Taxation as Obesity Control Policy

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Forum for the Analysis of Obesity's Control Public Policy
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Overview

- Rationales for taxation
- Impact of taxes/prices on consumption and consequences
- Types/levels of taxes
- Counterarguments
- Highlight experiences with tobacco taxes and implications for obesity prevention
- Thanks to Lisa Powell, Jamie Chriqui and many other colleagues

Rationale for Taxation

"***Sugar***, ***rum***, *and* ***tobacco,*** *are commodities which are no where necessaries 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

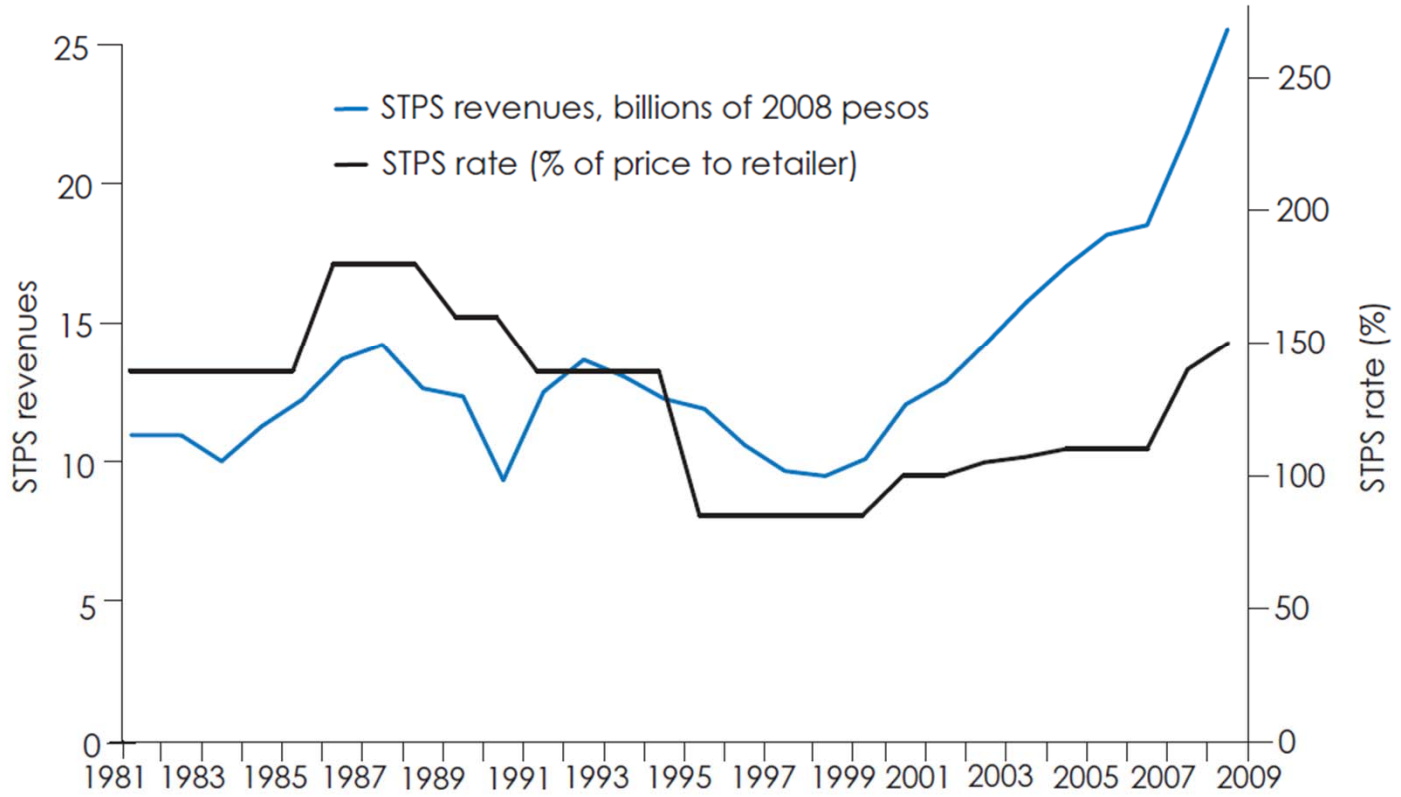
Why Tax?

- **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
    - 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

Tobacco Taxes and Revenues

Mexico

Graph 7.2: Tax revenue from the STPS and the STPS rate, 1981-2008

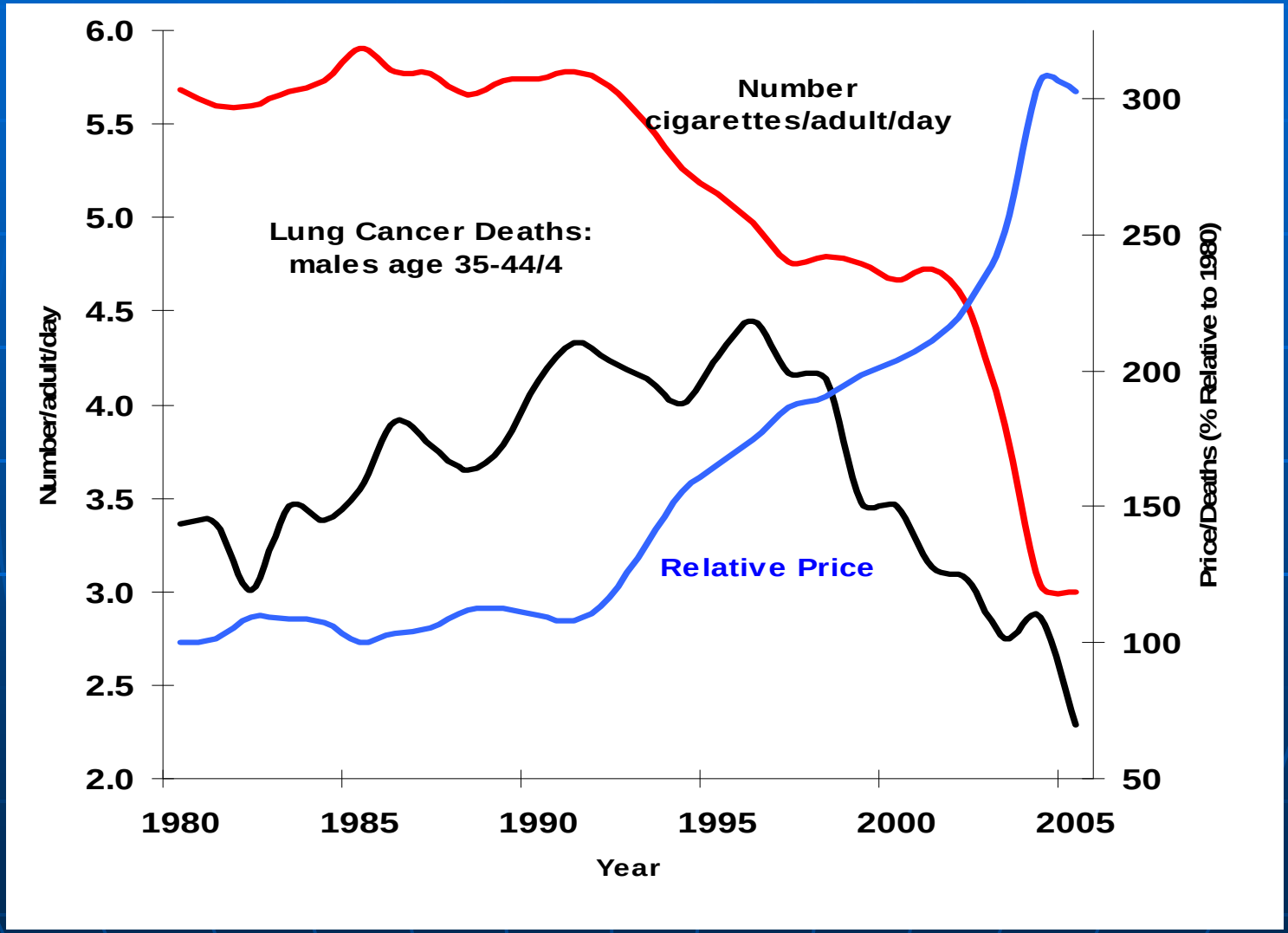


Source: Waters, et al., 2010

Why Tax?

- **Promote public health**
  - Increasingly important motive for higher tobacco taxes in many high income countries
  - 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



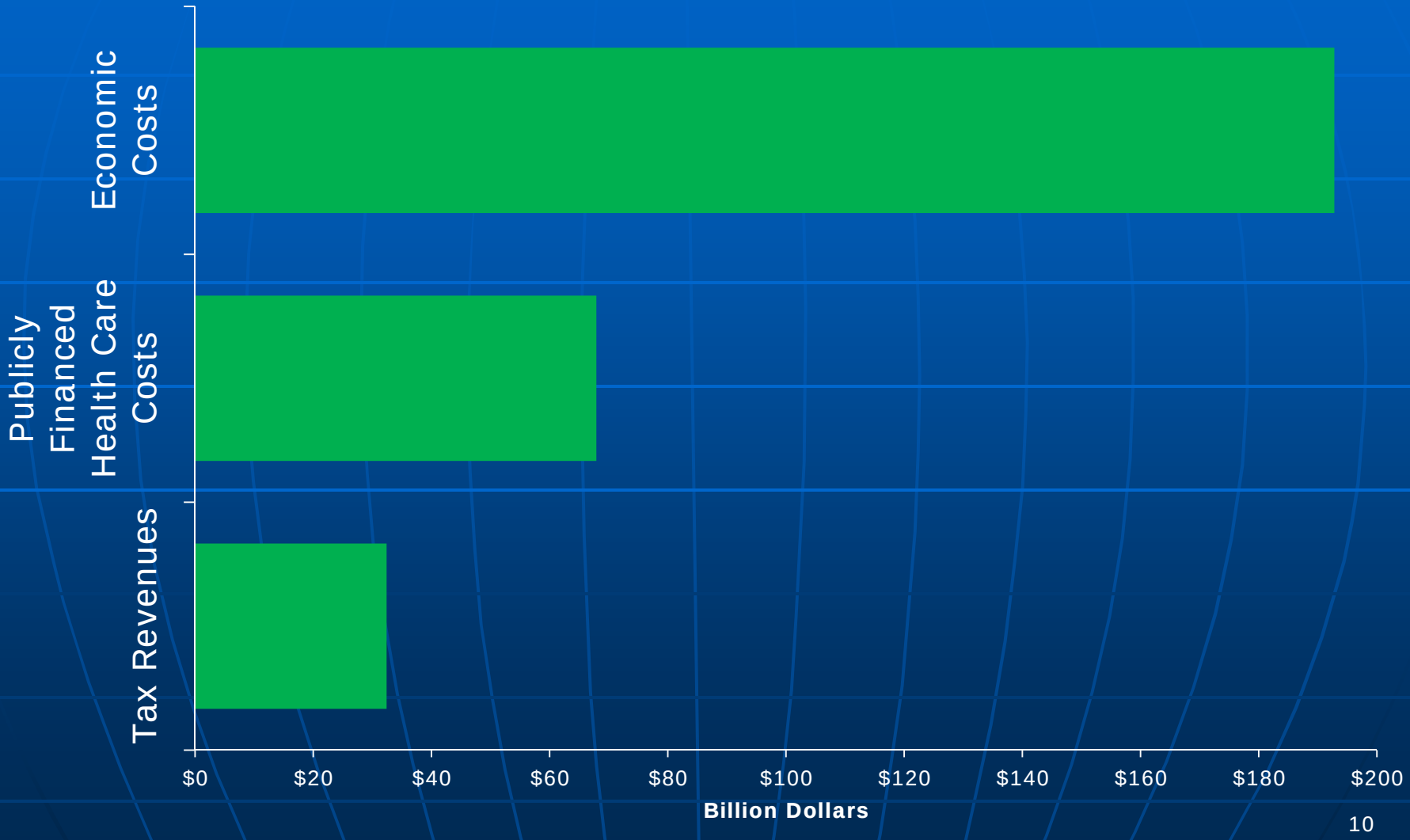
Source: Jha, 2009

Why Tax?

- **Cover the external costs of tobacco use**
  - "Pigouvian" tax
  - Less frequently used motive
  - Account for costs resulting from tobacco use imposed on non-users
    - Increased health care costs, lost productivity caused by exposure to tobacco smoke among non-smokers; public financed health care to treat diseases caused by tobacco use
  - Can also include "internalities" that result from addiction, imperfect information, and time inconsistent preferences

Economic Costs & Tax Revenues

United States



Sources: CDC/SAMMEC, CTFK, Tax Burden on Tobacco, and author's calculations

Implications for Obesity Prevention

- **Efficient revenue generation**
  - Considerable revenue potential
  - US Estimates suggest that 1¢ per ounce tax on SSBs would generate nearly $15 billion nationally
- **Promote public health**
  - Growing evidence that raising price of unhealthy foods/beverages would reduce consumption, promote healthier eating, and improve weight outcomes
- **Cover the external costs of obesity**
  - In US, health care costs from treating obesity estimated at $147-210 billion, with about half covered by public insurance programs

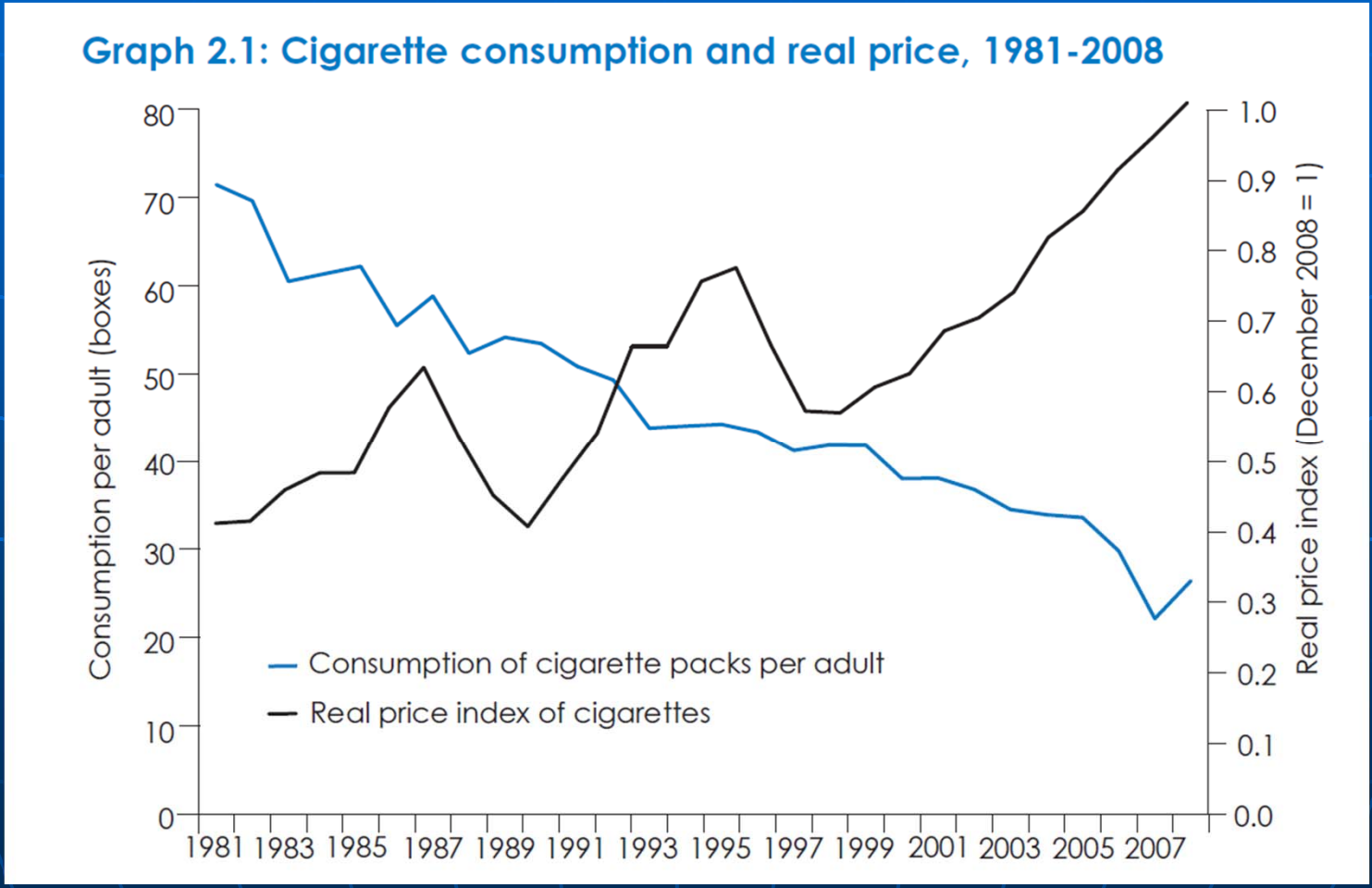
Impact of Prices on Tobacco Use

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

Mexico

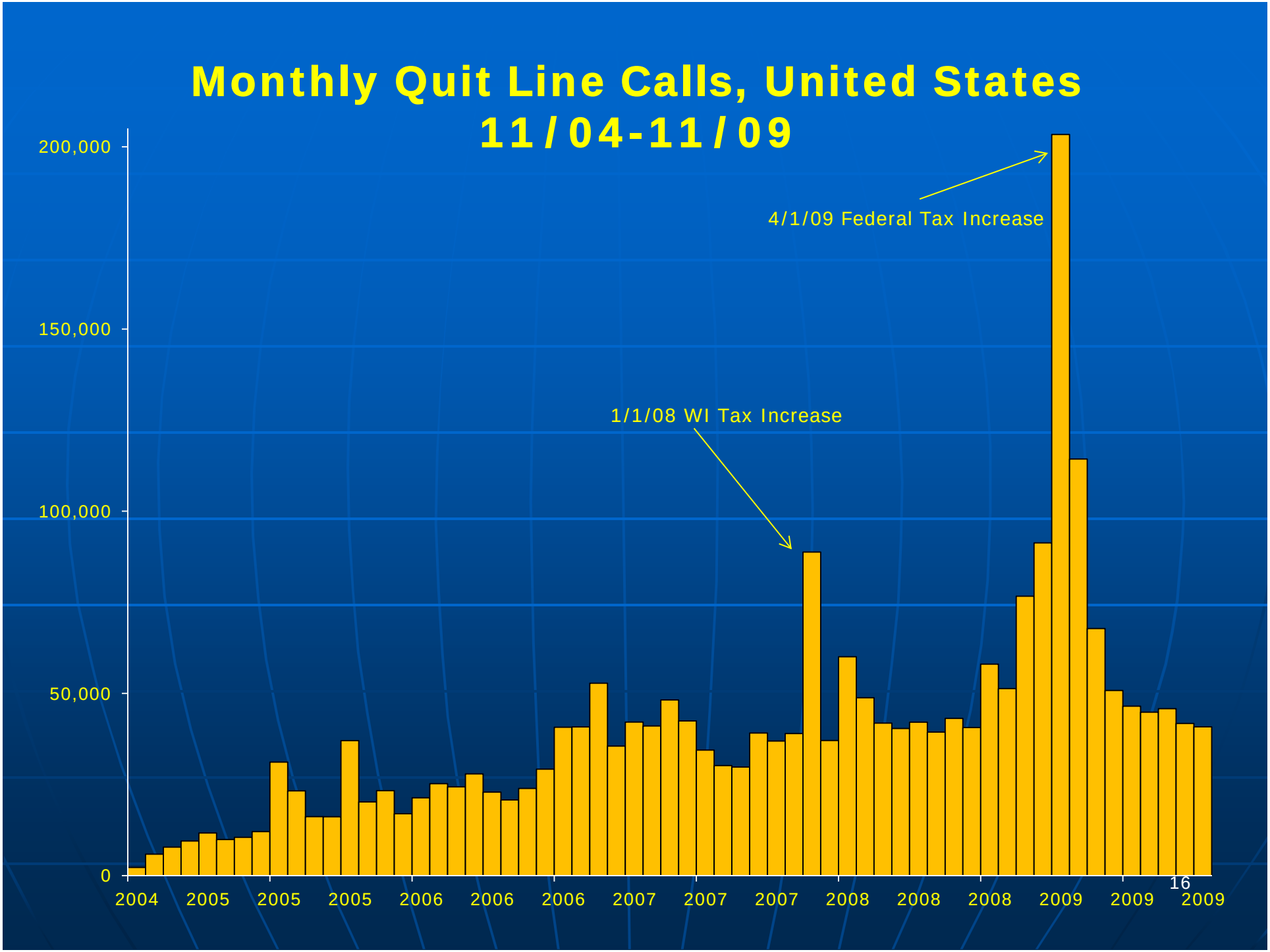


Source: Waters, et al., 2010

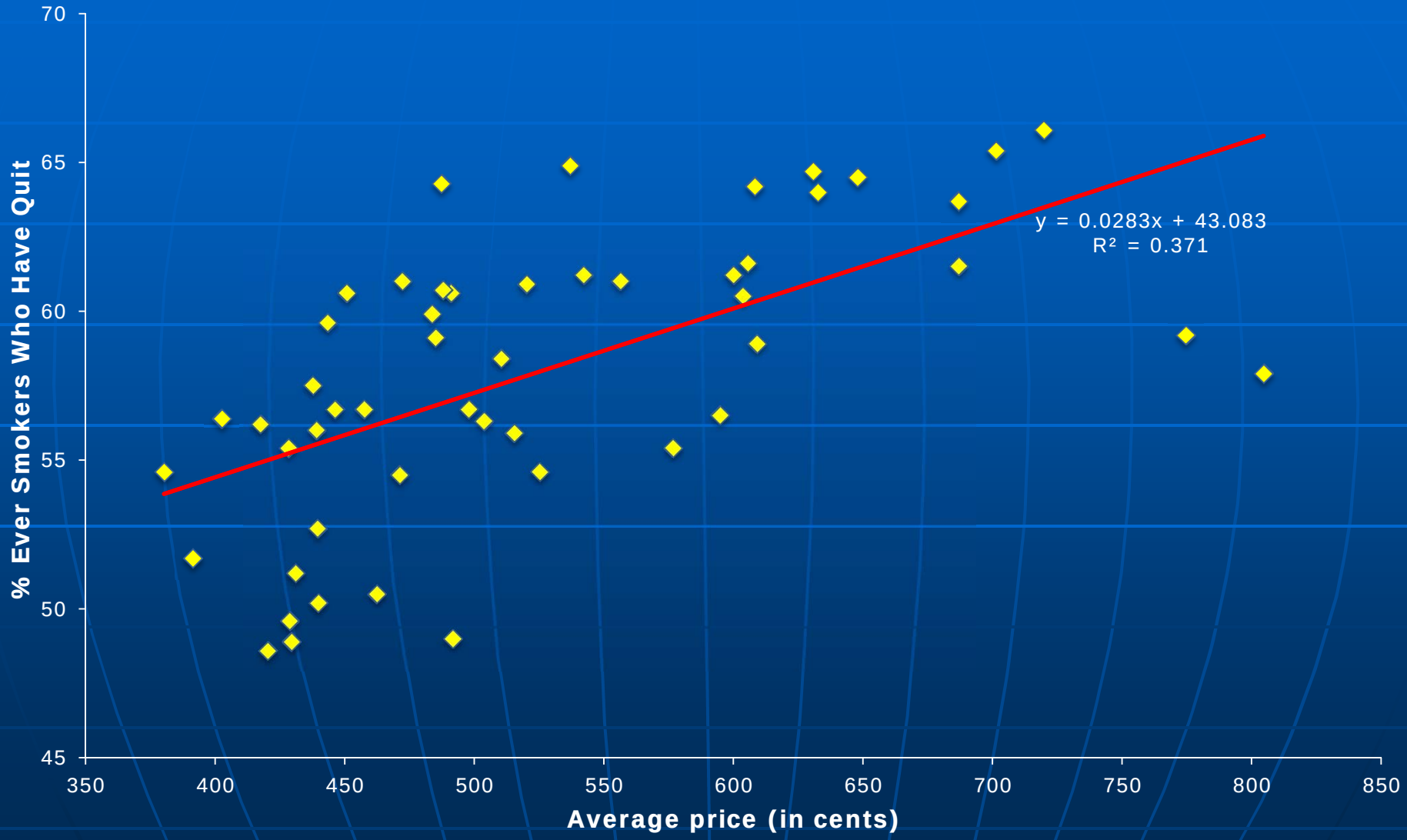
Cigarette Prices and Adult Smoking Prevalence, United States, 1970-2008

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

Monthly Quit Line Calls, United States 11/04-11/09

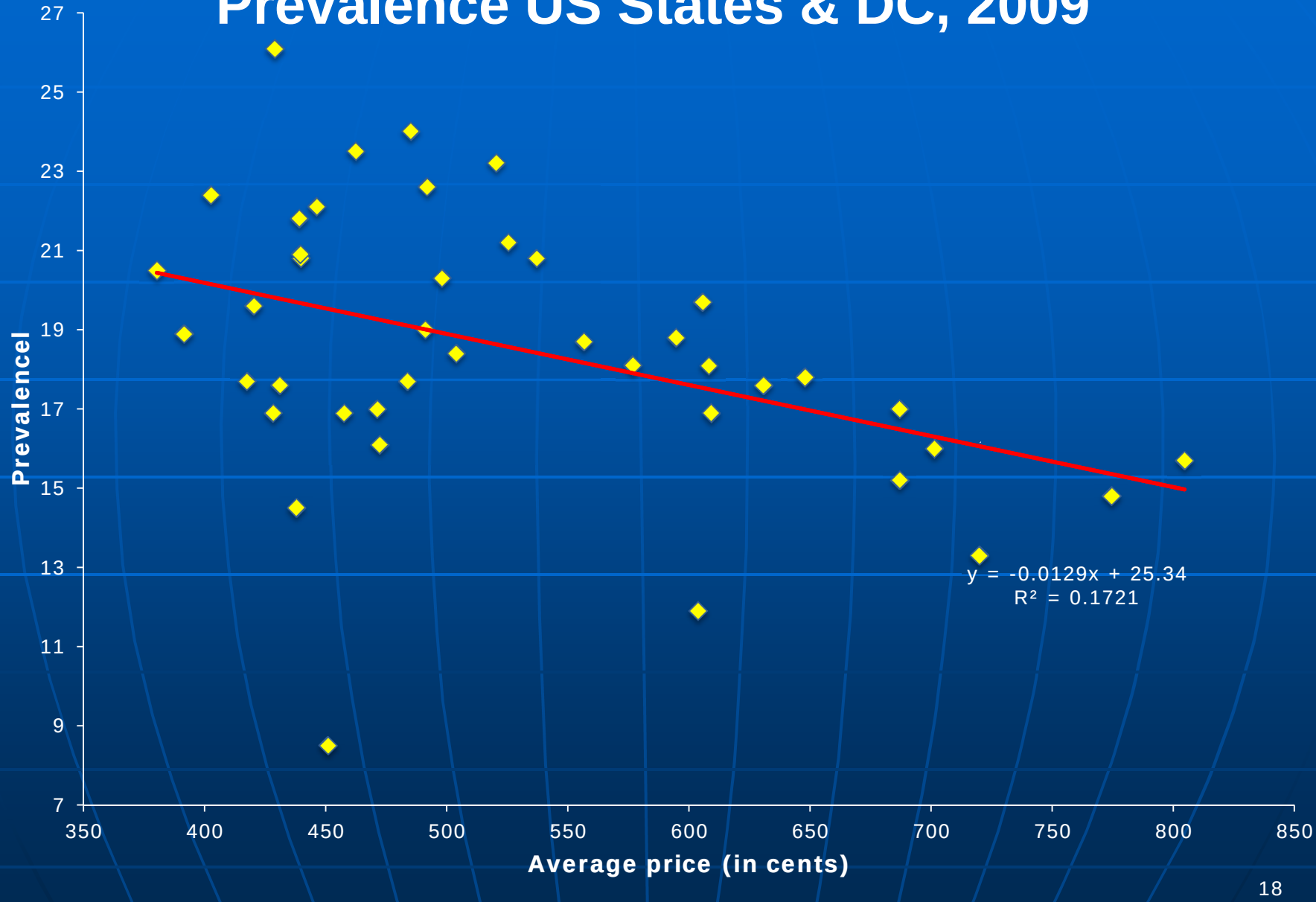


Cigarette Prices and Cessation
US States & DC, 2009



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

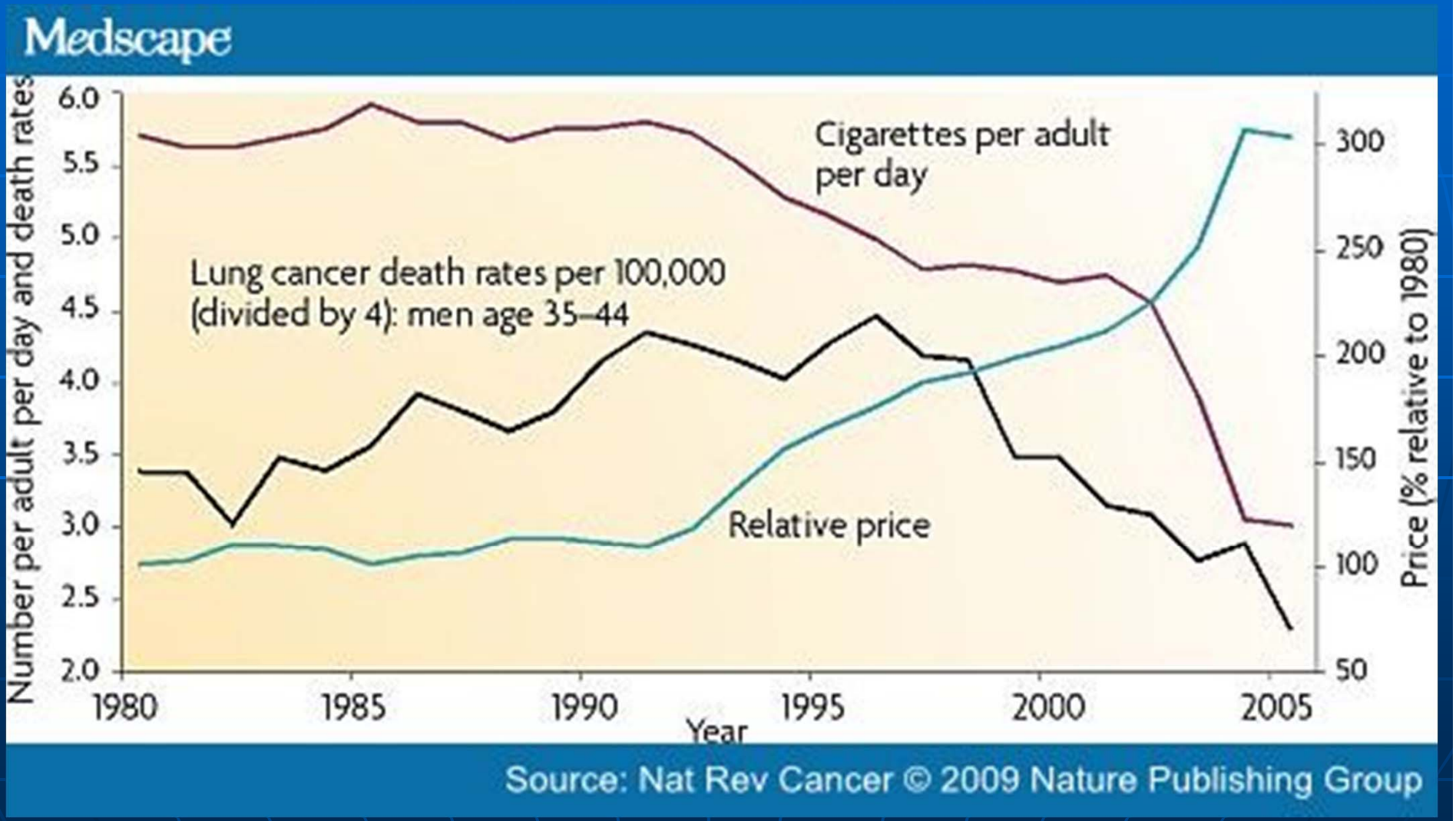
Cigarette Prices and Youth Smoking Prevalence US States & DC, 2009



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

Taxes, Prices and Health

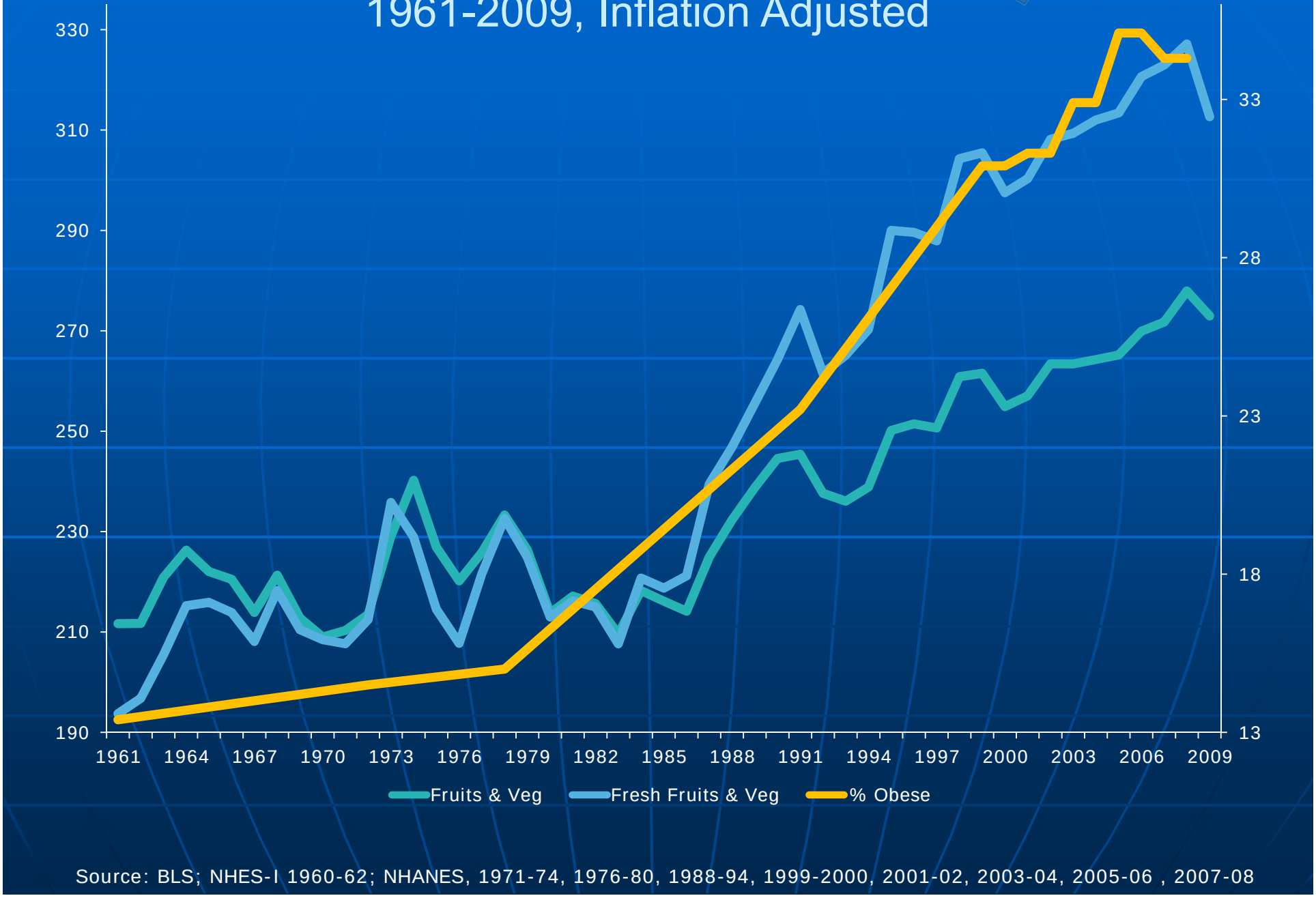
US, 1980-2005



Impact of Prices on Diet and Weight

Selected Food Price & Adult Weight Trends

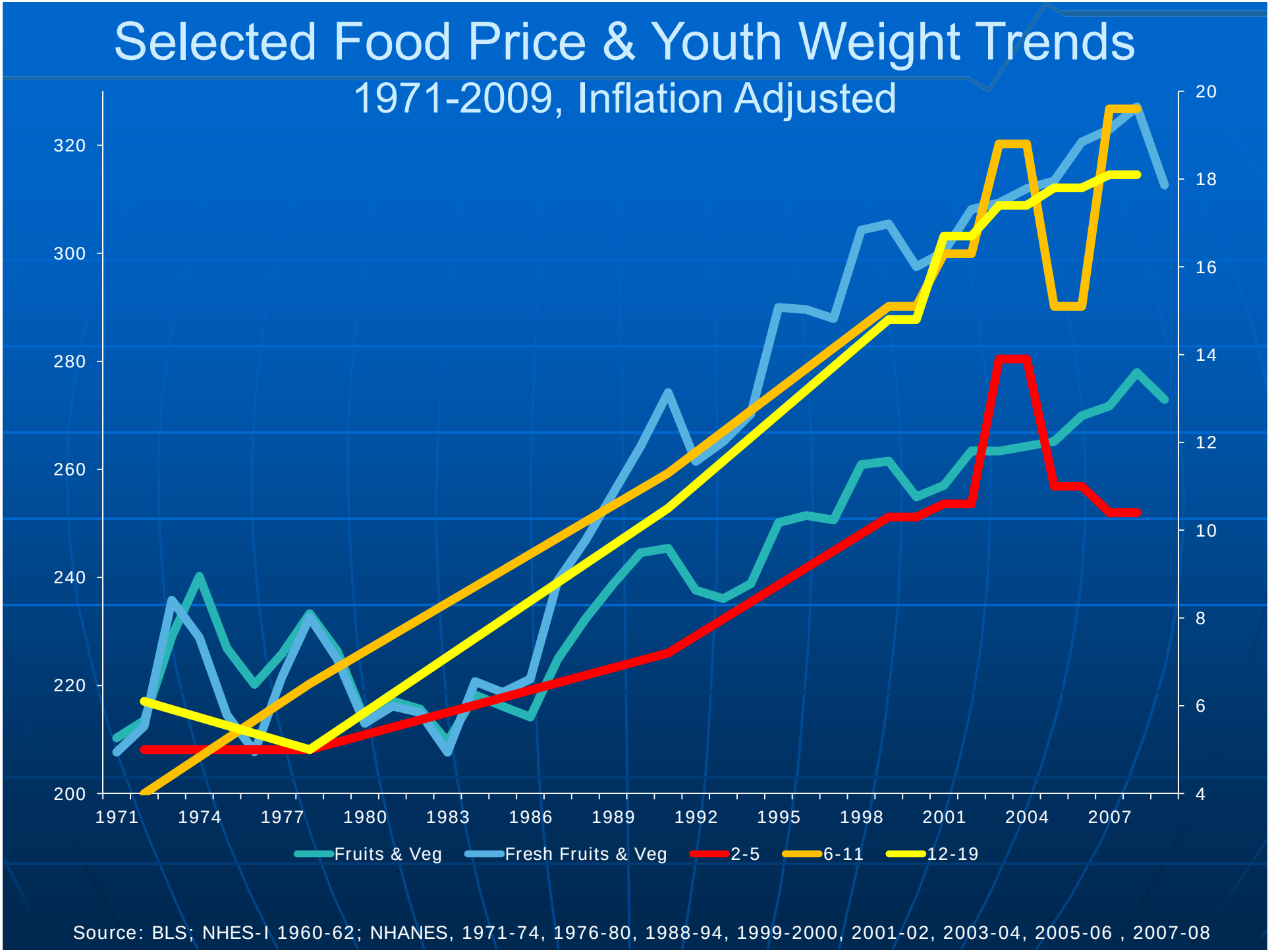
1961-2009, Inflation Adjusted



Source: BLS; NHES-I 1960-62; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06 , 2007-08

Selected Food Price & Youth Weight Trends

1971-2009, Inflation Adjusted



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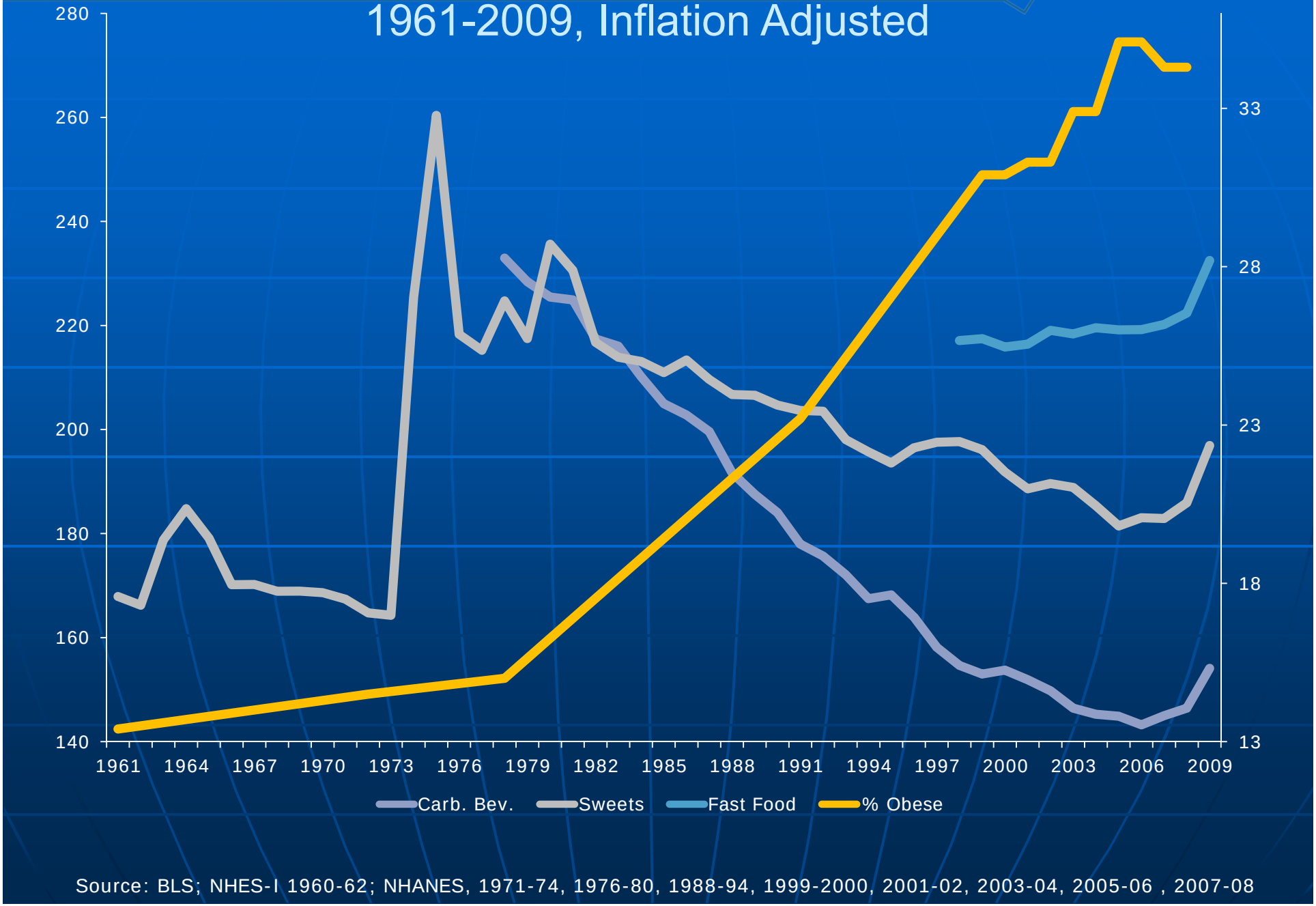

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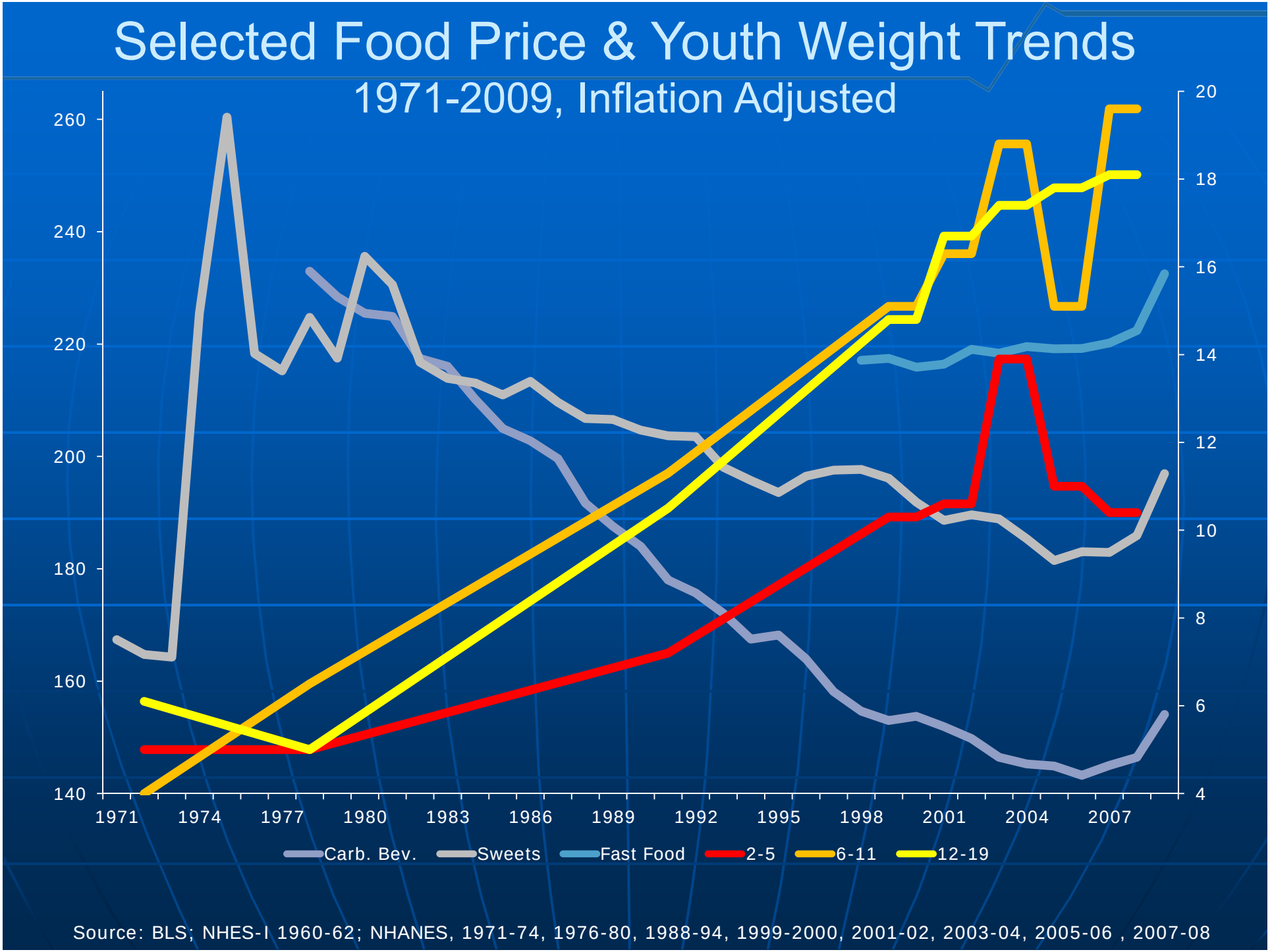


Source: BLS; NHES-I 1960-62; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06 , 2007-08

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%

Source: Andreyeva, et al., 2010

Food Prices and Consumption

Estimates from more recent research suggest similar or even larger effects for 10% price increases:

- Sugar sweetened beverage consumption falls by 12.1%
- Fast food consumption falls by 5.2%
- Vegetable consumption falls by 4.8%
- Fruit consumption falls by 4.9%

Source: Powell, et al., forthcoming

Food Prices and Weight Outcomes

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

- Higher sugary food prices reduce prevalence of overweight/ obesity among adults (Miljkovic et al., 2008)
- 10% higher fast food prices would reduce prevalence of adolescent obesity by almost 6% (Powell, et al., 2007)
- Higher soda sales taxes associated with reduced weight gain, particularly for overweight kids (Sturm, et al., 2010)
-
- Higher carbonated beverage prices significantly related to lower BMI in children (Wendt and Todd, 2011)
- Tax-induced reductions in calories from beverage intake offset by increased calories from other sources (Fletcher et al., 2010)

Source: Powell et al., forthcoming

Food Prices and Weight Outcomes

While mixed, weight of the existing evidence suggests that changes in relative prices for healthier and less healthy foods may affect weight outcomes, with greater impact on:

- Lower income, less educated populations
- Younger populations
- Populations at greater risk for obesity

Source: Powell, et al., forthcoming

Implications for Obesity Prevention

Policy options for altering relative prices include policies that:

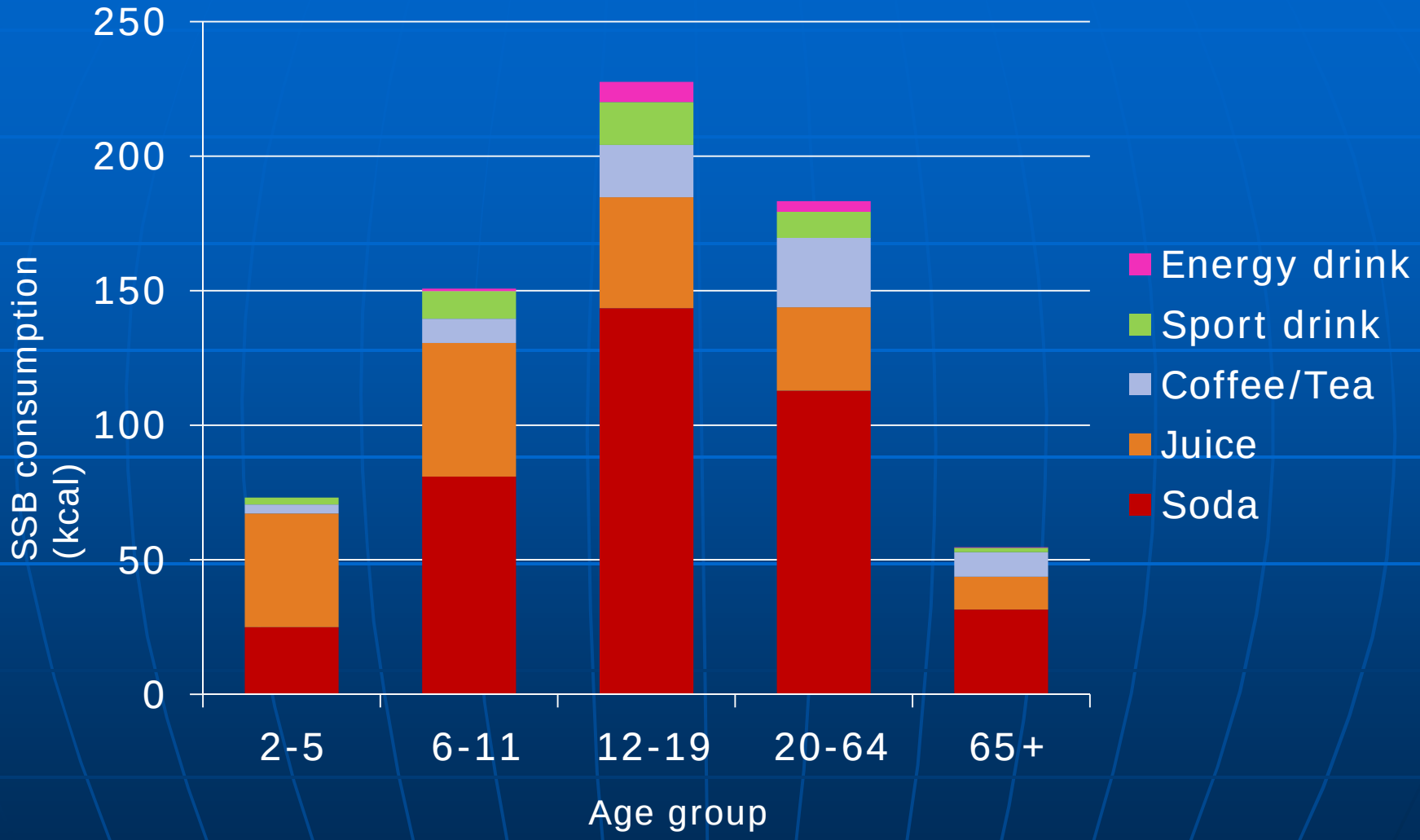
- Increase prices of less healthy options
  - taxes
  - elimination of corn subsidies
  - disallow purchases under food assistance programs
- Reduce prices of healthier options
  - subsidies
  - expanded or favored treatment under food assistance programs

Source: Powell et al., forthcoming

Why Sugar-Sweetened Beverage Taxes?

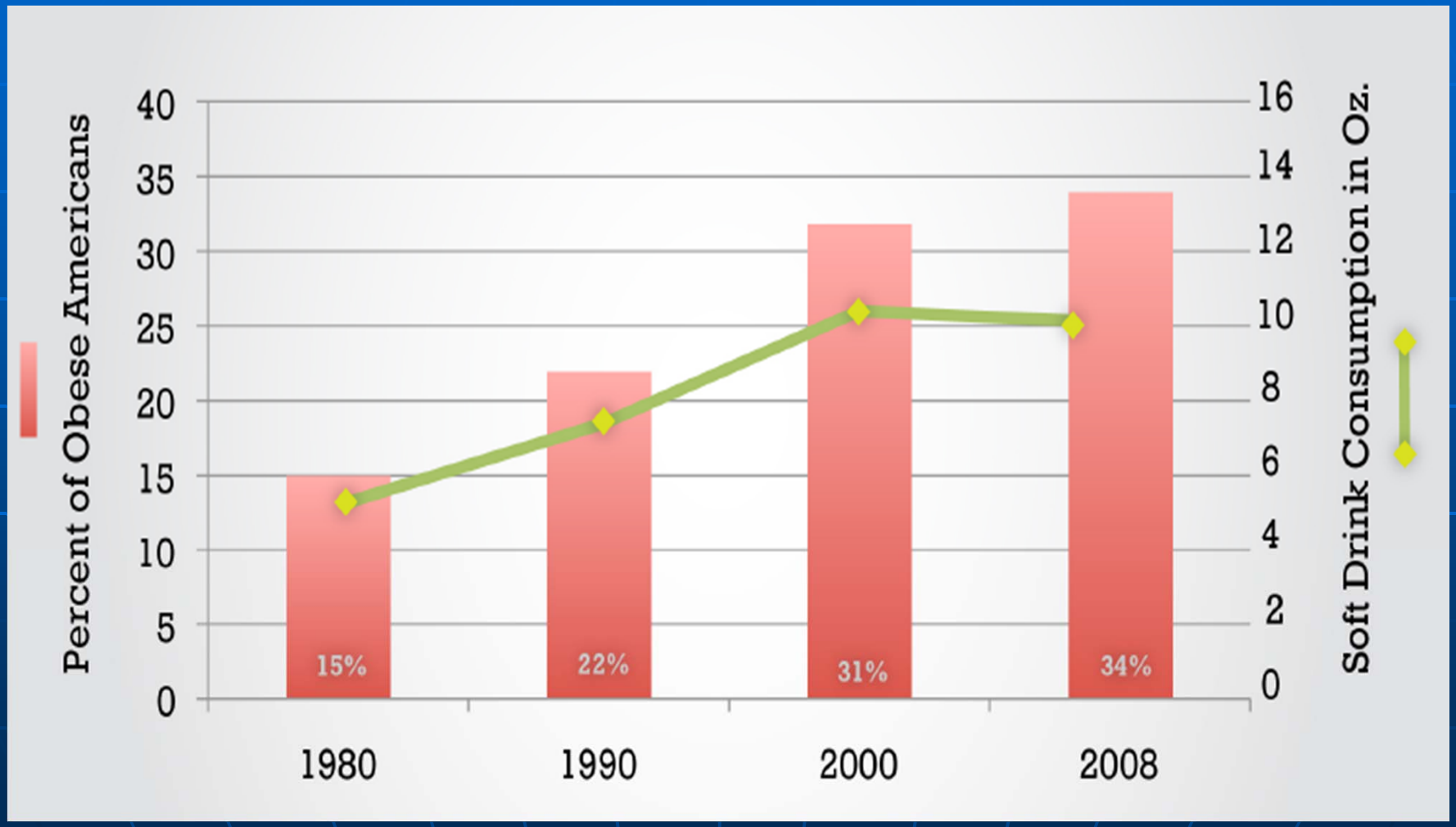
- Link to obesity
  - Several meta-analyses conclude that increased SSB consumption causes increased weight, obesity
  - Increased calories from SSBs not offset by reductions in calories from other sources
  - “Empty calories” that provide little or no nutritional benefits
- Other health consequences
  - type 2 diabetes, lower bone density, dental problems, headaches, gout, cardiovascular disease, anxiety and sleep disorders

U.S. SSB Consumption in Calories by Age, 2007-2008



Source: National Health and Nutrition Examination Survey (NHANES) 2007-2008, author's own calculations

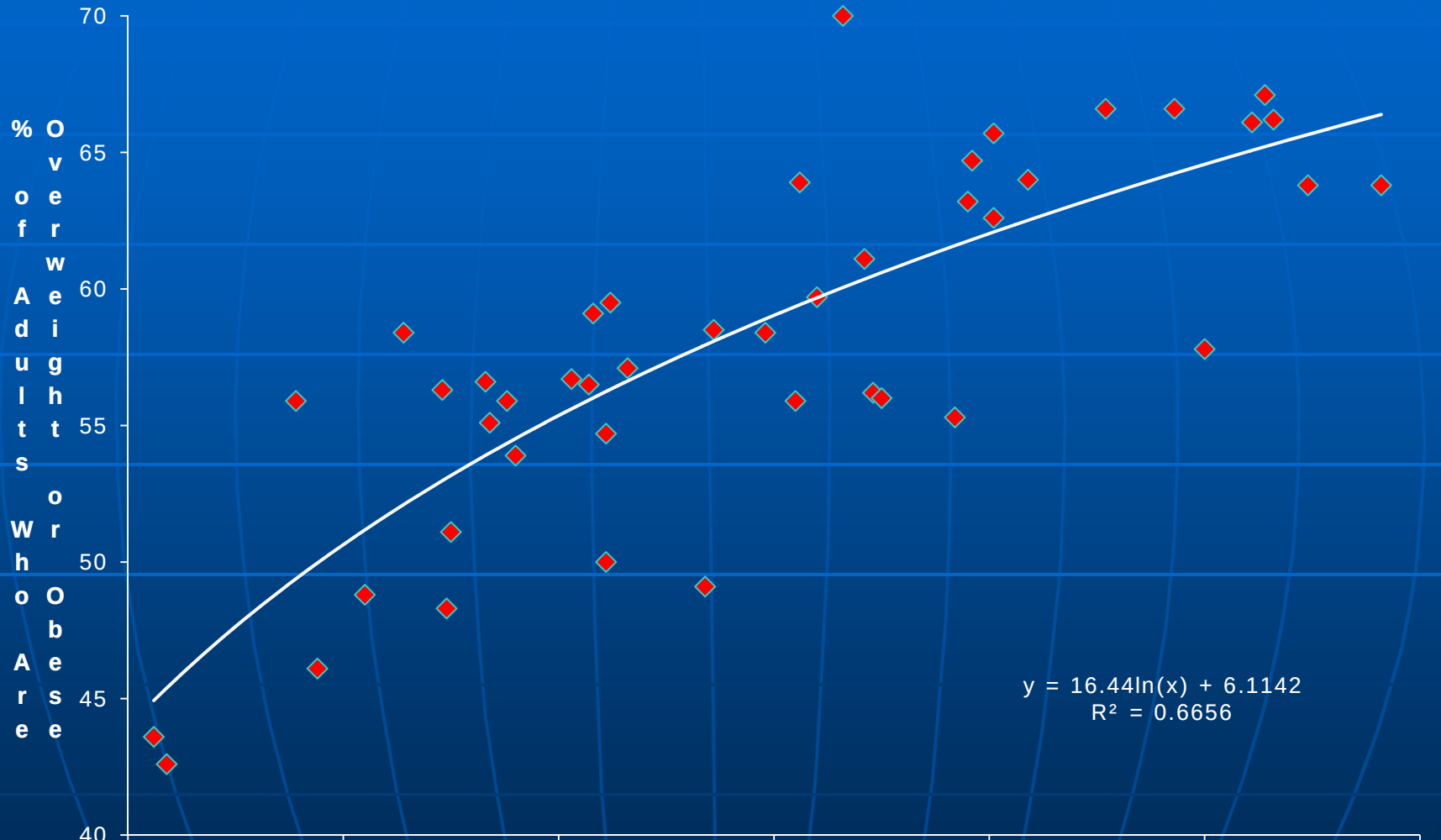
Soda Consumption and Obesity Prevalence U.S., 1980-2008



Source: National Health and Nutrition Examination Survey (NHANES) 2007-2008, author's own calculations

Soda Consumption & Obesity

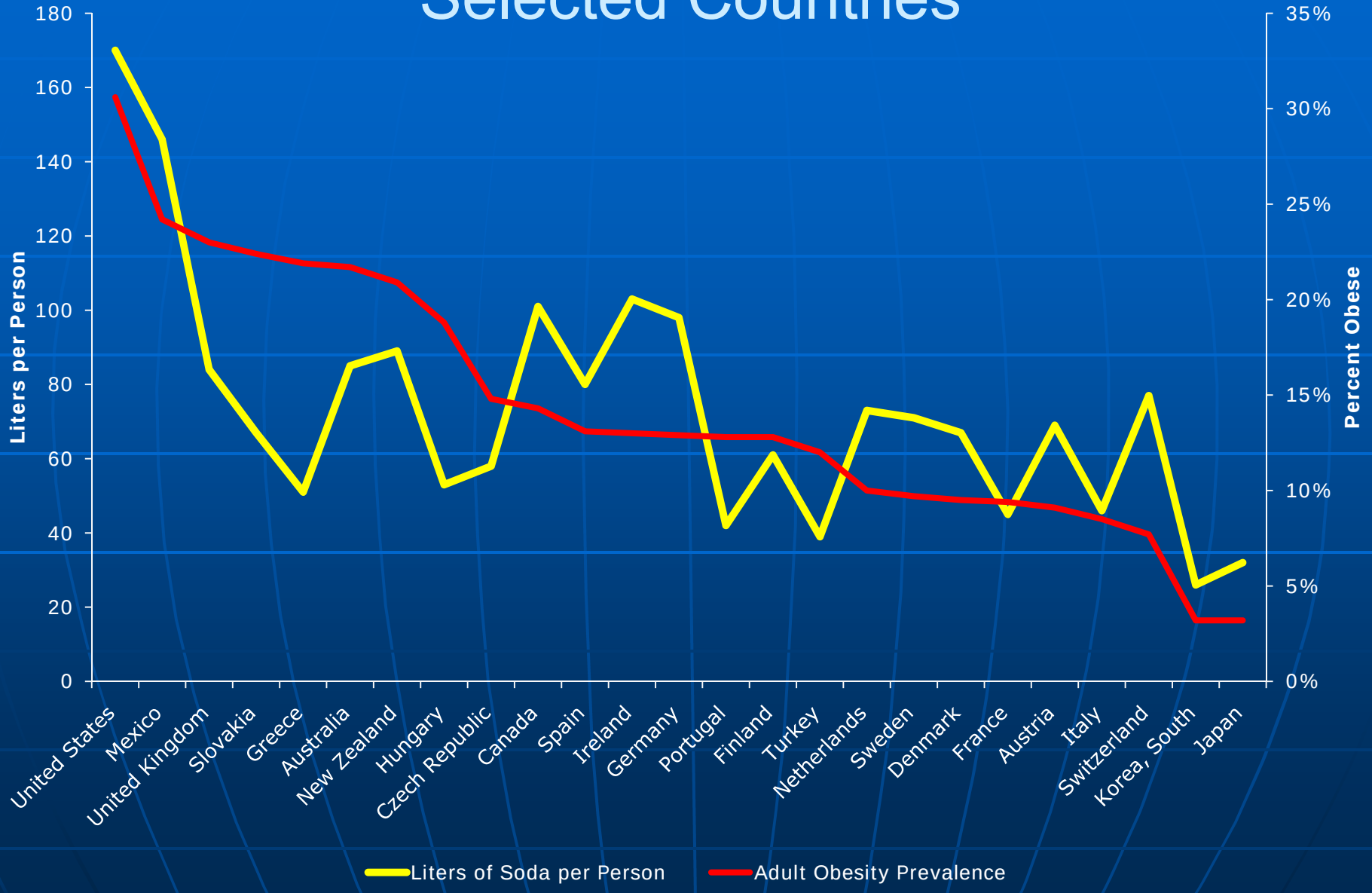
California Counties, 2005



Source: Babey, et al., 2009 and authors' calculations.

Soda Consumption & Obesity

Selected Countries



Source: Soda consumption from Euromonitor, 2011; Obesity prevalence from OECD Health Data, 2005

Carbonated Beverage Prices & Youth Obesity

1995-2009, Inflation Adjusted

Source: BLS; YRBS

SSBs and Tobacco?

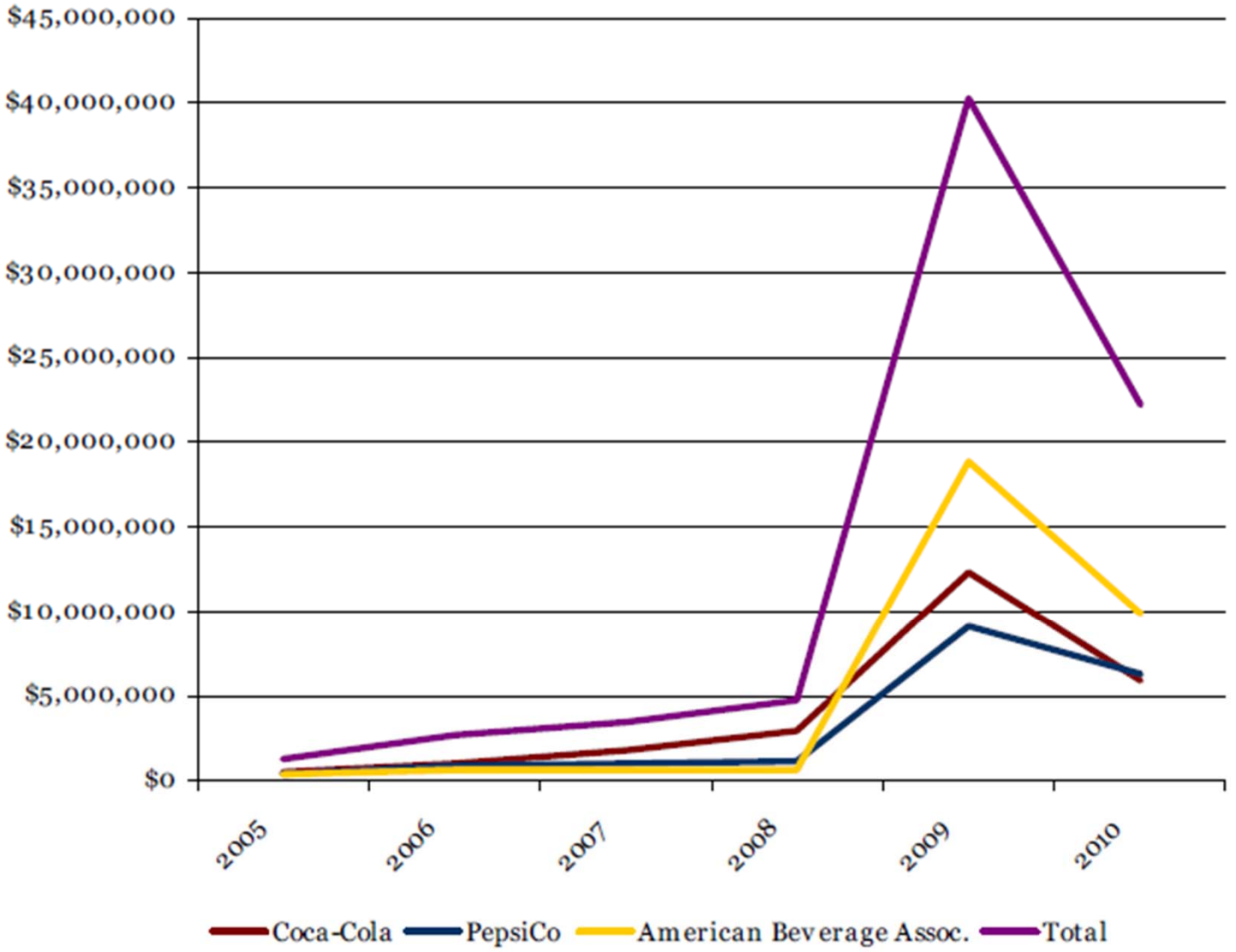
- Similarities:
  - Neither is a necessity
  - Both cause considerable health consequences among users, with consequences poorly understood by many
  - Financial externalities for both from use of publicly funded health care to treat these health consequences
  - Consumption of both begins at early ages when information problems are more pronounced
  - Clear evidence of addiction for tobacco and growing evidence of addictive potential for sugar

SSBs and Tobacco?

- Similarities:
  - Both marketed aggressively by large multinational companies
  - Tobacco and soda multinationals have considerable political influence
  - Both industries emphasize personal responsibility and misuse economic arguments in debate over control policies
  - Both industries engage in ‘self-regulation’
  - Both industries introduce ‘safer’ products

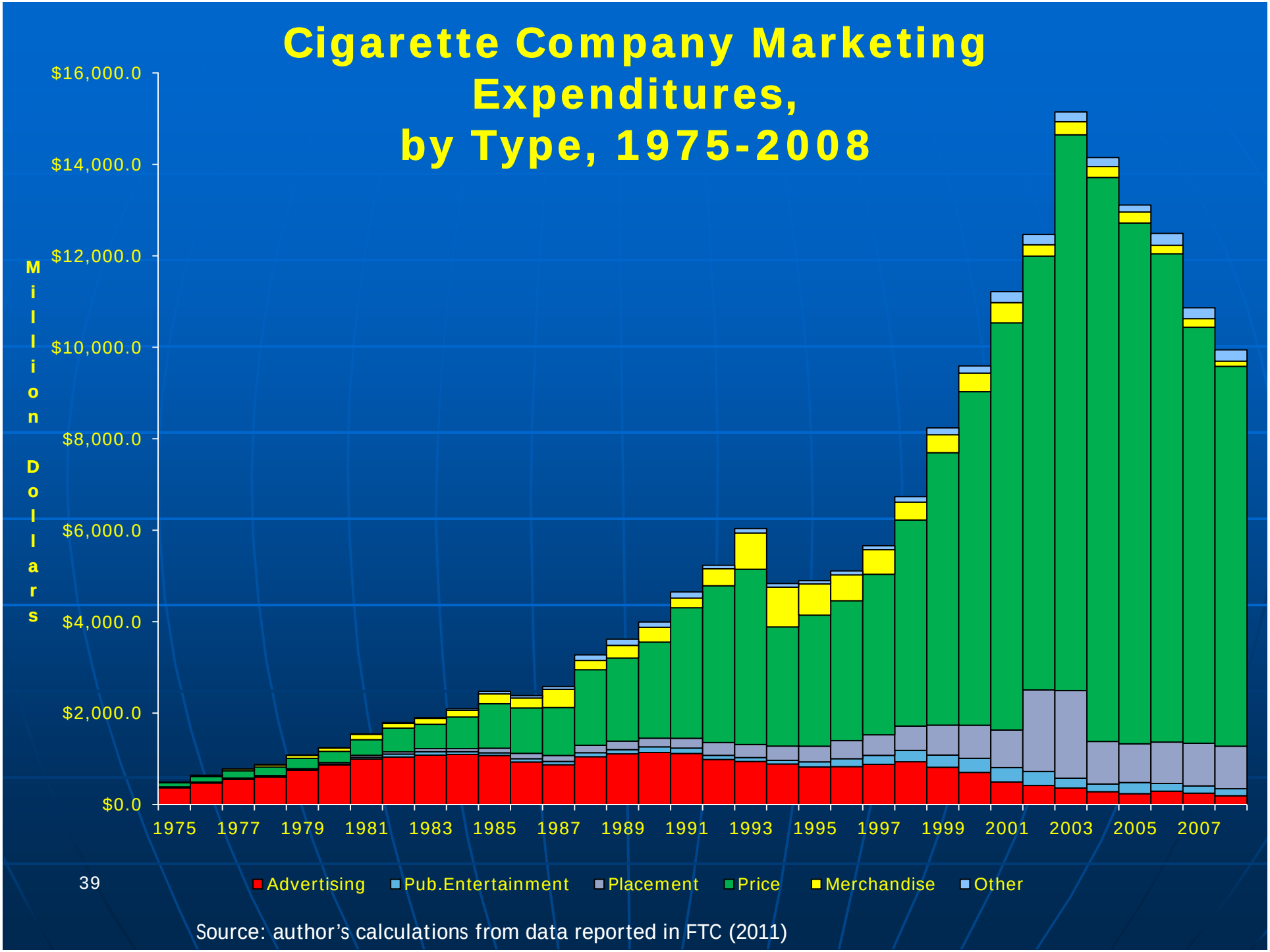
Source: Adapted from Brownell and Warner, 2009

Explosive Growth in Soda Industry Political Expenses, 2005-2010[1]



Source: Center for Science In The Public Interest, 2011

Cigarette Company Marketing Expenditures, by Type, 1975-2008



Source: author's calculations from data reported in FTC (2011)

Types/Levels of Taxes

Types of Tobacco Taxes

- **Variety of tobacco taxes**
  - Taxes on value of production
  - 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 (or similar taxes)
    - Many of these are applied to variety of agricultural and/or consumer goods and services
    - Excise taxes are of most interest given specificity to tobacco products

Types of Tobacco Taxes

- **Excise Taxes**
  - Two types of excises
    - Specific Taxes: excises based on quantity or weight (e.g. tax per pack of 20 cigarettes, wine gallons)
    - *Ad Valorem* taxes: excises based on value of products (e.g. a specific percentage of manufacturer's prices for tobacco products, alcoholic beverages)
  - Wide variety of tobacco excise taxes globally
    - Uniform specific or uniform *ad valorem*
    - Mixed specific and *ad valorem*
    - Tiered specific or *ad valorem*
    - Different rates based on product/production factors

Cigarette Taxation Globally

	Excise System on Cigarettes				
Income Group	Only specific	Only ad valorem	Both specific and ad valorem	No Excise	Total countries *
High	11	2	25	7	45
Upper Middle	16	11	9	6	42
Lower Middle	18	19	12	3	52
Low	10	28	2	3	43
By Region					
AFRO	14	29	1	2	46
AMRO	13	16	2	3	34
EMRO	1	7	5	7	20
EURO	10	3	36	0	49
SEARO	3	2	2	1	8
WPRO	14	3	2	6	25
All Countries	**55**	**60**	**48**	**19**	**182**

* Countries for which data are available

Source: *WHO calculations using WHO GTCR 2009 data*

Cigarette Taxation Globally

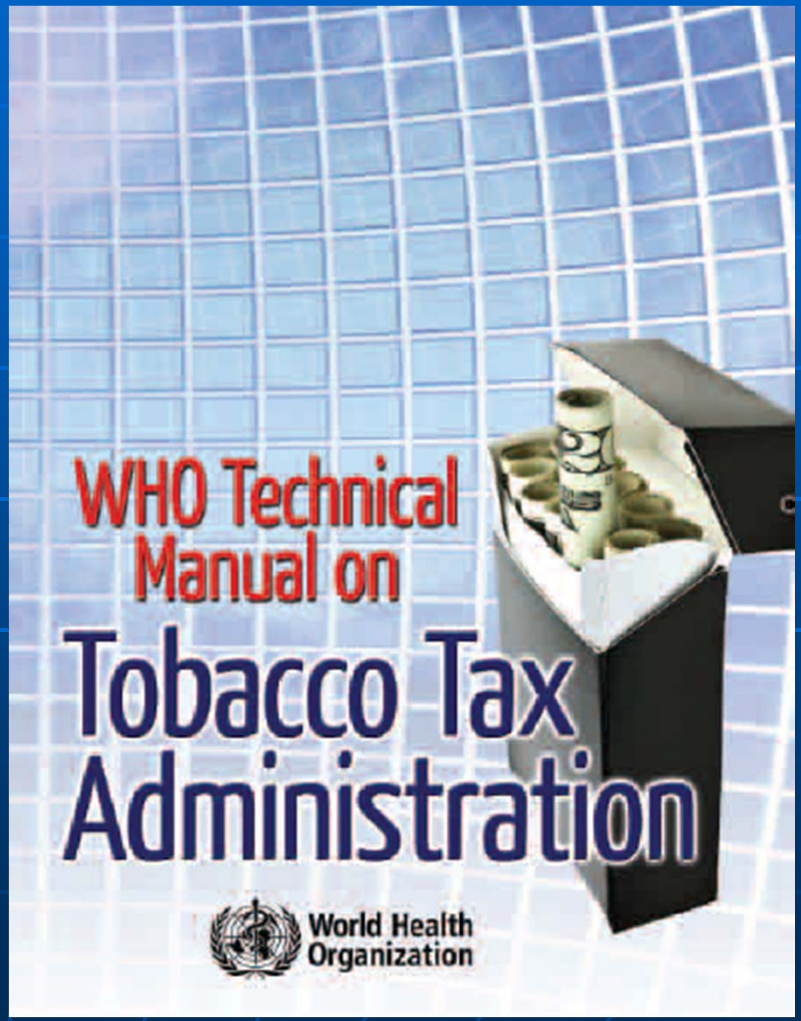
Table 2: Different bases for tiered systems around the world

Differential /Tiered Excise taxes on cigarettes			
			Number of countries
Total covered			156
With tiers			32
Base of tiers	Retail price		11
	Producer price		2
	Sales volume		1
	Production volume		1
	Type -	filter/non filter	12
	Type -	hand/machine made	2
	Type -	kretek/white cigrette	1
	Packaging	soft/hard	3
	Cigarette length		4
	Trade	domestic/imported	1
	Weight (tobacco content in cigarette)		1
	Leaf content (domestic/imported)		3
Note :Of the 155 countries with available data in TMA, 10 countries has no excise Some countries differentiate based on more than on criteria.			
8 countries differentiate their excises based on more than 1 criteria			

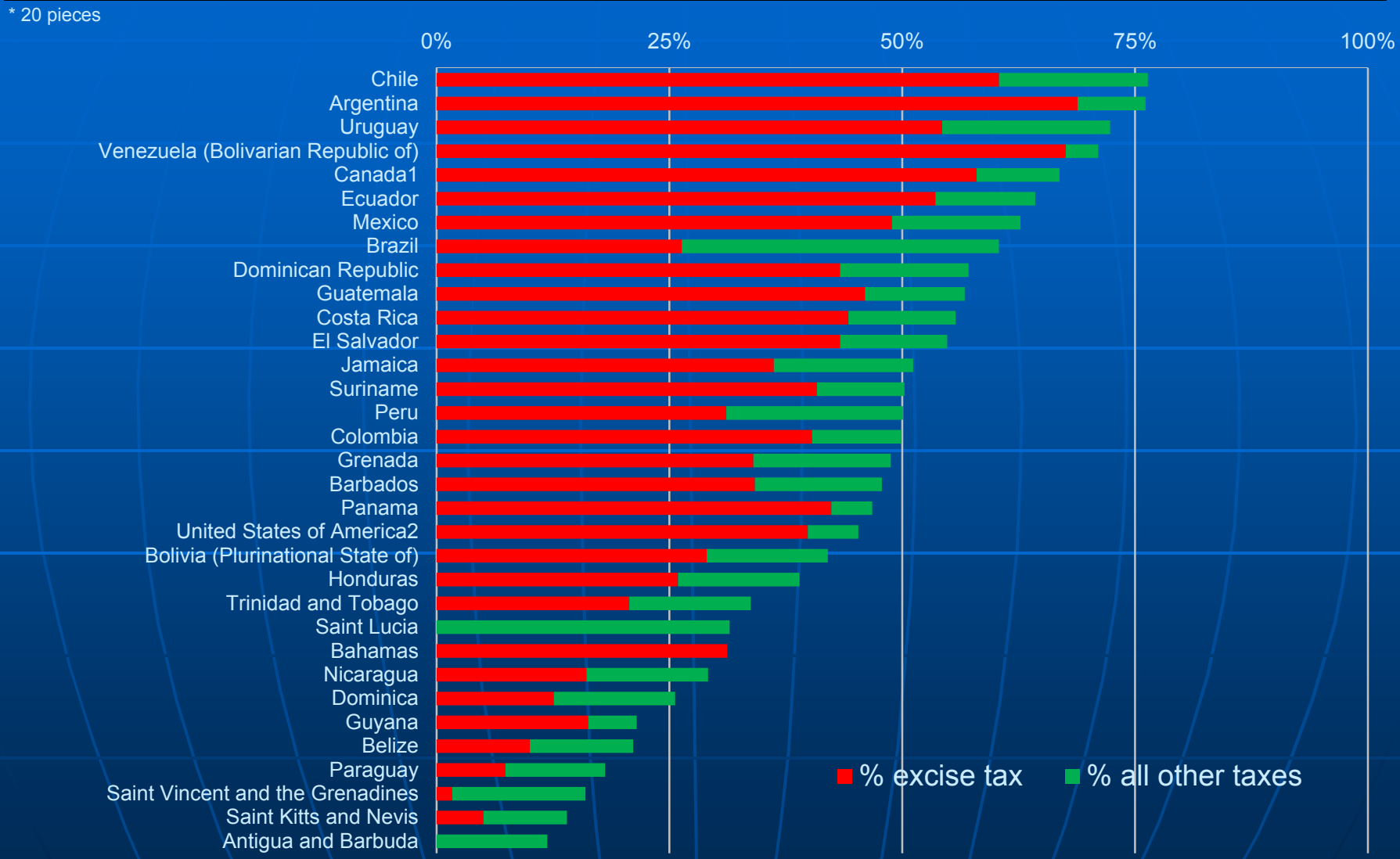
Source: TMA 2009

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 ≥ 70% of retail prices
- Much more……



THE AMERICAS: Share of total and excise taxes in the price of a pack of the most sold brand of cigarettes, 2010



Data not reported/not available for: Cuba and Haiti.

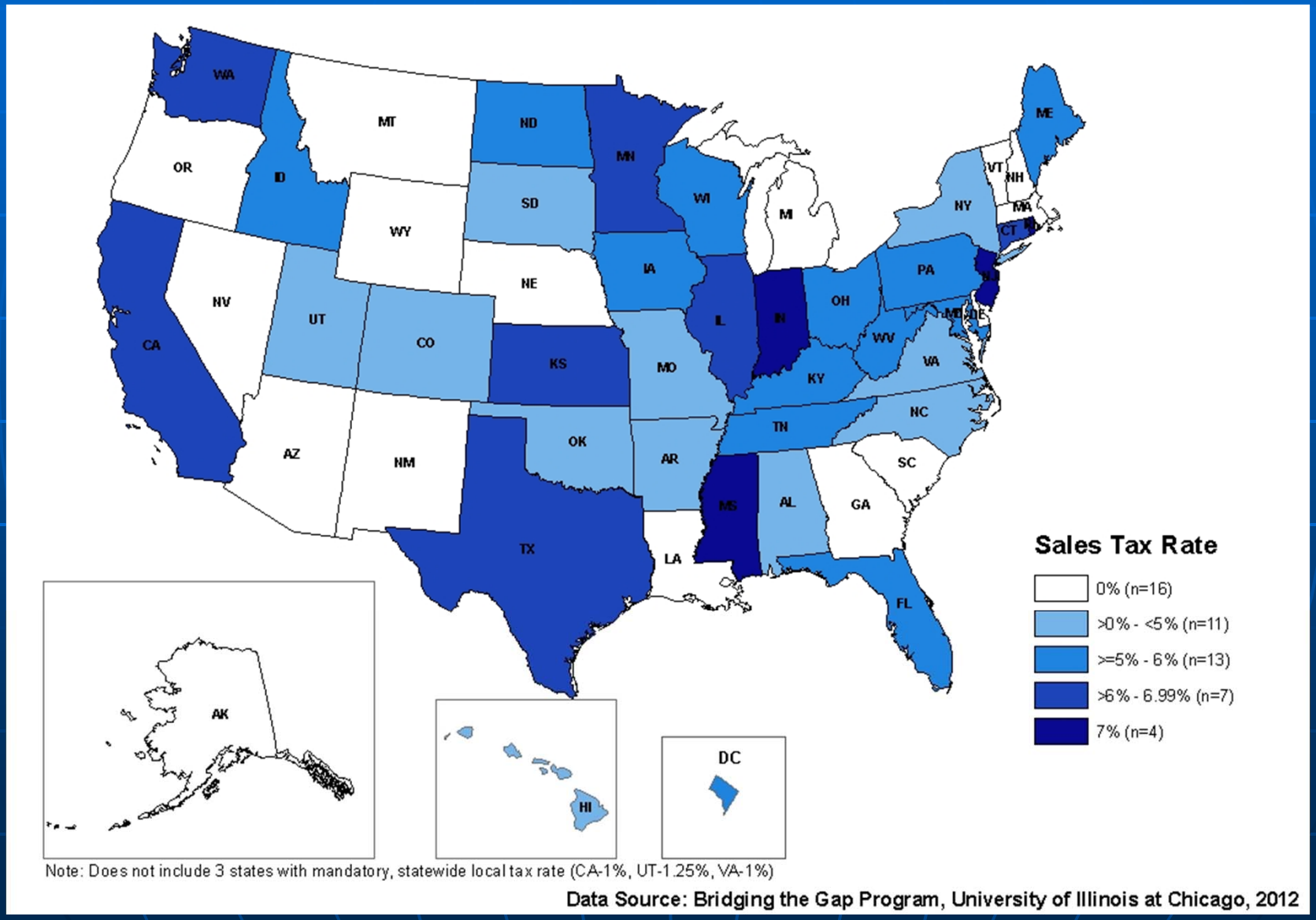
Source: *WHO, 2011*

Implications for SSB Taxes

- 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

Source: Chriqui, et al., forthcoming

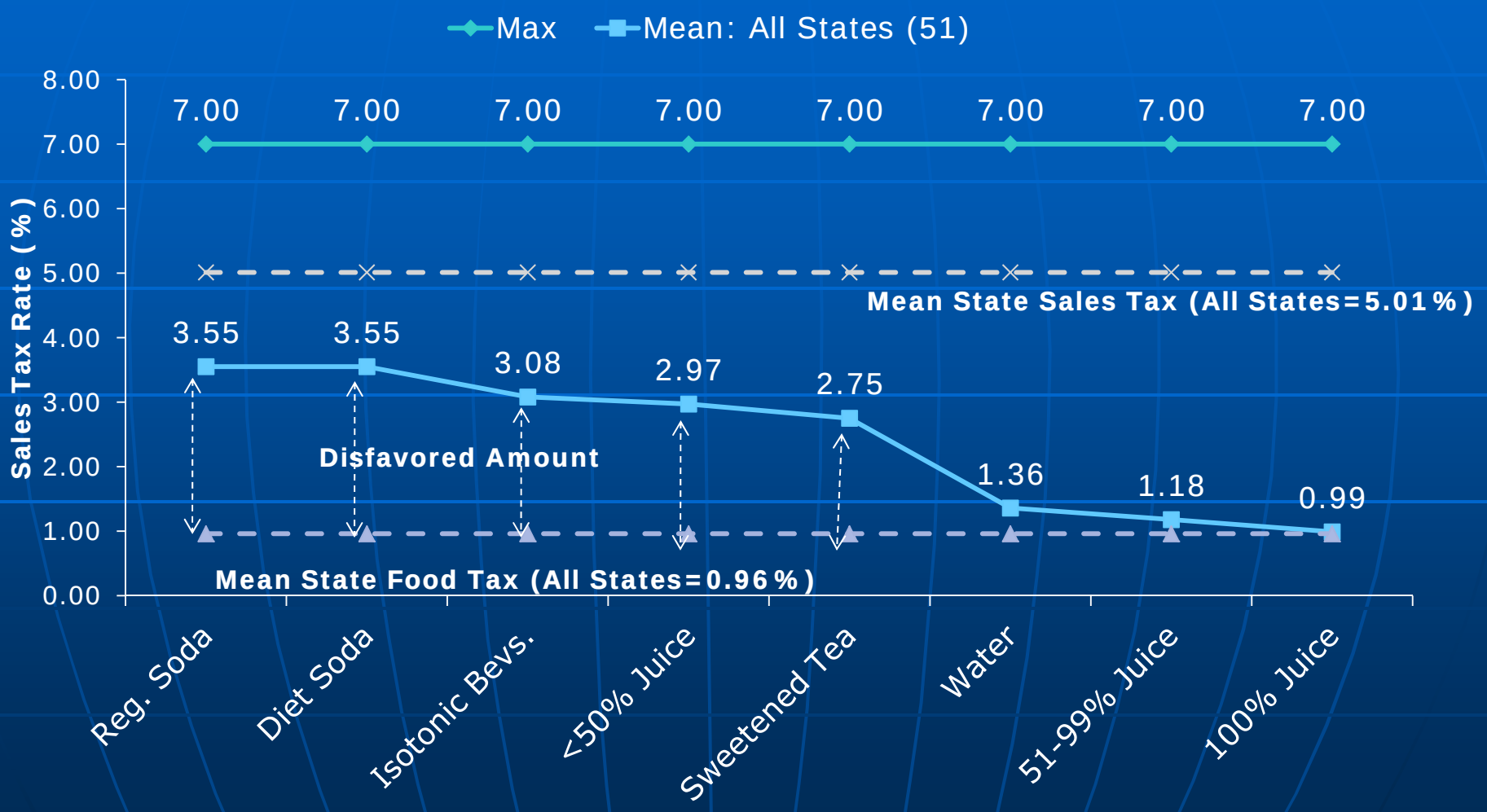
Sales Taxes on Carbonated Beverages
United States, July 1, 2012



Note: Does not include 3 states with mandatory, statewide local tax rate (CA-1%, UT-1.25%, VA-1%)

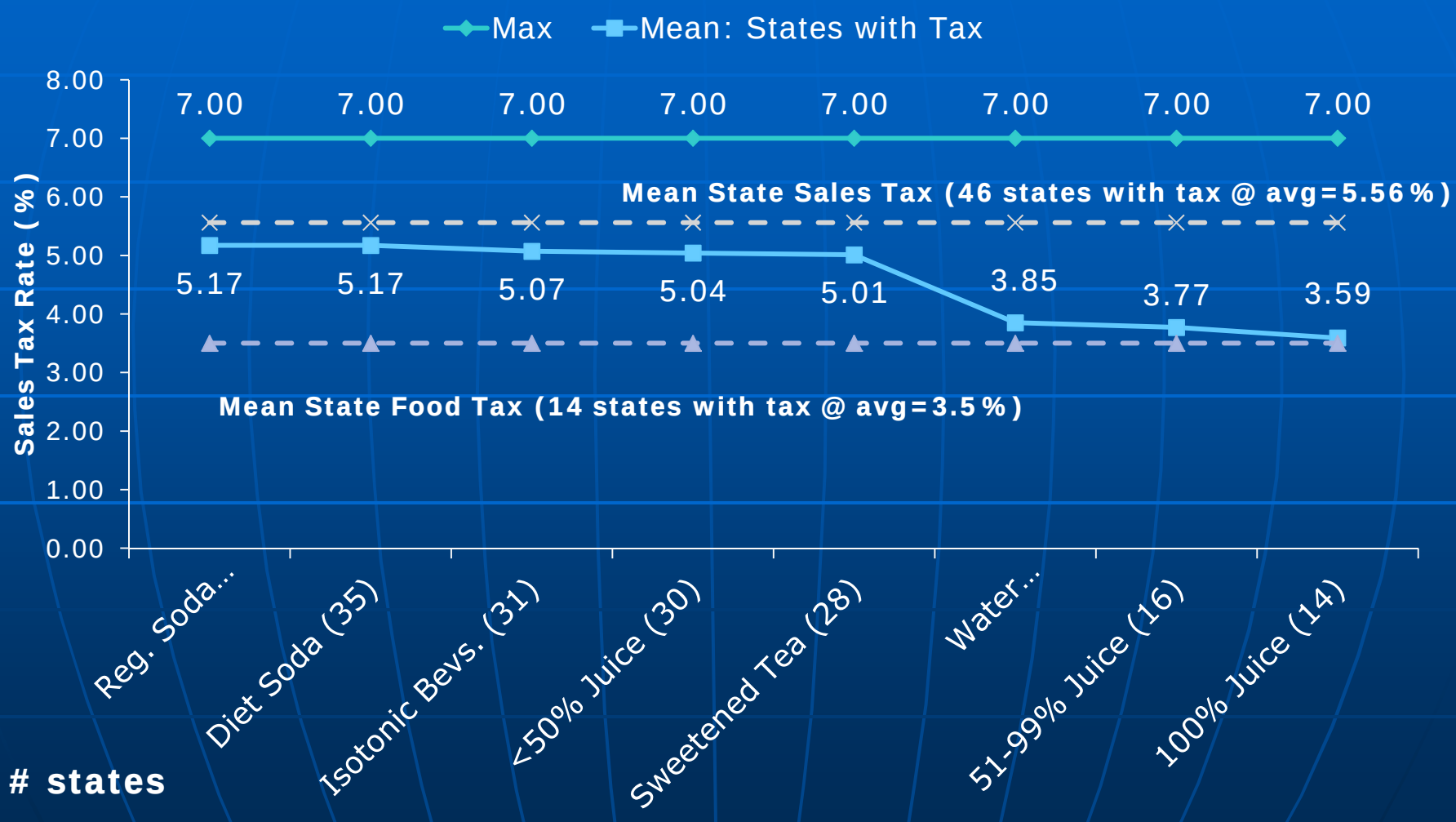
Data Source: Bridging the Gap Program, University of Illinois at Chicago, 2012

Sales Taxes on Selected Beverages, **All U.S. States**, July 1, 2012



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%).

Sales Taxes on Selected Beverages
Taxing States, July 1, 2012



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%).

Global Beverage Taxes

- Several countries recently adopted SSB taxes as part of effort to curb obesity; a few examples:
  - Denmark: DKK 1.58/litre (US$0.28) for beverages with >0.5 grams of sugar/100 ml; DKK 0.57 (US$0.10) for <0.5 grams/ml
  - France €7.16/100 litres (US$9.39) on beverages with added sugars and artificially sweetened beverages
  - Hungary: 5 forints/litre ($0.024) on soft drinks; 250 forints ($1.18) on energy drinks; 100 forints on pre-packaged sugar-sweetened products (>25-40g added sugar per 100g; varies by product)
  - Nauru: 30% *ad valorem* tax on prices of imported carbonated soft drinks, cordials, flavoured milks, and drink mixes containing sugar

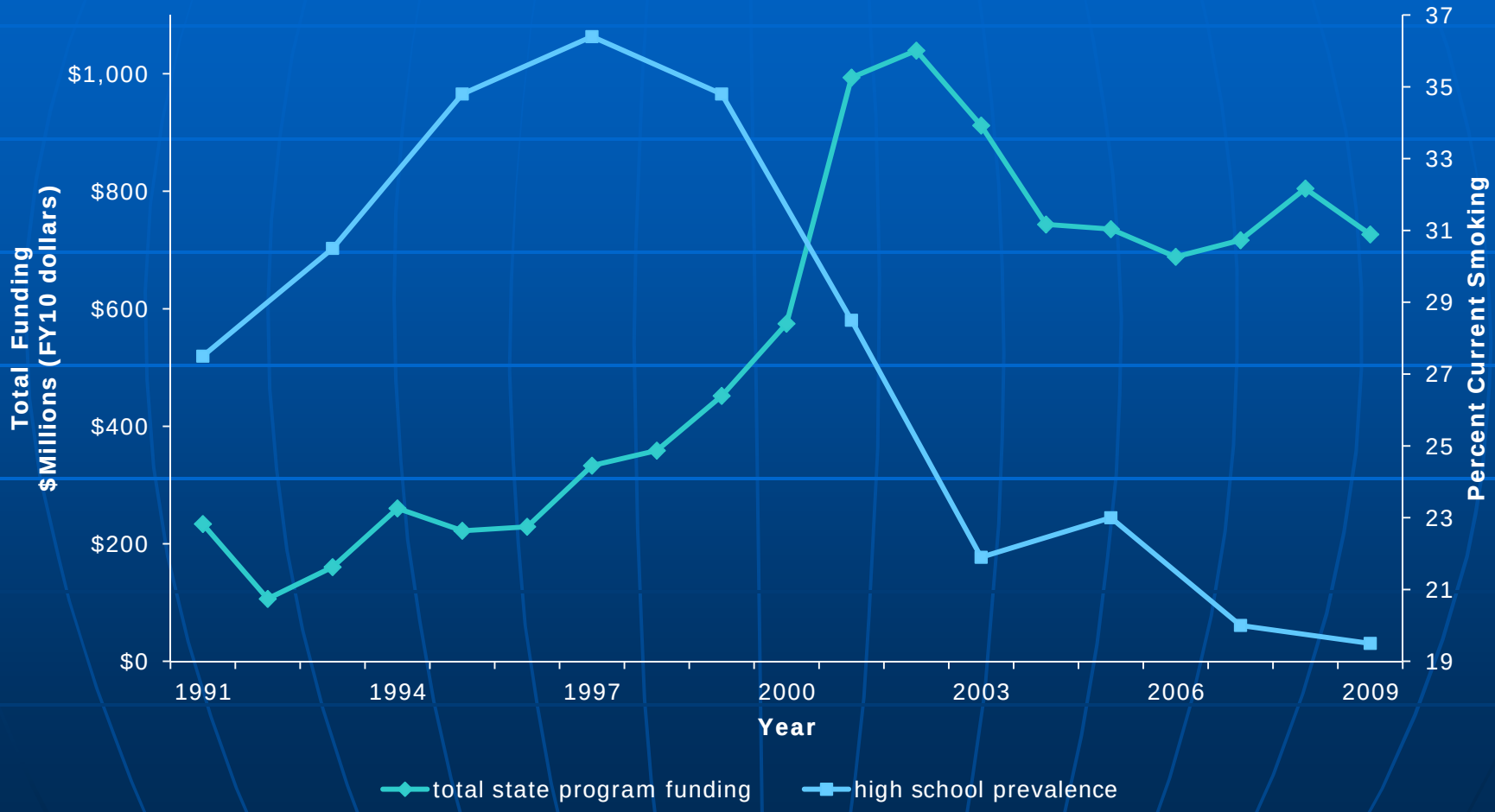
Source: Chriqui, et al., forthcoming

Earmarking Tax Revenues

Comprehensive Programs

- Impact of tobacco control 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, US, 1991-2009



Source: ImpacTeen Project, UIC; YRBS

SSB Taxation & Revenues

- Revenue generating potential of beverage 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

Oppositional Arguments
-
Myths & Facts

Oppositional Arguments - Tobacco

- **Massive job losses as tobacco use falls in response to higher taxes**
- **Poor adversely affected by higher tobacco taxes**
- Revenues will fall as tobacco use falls
- Increased tax avoidance and tax evasion in response to higher taxes

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 of Sugar Sweetened Beverages Taxes on Jobs

	Industry + Income/Substitution + Government		
	No Explicit Sugar Sweetened Beverages Substitution	**Substitution Based on Volume Replacement**	**Substitution Based on Cross-Price Elasticities**
Illinois			
Total Jobs	**4,406**	**4,872**	**4,509**
Private Non Farm	-910	-477	-814
Beverage Manufacturing	-1,357	-984	-1,274
Retail Trade	-1,894	-1,051	-1,706
State and Local Government	5,316	5,348	5,323
California			
Total Jobs	**6,654**	**6,400**	**6,252**
Private Non Farm	-248	-482	-617
Beverage Manufacturing	-2,294	-1,450	-1,856
Retail Trade	-2,722	-1,659	-2,189
State and Local Government	6,902	6,884	6,869

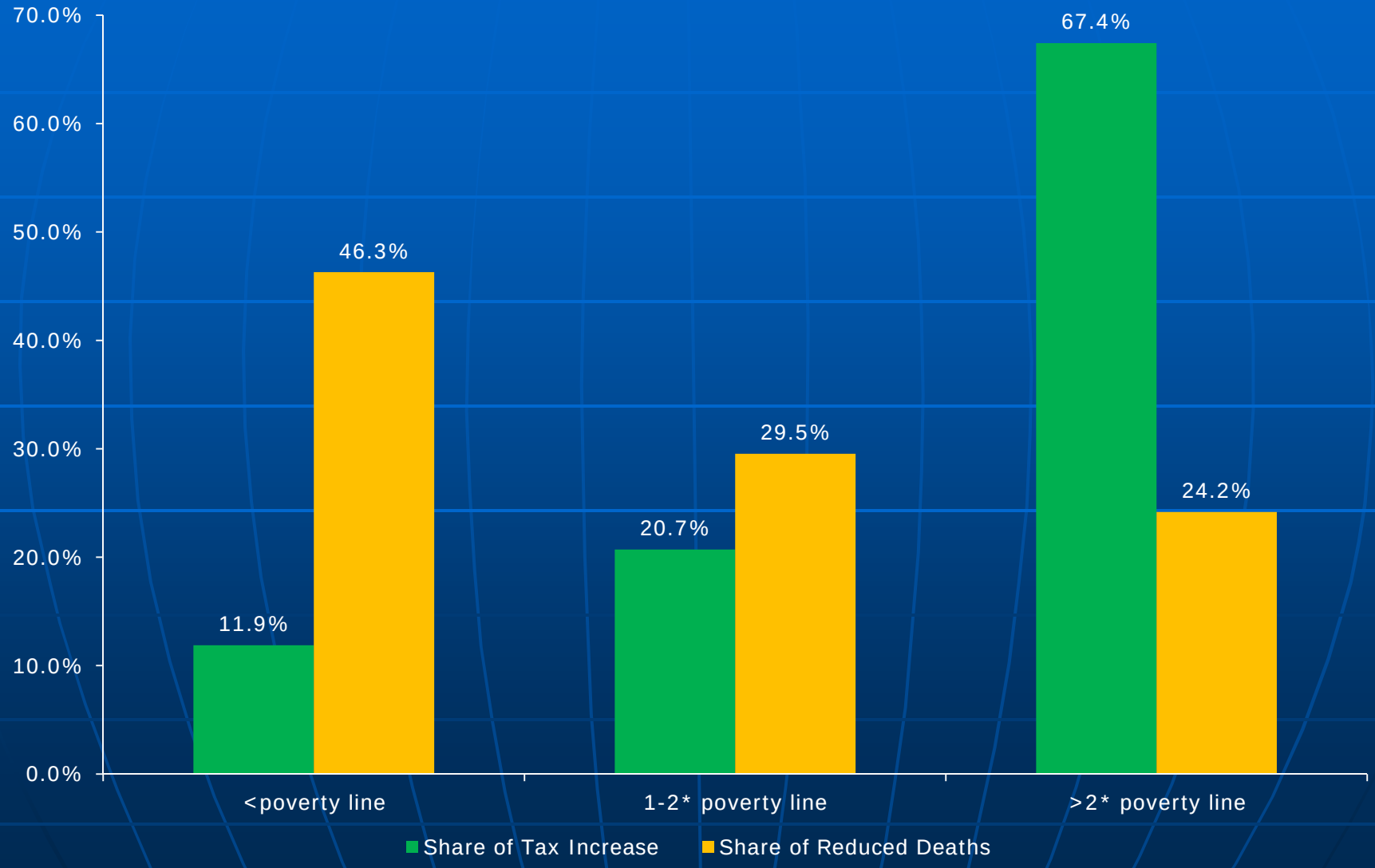
Source: Powell, et al., in progress

Impact on the Poor

- Concerns about the regressivity of higher tobacco taxes
  - 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
  - Use of tax revenues for tobacco control, health promotion, and/or other programs targeting the poor offsets financial impact

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

Implications for SSB Taxes

- New SSB taxes almost certainly regressive given current consumption patterns
- Progressive distribution of health benefits from tax given greater impact on lower-income populations
- Use of tax revenues for programs targeting the poor offsets financial impact of tax

Summary

Summary

- Tobacco tax increases have significantly reduced tobacco use and its consequences
  - Potential for using taxes to promote healthier eating and curb obesity
- Regularly increased, sizable specific excise taxes most effective
- Earmarking tax revenues for prevention & control programs adds to impact
- Economic counterarguments false or greatly overstated

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