



*A Policy Research Partnership  
to Reduce Youth Substance Use*

Supported by  
The Robert Wood Johnson Foundation

# Tobacco and Alcohol Taxation

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*Prepared for the American Medical Association's Merging Coalitions:  
Is it Feasible, Reasonable or Wise? Meeting, August 21, 2003,  
Chicago IL*

# Tobacco Use in the US

- Adult smoking prevalence: 22.8%
- Youth smoking prevalence: 28.5%
- Over 40% of adult smokers have tried to quit in past year; more than 70% say they want to quit
- Smoking in US declining over past two decades, becoming more concentrated in lowest income, least educated segments of population
- Youth smoking rose for much of 1990s; has fallen in recent years
- Tobacco use rising in many developing countries

# Alcohol Use in the US

- Adult drinking prevalence: 64%
  - Binge drinking prevalence: 16%
- Youth drinking prevalence (seniors): 73%
  - Report being drunk: 53.2%
- College student drinking prevalence: 81%
  - Binge drinking prevalence: 44%
  - Frequent binging: 23%
- Half of all alcohol consumed by ten percent of those who drink most frequently/heaviest
- Modest downward trend in drinking among adults
- Drinking among youth/college students not changing much in recent years

# Consequences of Use: Tobacco

- Leading cause of preventable death in the United States
  - over 440,000 deaths caused by tobacco each year in the US
  - estimates suggest nearly 5 million premature deaths from tobacco each year globally
- Exposure to second-hand tobacco smoke results in over 3,000 annual lung cancer deaths and over 50,000 deaths from cardiovascular diseases
  - Significant health consequences for children exposed to tobacco smoke

# Consequences of Use: Alcohol

- Major cause of preventable death in the United States
  - over 100,000 deaths caused by alcohol each year in the US
  - almost 60% from diseases caused by or related to alcohol use
  - over 40% from accidents, violence and other outcomes resulting from alcohol use
- Consequences of alcohol use and abuse particularly important among youth/young adults
  - traffic crashes leading cause of death among youth/young adults
  - other accidents and violence

# Consequences of Use:

- Host of social problems related to alcohol and drug use
  - violence (homicides, rape, assault)
  - property crime
  - traffic crashes
  - suicides
  - poor educational outcomes
  - lost productivity
  - workplace accidents
  - family instability
  - sexually transmitted diseases

and much more.....

# Economic Impact:

- Tobacco:
  - Estimated economic cost: \$150b/year
    - \$75.5b in medical care costs
    - \$81.9b in lost productivity
    - \$7.18 per pack of cigarettes sold
- Alcohol:
  - Estimated economic cost: \$166.5 billion/year
    - substantial costs imposed on non-drinkers from traffic crashes, violence, and other consequences

# Rationale for Intervention:

- Public health, economic, and social impact
- Market Failures:
  - Imperfect Information
    - poor understanding of the health and other consequences of substance use
    - Compounded by fact that most substance use begins during adolescence
    - Further complicated by role of addiction and overestimates of ability to quit
  - Externalities:
    - health and other consequences
    - financial externalities

*More targeted policies to directly address specific market failures often less effective; taxation is blunt but effective*



# Federal Tobacco Taxation

- Federal Taxes:
  - date back to 18<sup>th</sup> century
  - Increased infrequently, often during war-time
  - More recent increases motivated by budget deficits
  - Most recent increases at least partially motivated by public health concerns

## Cigarette Tax

- Set at 8 cents per pack in 1951
- Doubled to 16 cents per pack in 1983
- Periodic increases since
  - 39 cents per pack since 1/1/02
  - Inflation adjusted value of 1951 tax: 54.6 cents

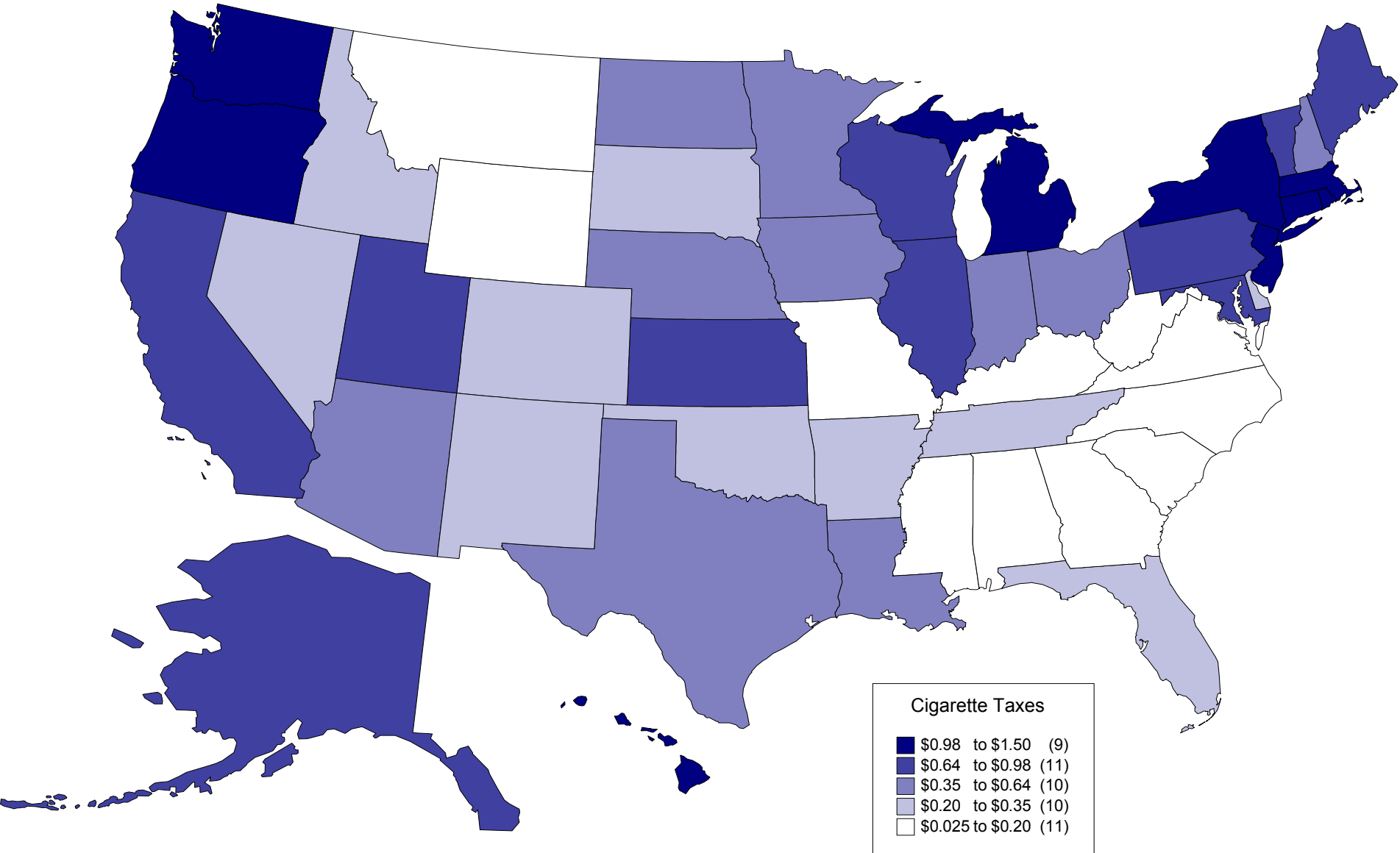
## Other Tobacco Taxes

- About 2% of overall tobacco tax revenues
- Periodically increased in recent years

# State Tobacco Taxation

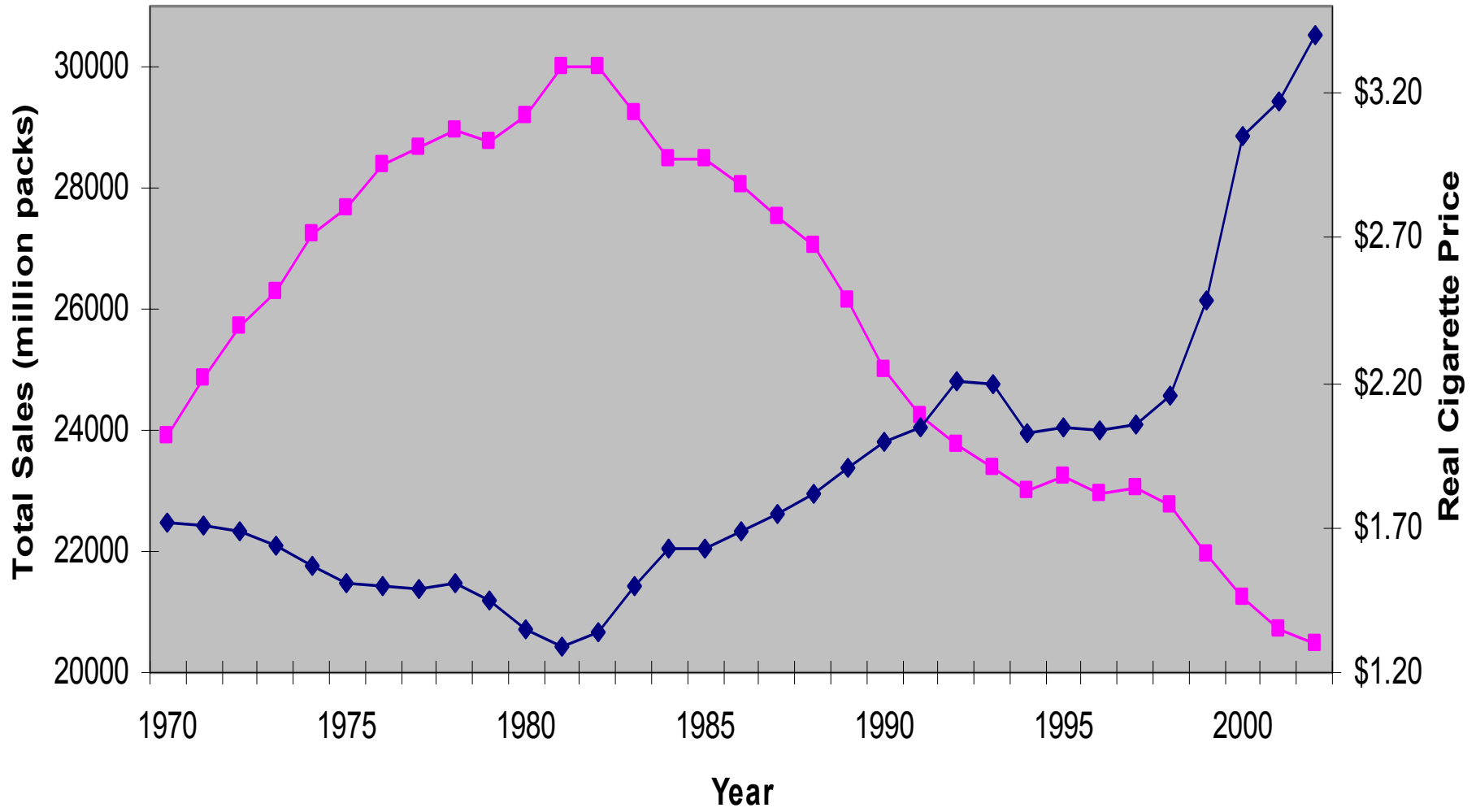
- All states apply specific excise tax to cigarettes
  - Range from 2.5 cents per pack \$1.51
- Taxes on other tobacco products applied in most states; typically *ad valorem* taxes
- Numerous increases over past twenty years
  - Average state tax rose from 13.5 cents per pack at end of FY1982 to 70.5 cents per pack at end of FY2003
    - Average state tax rising faster than rate of inflation
  - Significant differences between tobacco growing and/or manufacturing states vs. other states:
    - 12.4 cents per pack vs. 78.2 cents per pack

# State Cigarette Excise Taxes



Tax rates in effect, late 2002

# Total Cigarette Sales and Cigarette Prices, U.S., 1970-2002



—■— Cigarette Sales (million packs) —◆— Real Cigarette Price



# Tobacco Taxes and Tobacco Use

- Higher taxes induce quitting, prevent relapse, and reduce consumption among adults.
- Estimates from high-income countries indicate that 10% rise in price reduces overall cigarette consumption by about 4%
- About half of impact of price increases is on smoking prevalence; remainder is on average cigarette consumption among smokers
  - Long run response larger given impact of addiction

# Policies Affecting Alcoholic Beverage Prices

- Excise taxation
  
- Policies controlling distribution of alcoholic beverages
  - state monopoly of wine/spirits
  - licensing of wholesalers/retailers
  - exclusive territory policies
  - price-posting policies
  - other policies to restrict competition
  
- Policies affecting promotion of alcoholic beverages
  - limits on quantity discounts at wholesale level
  - limits on promotions for alcoholic beverages
  - bans on happy hour promotions
  - limits on the sale of beer by the pitcher
  - other policies controlling prices

# Federal Excise Taxation

- Federal Taxes:
  - date back to 18<sup>th</sup> century
  - Increased infrequently, often during war-time
  - More recent increases motivated by budget deficits

## Beer Tax

- Set at \$9.00 per 31 gallon barrel in 1951
- Doubled to \$18.00 per barrel in 1991
  - 32 cents per six pack

## Wine Tax

- Vary based on alcohol content
- Currently range from \$1.07 per wine gallon to \$3.40 per wine gallon

## Distilled Spirits Tax

- Currently \$13.50 per proof gallon
- up from \$10.50 in 1951; \$12.50 in 1985

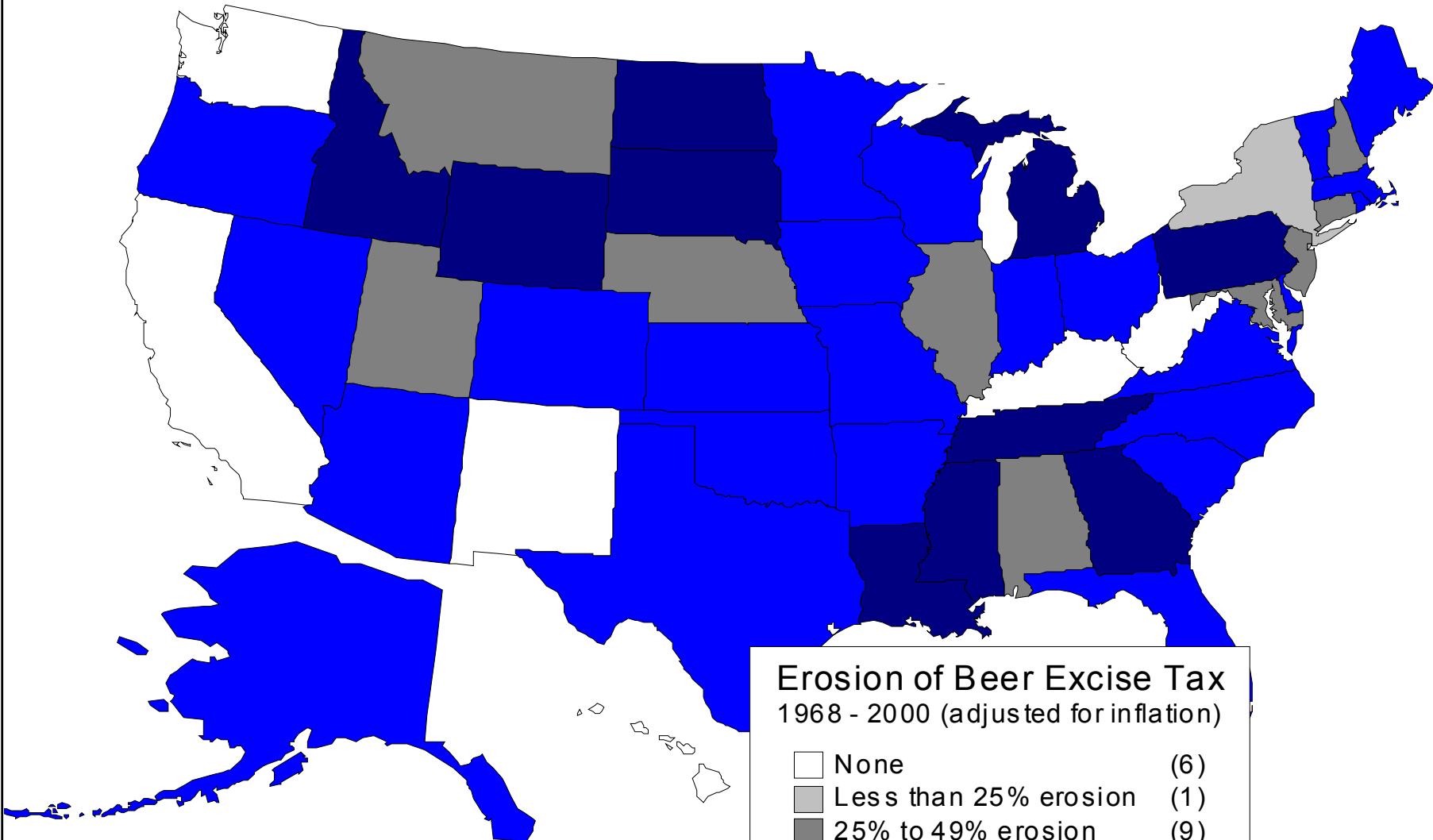
# Federal Excise Taxation

- Infrequent increases in Federal alcohol taxes has led to significant erosion in inflation adjusted values of these taxes
  - Beer:
    - inflation adjusted value of 1951 tax: \$61.60 per barrel
    - current value \$18.00 per barrel
  - Wine (under 14%):
    - inflation adjusted value of 1951 tax: \$1.16 per wine gallon
    - current value \$1.07 per wine gallon
  - Distilled Spirits:
    - Inflation adjusted value of 1951 tax: \$71.87 per proof gallon
    - current value: \$13.50 per proof gallon



# State Alcohol Taxation

- All states apply specific excise tax to beer
  - Range from 0.18 cents per can of beer to 9.87 cents
- Taxes on wine and spirits typically specific taxes in license states and combination of specific, *ad valorem*, and implicit taxes in control states
- Similar pattern of erosion in inflation adjusted value of state alcoholic beverage excise taxes over time
  - Six states have beer taxes that retain inflation adjusted value since 1968; 35 states had erosion of more than 50 percent



**Erosion of Beer Excise Tax**  
 1968 - 2000 (adjusted for inflation)

None	(6)
Less than 25% erosion	(1)
25% to 49% erosion	(9)
50% to 74% erosion	(25)
More than 75% erosion	(10)



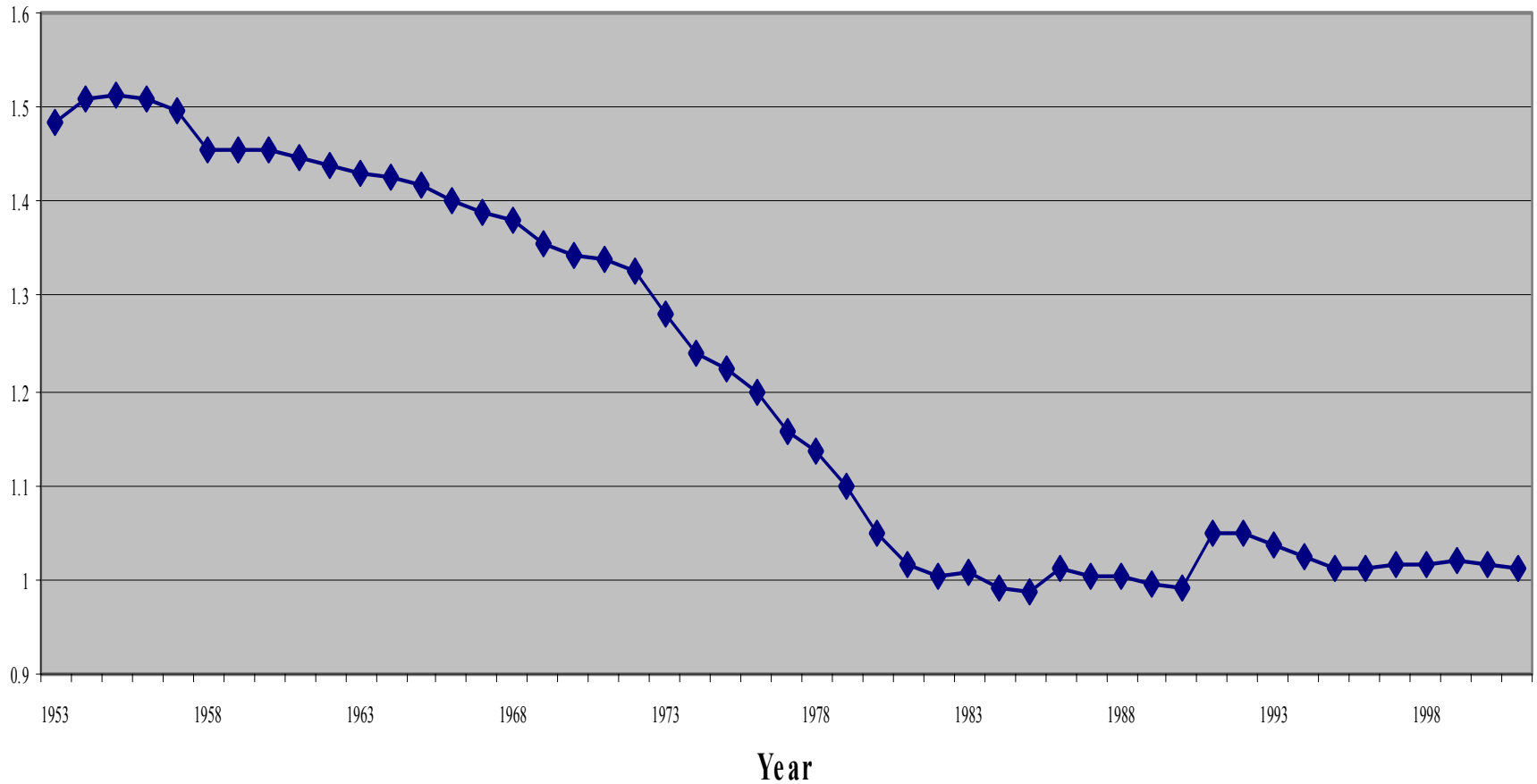
# Alcohol Taxation And Price

- Infrequent and modest increases in state and Federal alcoholic beverage excise taxes contribute to declines over time in inflation adjusted alcoholic beverage prices
- Little research that examines the impact of alcoholic beverage taxes on alcoholic beverage prices
- Recent study by Young and Bielinska-Kwapisz suggests that 1991 Federal tax increases more than passed on to drinkers
  - Estimate that \$9.00 increase in beer tax/barrel led to rapid \$15.00-\$17.00 increase in retail beer price

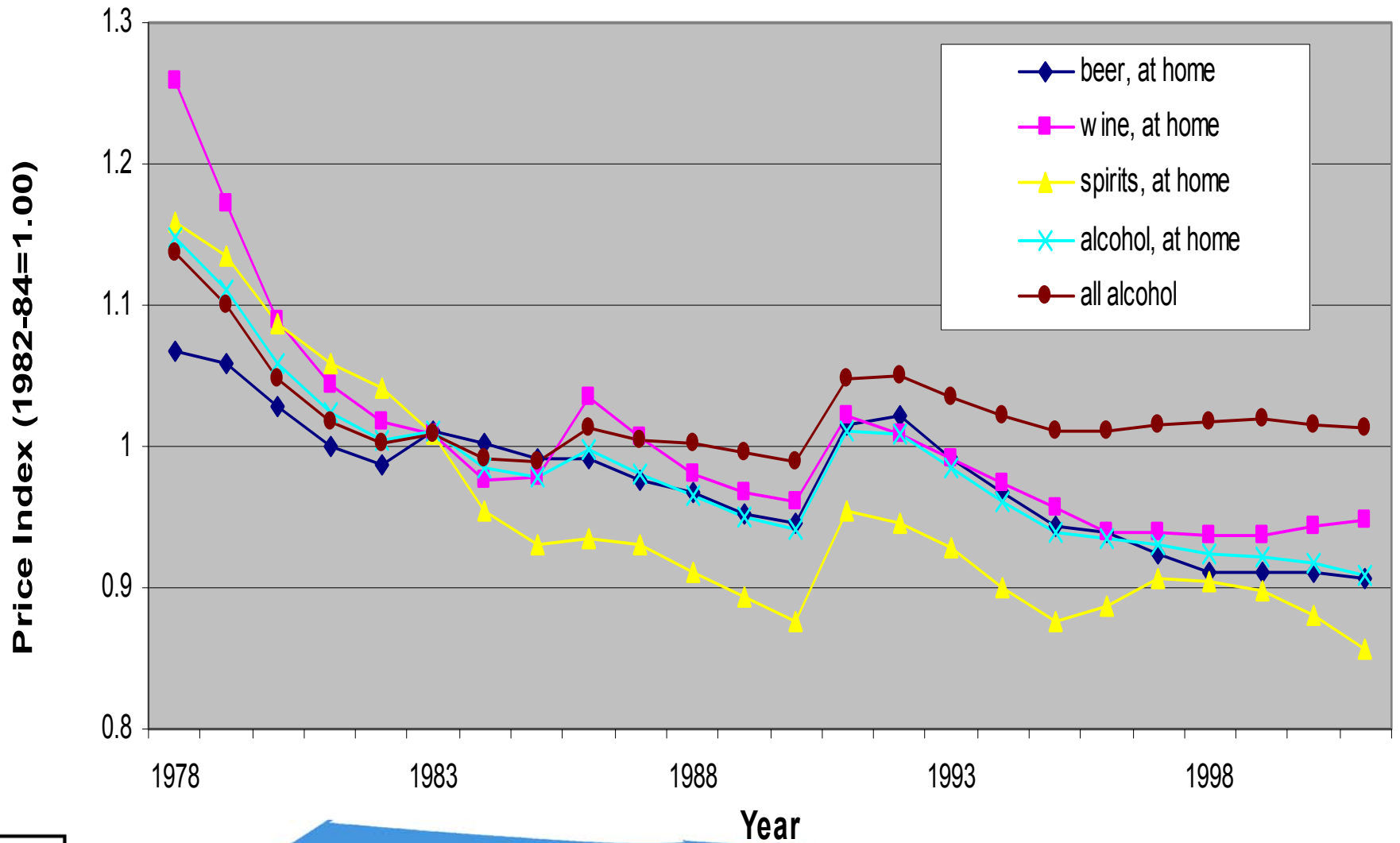
# Other Alcohol Policies and Alcohol Prices

- Economic theory suggests that policies that limit competition in alcoholic beverage markets will lead to higher prices
- Little empirical evidence on the impact of these policies on price
  - Nelson (1990) finds that prices are slightly higher in monopoly states
    - MacDonald (1986) finds that relaxing of monopoly control led to lower prices in some markets
    - Several studies find that exclusive territory policies for beer distribution result in higher prices
  - More research needed on these/other policies

# Inflation Adjusted Alcoholic Beverage Prices, 1953-2001



# Inflation Adjusted Alcoholic Beverage Prices 1978-2001



# Alcohol Prices and Drinking

- Estimates of overall price elasticity of alcohol demand based on aggregate data (Leung and Phelps, 1993):
  - Beer: -0.3
  - Wine: -1.0
  - Distilled Spirits: -1.5
- Estimates from individual level data suggest demand might be more responsive to price
  - Higher prices reduce drinking prevalence, frequency of consumption, and number of drinks per drinking occasion
    - Limited evidence of substitutability across beverages
      - Estimates from models that account for addictive nature of alcohol consumption suggest that long run impact of price even larger

# Young People More Responsive To Price Increases

Economic theory suggests:

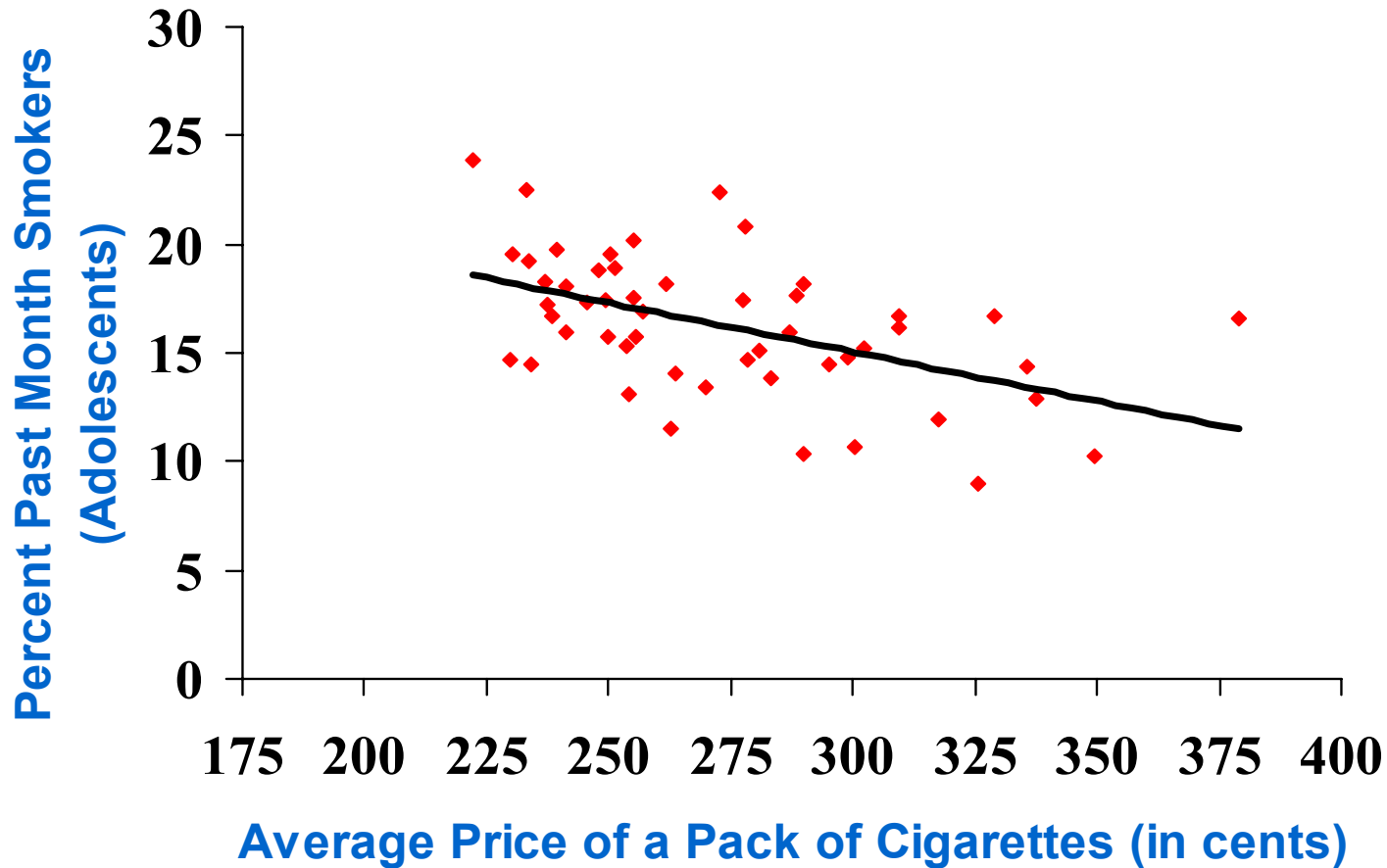
- Proportion of disposable income youth spends on tobacco and/or alcohol likely to exceed that for adults
- Peer influences much more important for young smokers/drinkers than for adult smokers/drinkers
- Young smokers/drinkers less addicted than at least some older smokers/drinkers
  - Young people tend to discount the future more heavily than adults



# Cigarette Prices And Kids

- A 10% increase in price reduces smoking prevalence among youth by nearly 7%
- A 10% increase in price reduces average cigarette consumption among young smokers by over 6%
- Higher cigarette prices significantly reduce teens' probability of becoming daily, addicted smokers; prevent moving to later stages of uptake.
- 10% price increase reduces probability of any initiation by about 3%, but reduces probability of daily smoking by nearly 9% and reduces probability of heavy daily smoking by over 10%

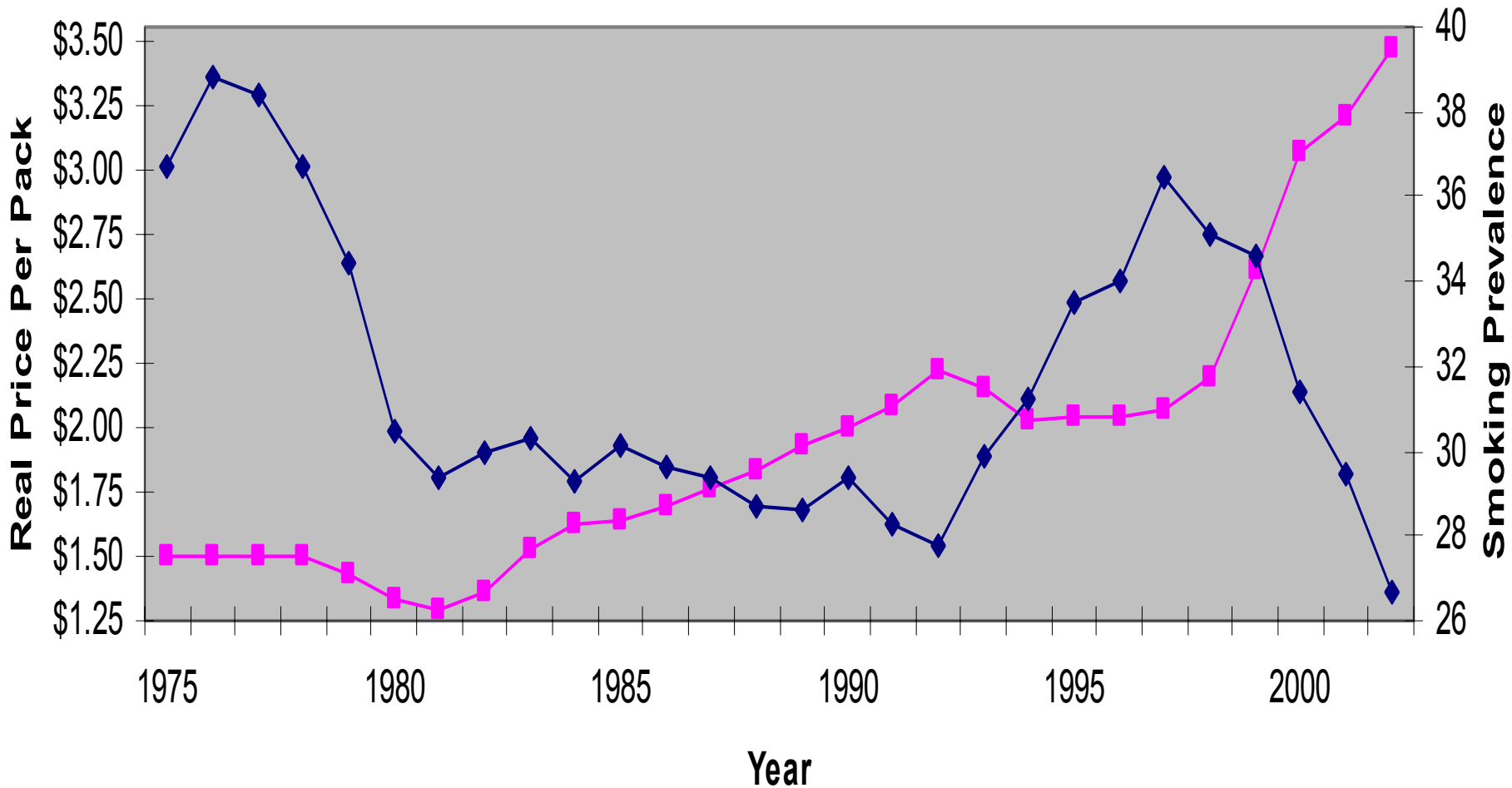
# Cigarette Smoking Among Youth by the Average Price of a Pack of Cigarettes in 50 States and the District of Columbia, 1999



Data: 1999 NHSDA (12-17 year olds); 1999 *Tax Burden On Tobacco*

Source: *Giovino, et al., 2001*

# 12th Grade 30 Day Smoking Prevalence and Price, 1975-2002



—■— Cigarette Price —◆— 30 Day Smoking Prevalence

# Alcohol Prices and Youth Drinking

- Grossman and colleagues (1987, 1988) find consistent evidence that higher beer prices lead to significant reductions in frequency and intensity of beer consumption by youth

Frequent and fairly frequent young drinkers more responsive to price than infrequent drinkers

Heavy and fairly heavy young drinkers more responsive to price than young light drinkers

- Several other studies over the past decade reach similar conclusion that higher prices reduce youth drinking

- Exception is recent study by Dee (1999) that concludes that youth drinking is unresponsive to price

# Alcohol Prices and Young Adult Drinking

- Chaloupka and Wechsler (1996) find little or no effect of alcoholic beverage prices on drinking among college students

Attribute this to imperfect measure of price faced by students

- Several more recent studies using new information on self-reported alcoholic beverage prices, participation in “fixed price” drinking events, and indicators of state/local policies affecting alcoholic beverage prices conclude that higher prices reduce drinking among college students
- Williams and colleagues (2002), finds similar effects of price on transitions from abstinence to moderate drinking and from moderate drinking to binge drinking

# Alcohol Prices And Drunk Driving

- Many studies using data on motor vehicle accident fatality rates conclude that higher taxes and prices lead to significant reductions in drinking and driving
  - estimates suggest that a ten percent increase in price would:
    - reduce overall fatality rates by 5-10 percent
    - reduce youth fatality rates by 7-17 percent
- Estimates of impact on fatality rates consistent with estimates based on self-reported drinking/driving behavior from survey data
  - Kenkel (1993) estimated that ten percent price increase would:
    - Reduce drinking and driving by 7.4 percent among males and 8.1 percent among females
    - Lead to larger reductions (12.6 and 21.1 percent) among young males and females

# Alcohol Prices and Alcohol Related Health Consequences

- Studies have examined impact on:
  - liver cirrhosis death rates and other diseases for which alcohol is a primary cause
  - diseases for which alcohol is a contributing factor
  - suicide deaths and suicidal ideation
  - other accidental deaths
  - non-fatal workplace accidents
  - sexually transmitted disease rates

■ Generally consistent findings that increases in alcoholic beverage taxes or prices lead to significant reductions in a number of consequences resulting from alcohol use and abuse

# Alcohol Prices and Violence and Other Crime

- Growing literature examining the impact of alcohol taxes and prices on violence and other crime, including:
  - homicide, rape, assault, and other violent crime rates
  - child abuse
  - spouse abuse
  - property crimes
  - delinquent behavior
  
- Again, generally consistent findings that increases in taxes or prices for alcoholic beverages lead to reductions in violence and other crime resulting from alcohol use and abuse



# Alcohol Prices and Educational Outcomes

- Several recent studies examine impact of alcohol taxes and prices on various measures of educational attainment and related outcomes
- Yamada and colleagues (1996) conclude that higher taxes would raise the likelihood of high school graduation
- Cook and Moore (1993) find that higher taxes would increase the probability of attending and graduating from a four year college or university
- Analyses of HCAS (Williams, et al. 2002; Powell et al. 2002) find that higher prices improve college student study habits, reduce frequency of missing classes and likelihood of falling behind in school, and lead to higher grade point averages

# Myths About Economic Impact of Tobacco Taxation and Tobacco Control

- Impact on Revenues?

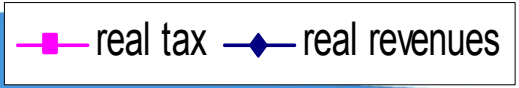
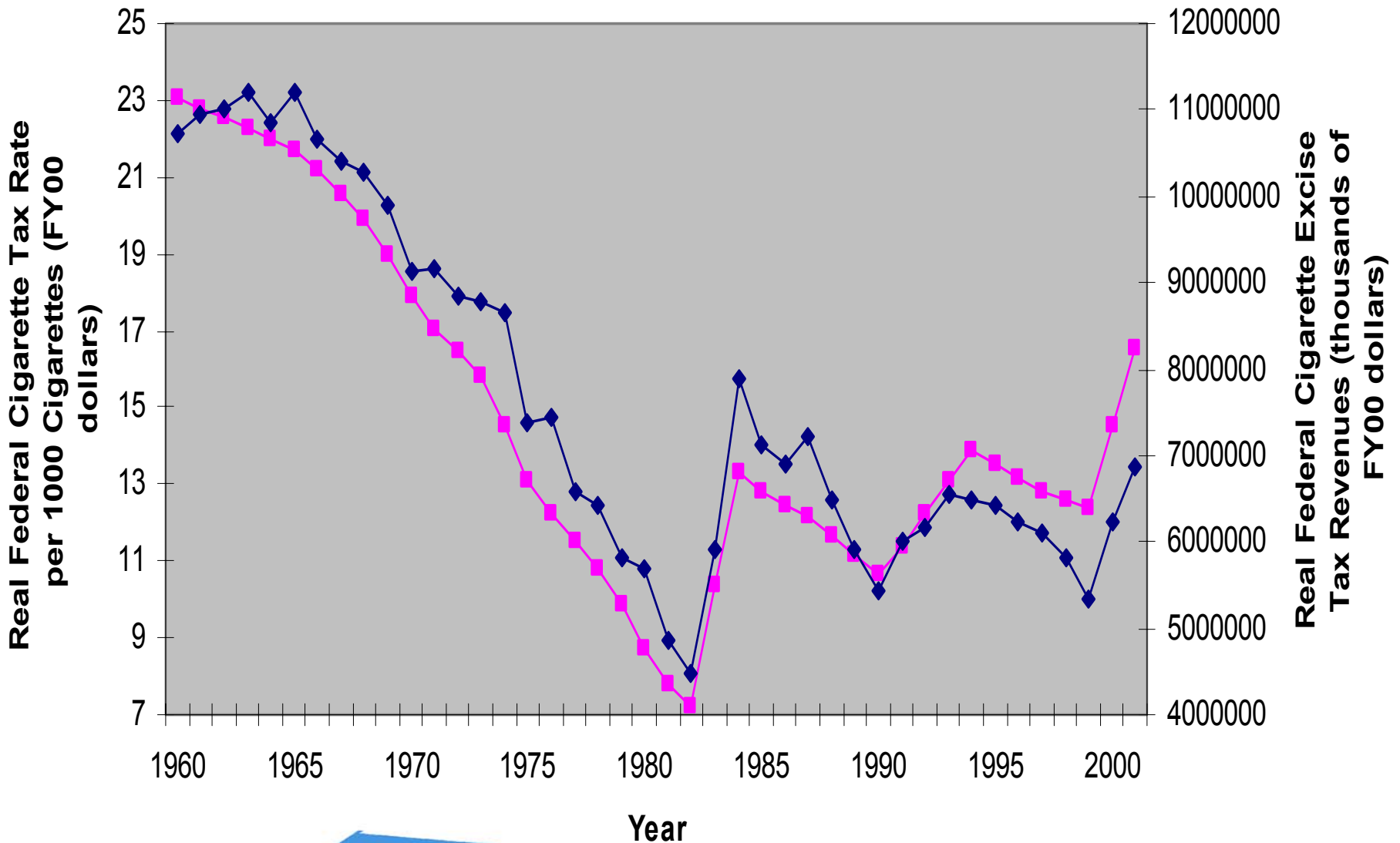
*Myth: Government revenues will fall as cigarette taxes rise, since people buy fewer cigarettes*

Truth: Cigarette tax revenues rise with cigarette tax rates, even as consumption declines

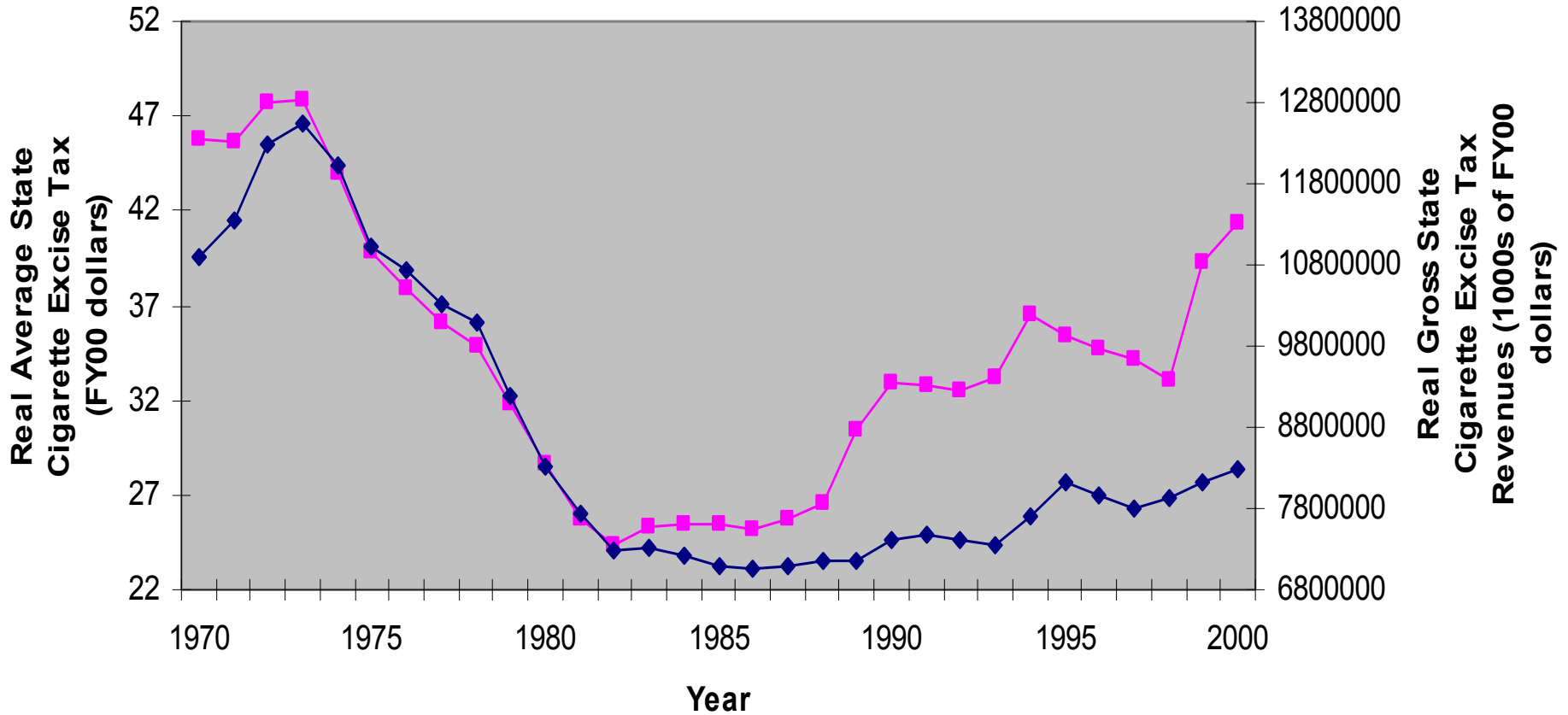
- Every significant increase in federal and state cigarette taxes has resulted in significant increase in revenues

*Same almost certainly the case with alcohol tax revenues and alcohol tax rates*

# Real Federal Cigarette Tax Rate and Tax Revenues, 1960-2001

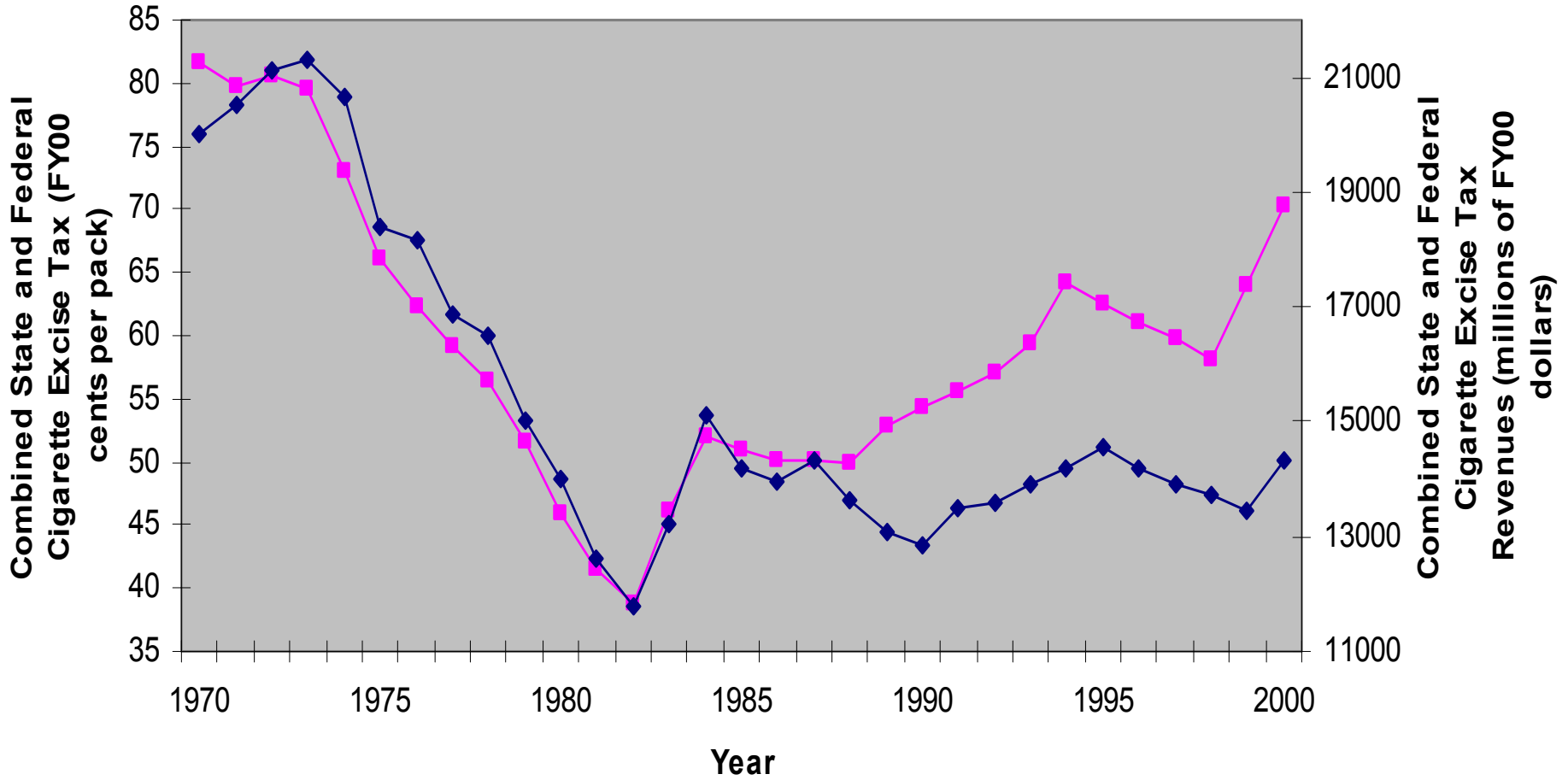


# Real Average State Cigarette Excise Tax Rate and Real State Cigarette Tax Revenues



■ Average Tax
 ◆ Tax Revenues

# Real Average Cigarette Excise Tax and Real Cigarette Tax Revenues



Real Tax Real Revenues



# Myths About Economic Impact of Tobacco Taxation and Tobacco Control

- Impact on Jobs?

*Myth: Higher tobacco taxes and tobacco control generally will result in substantial job losses*

Truth: Money not spent on tobacco will be spent on other goods and services, creating alternative employment

- Many countries/states will see net gains in employment as tobacco consumption falls

*Impact of alcohol control policies on jobs likely to be more diffuse than for tobacco control, but net impact expected to be minimal*

# Myths About Economic Impact of Tobacco Taxation and Tobacco Control

- Impact on Tax Evasion?

*Myth: Tax evasion negates the effects of increases in tobacco taxes*

Truth: Even in the presence of tax evasion, tax increases reduce consumption and raise revenues

- Other factors important in explaining level of tax evasion
  - Effective policies exist to deter tax evasion

*Tax evasion expected to be less significant for alcoholic beverages than for tobacco*

# Myths About Economic Impact of Tobacco Taxation and Tobacco Control

- Regressivity?

*Myth: Cigarette tax increases will negatively impact on the lowest income populations*

Truth: Poor consumers are more responsive to price increases

- Should consider progressivity or regressivity of overall fiscal system
  - Any negative impact can be offset by use of new tax revenues to support programs targeting lowest income population or protect funding for current programs

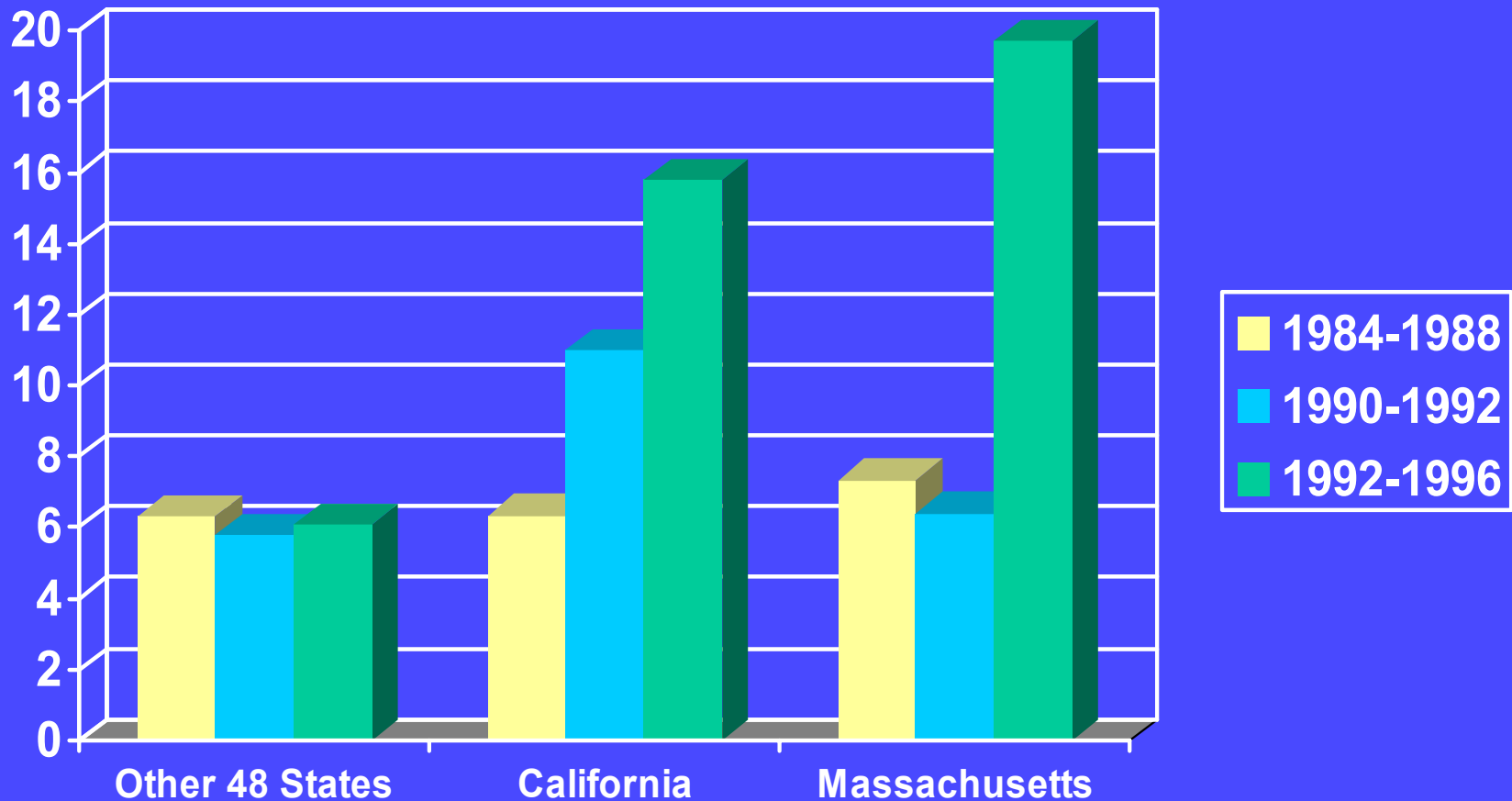
*Less of an issue for alcohol given that taxes tend to be less regressive given positive relationship between income and drinking*



# Optimal Taxation

- Tobacco:
  - Estimates mixed on whether or not current taxes are sufficient to offset the external costs of smoking
    - long term health impact
    - impact of ETS exposure
    - treatment of “internalities”
    - inclusion of “death benefit”
- Alcohol:
  - More consistent evidence that current alcohol taxes are Well below the external costs of alcohol use and abuse
    - estimates tend to imply doubling or more of taxes
      - equalization of taxes across beverages
        - complicated by increasing evidence of health benefits from moderate drinking

# Change in Per Capita Cigarette Consumption Before and After an Excise Tax Increase and an Antismoking Campaign California & Massachusetts versus Other 48 States, 1986 to 1996



*Source: CDC*

# Research Findings – Comprehensive Programs and State Cigarette Sales

- Higher spending on tobacco control efforts significantly reduces cigarette consumption
- Marginal impact of tobacco control spending greater in states with higher levels of cigarette sales per capita; average impact significantly higher in states with larger programs
  - Disaggregated program spending suggests that impact of programs focusing on policy change is greater than spending on other programs

# Research Findings – Comprehensive Programs and Youth Smoking

- Higher spending on tobacco control efforts significantly reduces youth smoking prevalence and cigarette consumption among young smokers
  - estimated effects about 3 times those for adults
- Estimated impact of spending at CDC recommended levels: minimum: 8-9% reduction in youth smoking prevalence; maximum: over 20% reduction
- Estimates suggest that greatest impact is on earlier stages of youth smoking uptake