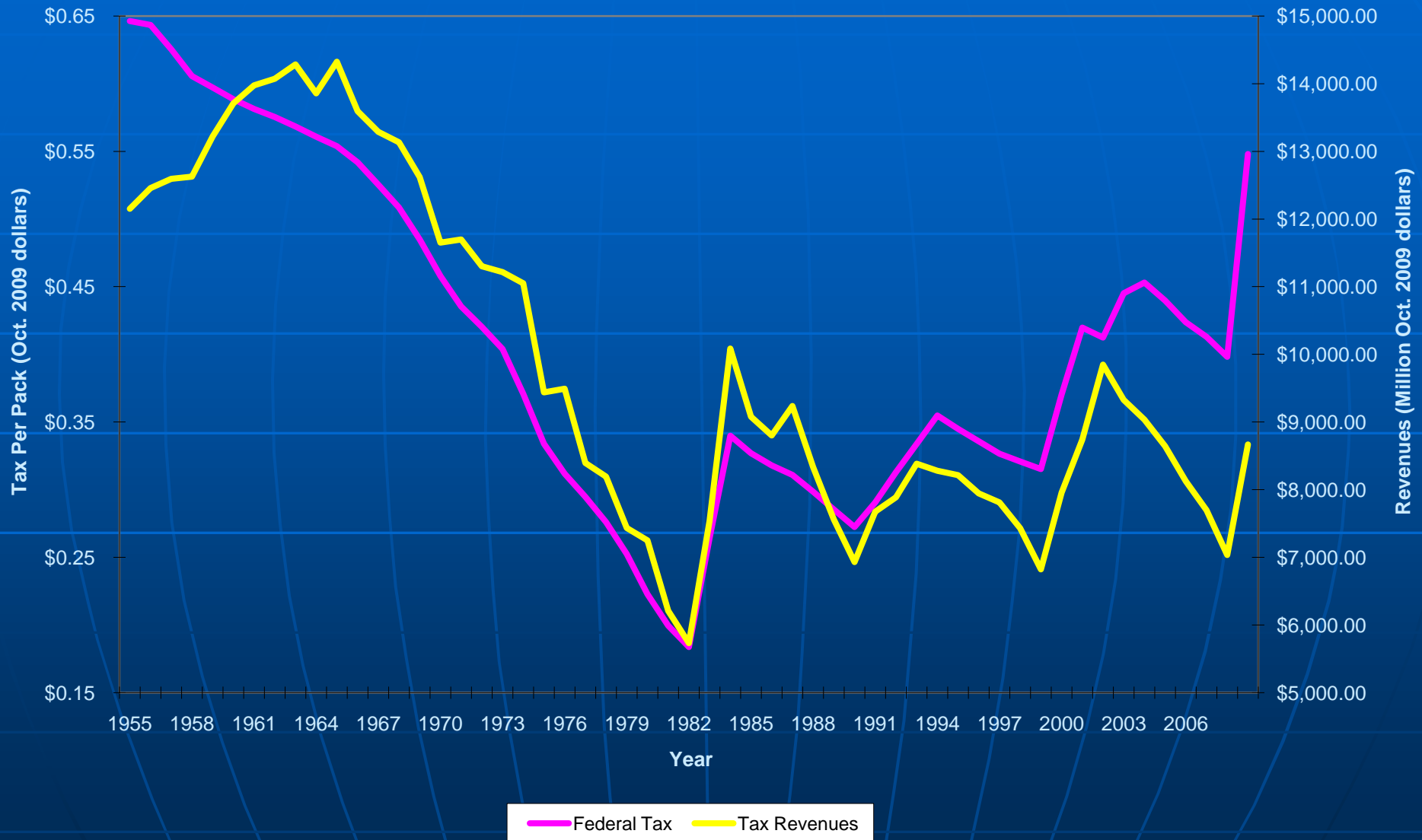
Overview of Tobacco and Alcohol Taxation

Why Tax?

■ Efficient revenue generation

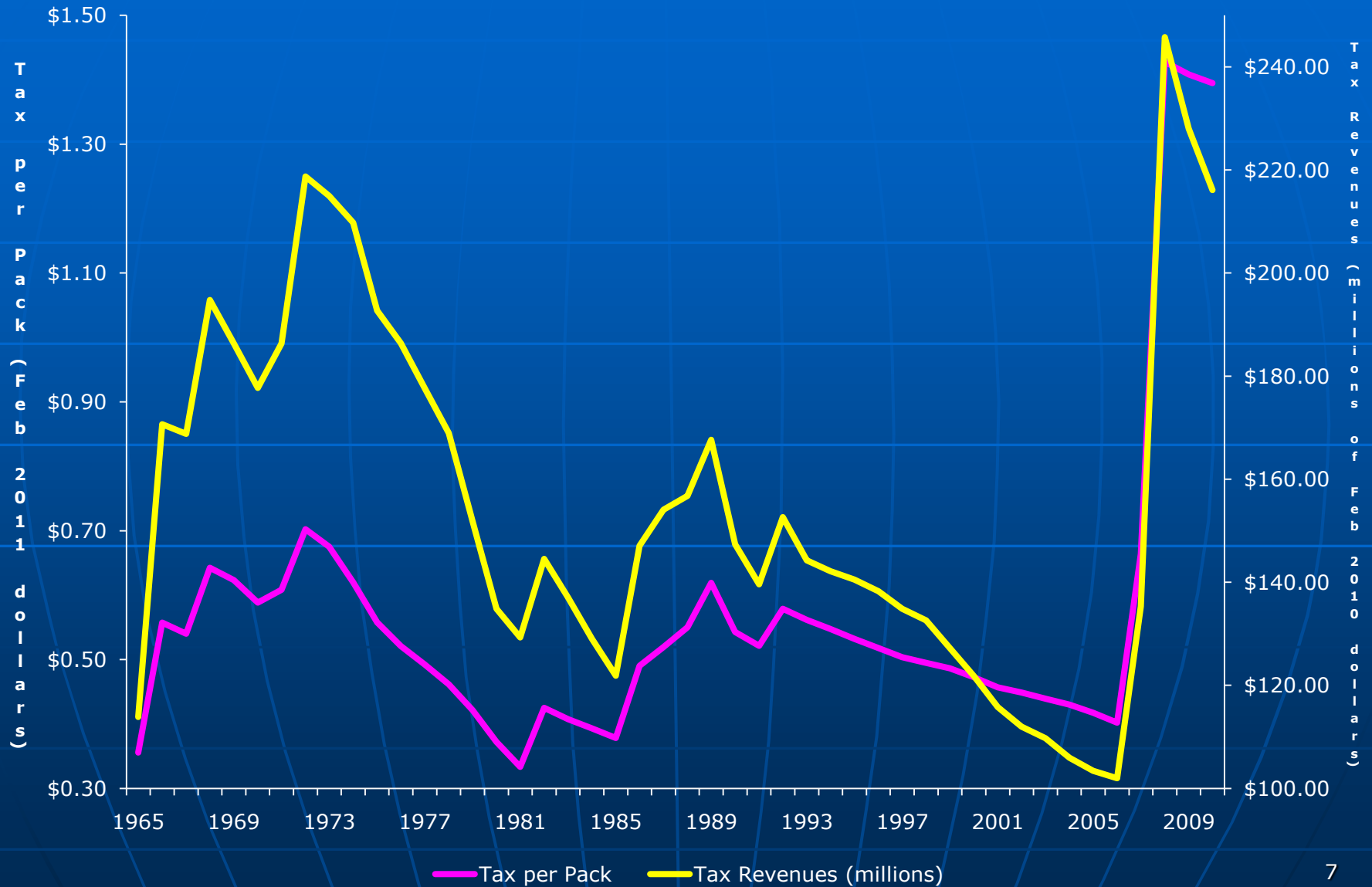
- Primary motive historically and still true in many countries today
- Very efficient sources of revenue given:
 - Historically low share of tax in price in many countries
 - Relatively inelastic demand for tobacco products, alcoholic beverages
 - Few producers and few close substitutes
 - One of many goods/services that satisfies the “Ramsey Rule”
- “This vice brings in one hundred million francs in taxes every year. I will certainly forbid it at once – as soon as you can name a virtue that brings in as much revenue” – Napoleon III on tobacco tax

Federal Cigarette Tax and Tax Revenues Inflation Adjusted, 1955-2009



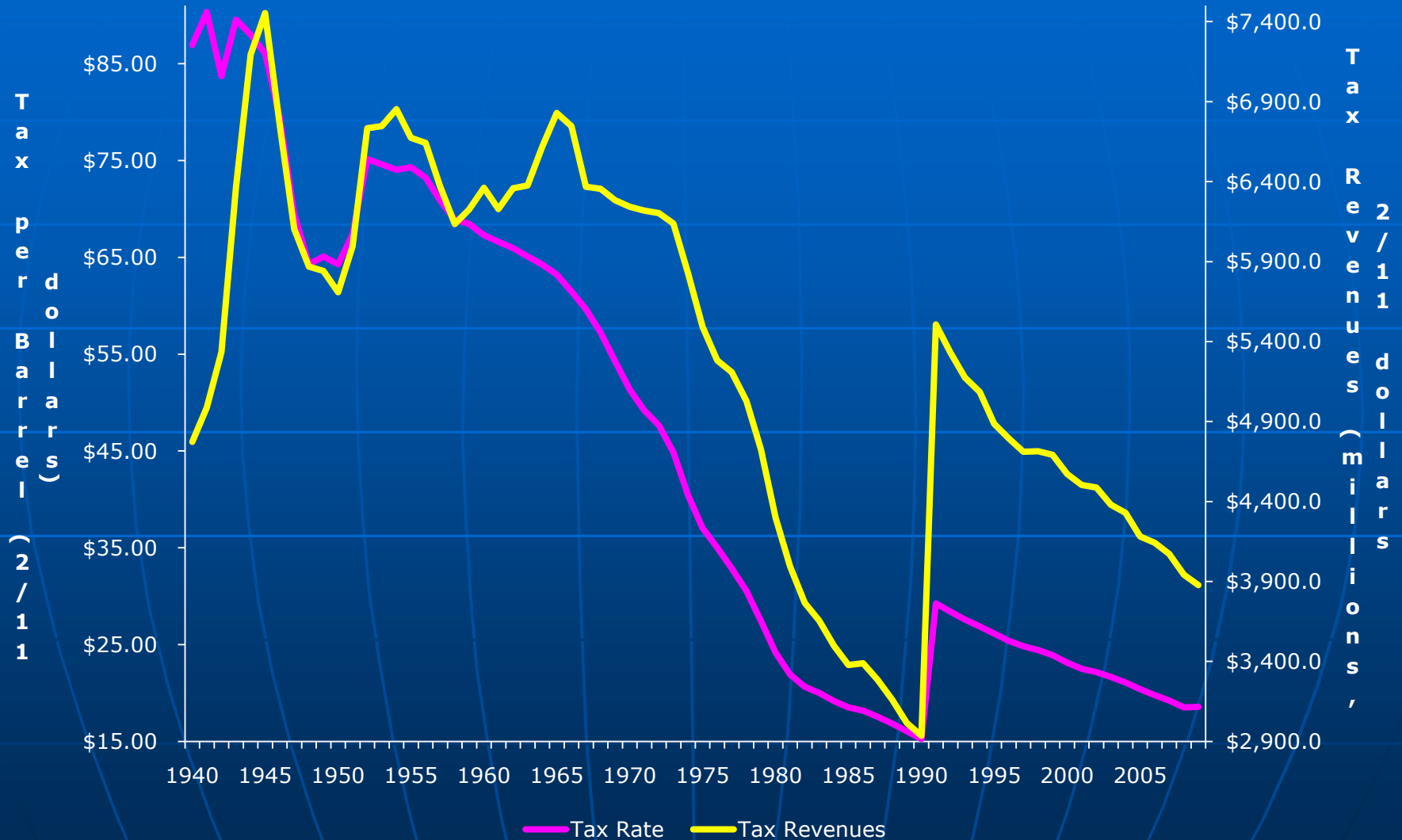
Source: *Tax Burden on Tobacco*, 2010, and author's calculations

Cigarette Tax and Tax Revenues Inflation Adjusted, Iowa, 1965-2010



Source: *Tax Burden on Tobacco*, 2011, and author's calculations

Federal Beer Tax and Tax Revenues Inflation Adjusted, 1940-2009



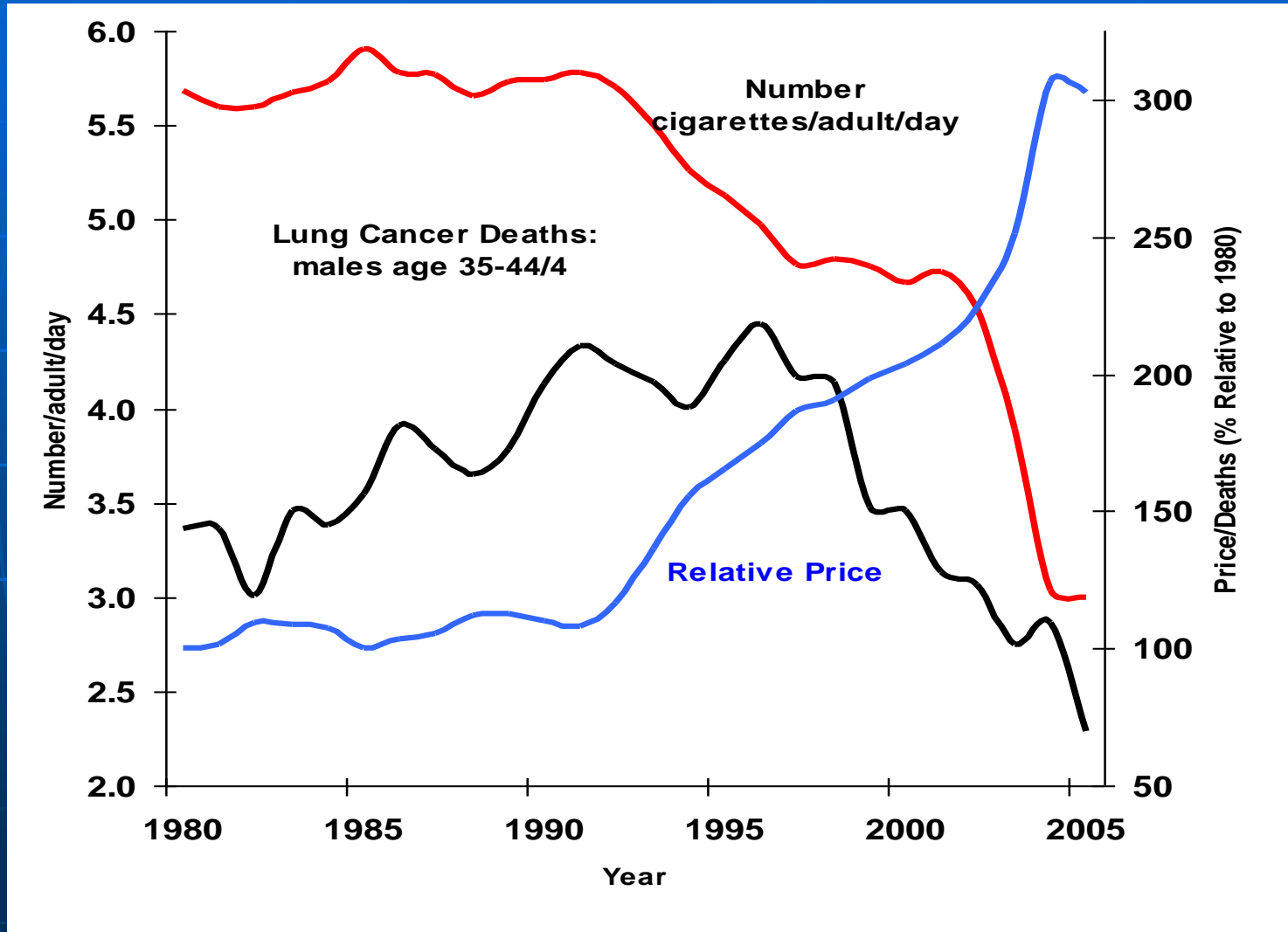
Source: *Brewers Almanac*, 2010, and author's calculations

Why Tax?

■ Promote public health

- Increasingly important motive for higher tobacco taxes in many high income countries
 - Less so for alcoholic beverage taxes
- Based on substantial and growing evidence on the effects of tobacco taxes and prices on tobacco use
 - Particularly among young, less educated, and low income populations
- *"... We [] have a package of six policy measures, known as MPOWER, that can help countries implement the provisions in the Convention. All six measures have a proven ability to reduce tobacco use in any resource setting. **But tobacco taxes are by far the most effective.**"* Director General Dr. Margaret Chan, WHO, 2008

France: smoking, tax and male lung cancer, 1980-2000



Why Tax Tobacco?

- **Cover the external costs of tobacco and excessive alcohol use**
 - “Pigouvian” tax
 - Less frequently used motive
 - Account for costs resulting from tobacco use imposed on non-users
 - Increased health care costs, lost productivity, property damage, criminal justice costs, etc. caused by exposure to tobacco smoke among non-smokers, harms incurred by non/moderate drinkers
 - Can also include “internalities” that result from addiction, imperfect information, and time inconsistent preferences

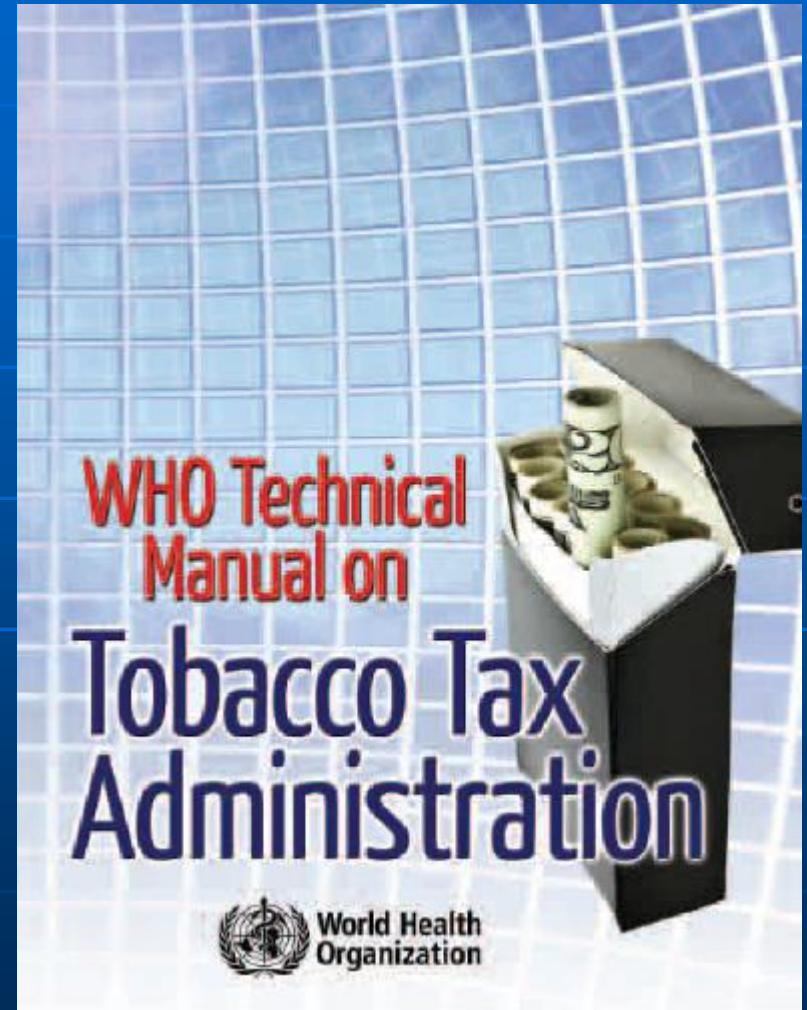
Types of Taxes

■ **Variety of tobacco, alcohol taxes**

- Taxes on value of tobacco crop
- Customs duties on tobacco leaf, tobacco products, alcoholic beverage imports and/or exports
- Sales taxes/Value added taxes
- Implicit taxes when government monopolizes production and/or distribution
- Excise Taxes
 - Excise taxes are of most interest given specificity to tobacco products, alcoholic beverages
 - Specific (per unit, volume, weight) and *ad valorem* (based on price) excises

Best Practices in Tobacco Taxation

- Simpler is better
- Favor specific taxes over *ad valorem* taxes
- Adjust specific taxes to outpace inflation, income growth
- Excise taxes account for $\geq 70\%$ of retail prices
- Much more.....
- Same applies to alcohol



Federal Tobacco Taxes

- Federal cigarette tax
 - Specific (per unit) excise tax
 - initially adopted in 1864
 - Raised during war time/lowered during peace time
 - Set at 8 cents per pack in 1951
 - Doubled to 16 cents per pack in 1983
 - Eventually raised to 39 cents per pack in 2002
 - Less than 60% of inflation adjusted value of 1951 tax
 - Significant increase – 61.66 cents – April 1, 2009
 - Earmarked for S-CHIP expansion

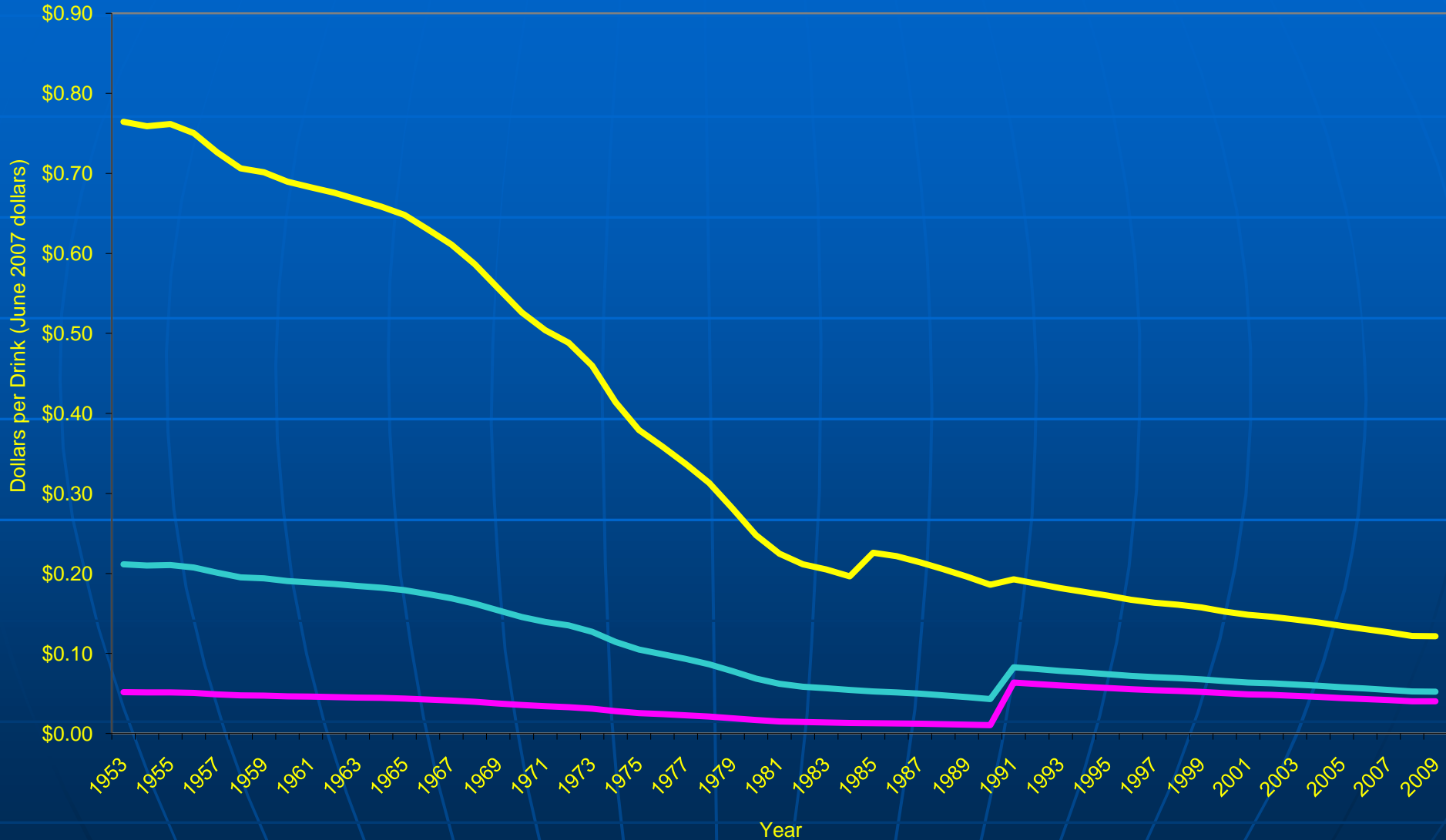
Federal Tobacco Taxes

- Specific federal excise taxes on most other tobacco products, including
 - cigars: \$1.0066 per pack on small cigars; 52.75% of price for low priced cigars; cap of 40.26 cents per cigar for high priced cigars
 - chewing tobacco: 3.1 cents per ounce
 - moist snuff: \$1.51 per pound
 - roll-your-own tobacco \$24.78 per pound
 - pipe tobacco: \$2.83 per pound
 - rolling papers: 1.26 cents per pack
- Until latest increases, most were lower than cigarette tax; more equivalent now
- Similarly infrequent increases in taxes

Federal Alcohol Taxes

- Specific (per unit) excise taxes
- Beer, spirits taxes adopted in 1862; wine 1916
- Raised during war time/lowered during peace time
- Spirits tax: \$10.50 per proof gallon in 1951
 - \$12.50 in 1985; \$13.50 in 1991
- Table wine tax: \$0.17 per wine gallon in 1951
 - \$1.07 in 1991
- Beer tax: \$9.00 per barrel in 1951
 - \$16.00 in 1991
- Tax per ounce of ethanol varies by type of alcoholic beverage

Federal Alcoholic Beverage Taxes per Drink Inflation Adjusted, 1953-2009

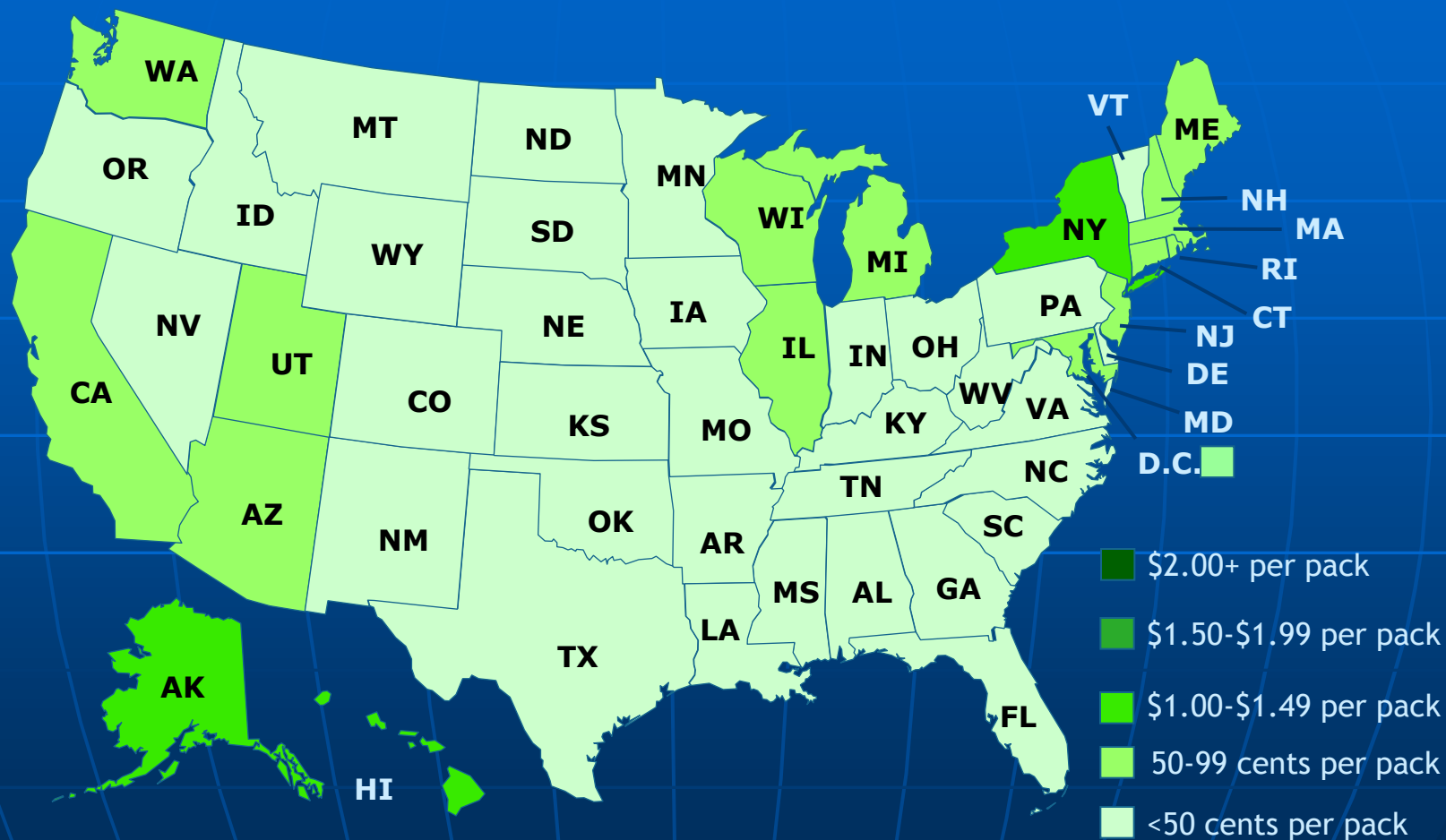


— Beer — Wine — Spirits

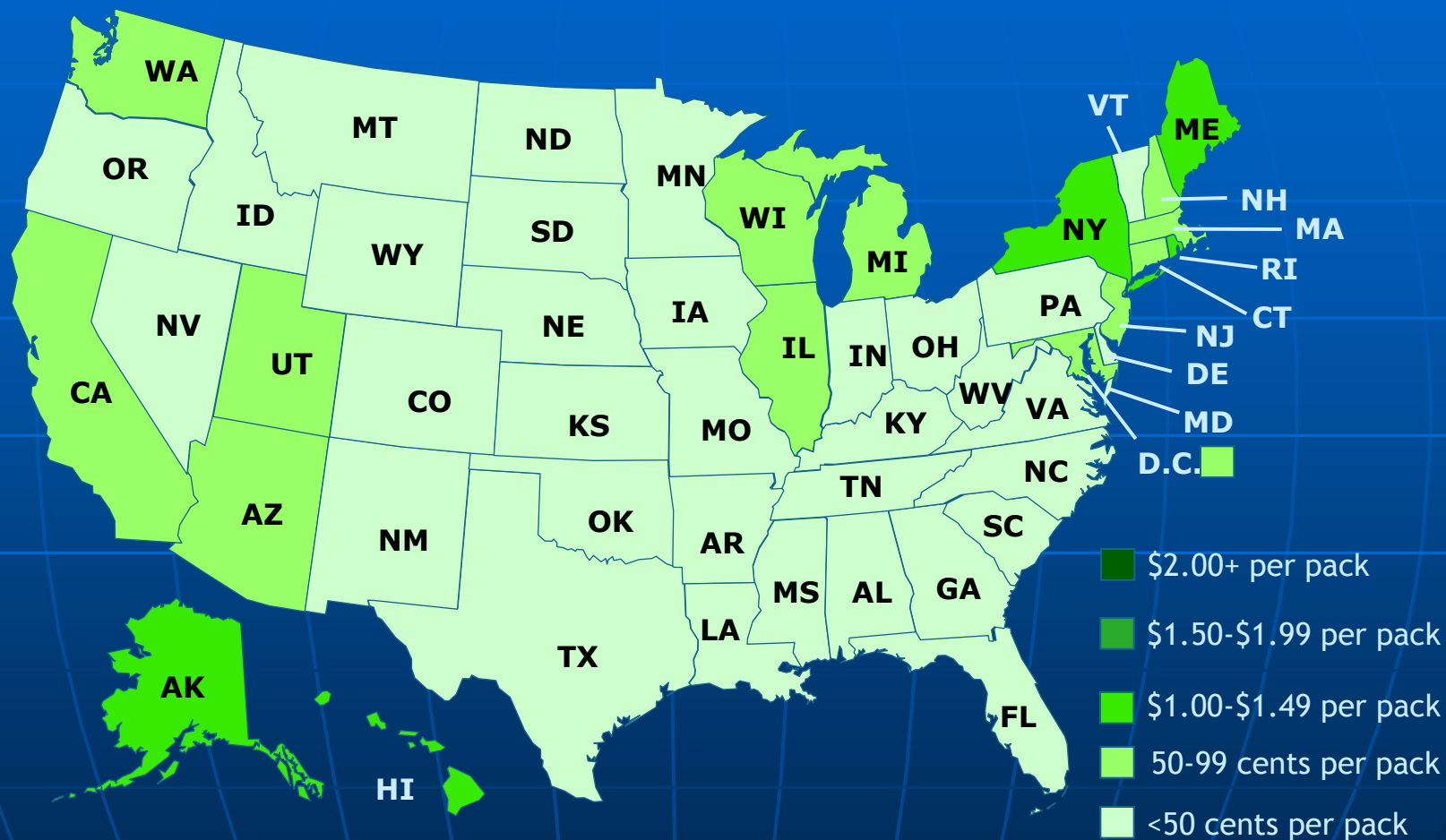
State Tobacco Taxation

- State cigarette taxes
 - First adopted by IA in 1921; NC last to adopt in 1969
 - Specific excise tax in all states
 - Currently: 17.0 cents/pack (MO) to \$4.35/pack (NY); \$1.36 in Iowa
 - Average \$1.45 per pack (48.5 cents in tobacco growing states; \$1.57 in other states)
 - Several proposing additional increases

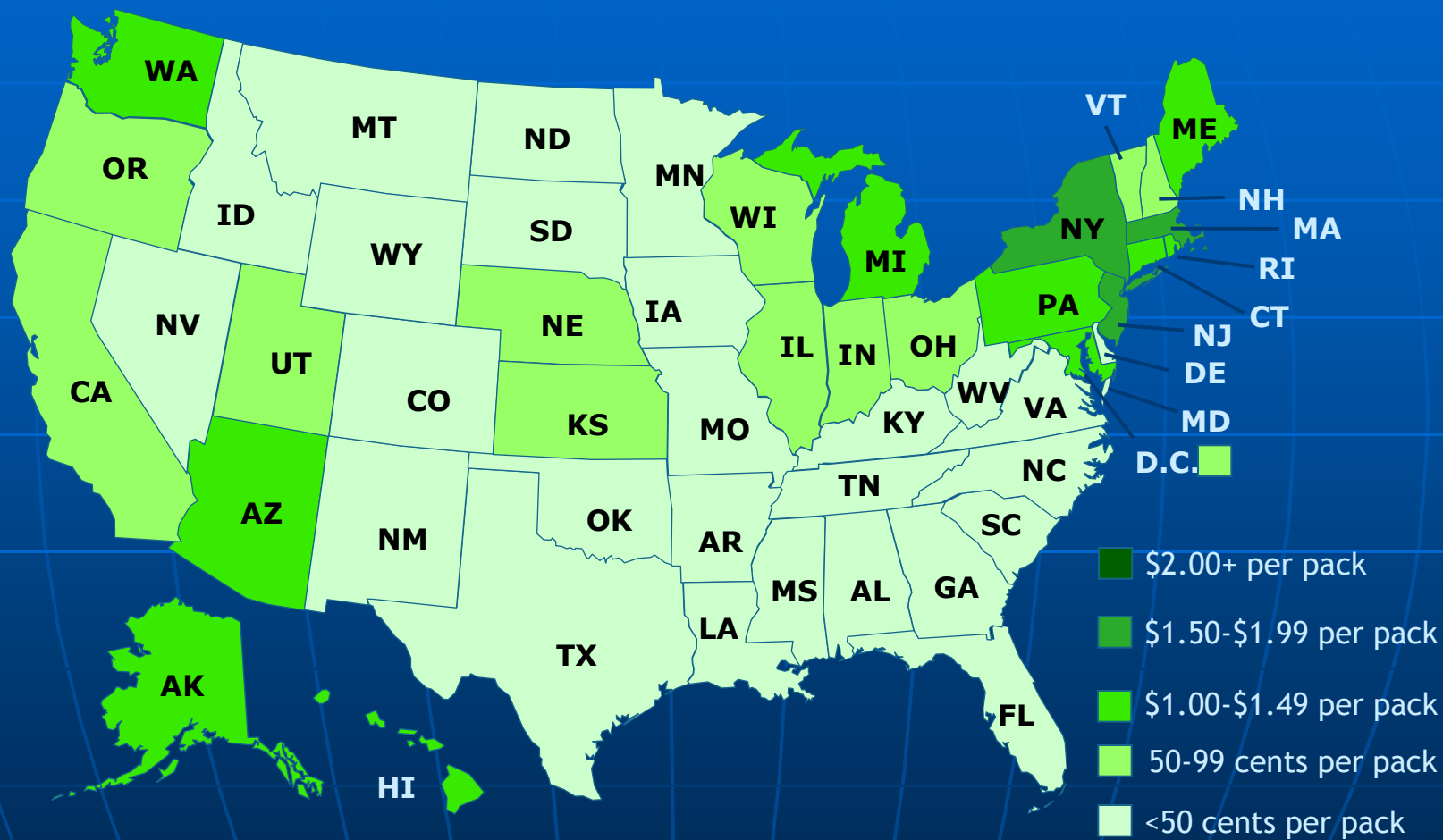
State Cigarette Excise Tax Rates – 2000



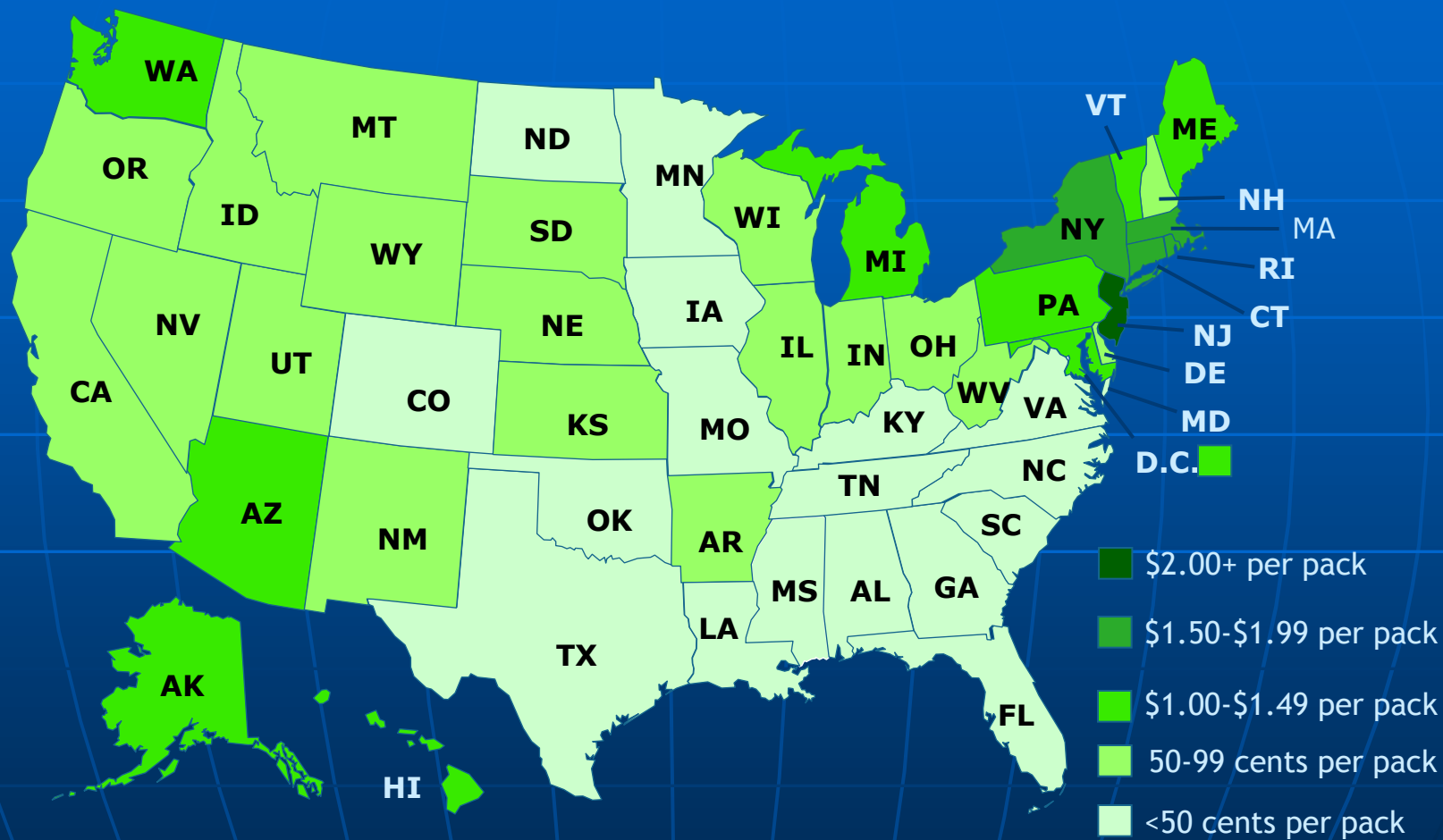
State Cigarette Excise Tax Rates – 2001



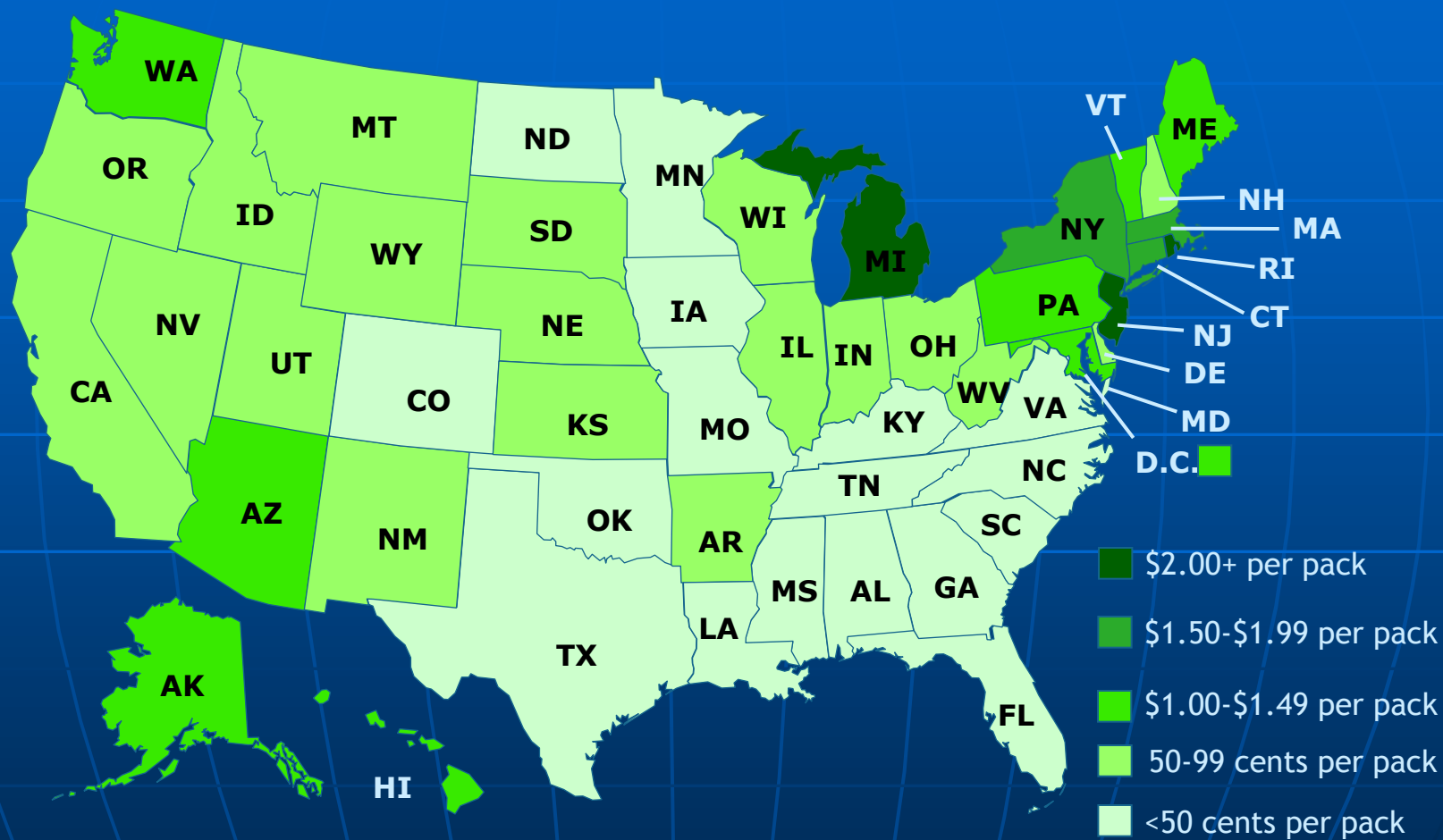
State Cigarette Excise Tax Rates – 2002



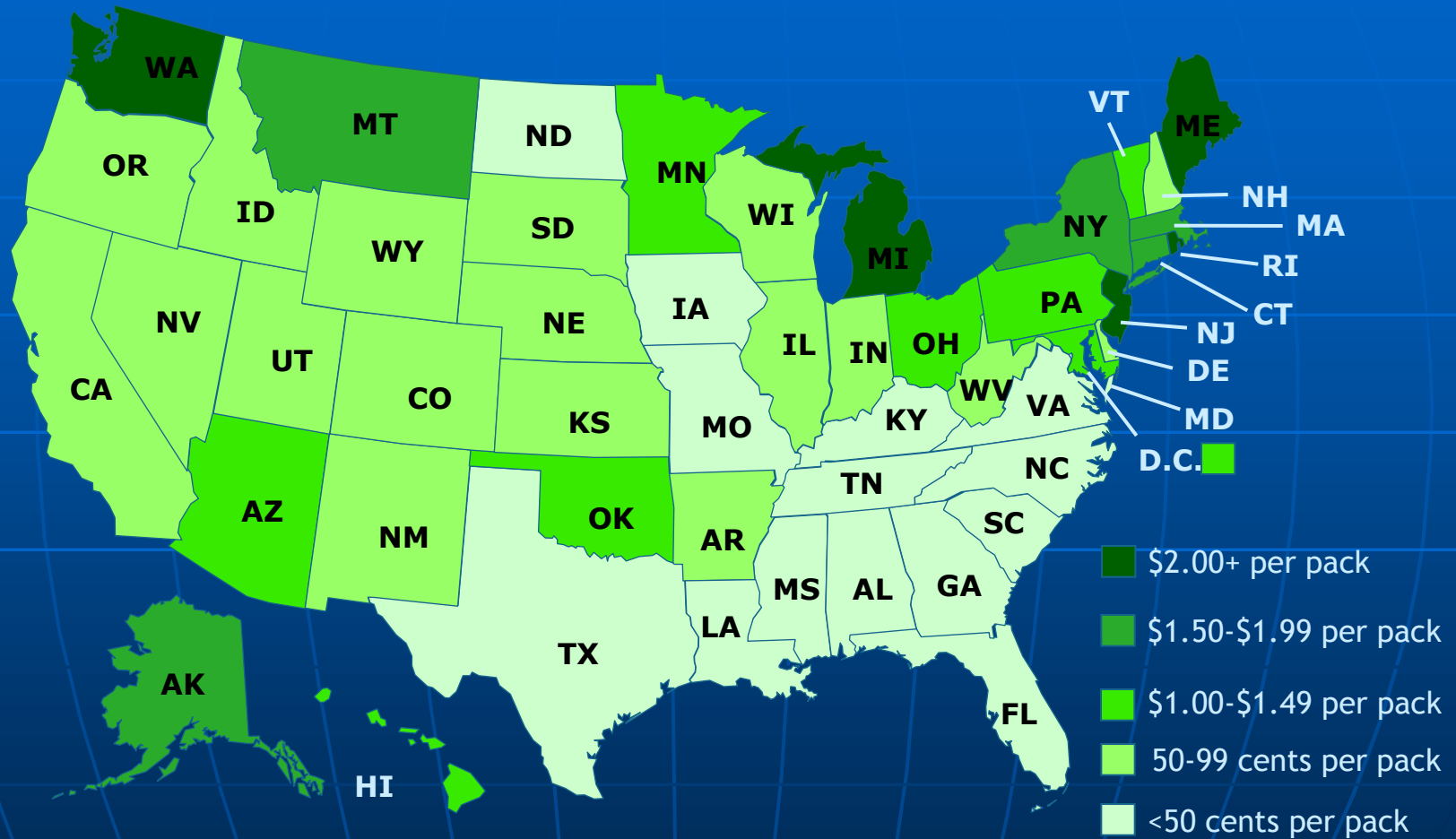
State Cigarette Excise Tax Rates – 2003



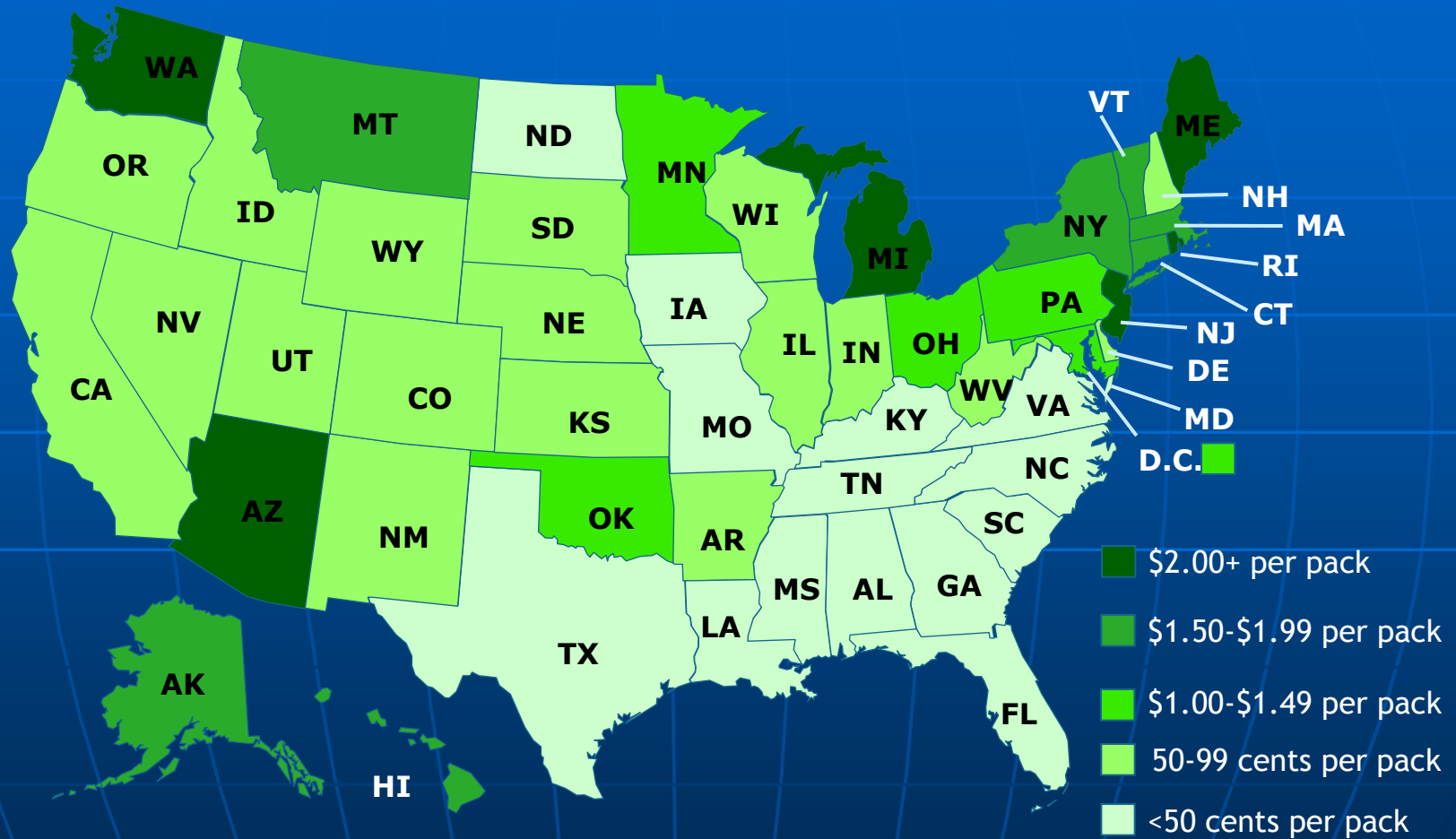
State Cigarette Excise Tax Rates – 2004



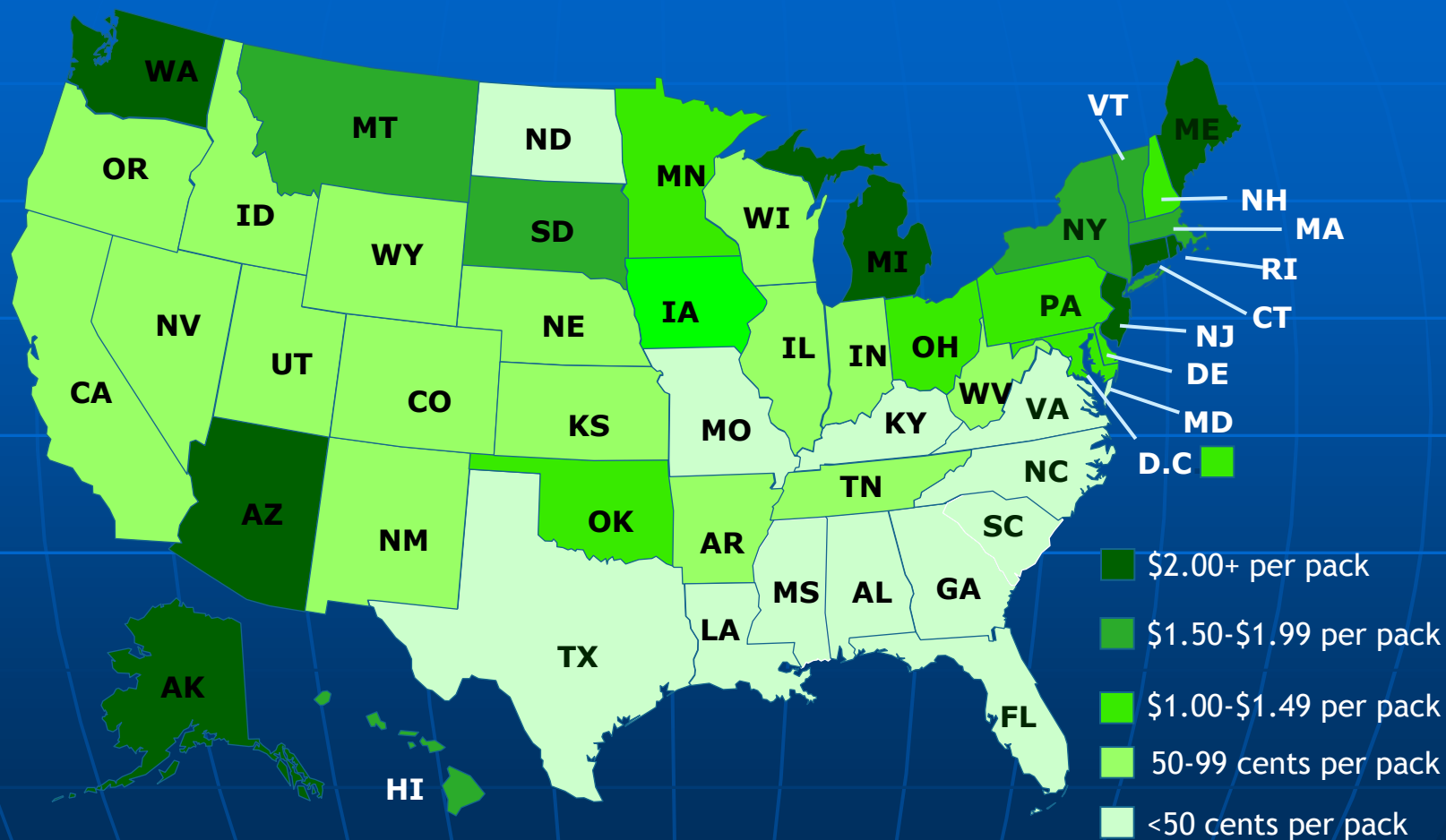
State Cigarette Excise Tax Rates – 2005



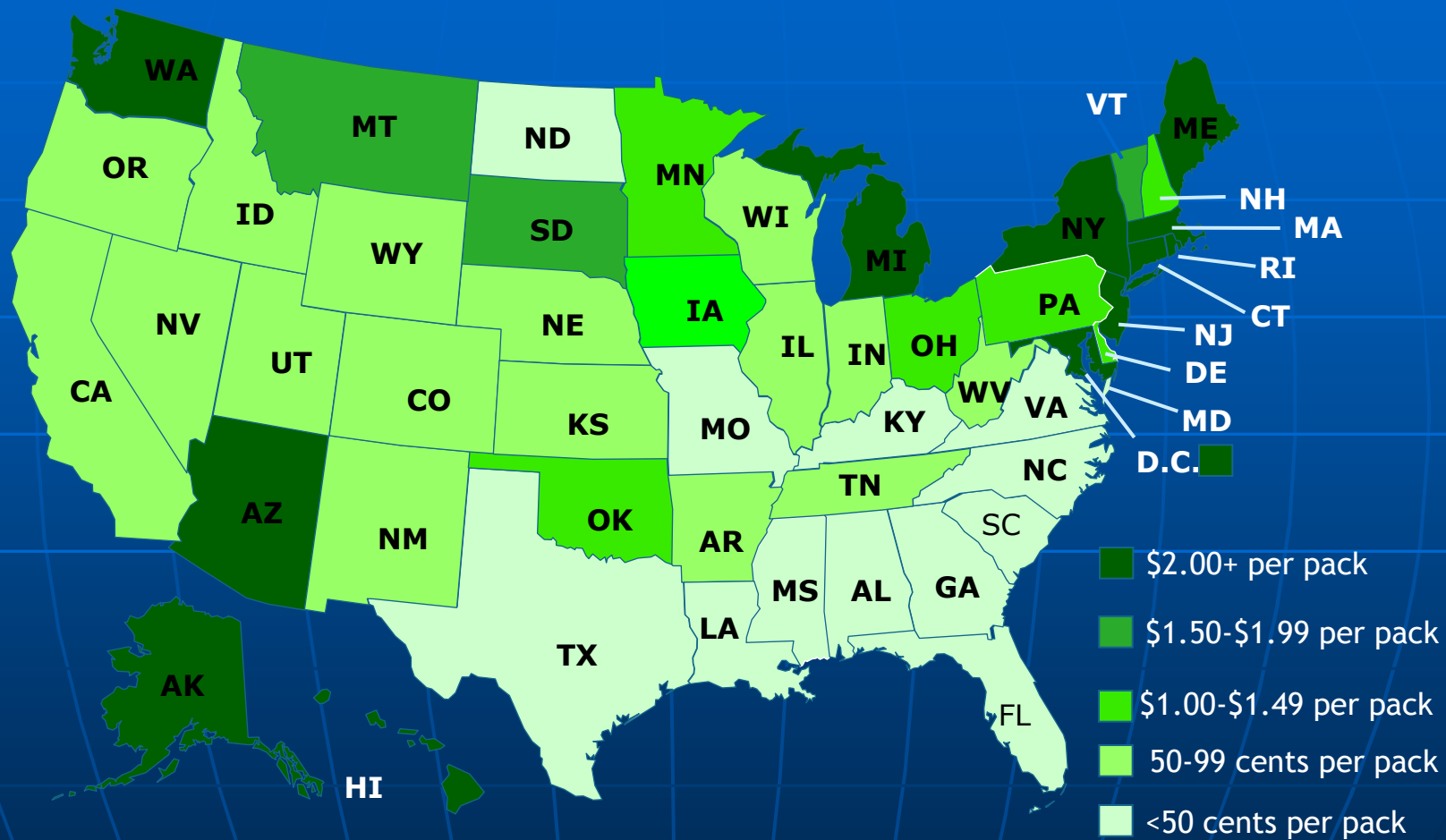
State Cigarette Excise Tax Rates – 2006



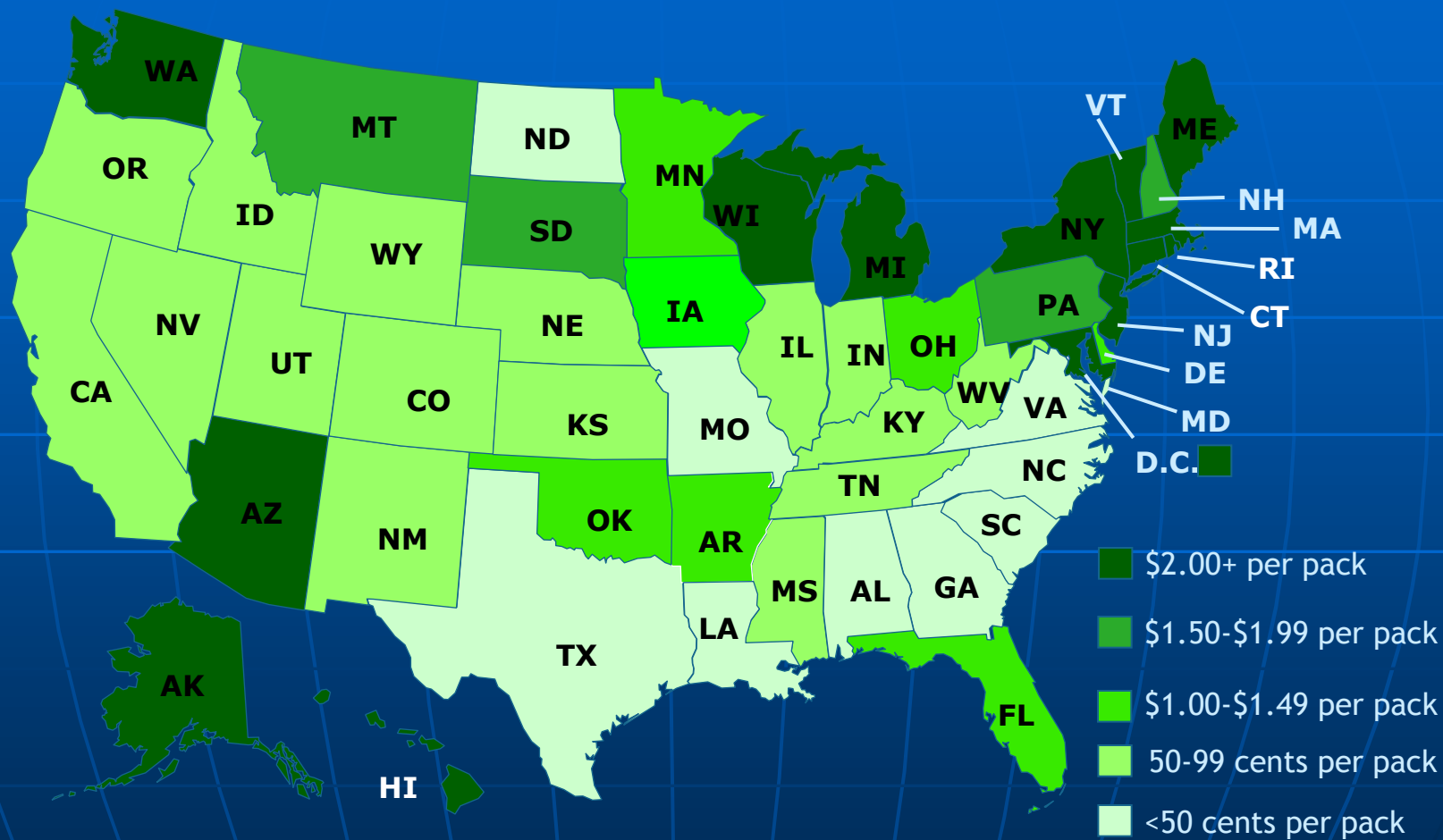
State Cigarette Excise Tax Rates – 2007



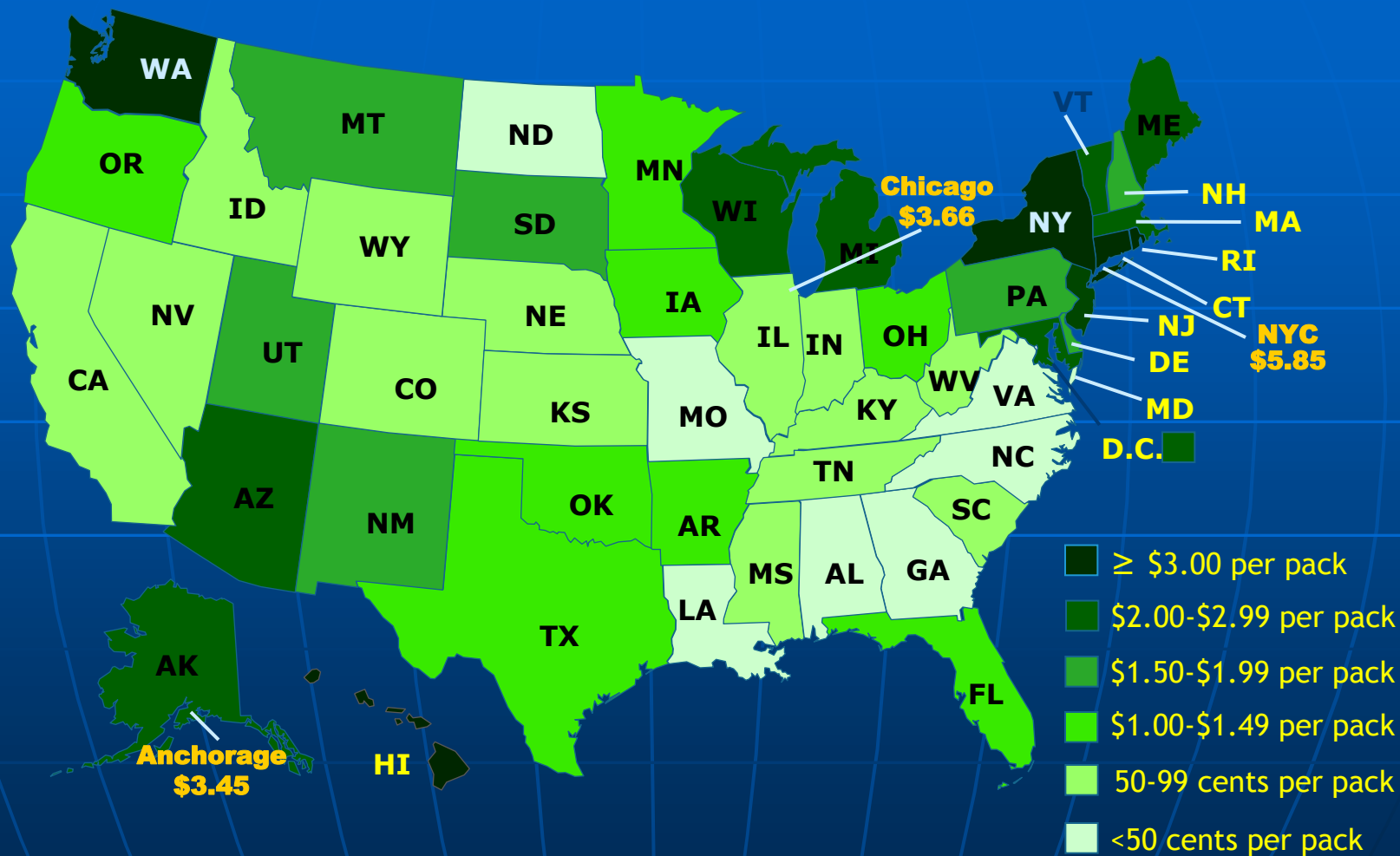
State Cigarette Excise Tax Rates – 2008



State Cigarette Excise Tax Rates – 2009



State Cigarette Excise Tax Rates – 2010



CDC, Office on Smoking and Health. State Tobacco Activities Tracking and Evaluation (STATE) System.

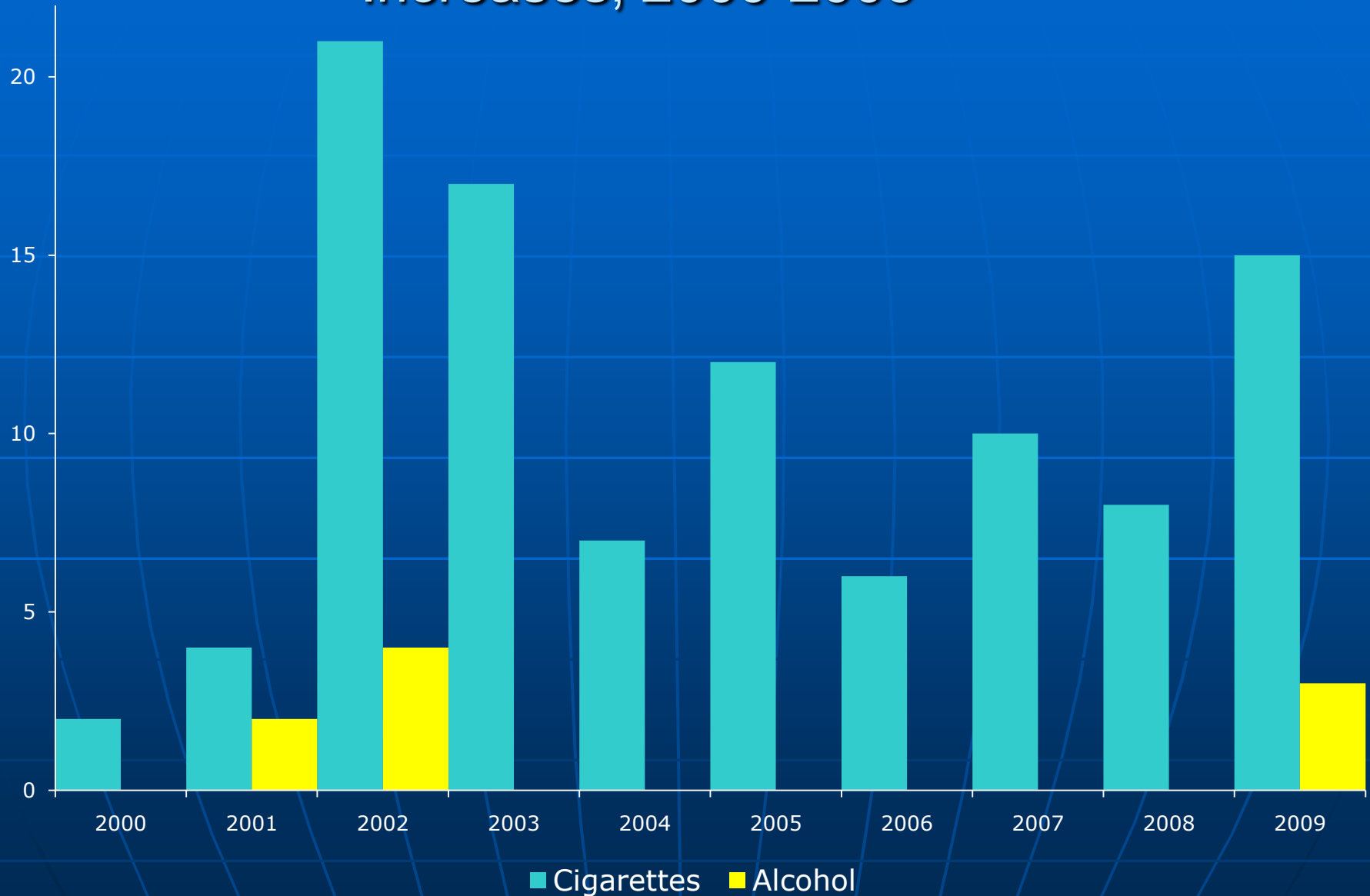
State Tobacco Taxation

- State taxes on other tobacco products
 - All but PA tax other tobacco products
 - Mostly *ad valorem* taxes
 - Typically applied to wholesaler/distributor price
 - Highest taxes include:
 - Wisconsin – 100%; Washington - 95%
 - Lowest taxes include:
 - South Carolina – 5%; Tennessee 6.6%
 - Average about 35%
 - Generally below equivalent rate on cigarettes
 - IA: 50% of wholesale price for chewing tobacco; \$1.19 per ounce for moist snuff

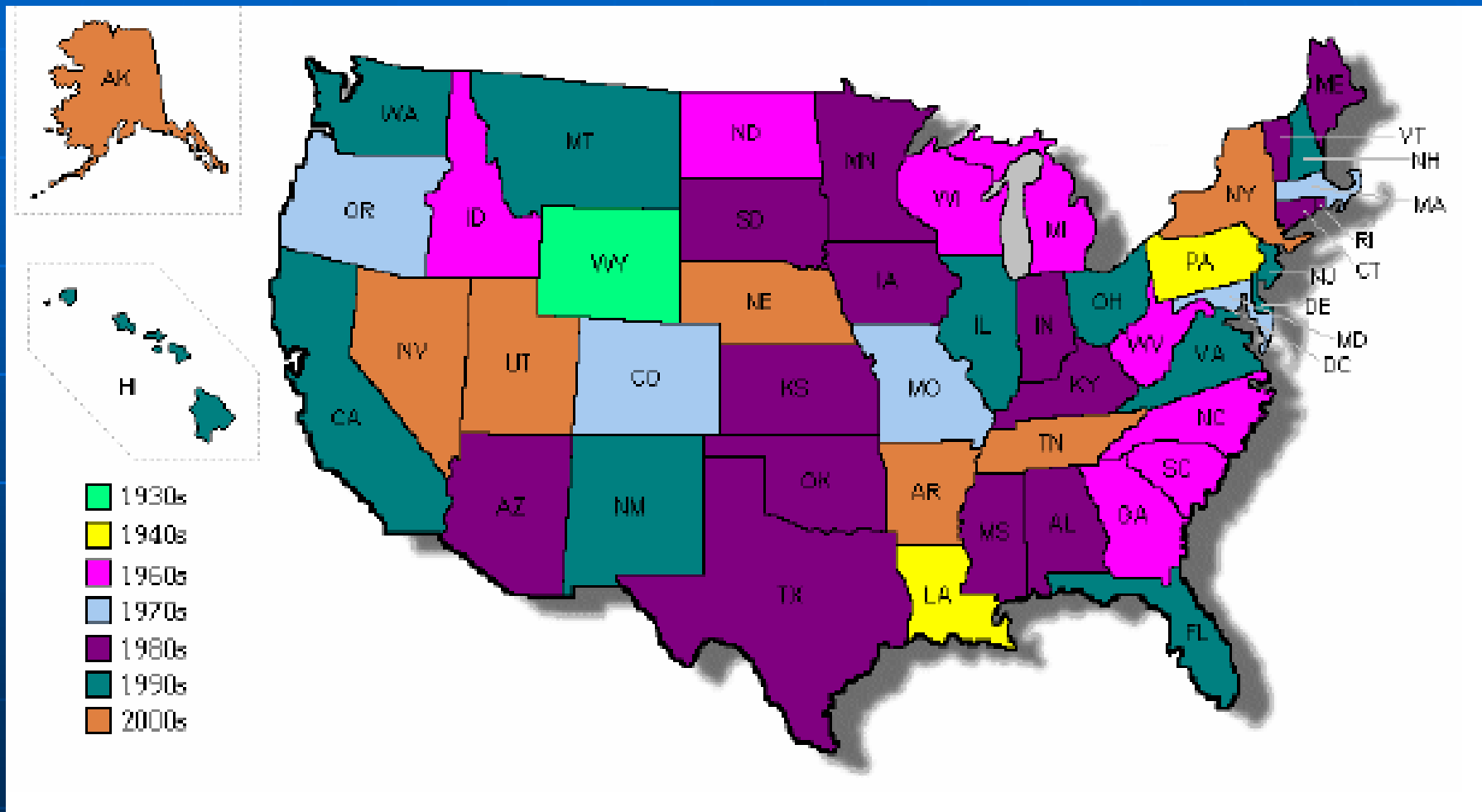
State Alcohol Taxation

- Generally adopted following repeal of Prohibition
 - Follow 3-tier system with excises on licensed products
 - Some excises in control states; mark-ups as/more important
- Mostly specific taxes, but many states include *ad valorem* component
 - Different taxes for on- and off-premise sales
- Tend to tax beer lowest, spirits highest
- Exceptions galore
- Considerable variation across states
 - Beer: \$0.02 (WY) - \$1.07 (AK); \$0.19/gallon in IA
 - Wine: \$0.20 (CA, TX) - \$2.50 (AK); \$1.75/gallon in IA
 - Spirits: \$1.50 (DC, MD) - \$12.80 (AK); IA control state

Number of State Cigarette and Beer Excise Tax Increases, 2000-2009



Decade of Last Change in Beer Excise Tax



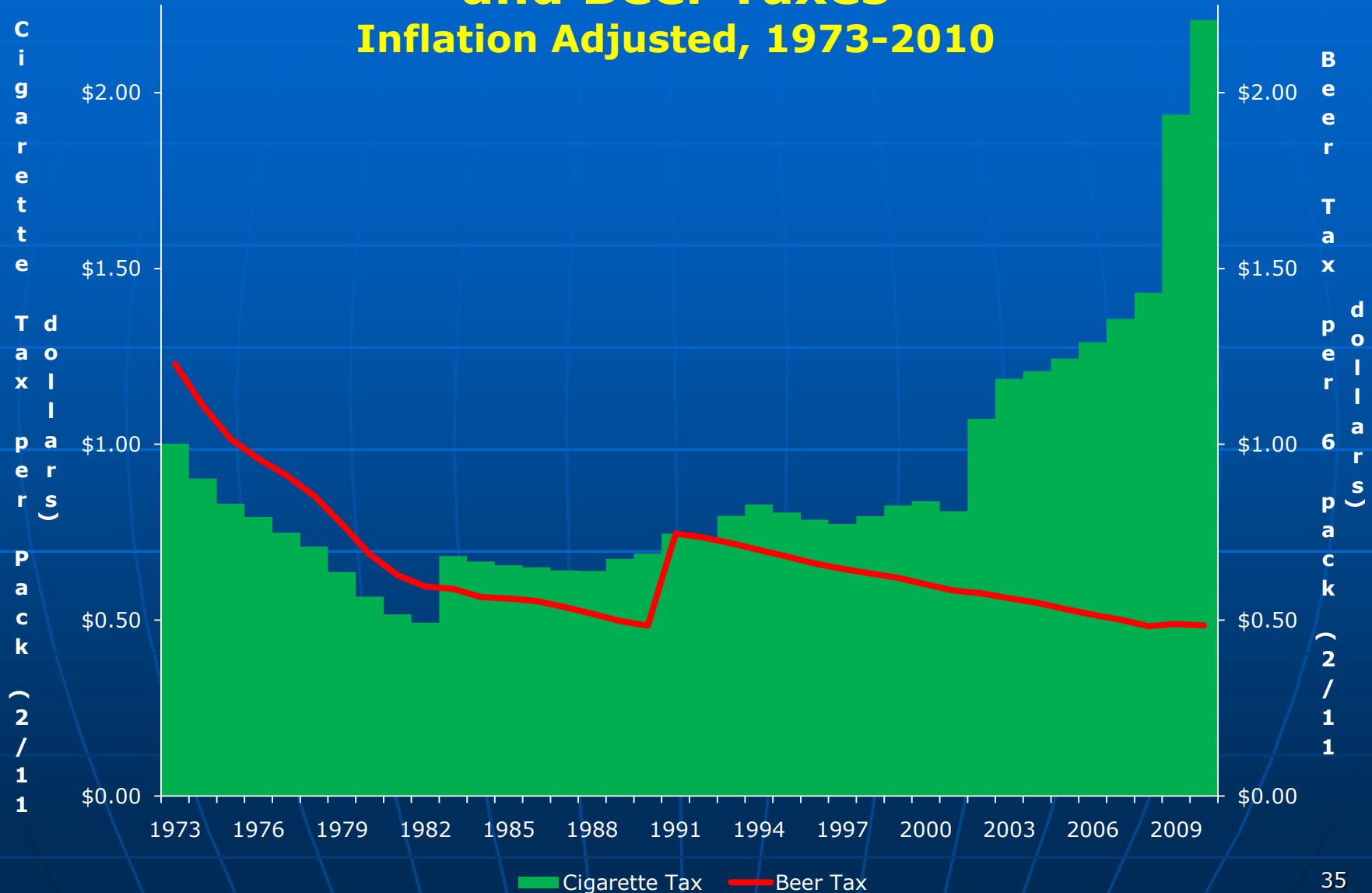
Source: CSPI *Factbook on State Beer Taxes*

Local Taxation in the U.S.

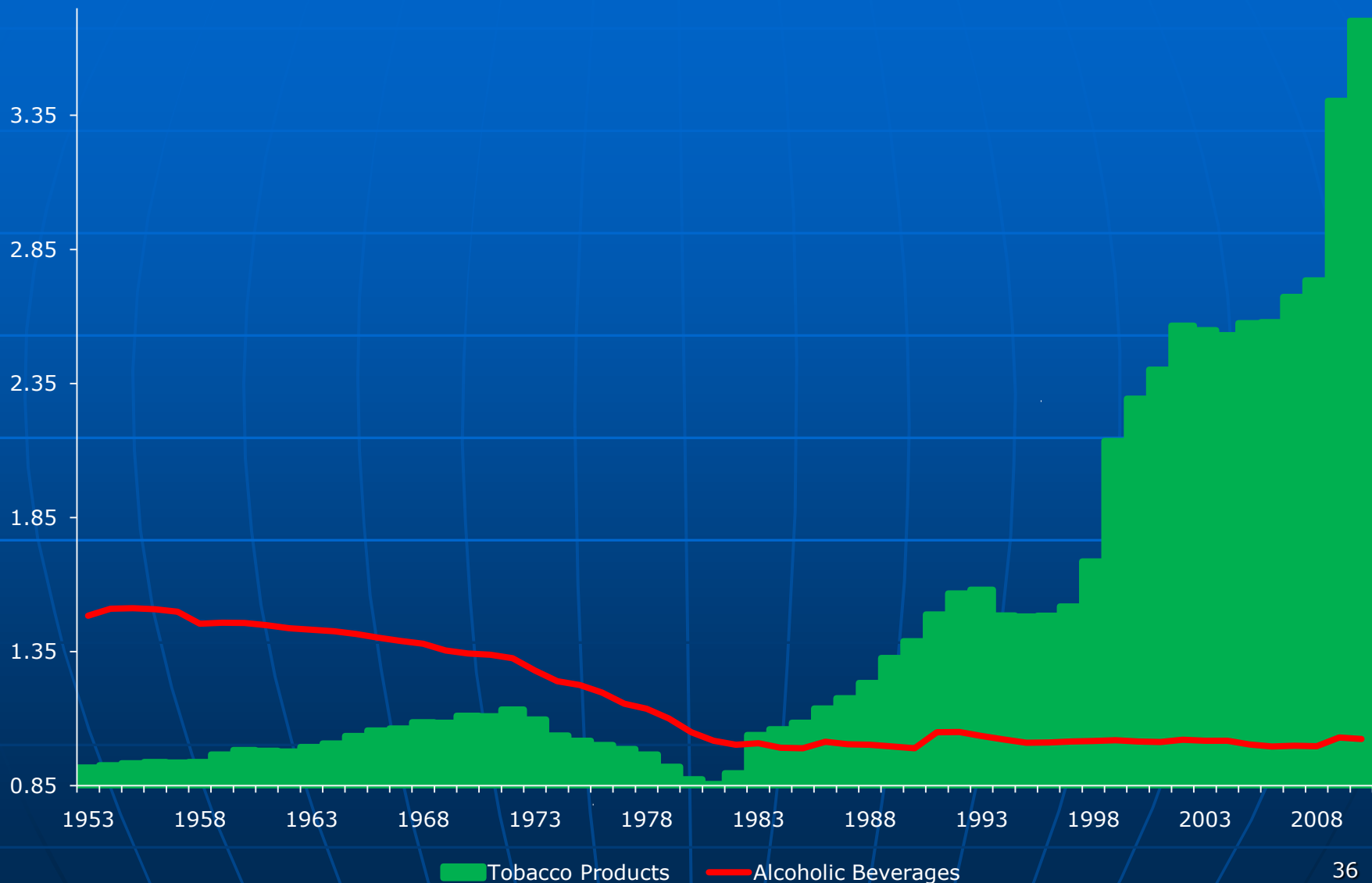
- Many localities add additional cigarette tax
 - Typically a few cents/pack; some exceptions:
 - » \$1.50 in New York City
 - » \$2.68 in Chicago/Cook county
- Some local alcoholic beverage taxes
 - Generally modest
- Sales tax applied to tobacco products, alcoholic beverages in most states
 - Usually, but not always, applies to price inclusive of excise taxes

Average State and Federal Cigarette and Beer Taxes

Inflation Adjusted, 1973-2010



Alcoholic Beverage & Tobacco Product Prices Relative to CPI, 1953-2010



Source: *Tax Burden on Tobacco, 2011*, and author's calculations

Impact of Tax and Price on Tobacco Use

Prices and Tobacco Use

- **Increases in tobacco product prices:**
 - Induce current users to try to quit
 - Many will be successful in long term
 - Keep former users from restarting
 - Prevent potential users from starting
 - Particularly effective in preventing transition from experimentation to regular use
 - Reduce consumption among those who continue to use
 - Lead to other changes in tobacco use behavior, including substitution to cheaper products or brands, changes in buying behavior, and compensation

Prices and Tobacco Use

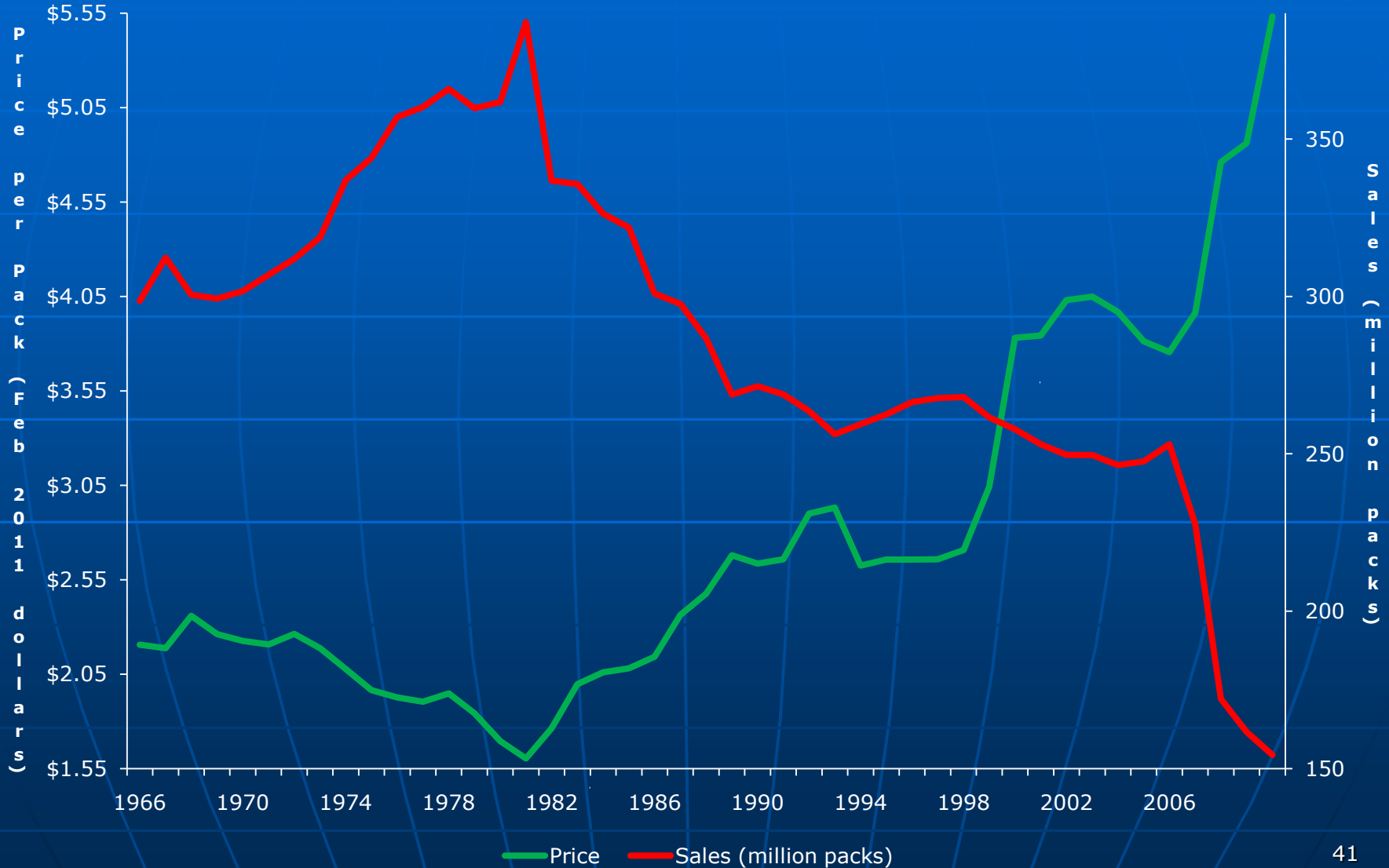
- **Increases in tobacco product prices:**
 - 10% price increase reduces consumption by 4%

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



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

Price (Inflation Adjusted) and Cigarette Sales, Iowa, 1966-2010

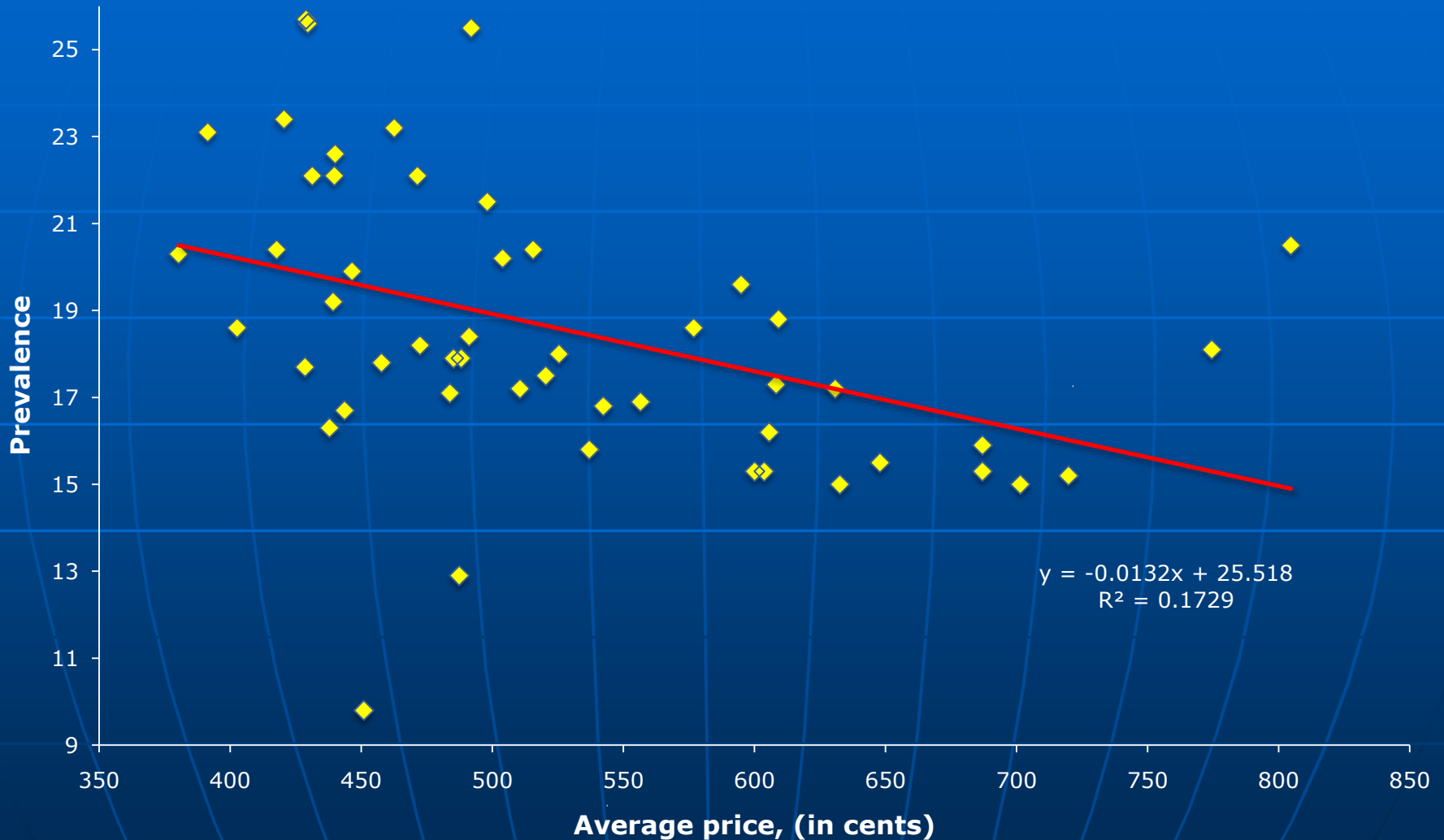


Source: *Tax Burden on Tobacco*, 2010, and author's calculations

Prices and Tobacco Use

- **Increases in tobacco product prices:**
 - About half of impact on smoking prevalence
 - 10% price increase reduces prevalence by 2%

Cigarette and Adult Smoking Prevalence US States & DC, 2009

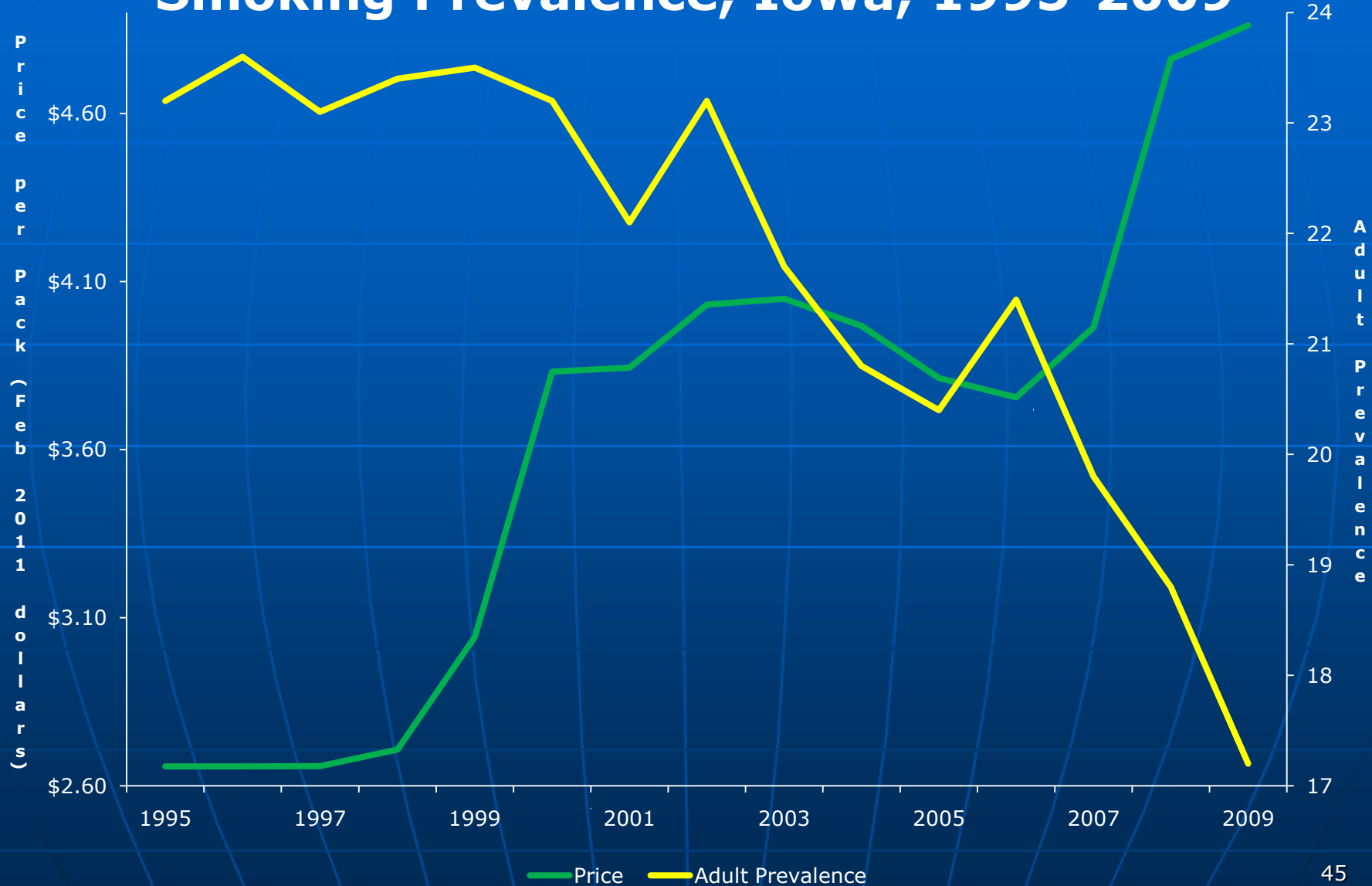


Cigarette Prices and Adult Smoking Prevalence, United States, 1970-2008



Source: NHIS, *Tax Burden on Tobacco*, 2009, and author's calculations
 Note: green data points for prevalence are interpolated assuming linear trend

Price (Inflation Adjusted) and Adult Smoking Prevalence, Iowa, 1995-2009

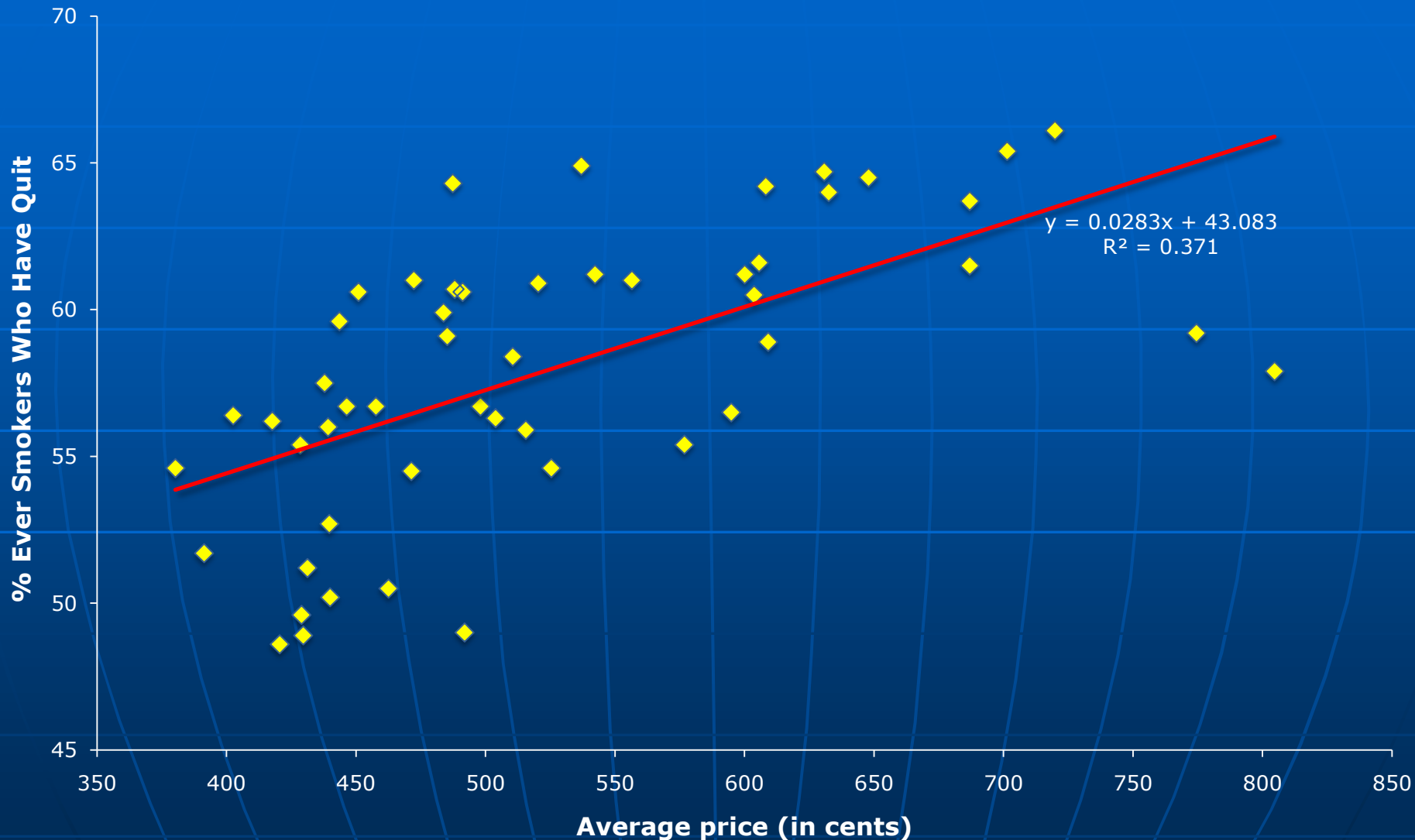


Source: *Tax Burden on Tobacco*, 2010, BRFSS, and author's calculations

Prices and Tobacco Use

- **Increases in tobacco product prices:**
 - Prevalence reductions result of adult users quitting
 - 10% price increase leads about 10% of smokers to try to quit
 - About 1 in 5 successfully quit

Cigarette Prices and Cessation US States & DC, 2009

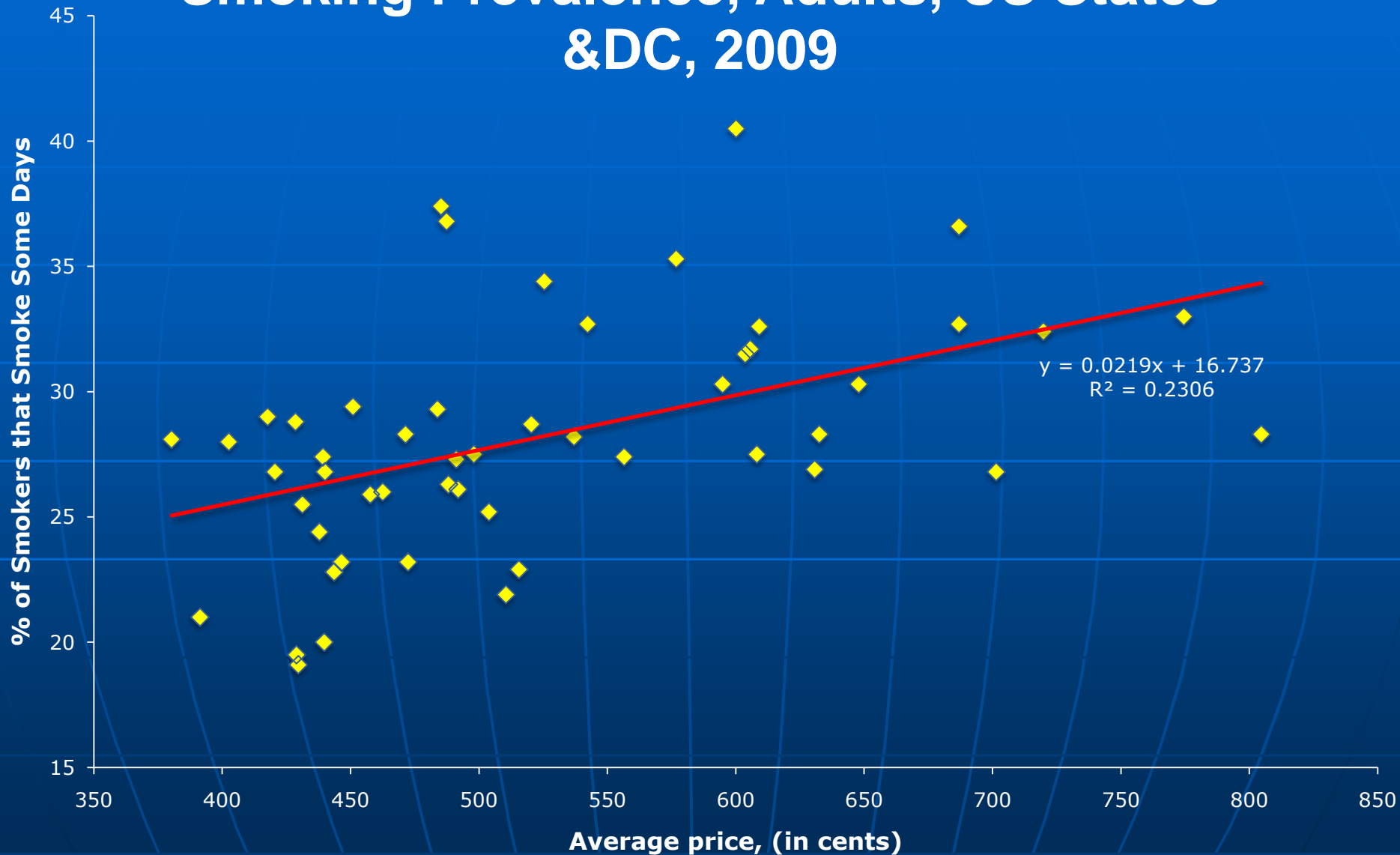


Source: BRFSS, *Tax Burden on Tobacco*, 2010, and author's calculations

Prices and Tobacco Use

- **Increases in tobacco product prices:**
 - Reductions in smoking intensity among those who continue to smoke
 - Smoke fewer days
 - Smoke fewer cigarettes on smoking days

Cigarette Price and Less than Daily Smoking Prevalence, Adults, US States & DC, 2009

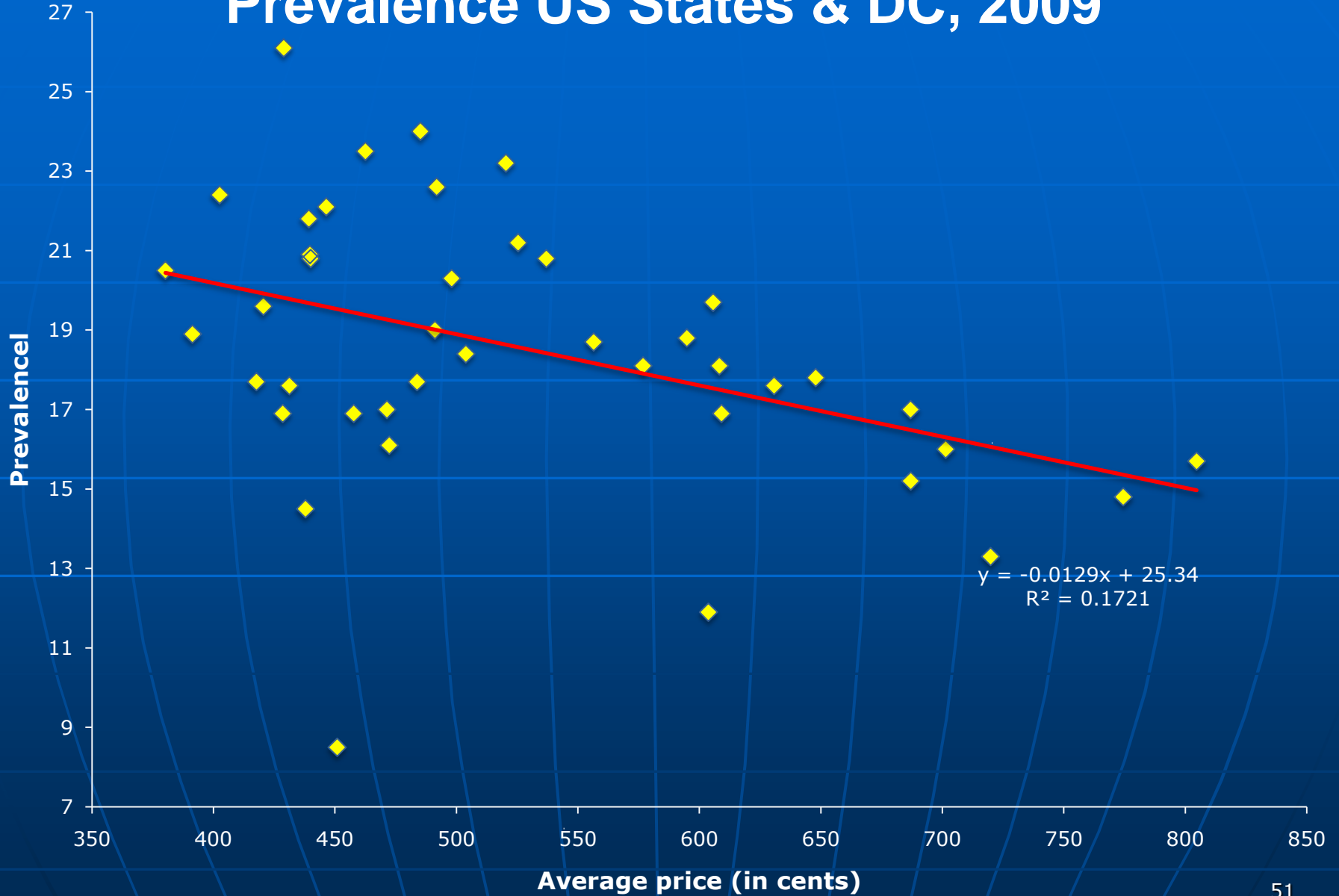


Source: BRFSS, *Tax Burden on Tobacco*, 2010, and author's calculations

Prices and Tobacco Use

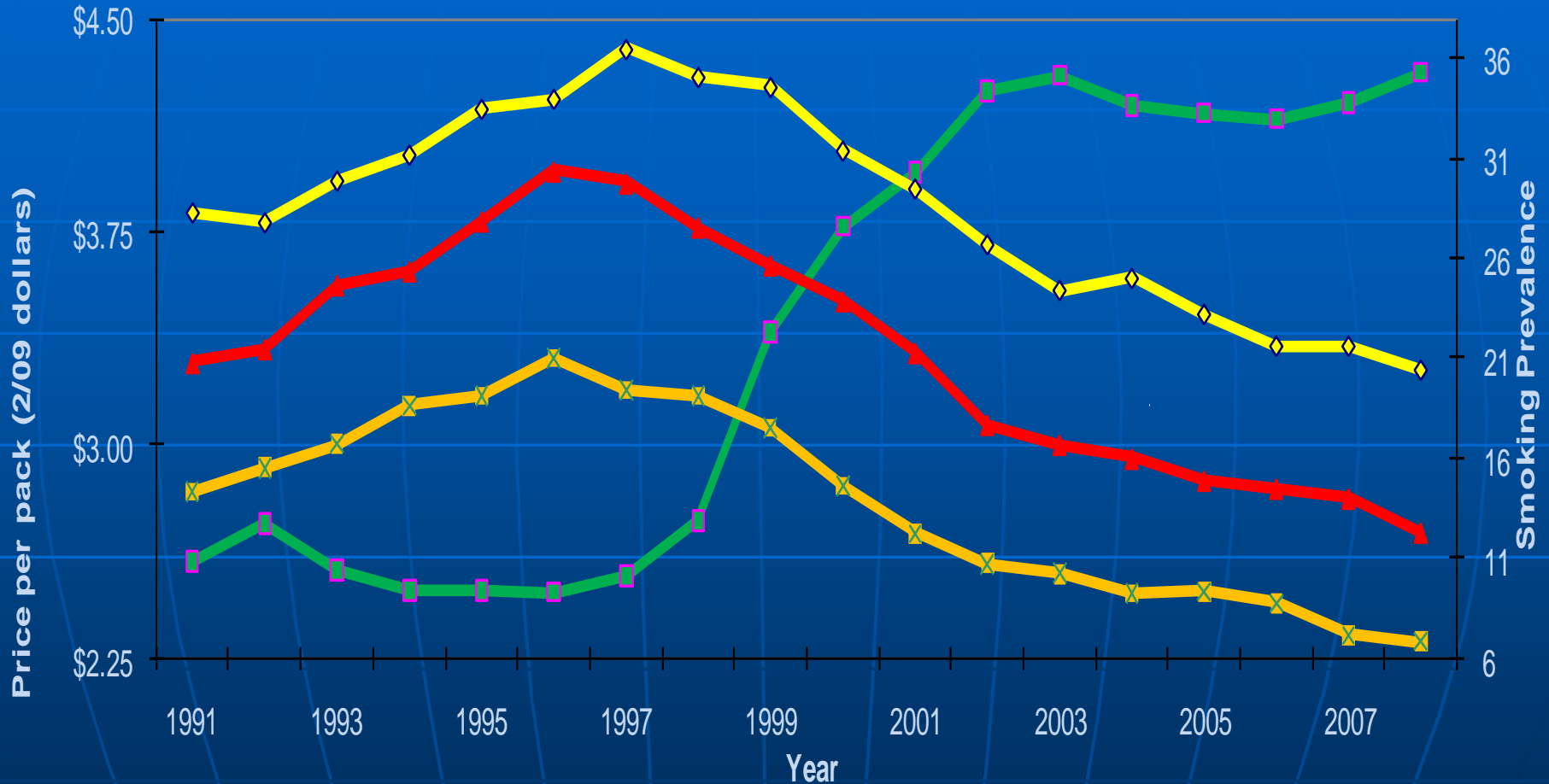
- **Increases in tobacco product prices:**
 - Prevent youth from taking up tobacco use
 - Youth 2-3 times more responsive to price than adults
 - Lower incomes, peer influences, shorter smoking histories, greater emphasis on present costs
 - Greatest impact in preventing youth from moving beyond experimentation into more regular smoking

Cigarette Prices and Youth Smoking Prevalence US States & DC, 2009



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

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

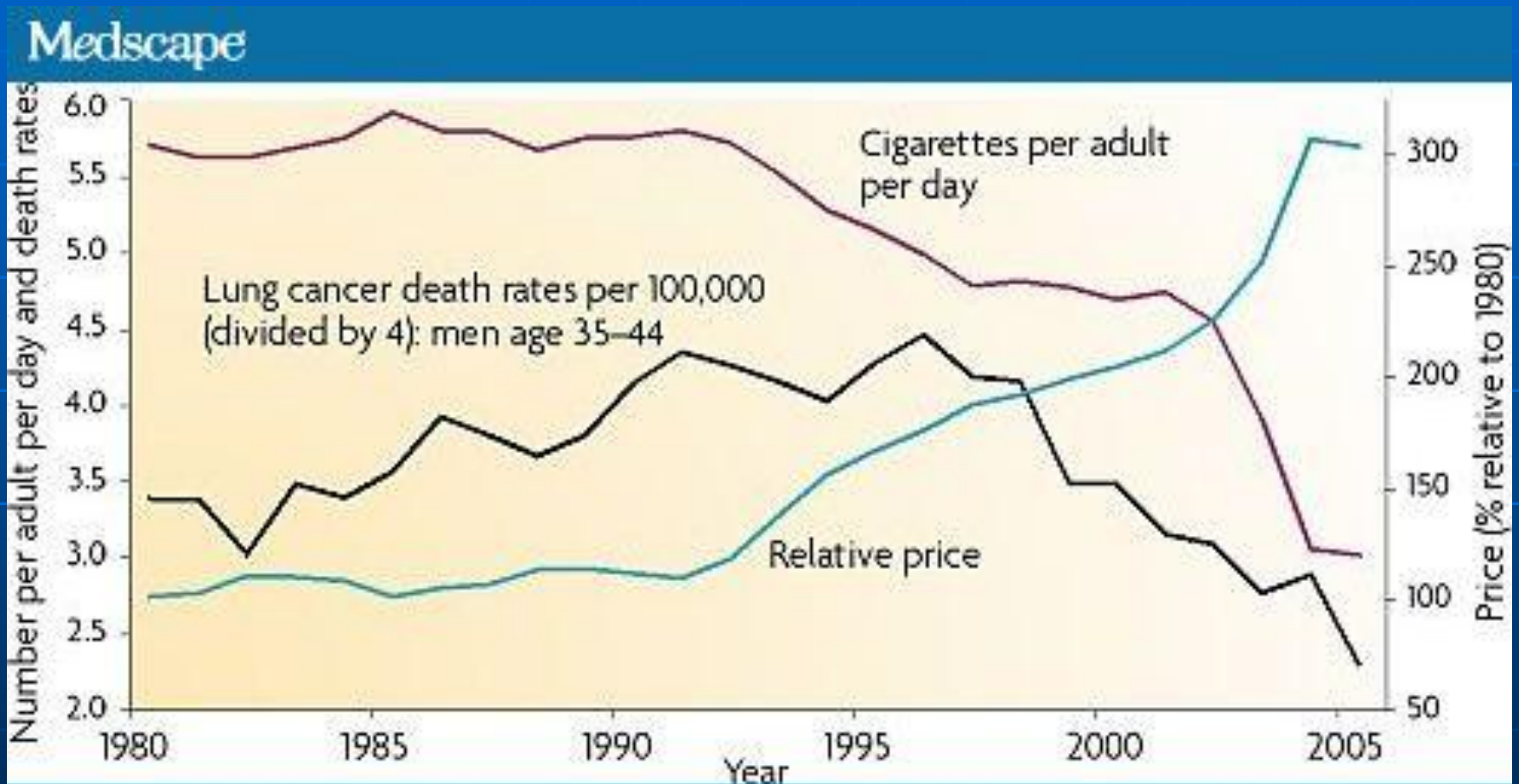


■ Cigarette Price
 ◆ 12th grade prevalence
 ▲ 10th grade prevalence
 × 8th grade prevalence

Prices and Tobacco Use

- **Increases in tobacco product prices:**
 - Reduce death and disease caused by tobacco use

Taxes, Prices and Health: US, 1980-2005



Source: Nat Rev Cancer © 2009 Nature Publishing Group

Impact of Tax and Price on Alcohol Use

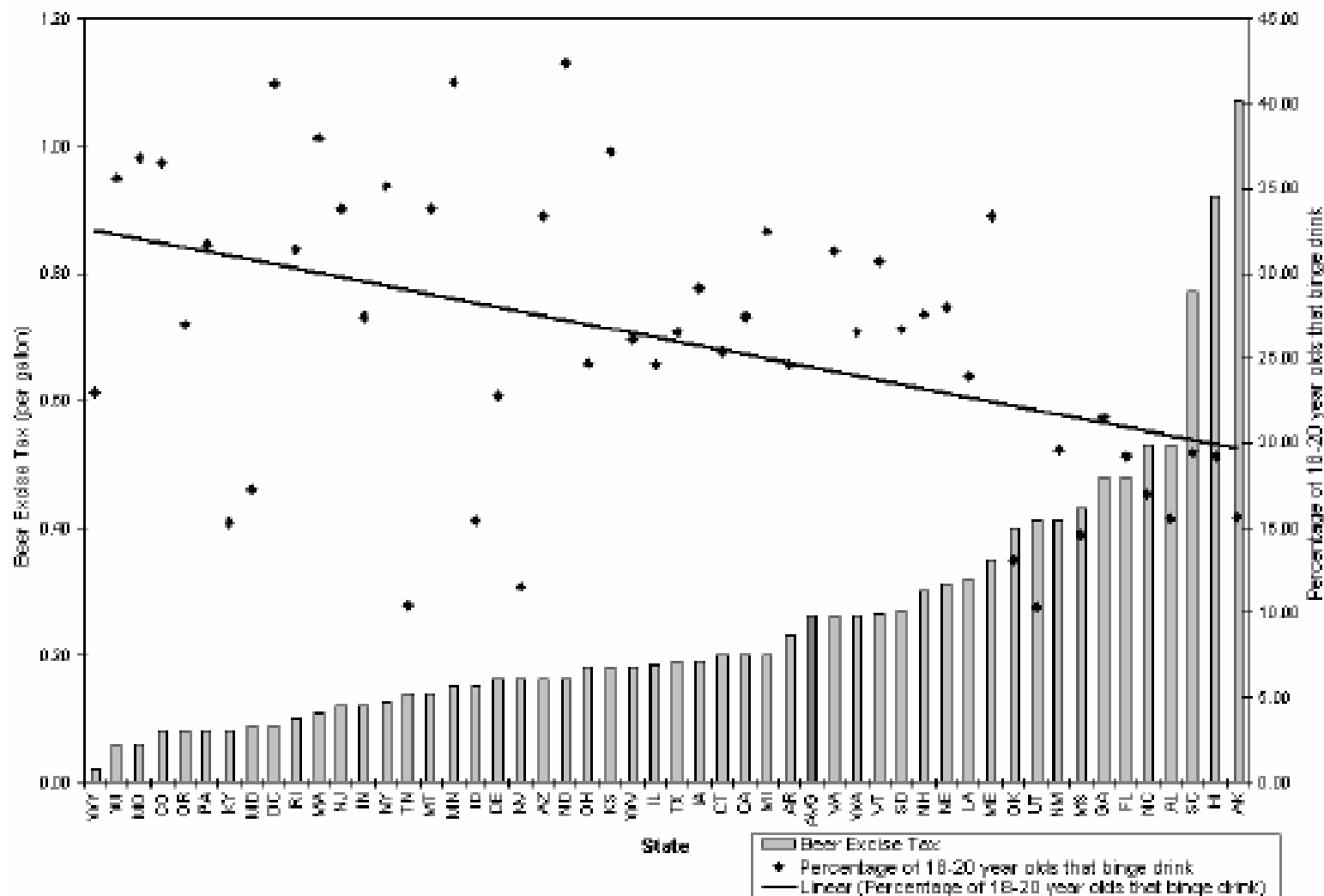
Alcohol Prices and Drinking

Extensive econometric and other research shows that higher prices for alcoholic beverages significantly reduce drinking:

- 10 percent price increase would reduce:
 - Beer consumption by 1.7 to 4.6 percent
 - Wine consumption by 3.0 to 6.9 percent
 - Spirits consumption by 2.9 to 8.0 percent
 - Overall consumption by 4.4 percent
 - Heavy drinking by 2.8 percent
 - Generally larger effects on youth and young adults

Beer Taxes and Binge Drinking

Graph 7. Current beer excise taxes and the percentage of 18-20 year olds that binge drink.



Source: CSPI *Factbook on State Beer Taxes*

Alcohol Prices and Consequences

Extensive econometric and other research shows that higher prices for alcoholic beverages significantly reduce:

- Drinking and driving, traffic crashes, and motor-vehicle accident fatalities
- Deaths from liver cirrhosis, acute alcohol poisoning, alcohol-related cancers, cardiovascular diseases, and other health consequences of excessive drinking
- Violence, including spouse abuse, child abuse, and suicides
- Other consequences of drinking, including work-place accidents, teenage pregnancy, and incidence of sexually transmitted diseases

Earmarking Tobacco Tax Revenues for Tobacco Control

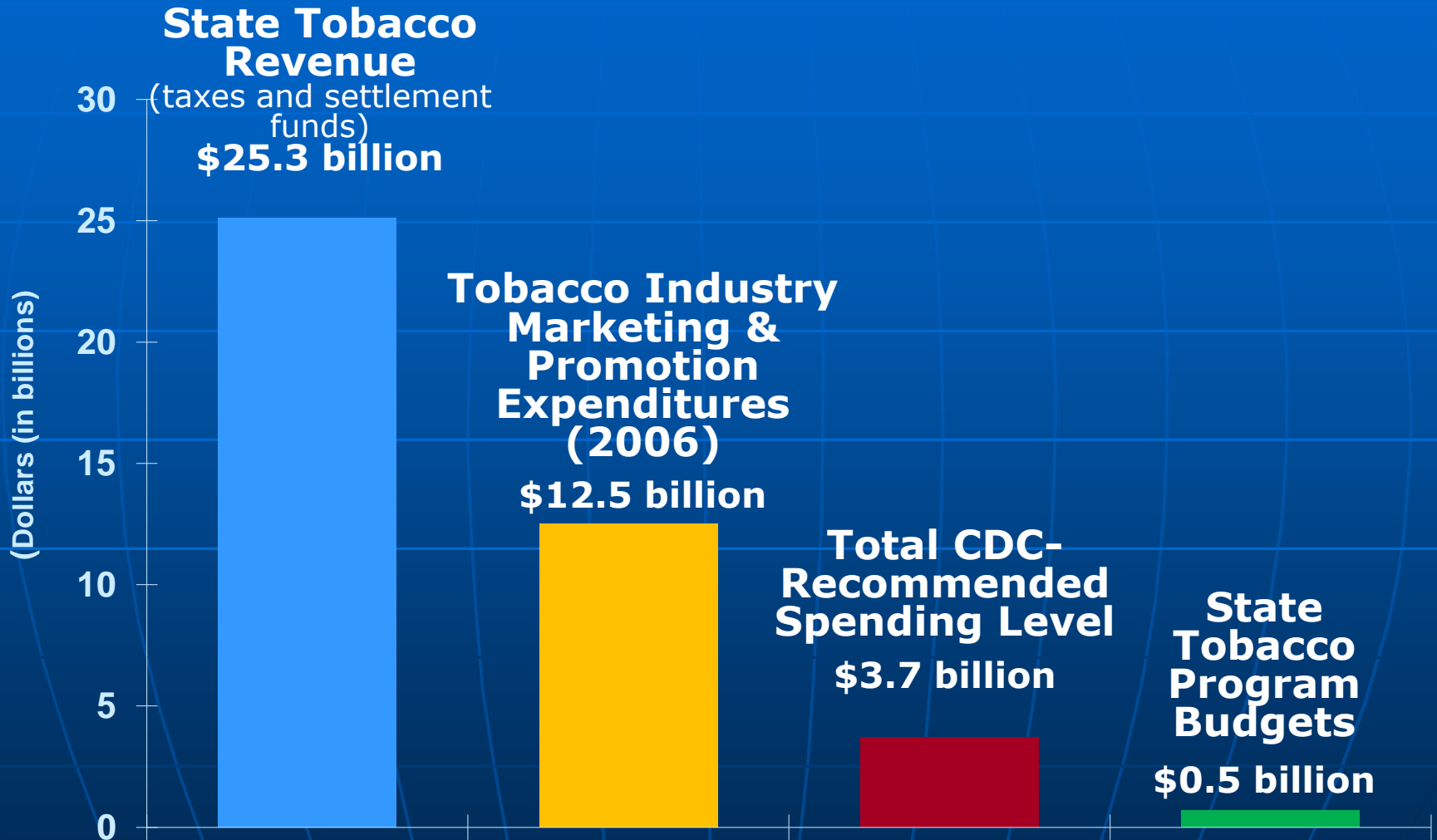
Comprehensive Programs

- 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

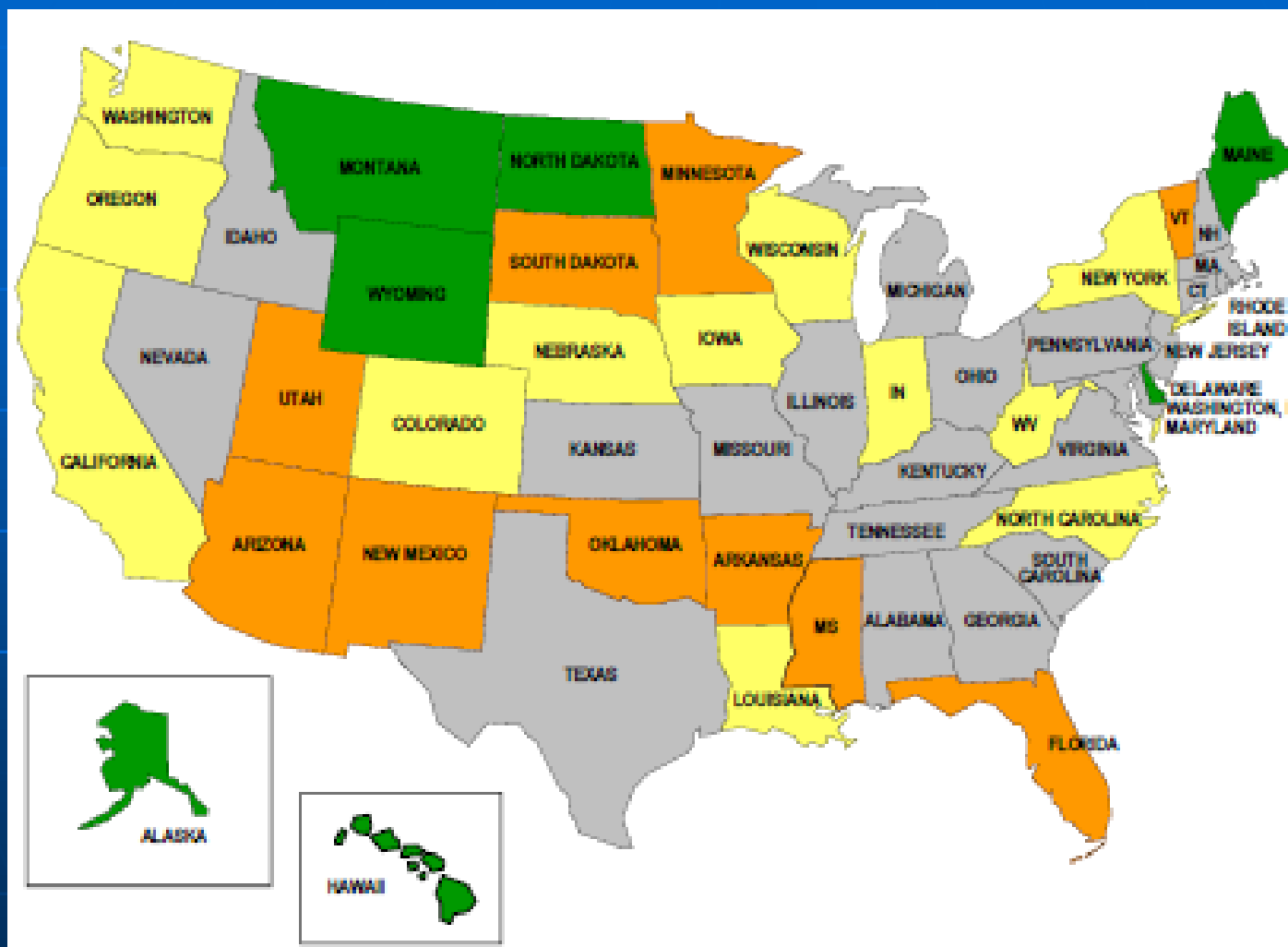
Comprehensive Programs

- 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

Tobacco Industry is Outspending Prevention Efforts 24:1 —FY2011



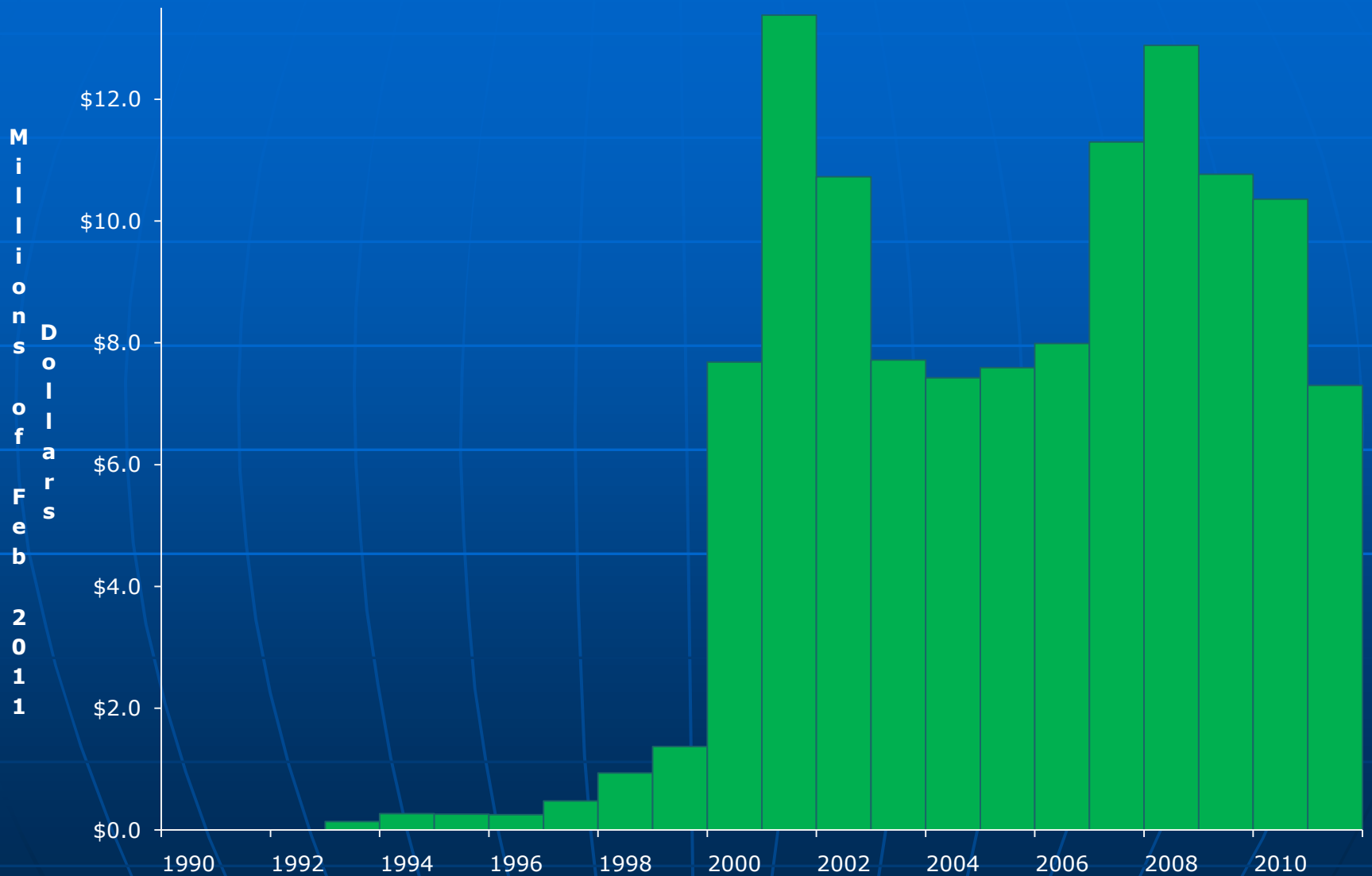
Program Funding



- 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.

Source: Tobacco Free Kids, 2010

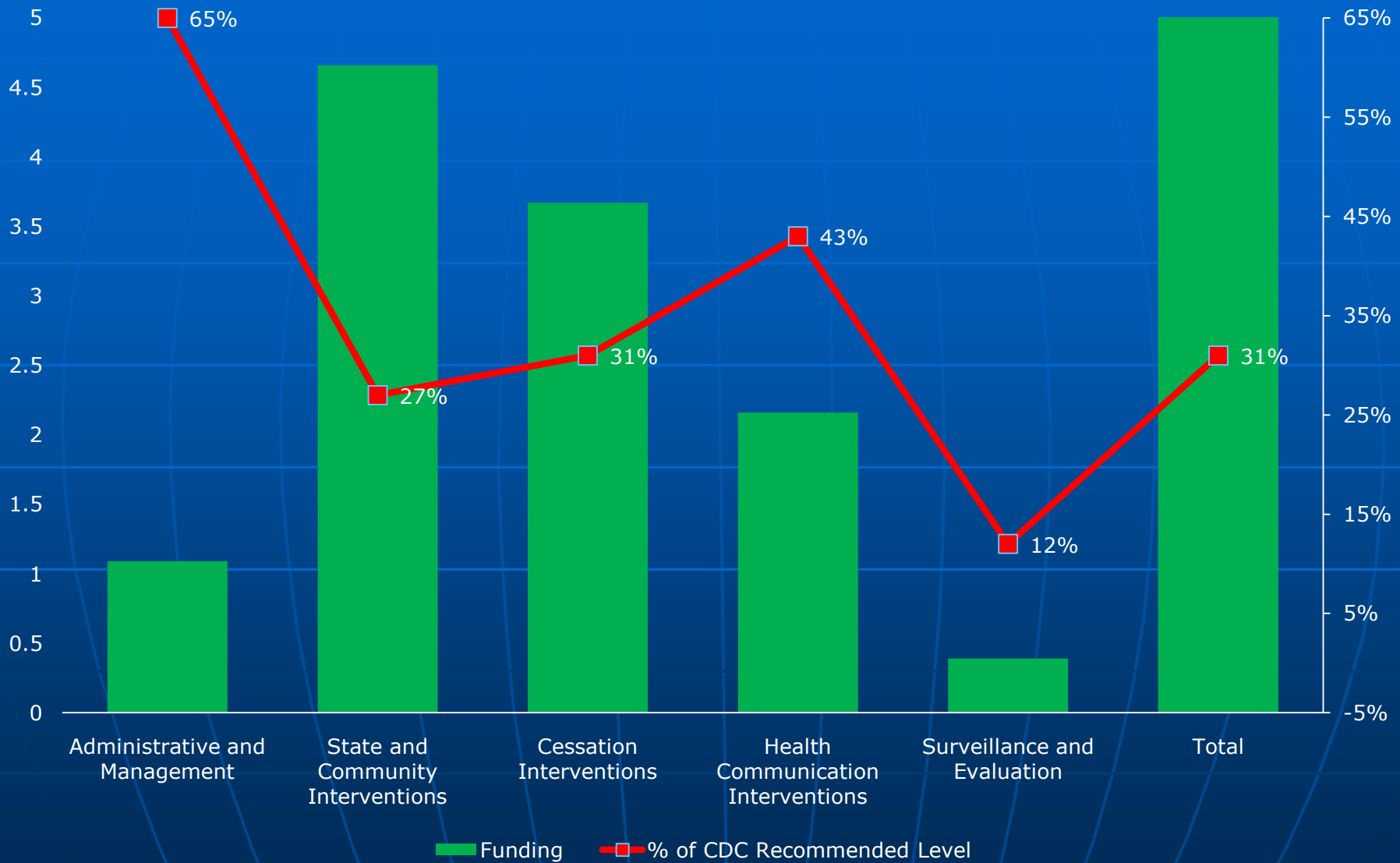
Iowa Tobacco Control Program Funding, Inflation Adjusted, FY1990-FY2011



Source: ImpactTeen Project, 2011

Iowa Tobacco Control Program

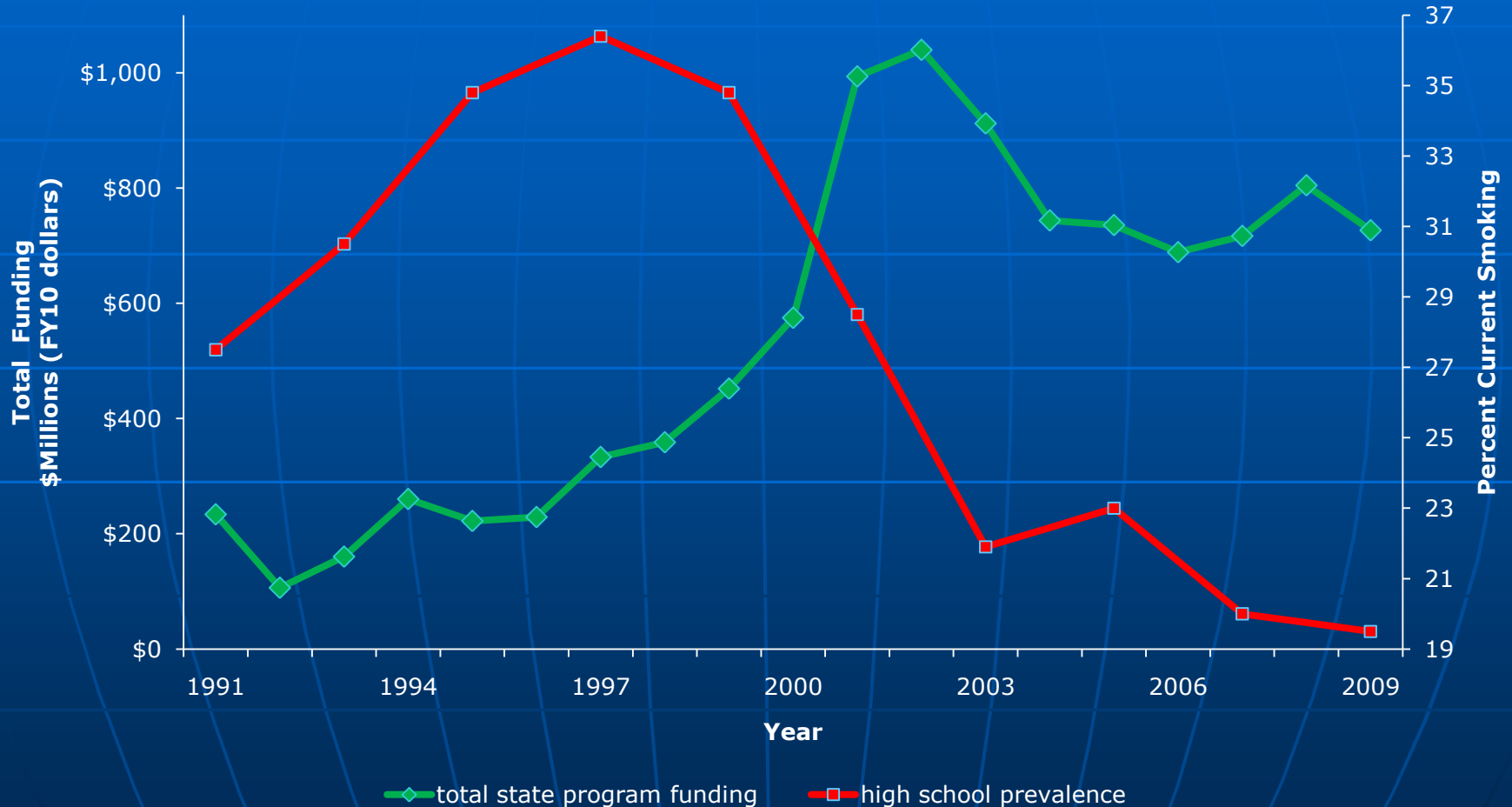
Program Spending, by Category, FY 2009



Comprehensive Programs

- Impact of state program funding
 - Increased funding associated with:
 - Reductions in overall cigarette sales
 - Lower youth smoking prevalence
 - Lower adult smoking prevalence
 - Increased interest in quitting, successful quitting
 - Much of impact results from large scale mass-media anti-smoking campaigns

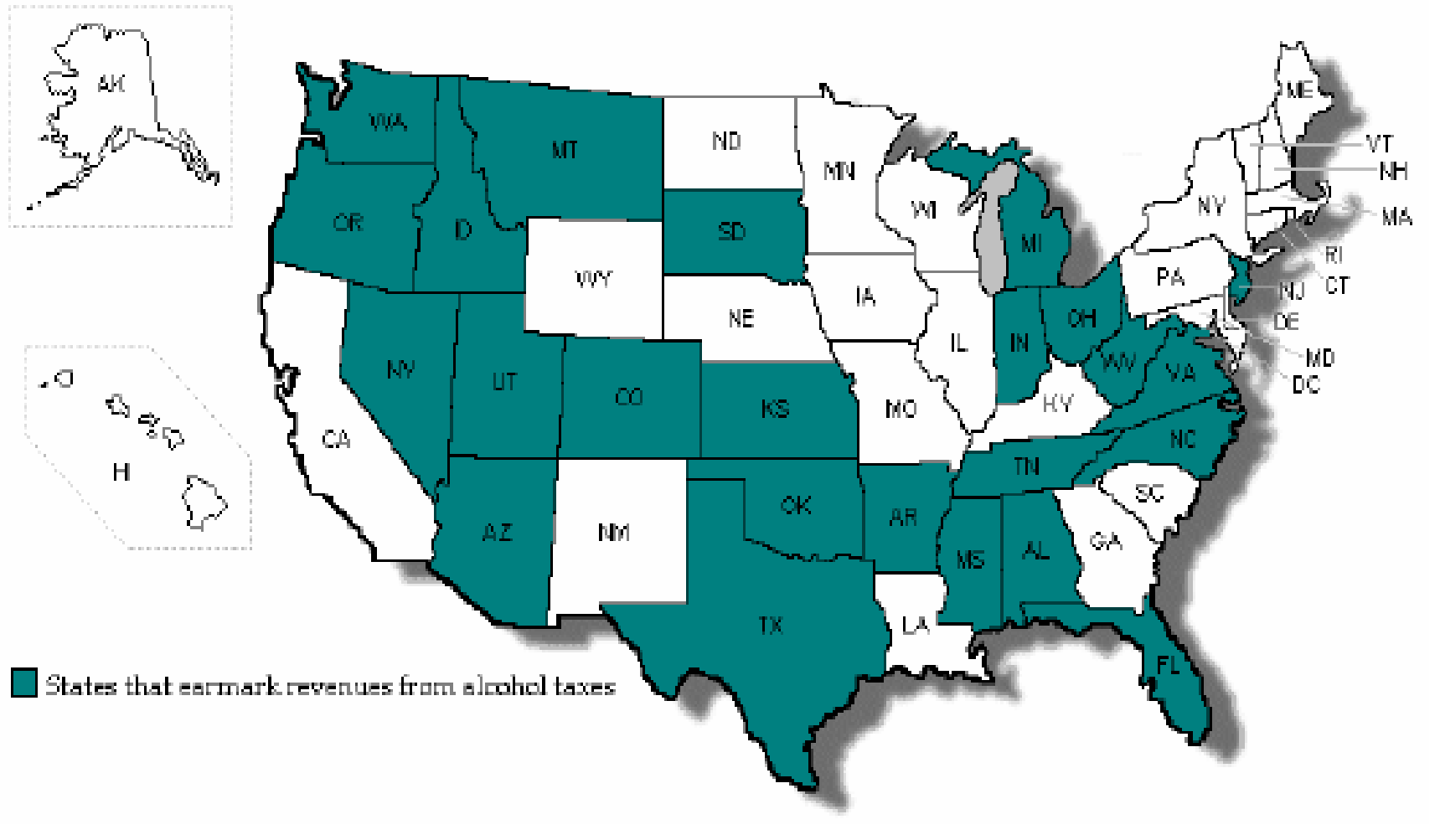
State Tobacco Control Program Funding and Youth Smoking Prevalence



Earmarking Alcohol Tax Revenues for Alcohol Control

Earmarked Alcohol Taxes

Graph 5. States that earmark revenues from alcohol taxes.¹⁶



Earmarked Alcohol Taxes

- Small share of tax revenues earmarked
- Fund variety of alcohol prevention, treatment and enforcement efforts

State	Program
Arizona	Drug and Alcohol Treatment Fund
Idaho	Alcoholism Treatment Account
Kansas	Community Alcoholism and Intoxication Programs Fund
Mississippi	Alcoholism Treatment and Rehabilitation Fund
Montana	Treatment, rehabilitation, and prevention of alcoholism and chemical dependency
New Jersey	Alcohol Education, Rehabilitation and Enforcement Fund
Nevada	Increase services for prevention and treatment of alcoholism and alcohol abuse.
Oregon	Mental Health Alcoholism and Drug Services Account
Tennessee	To assist municipalities and counties in carrying out the provisions of the state's 1973 Comprehensive Alcohol and Drug Treatment Act
Utah	Programs or projects related to prevention, treatment, detection, and prosecution

- No research linking funding to reduced alcohol use, problems
 - research demonstrates cost-effectiveness of interventions that could be funded by earmarked taxes

Industry Price Marketing

Price-Related Marketing:

SAVE \$1.00 ON WINSTON \$1.00
MANUFACTURER COUPON 04/28/90
GOOD ON 1 CARTON OF WINSTON
ANY STYLE, ANY LENGTH
02314 479335147
REDEEM BY APRIL 28, 1990
LIMIT ONE COUPON PER CARTON

SAVE \$1.00 ON WINSTON \$1.00
MANUFACTURER COUPON 05/19/90
GOOD ON 1 CARTON OF WINSTON
ANY STYLE, ANY LENGTH
02317 479335147
REDEEM BY MAY 19, 1990
LIMIT ONE COUPON PER CARTON

KOMBO
FREE when you buy a pack.
bottle opener <- lighter
KOOL
CLASSIC MENTHOL
KOOL
Tastes Different

Special Offer
65¢ off
Per Pack

Marlboro
PARLIAMENT
THE BEST THINGS IN LIFE ARE BASIC
WOMAN SMOKS

精者介紹 貴妃煙

CAMEL
TURKISH GOLD

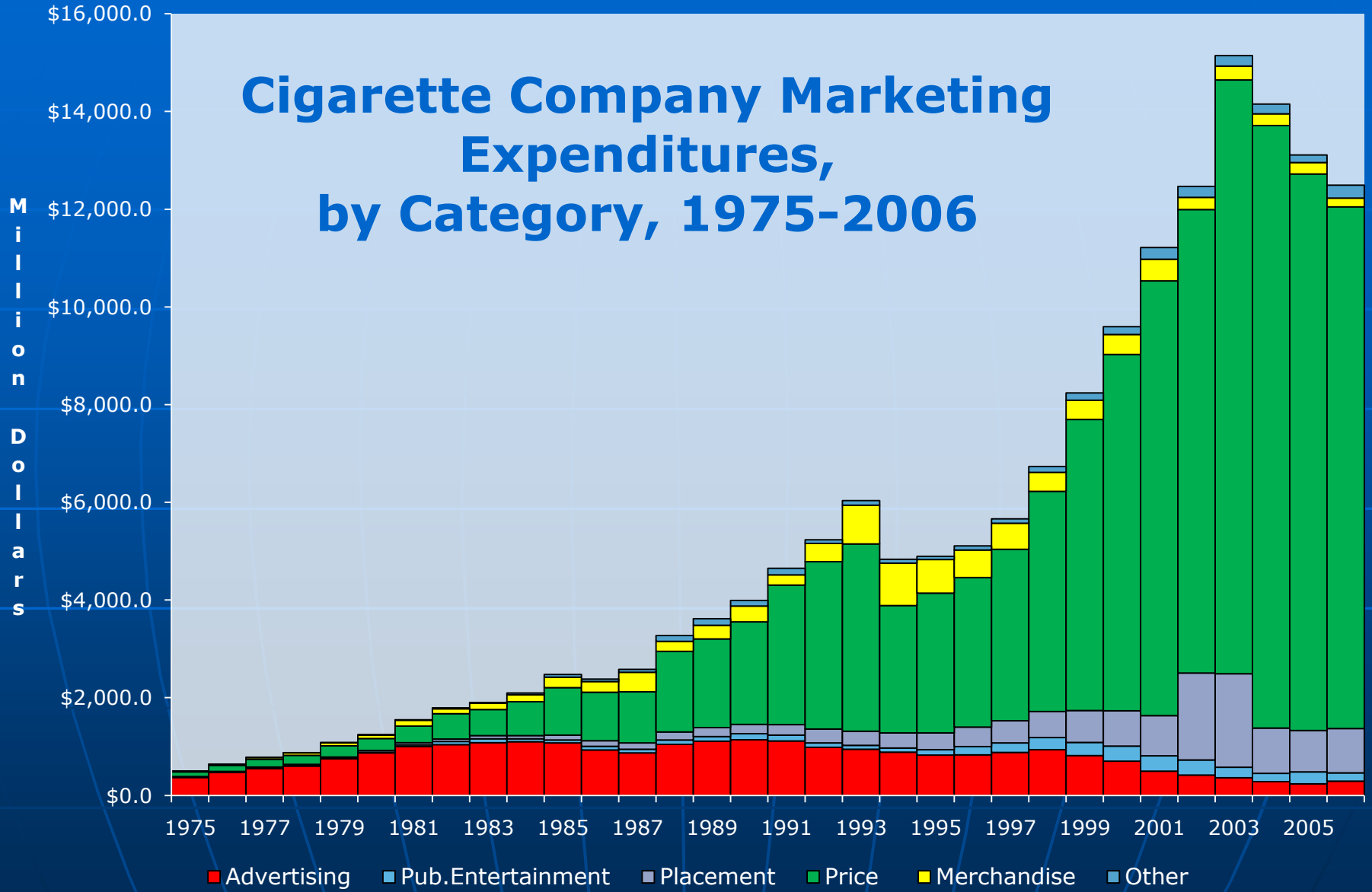
CAMEL
TURKISH GOLD

CAMEL
Buy 2 Packs
Get 1 Free!

PLEASURE
To
BURN

CAMEL
Get a FREE TIN
of cold, fresh Snus
CAMEL
SNUS

Cigarette Company Marketing Expenditures, by Category, 1975-2006



Tobacco Industry Efforts to Offset Tax Increase

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 to become eligible for cigarette coupons and special offers using this code: **MAR1558**

Thank You,

Philip Morris USA

Restricting Marketing?

- Family Smoking Prevention and Tobacco Control Act, 2009
 - Eliminates federal pre-emption of stronger state, local restrictions on tobacco company marketing
 - Allows limits on time, place or manner of tobacco company marketing
 - Comprehensive state and/or local marketing bans possible?

Minimum Pricing Policies

- 25 states with minimum pricing policies
- Typically mix of minimum markups to wholesale and retail prices
 - Median wholesale markup 4%
 - Median retail markup 8%
 - Same markups in Iowa
- 7 states prohibit use of price promotions in minimum price calculation
- Little impact on actual retail prices
 - Greater impact where promotions excluded

Common Oppositional Arguments

Myths & Facts

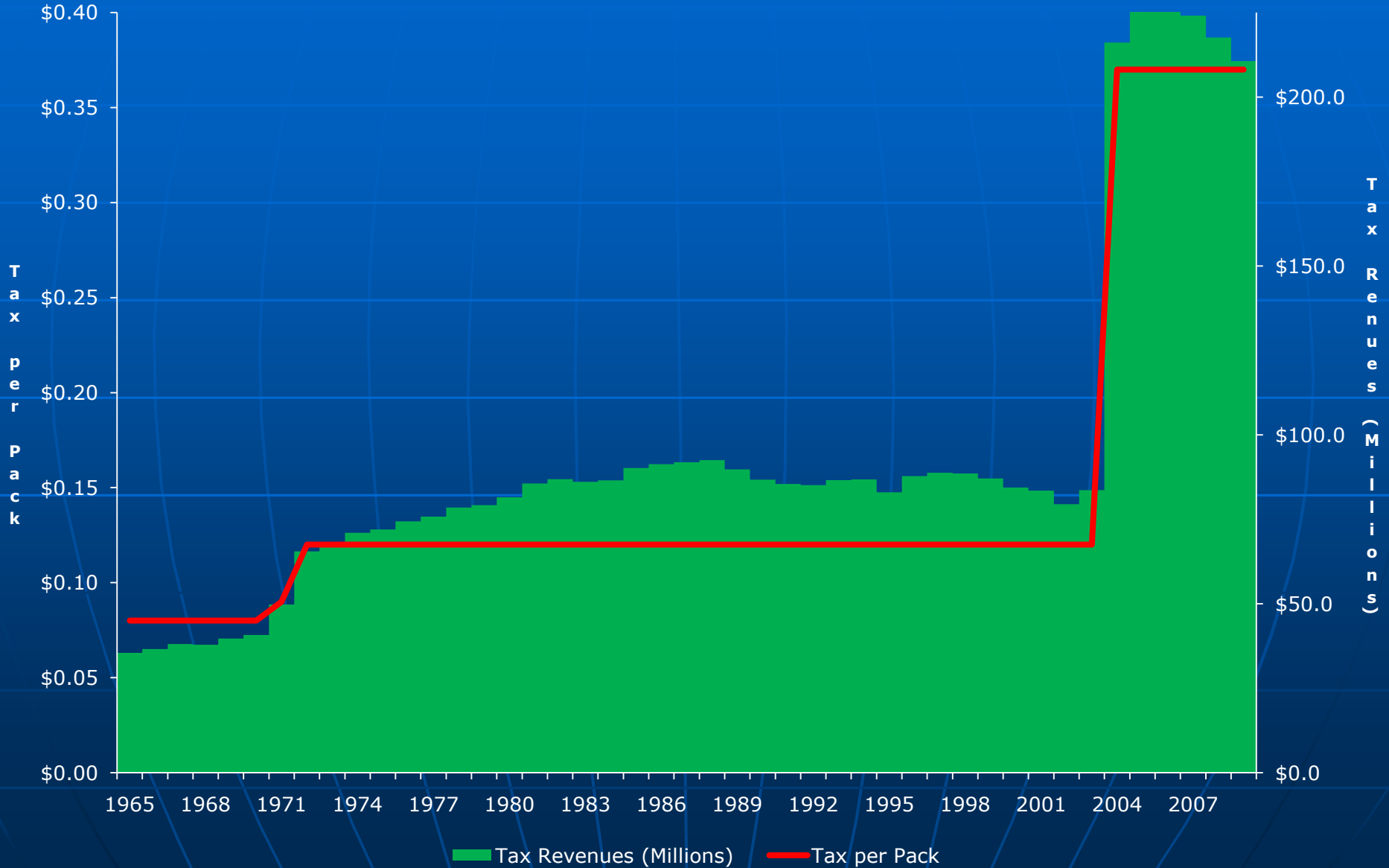
Impact on Revenues

By *J Scott Moody*, 4/2/08, from an AP story:

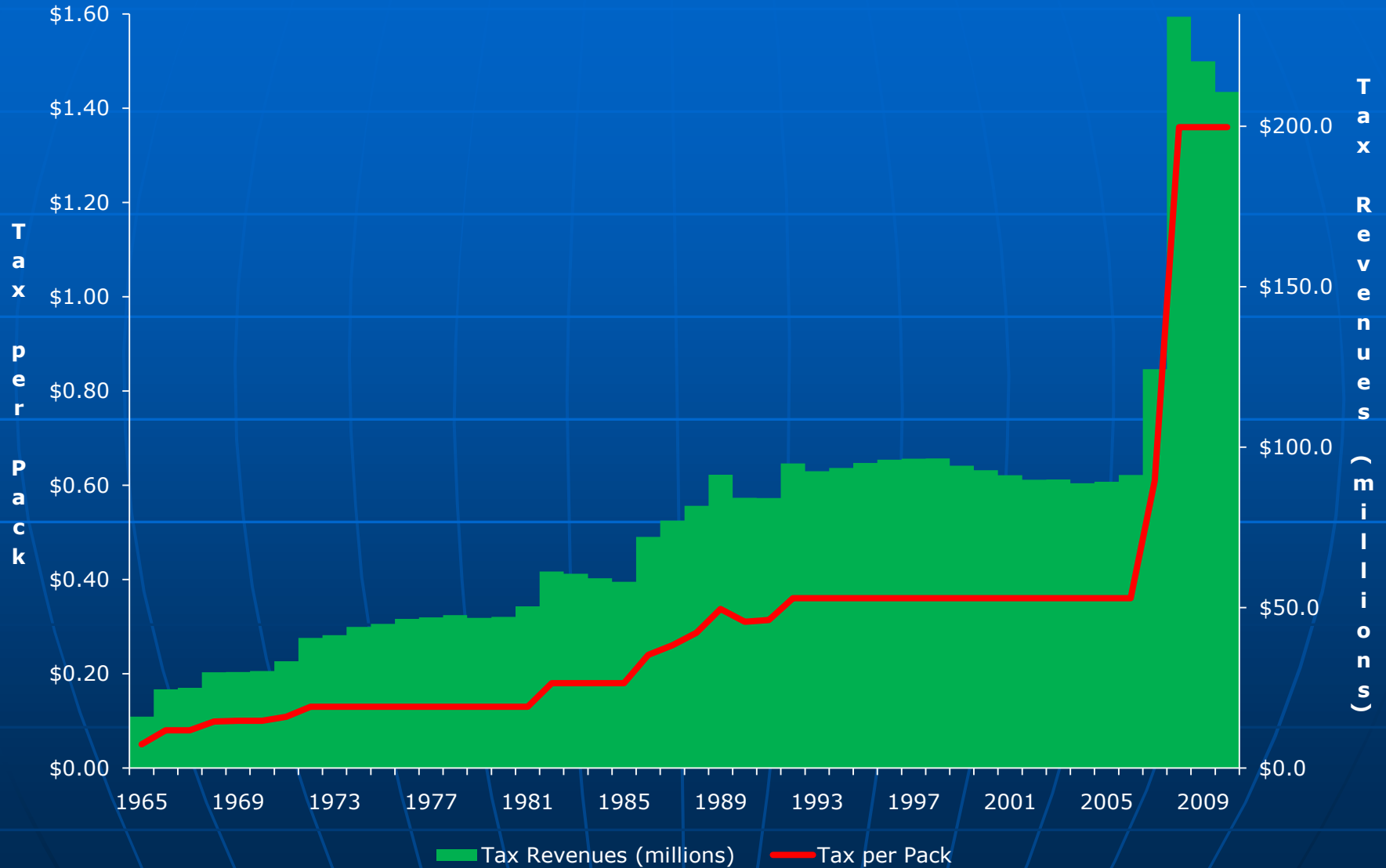
AUGUSTA — “A coalition of health groups today urged lawmakers to increase the cigarette tax by a \$1 per pack, saying the increase will encourage more people to quit smoking and generate more money for health programs.

Translation: Fewer people smoking equals more cigarette tax revenue? Someone needs a math lesson.”

Cigarette Tax and Tax Revenues Georgia, 1965-2009



Cigarette Tax and Tax Revenues Iowa, 1965-2010



Positive Effect of Tax Increase on Revenue Results from:

Low share of tax in price:

- state taxes account for about 25% of price
- total taxes account for less than half of price
- *Implies large tax increase has much smaller impact on price*

Less than proportionate decline in consumption:

- 10% price rise reduces consumption by 4%

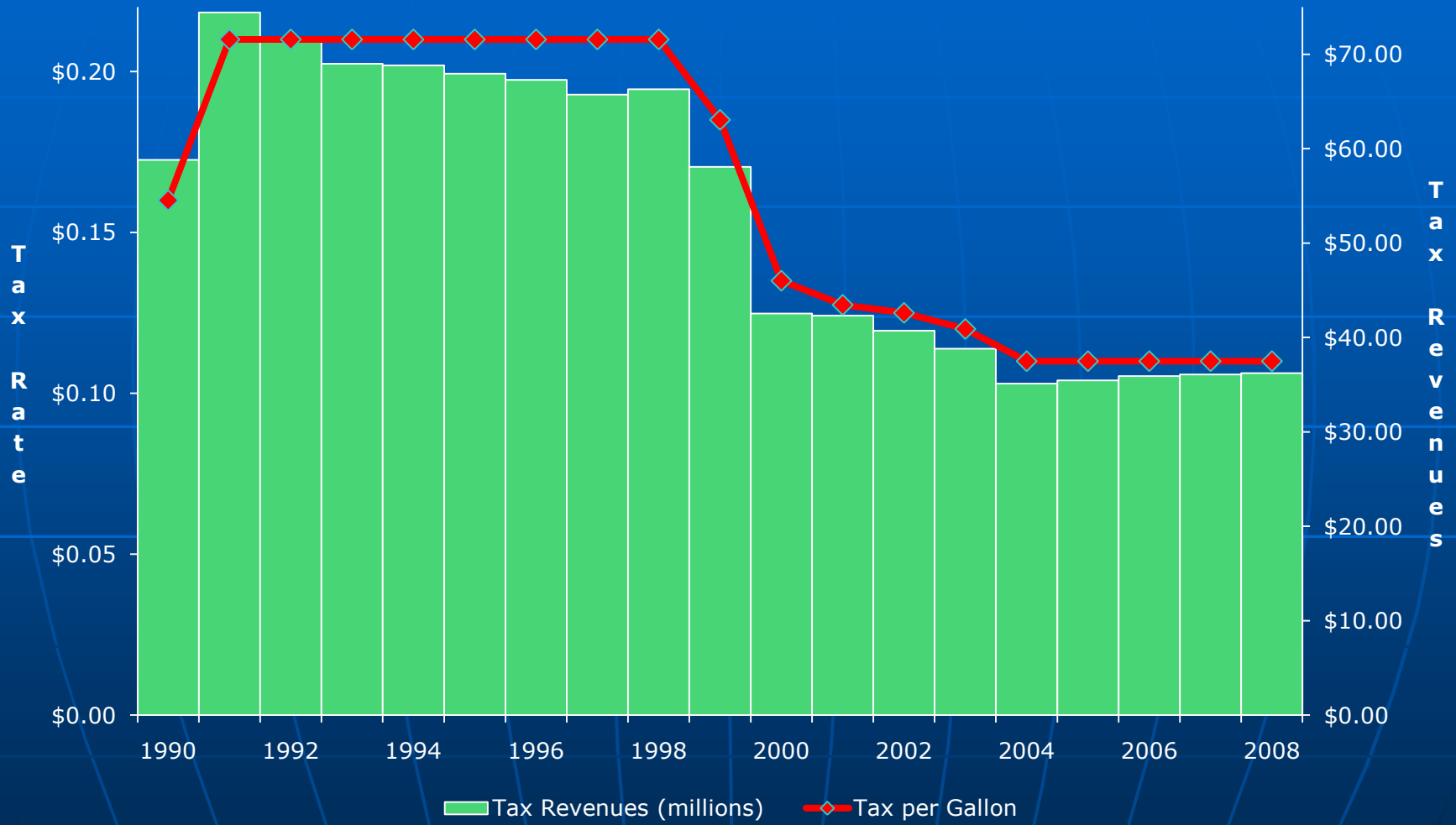
Double tax → 25% price rise → 10% drop in sales

100% tax hike on 90% of sales → 80% rise in revenue

Revenue Impact

- **Increases in alcoholic beverage taxes:**
 - Increase government tax revenues
 - Even smaller share of tax in price
 - Less than proportionate reductions in consumption in response to price increase
 - Broader tax base implies greater potential revenues
 - Revenue increases sustained over time
 - Changes in revenues gradual and predictable

New York Beer Tax and Tax Revenues, 1990-2008, Not Inflation Adjusted



Source: *Brewers' Almanac*, 2009, and author's calculations

Impact on Jobs

JULY, 14, 2010 – The Associated Press

- RICHMOND, Va. — The tobacco industry is running a full-court press ahead of a federal scientific panel's meeting to discuss how to regulate menthol cigarettes, a still-growing part of the shrinking cigarette market.
- The union representing nearly 4,000 tobacco workers sent a letter to the Food and Drug Administration committee examining the public health effects of the minty smokes, warning that a ban could lead to "severe jobs loss" and black market cigarettes.

Impact on Jobs

- Tobacco excise tax will lead to decreased consumption of tobacco products
 - Small loss of jobs in tobacco sector
- Money not spent on tobacco products will be spent on other goods and services
 - Gains in jobs in other sectors
- Increase in tax revenues will be spent by government
 - Additional job gains in other sectors
- Net increase in jobs in most states

Impact on Businesses

- More recent argument that higher taxes will harm convenience stores
- New analysis
 - Number of convenience stores (convenience only, gas stations, both), by state, 1997-2009
 - State cigarette tax rates and smoke-free air policies
 - Economic conditions (income, unemployment, gas prices)
 - Multivariate, fixed effects econometric models

Impact on Businesses

■ Results:

- Positive association between state cigarette tax and number of convenience stores
 - “overshifting” of cigarette tax in retail price
 - Substitution of spending on cigarettes to spending on other products
 - \$1.00 tax increase associated with increase of 11 stores per million population
- No impact of smoke-free policies
- Robust to alternative specifications and empirical methods

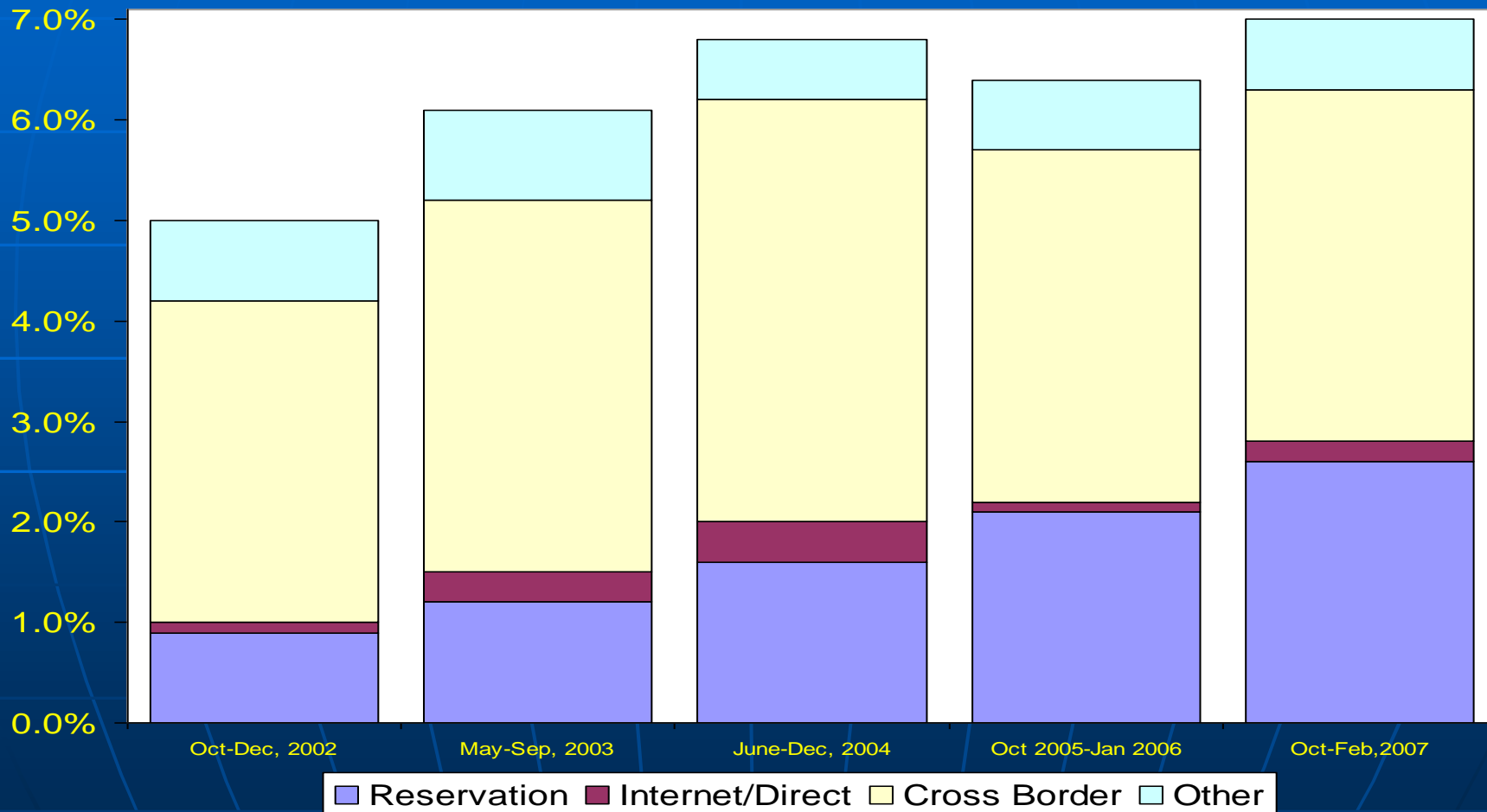
Tax Avoidance & Evasion

April 1, 2008 – New York Sun

- A pack of premium cigarettes in New York City now costs \$7 or \$8; prices would rise to above \$9. Opponents of the tax increase argue that **higher prices would drive smokers to seek ways to evade the law and purchase cheaper cigarettes from smugglers or in neighboring states, blunting potential revenue gains for the state.** "It's a **black market gold mine,**" a senior fellow at the Manhattan Institute, E.J. McMahon, said of the proposed tax.

Tax Avoidance

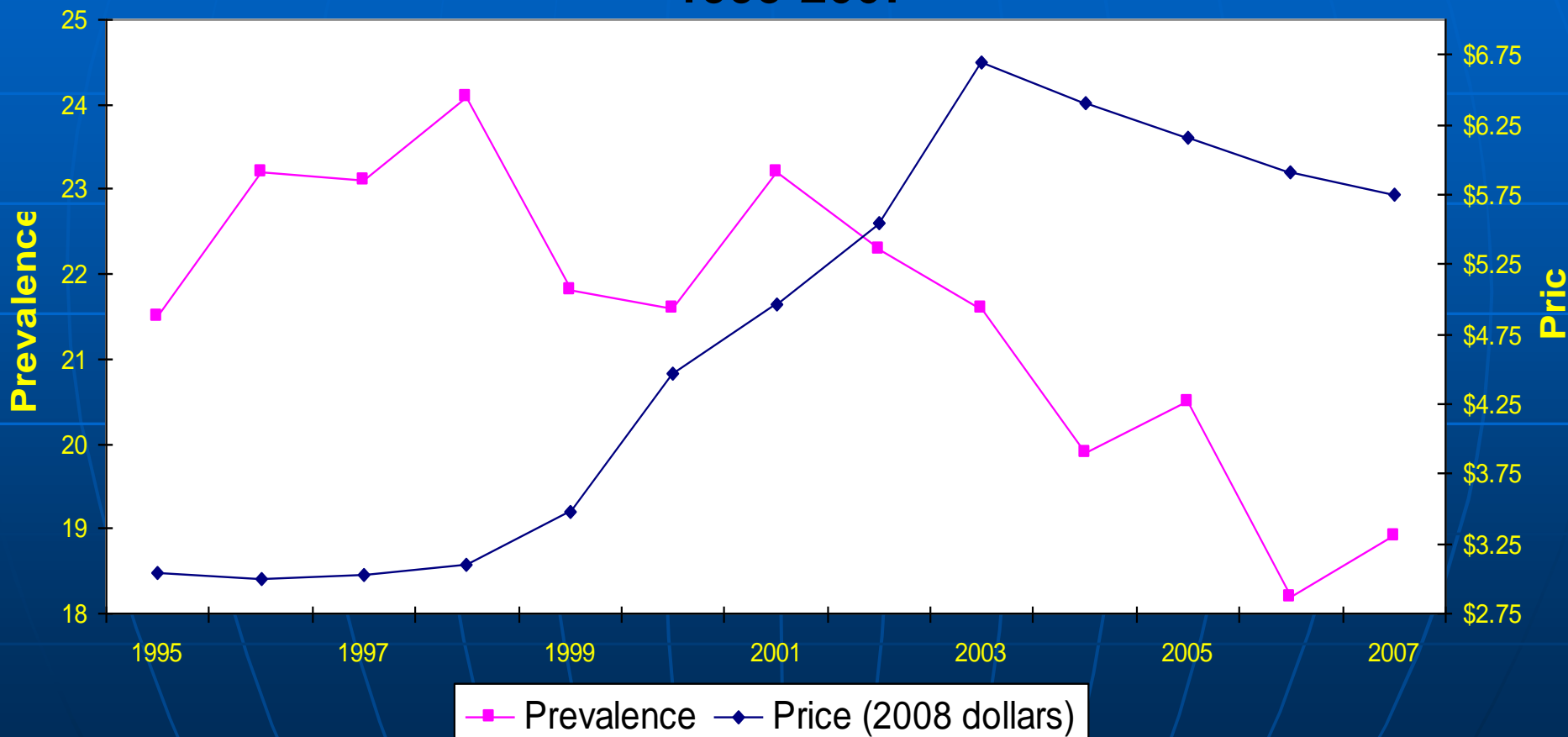
US Smokers' Tax Avoidance, Last Purchase, 2002-2007



Source, ITC project, US survey, Waves 1-5

Tax Avoidance & Evasion Do NOT Eliminate Health Impact of Higher Taxes

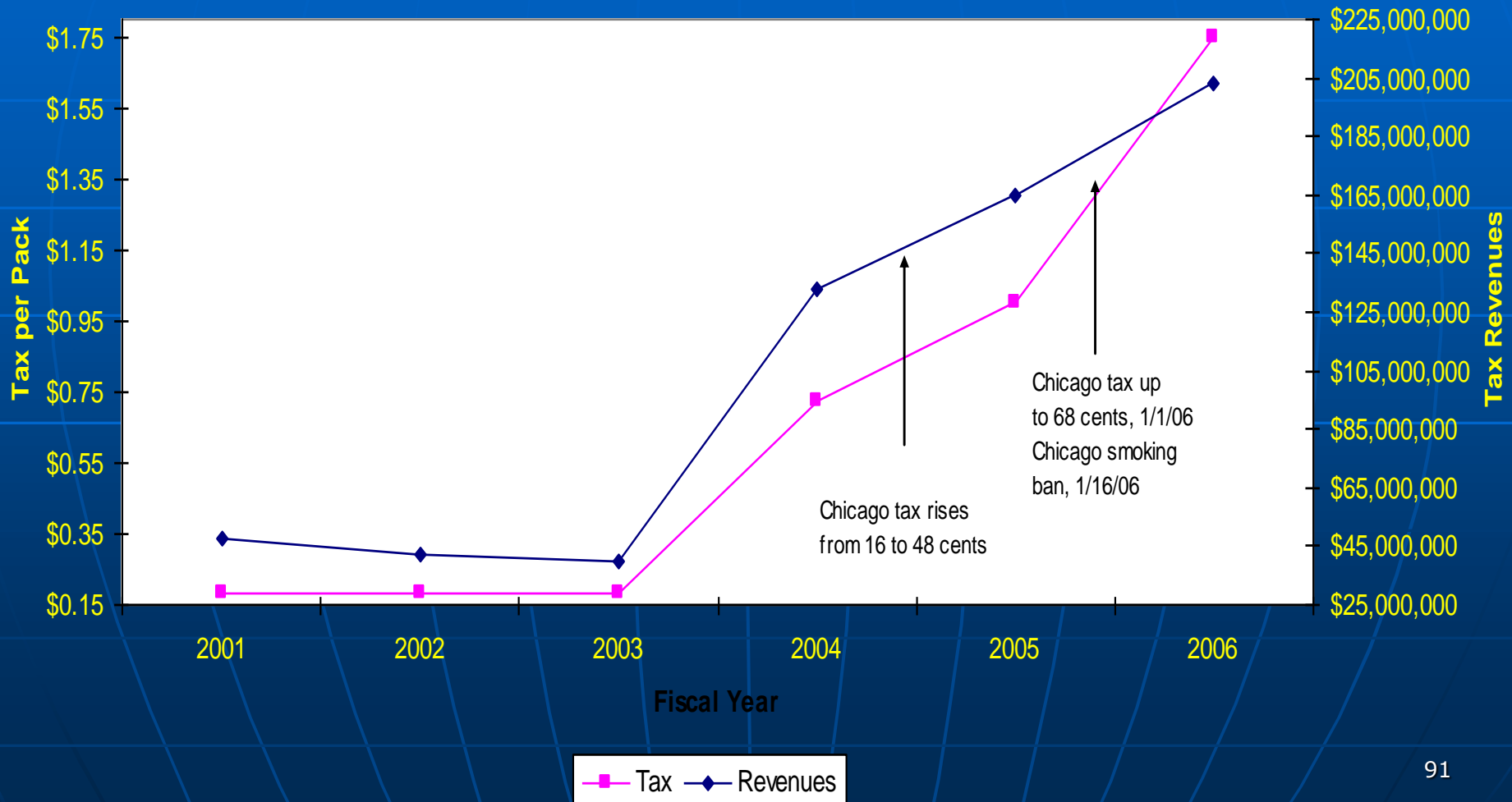
Cigarette Prices and Adult Prevalence, New York, 1995-2007



Source: Tax Burden on Tobacco, 2008 and BRFSS

Tax Avoidance & Evasion Do NOT Eliminate Revenue Impact of Higher Taxes

Cook County Cigarette Tax and Tax Revenues - FY01-FY06



Combating Tax Evasion

- High-tech tax stamps
- Licensing of all involved in distribution and sale
- Strong enforcement
- Swift, severe penalties
- Focus on large scale, criminal activity
- Coordinated efforts
 - NAAG efforts targeting Internet
 - Agreements with tribes



Impact on the Poor

July 23, 2010 – San Francisco Examiner

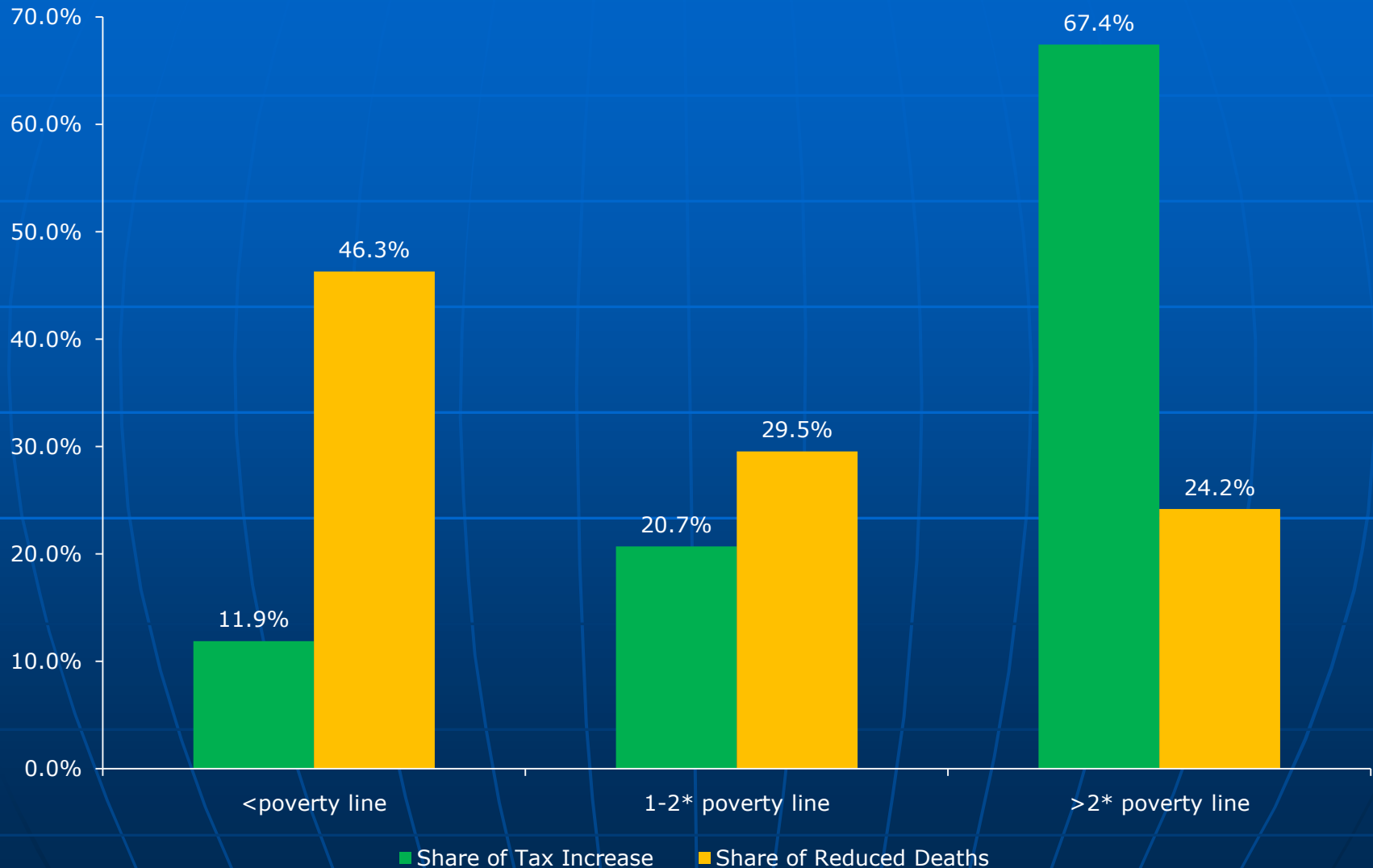
- “Democrats are relying more heavily in their midterm 2010 election message that Republicans care nothing about the poor. Conveniently absent from this analysis is Republican opposition to President Barack Obama’s cigarette tax increase..... **While higher cigarette taxes do discourage smoking, they are highly regressive.** Analyzing a slightly less severe proposal in 2007, the Tax Foundation noted that **‘no other tax hurts the poor more than the cigarette tax.’**” Peyton R. Miller, special to the Examiner.

Impact on the Poor

- Concerns about the regressivity of higher tobacco taxes
 - Tobacco taxes are regressive, but tax increases can be progressive
 - Greater price sensitivity of poor – relatively large reductions in tobacco use among lowest income populations, small reductions among higher income populations
 - Health benefits that result from tax increase are progressive

Who Pays & Who Benefits

Impact of Federal Tax Increase, U.S., 2009



Source: Chaloupka et al., in progress; assumes higher income smokers smoke more expensive brands

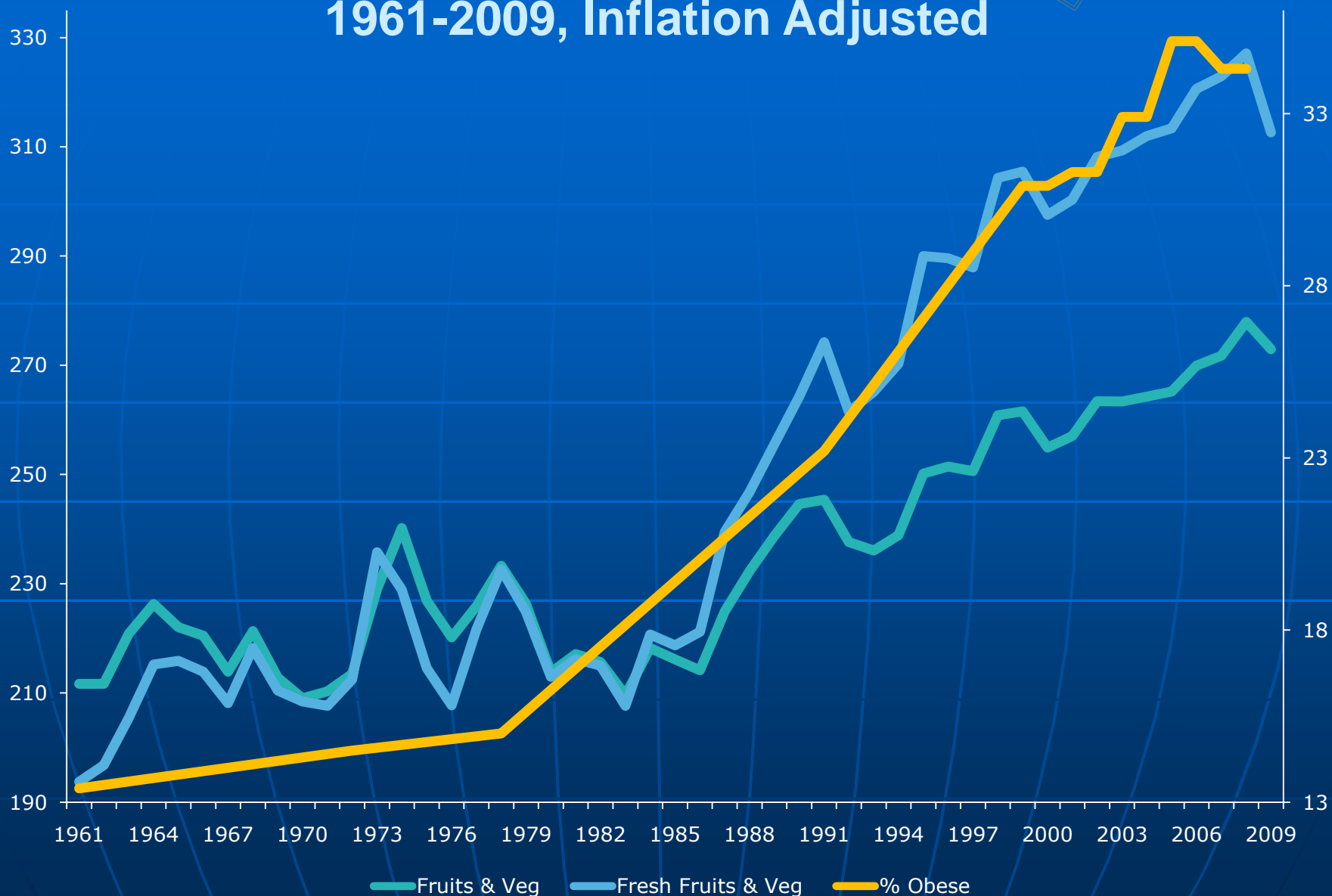
Impact on the Poor

- Need to consider overall fiscal system
 - Key issue with tobacco taxes is what's done with the revenues generated by the tax
 - Greater public support for tobacco tax increases when revenues are used for tobacco control and/or other health programs
 - Net financial impact on low income households can be positive when taxes are used to support programs targeting the poor
 - Concerns about regressivity offset by use of revenues for programs directed to poor

Taxation and Obesity?

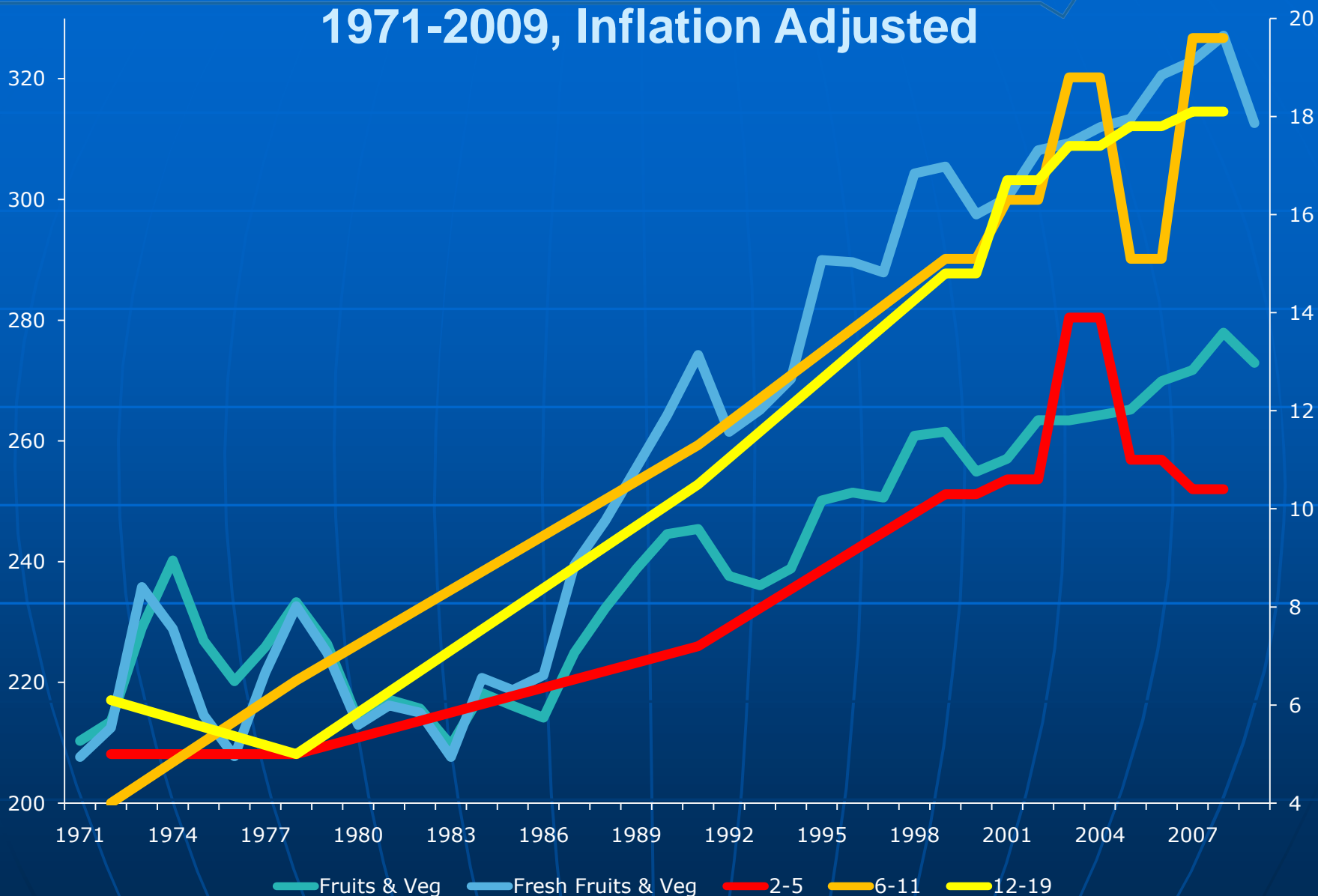
Selected Food Price & Adult Weight Trends

1961-2009, Inflation Adjusted



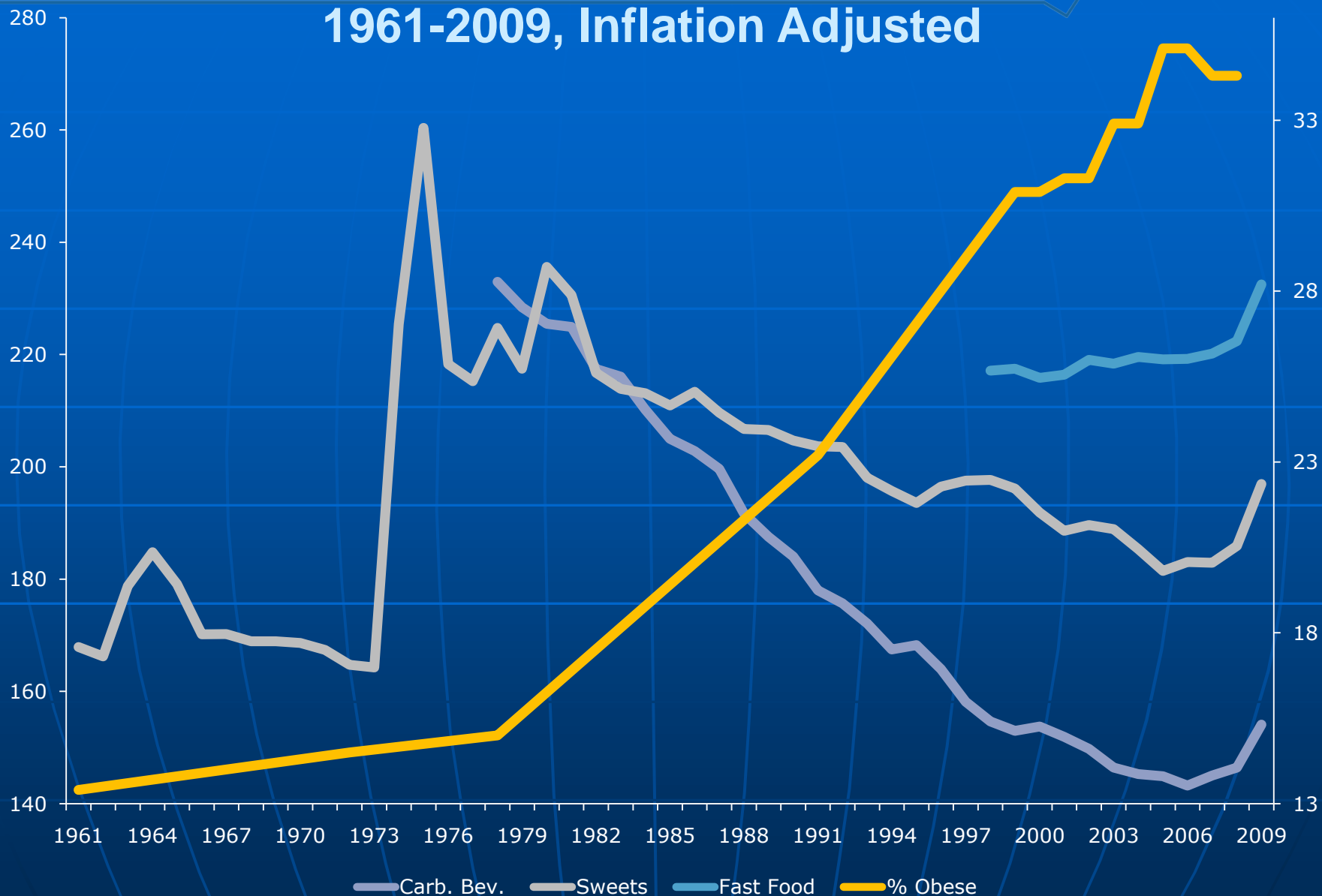
Selected Food Price & Youth Weight Trends

1971-2009, Inflation Adjusted



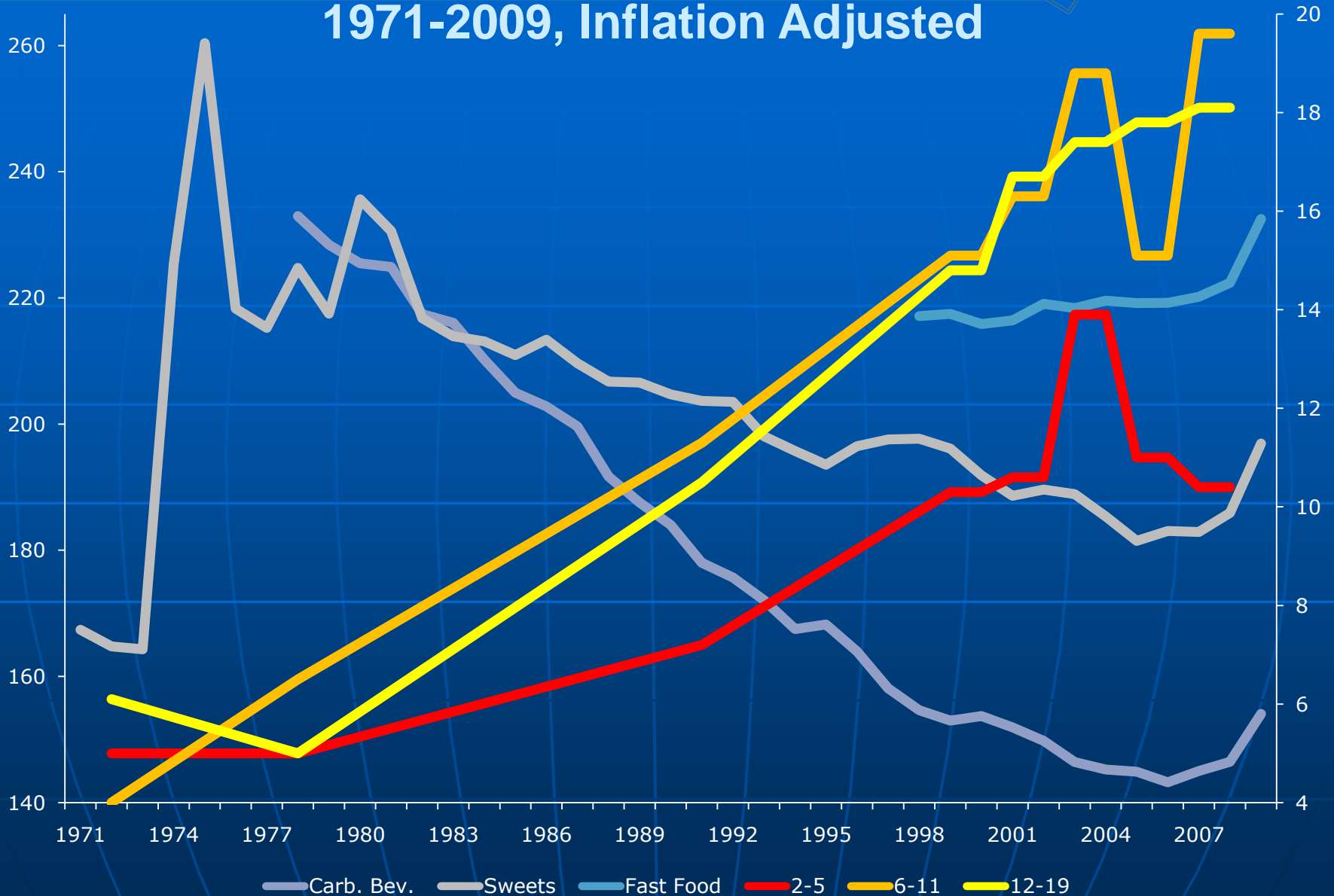
Selected Food Price & Adult Weight Trends

1961-2009, Inflation Adjusted



Selected Food Price & Youth Weight Trends

1971-2009, Inflation Adjusted



Food Prices and Consumption

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%

Food Prices and Weight Outcomes

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.

Policy Options

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

Sugar Sweetened Beverage Taxes

Public Health Rationale for SSB Taxes

- Link to obesity

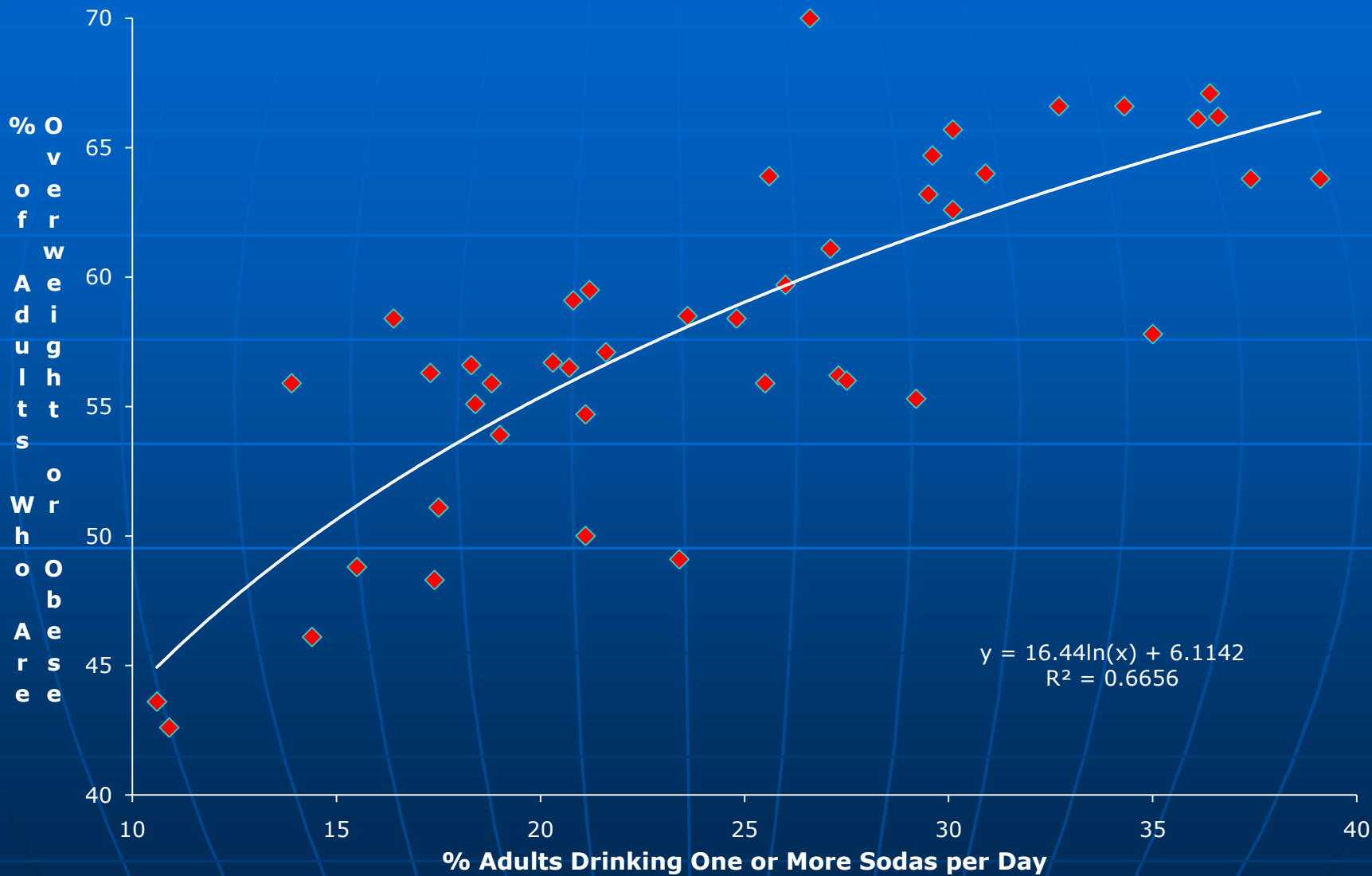
- Several meta-analyses conclude that increased SSB consumption causes increased weight, obesity
- Increased calories from SSBs not offset by reductions in calories from other sources

- Other health consequences

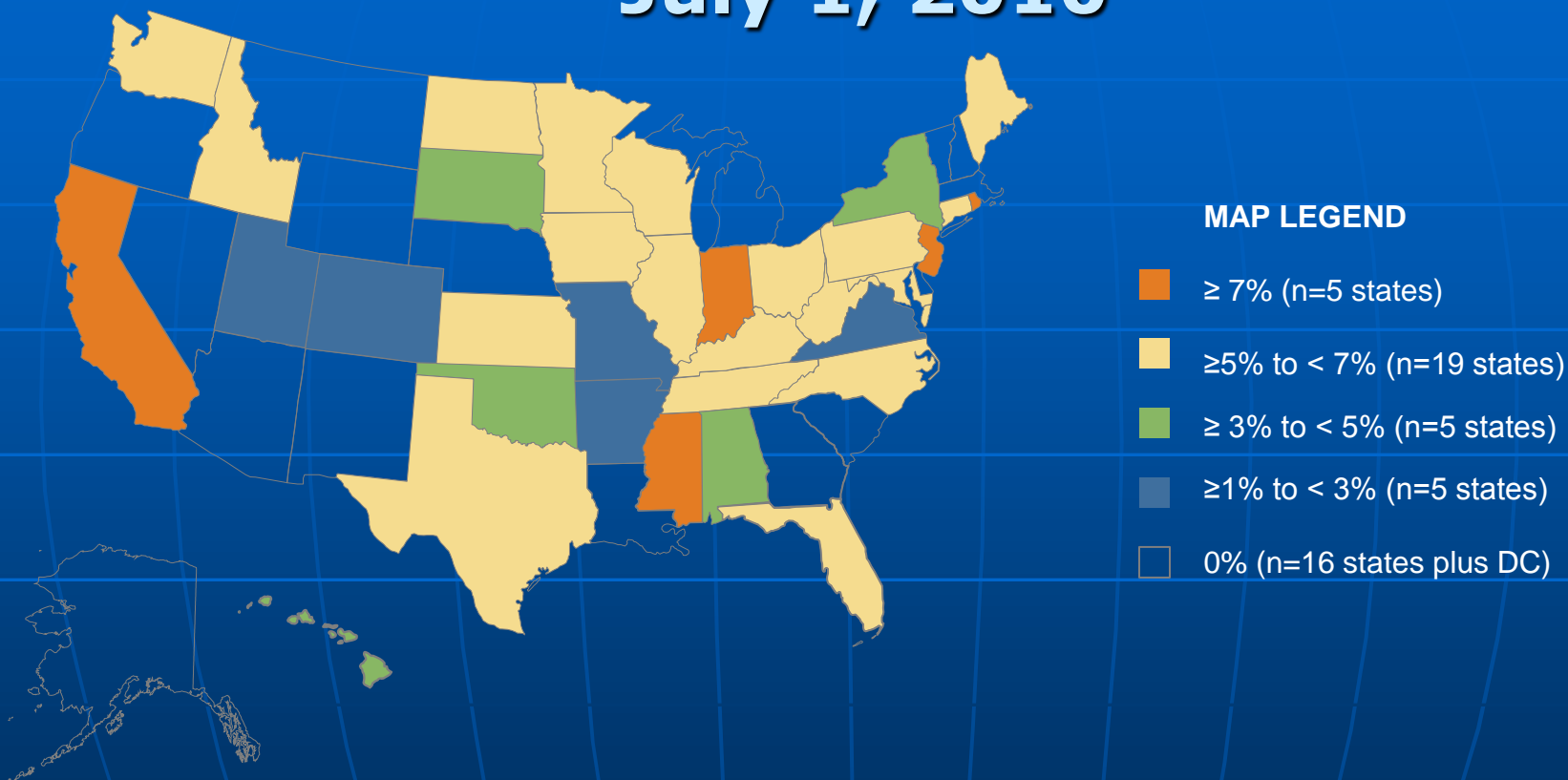
- type 2 diabetes, lower bone density, dental problems, headaches, anxiety and sleep disorders

Soda Consumption & Obesity

California Counties, 2005



State Sales Taxes on Regular and Diet Soda July 1, 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%).

SSB Taxes & Prices

Consumption and Weight

Existing evidence

- Growing literature demonstrating the higher prices for SSBs lead to reductions in SSB consumption
- Andreyeva, et al.'s (2010) comprehensive review concluded that price elasticity of soft drink consumption was -0.78
 - Price elasticity: % change in consumption resulting from 1% price change
 - 10% increase in soft drink prices would reduce consumption by nearly 8%
- Limited, mixed evidence on impact of taxes/prices on weight outcomes

Bridging the Gap Research

- Examines associations between sales taxes and consumption and weight outcomes:
 - A.C. Nielsen Homescan Data
 - Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K)
 - Monitoring the Future (MTF)
 - National Longitudinal Survey of Youth 1997 (NLSY97)

HomeScan

- Results imply small tax elasticities for purchases of -0.06.
- If all states increased sales taxes to the maximum tax rate of 7% (an increase of 60.6% from the current sample mean of 4.36%), household purchases of regular soda are estimated to be 3.6% lower.
- Consider the imposition of a **new 20% tax** → assuming constant elasticity, household regular soda purchases are estimated to be **33% lower**.
 - ❖ The extent to which this applies to all regular soda consumption depends on constant elasticity noted above, and whether regular soda consumed away-from-home is similarly price/tax responsive.

ECLS-K

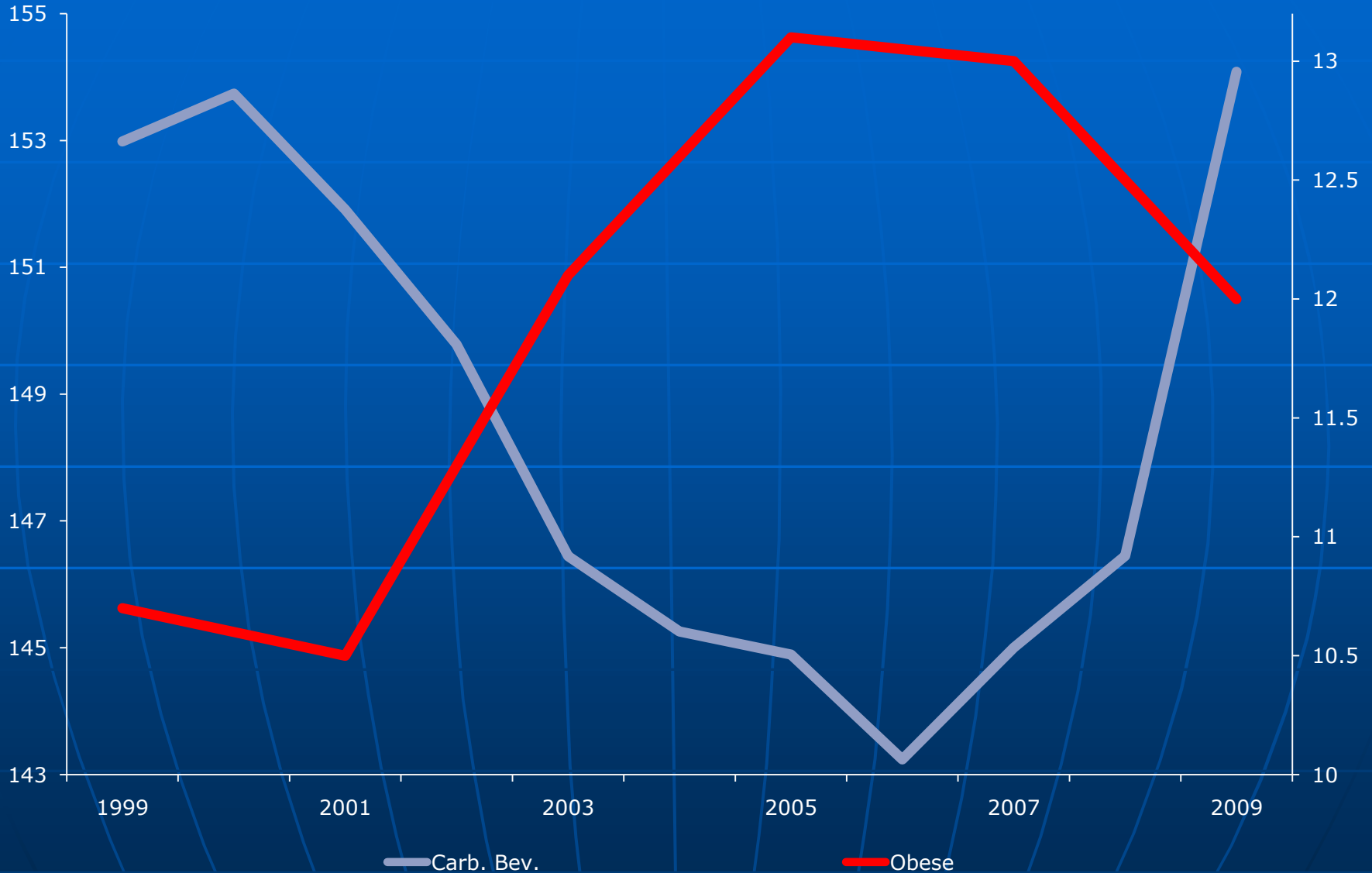
- Some Impact of tax on consumption and weight gain; bigger impact on low-income, minority, and at risk of overweight kids
- Assuming a constant elasticity, an 18% differential soda tax would correspond to a -0.23 BMI units in the change in BMI between 3rd and 5th grade, or a 20% reduction in the excess BMI gain.

Policy Implications of Empirical Results

- Generally very small associations between soda taxes and consumption or weight outcomes based on the existing low tax rates which range up to just 7% in the study samples.
- Larger associations for populations at greater risk for obesity.
- *Substantial* increases in soda tax rates may have some measureable effects on outcomes and even greater effects at the population level.

Carbonated Beverage Prices & Youth Obesity

1995-2009, Inflation Adjusted



Alternative SSB Tax Structures

- From a public health perspective, specific excise tax preferable to sales tax or ad valorem excise 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

SSB Taxation & Revenues

- 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:
 - \$15.1 billion nationally if on SSBs only
 - \$24.4 billion if diet included
 - Tax of one cent per ounce in Iowa
 - \$146.4 million, SSBs only
 - \$235.6 million if diet included
 - Earmarking tax revenues for obesity prevention efforts would add to impact of tax

Counterarguments

- Same as have been raised against tobacco and alcohol taxes
 - Employment impact
 - Ongoing research assessing impact of reduced SSB consumption on employment
 - Impact on the poor
 - Tax avoidance/evasion

Summary

Summary

- Tobacco tax increases have significantly reduced tobacco use in the US
- Similar evidence for effectiveness of higher alcoholic beverage taxes to reduce alcohol use and its consequences
 - Few governments have done so
- Potential for using excise taxes on sugar-sweetened beverages to curb SSB consumption and reduce obesity

Summary

- Taxes generate significant revenues and revenues increase when tax increases
 - Added reductions in use/consequences when revenues earmarked for prevention/control efforts
- Arguments about adverse economic impact either false or overstated

For more information:

www.bridgingthegapresearch.org

www.impactteen.org

fjc@uic.edu