

Taxing for Health: An Economic Perspective

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Wellness and the Law

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Overview

- Using excise taxes to promote public health
 - Tobacco taxation
 - Brief history
 - Impact on smoking behavior
 - Alcohol taxation
 - Brief history
 - Impact on drinking and its consequences
 - Impact of earmarked taxes (tobacco)
- Myths and Facts about the “economic costs” of taxation
- Brief discussion on potential for using taxes to address obesity

Tobacco Taxation in the U.S.

- 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
 - Currently 39 cents per pack
 - About 60% of inflation adjusted value of 1951 tax
 - Proposal to raise tax by 61 cents per pack
- Other federal tobacco taxes
 - Specific excise taxes on most products, including cigars, pipe tobacco, chewing tobacco, snuff, and roll-your-own tobacco (and separately on rolling papers)
 - Generally lower than cigarette tax
 - Similar infrequent increases in taxes

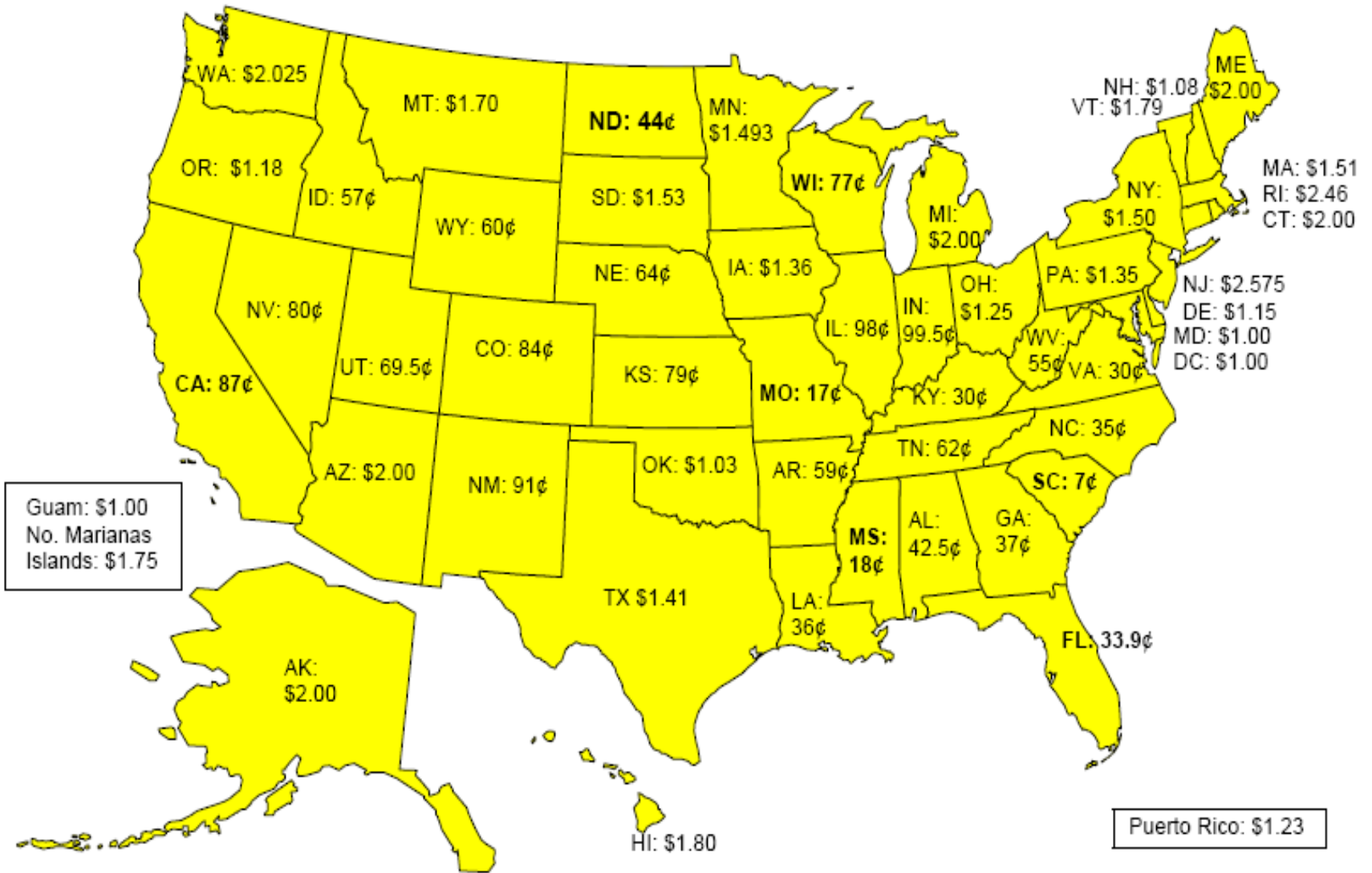
Tobacco Taxation in the U.S.

- State cigarette taxes
 - First adopted by IA in 1921; NC last to adopt in 1969
 - Specific excise tax in all states
 - Currently: 7.0 cents/pack (SC) to \$2.575/pack (NJ)
 - Numerous state tax increases over past 5 years
 - Average \$1.07 per pack (33.5 cents in tobacco growing states; \$1.17 in other states)
 - Several proposing additional increases
 - Most states tax other tobacco products
 - Almost always an *ad valorem* tax (% of price)
 - Sales tax applied to tobacco products in most states

Local Taxes

- Many localities add additional tax
 - Typically a few cents/pack, with some exceptions:
 - » \$1.50 in New York City
 - » \$2.68 in Chicago/Cook county

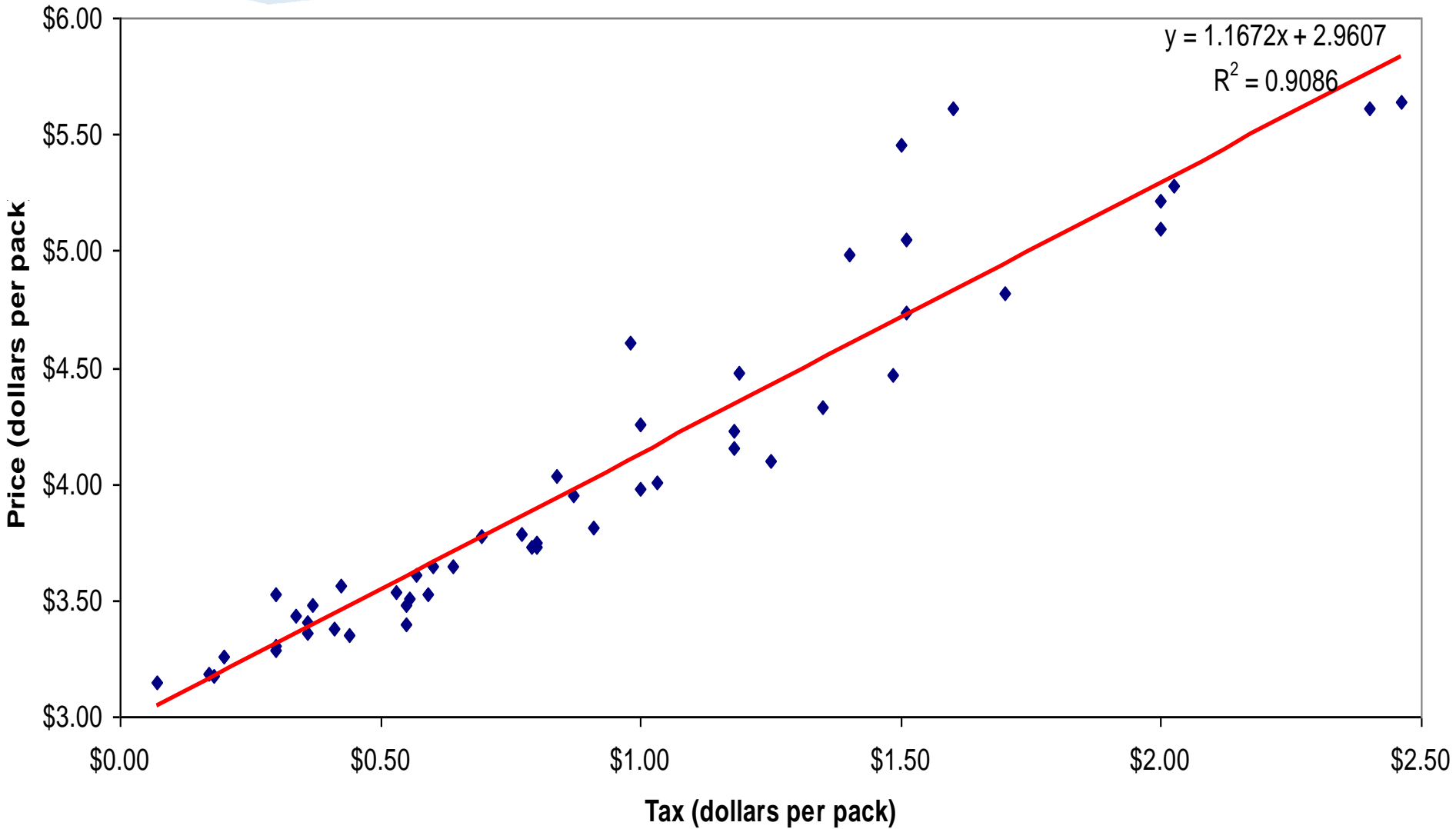
State Cigarette Excise Taxes



As of 7/1/07; includes scheduled increases in some states

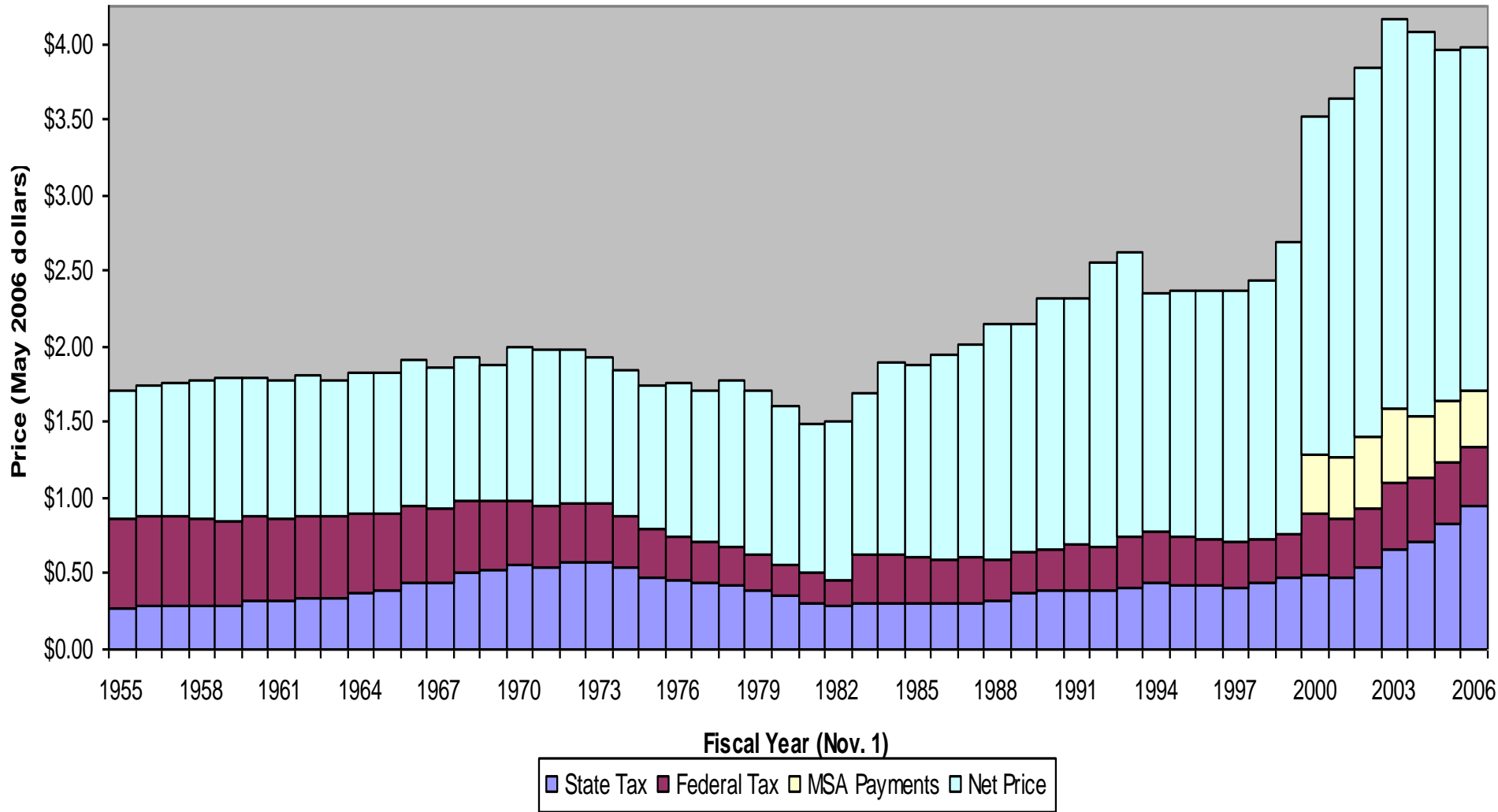
Source: Campaign for Tobacco-Free Kids

State Cigarette Taxes and Prices, November 1, 2005



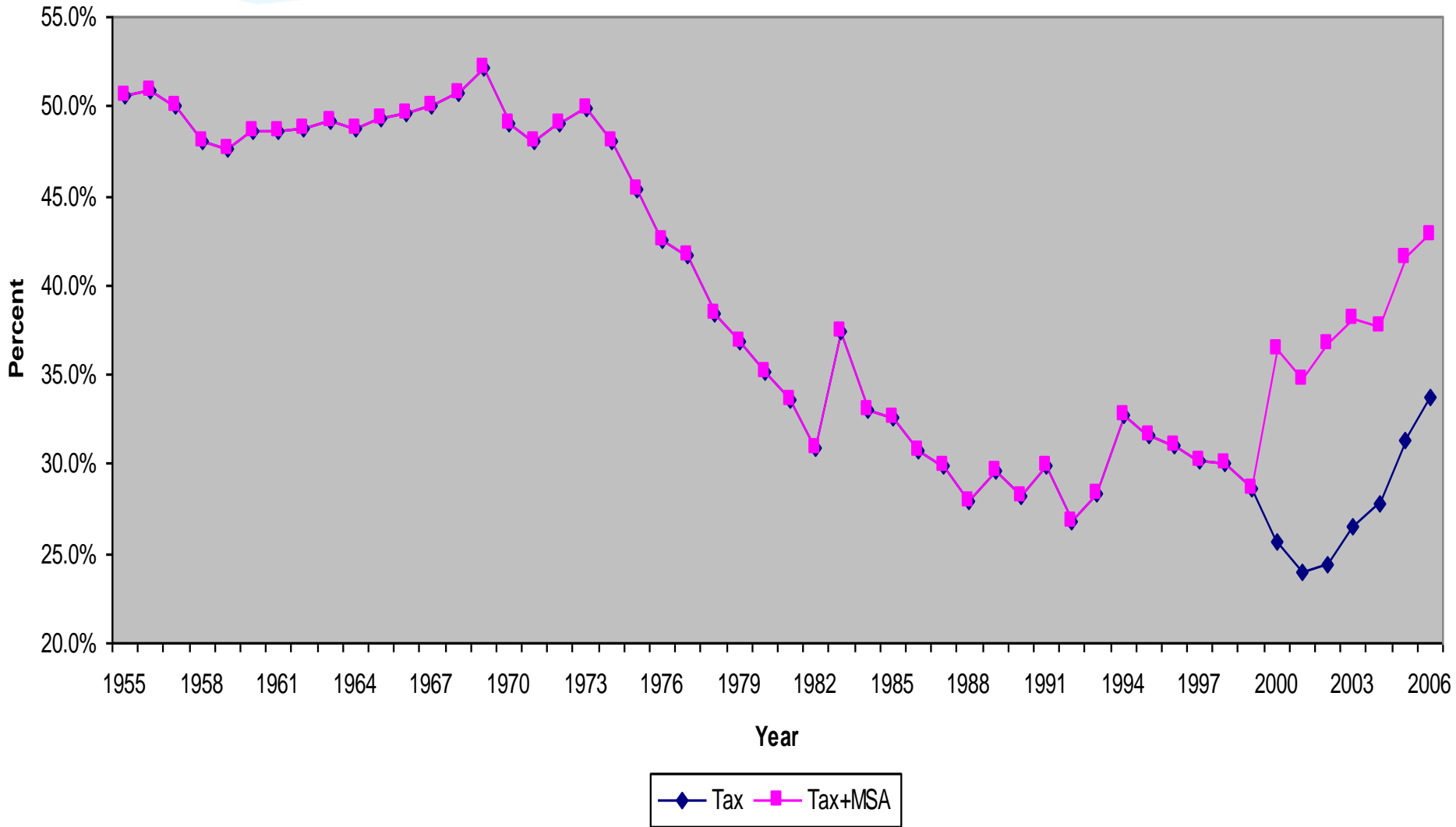
Source: *Tax Burden on Tobacco, 2006*, and author's calculations

Inflation Adjusted Cigarette Prices, 1955-2006



Source: *Tax Burden on Tobacco, 2006*, and author's calculations

Taxes as Percent of Cigarette Prices

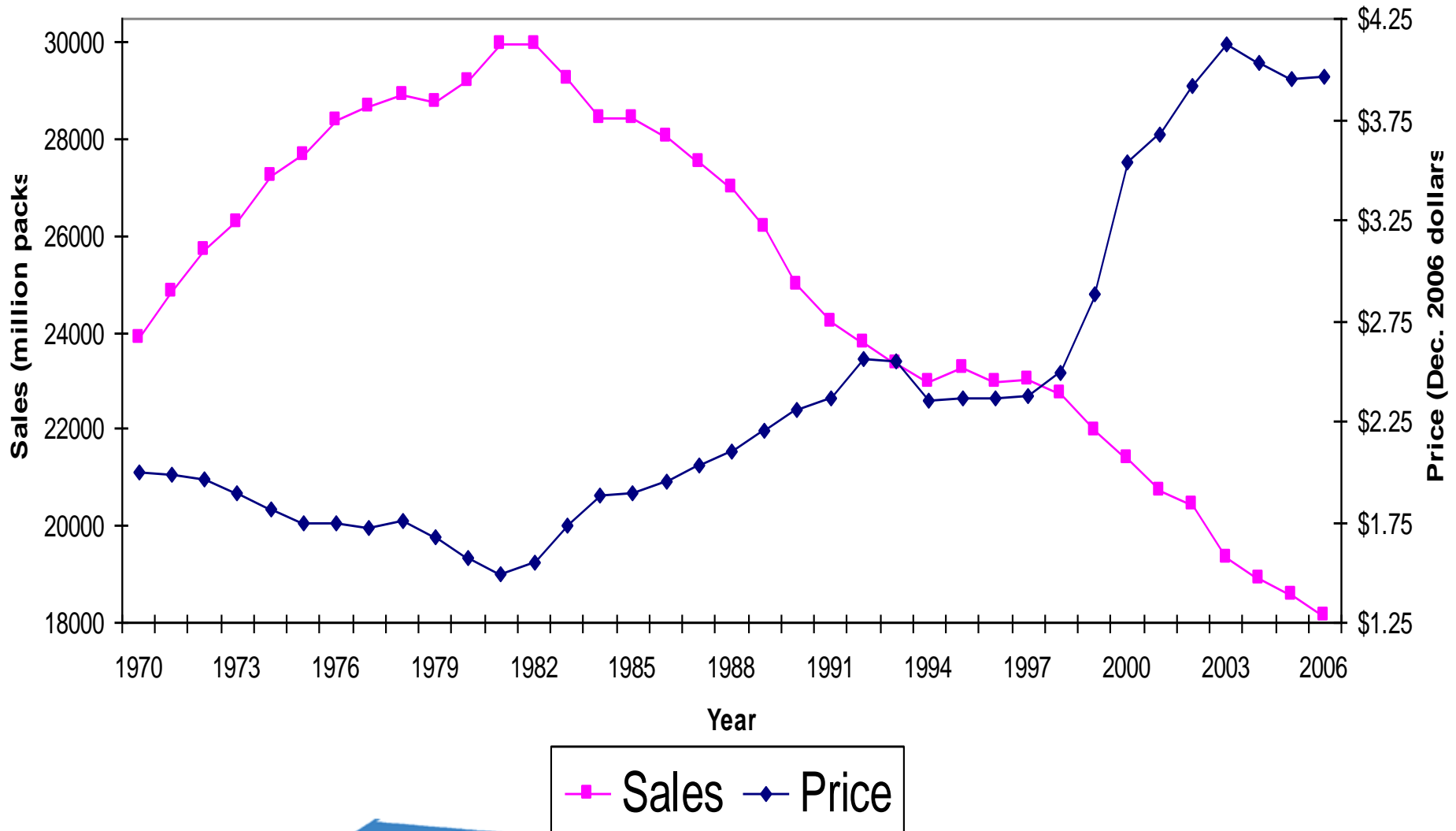


Source: *Tax Burden on Tobacco, 2006*, and author's calculations

Tobacco Taxes and Tobacco Use

- Higher taxes induce quitting, prevent relapse, reduce consumption and prevent starting.
- Estimates from high-income countries indicate that 10% rise in price reduces overall cigarette consumption by about 4%
 - price elasticity of demand: percentage reduction in consumption resulting from one percent increase in price
 - Most elasticity estimates in range from -0.25 to -0.5, clustered around -0.4
 - More recent elasticity estimates for tax paid sales significantly higher
 - Reflects increased tax avoidance/evasion

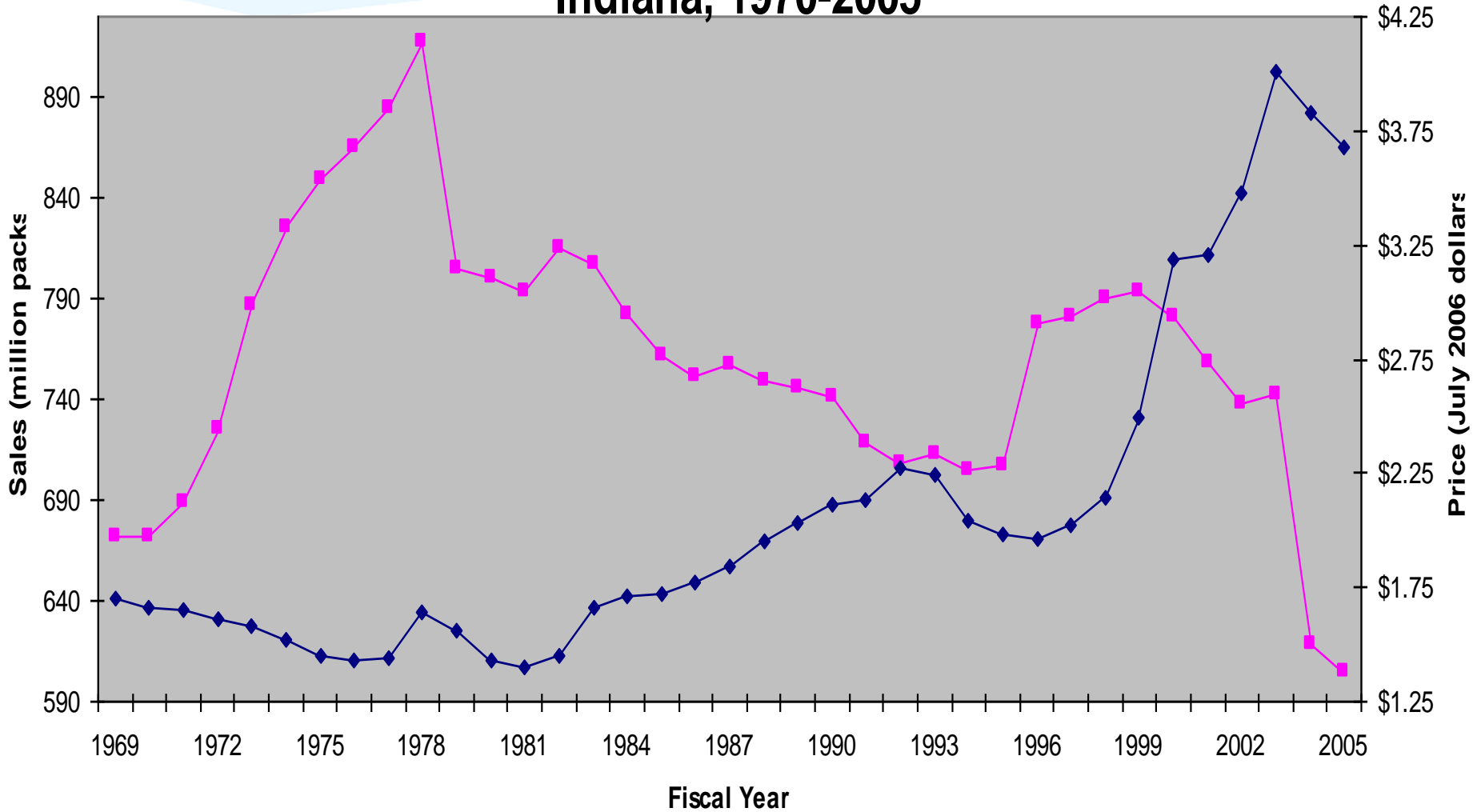
Cigarette Prices and Cigarette Sales, United States, 1970-2006



Source: *Tax Burden on Tobacco, 2006*, and author's calculations

Cigarette Prices and Sales

Indiana, 1970-2005

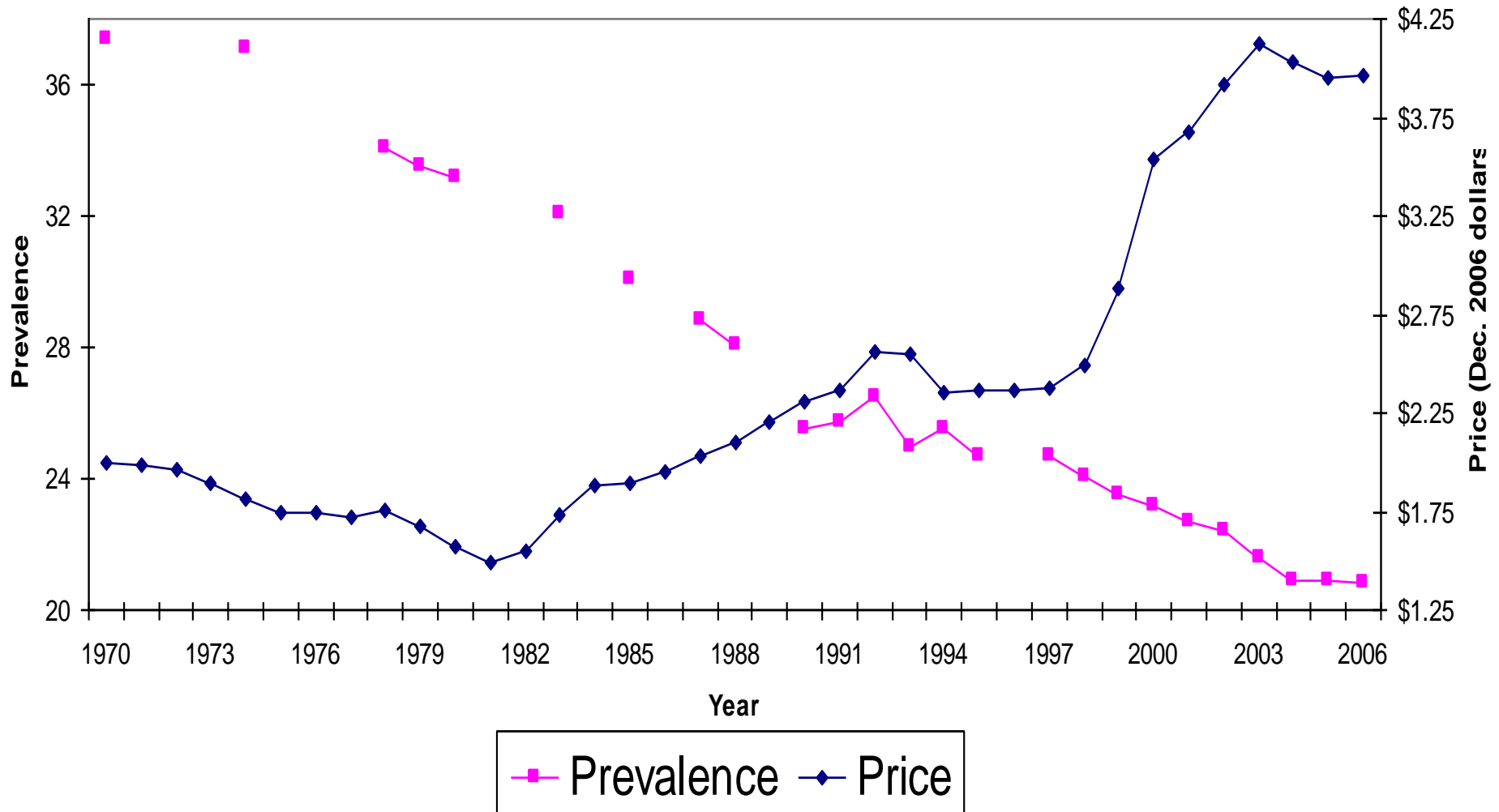


—■— Sales —◆— Price

Tobacco Taxes and Tobacco Use

- Higher taxes induce quitting, prevent relapse, reduce consumption and prevent starting.
- 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**
 - **10% rise in price reduces prevalence by about 2%**

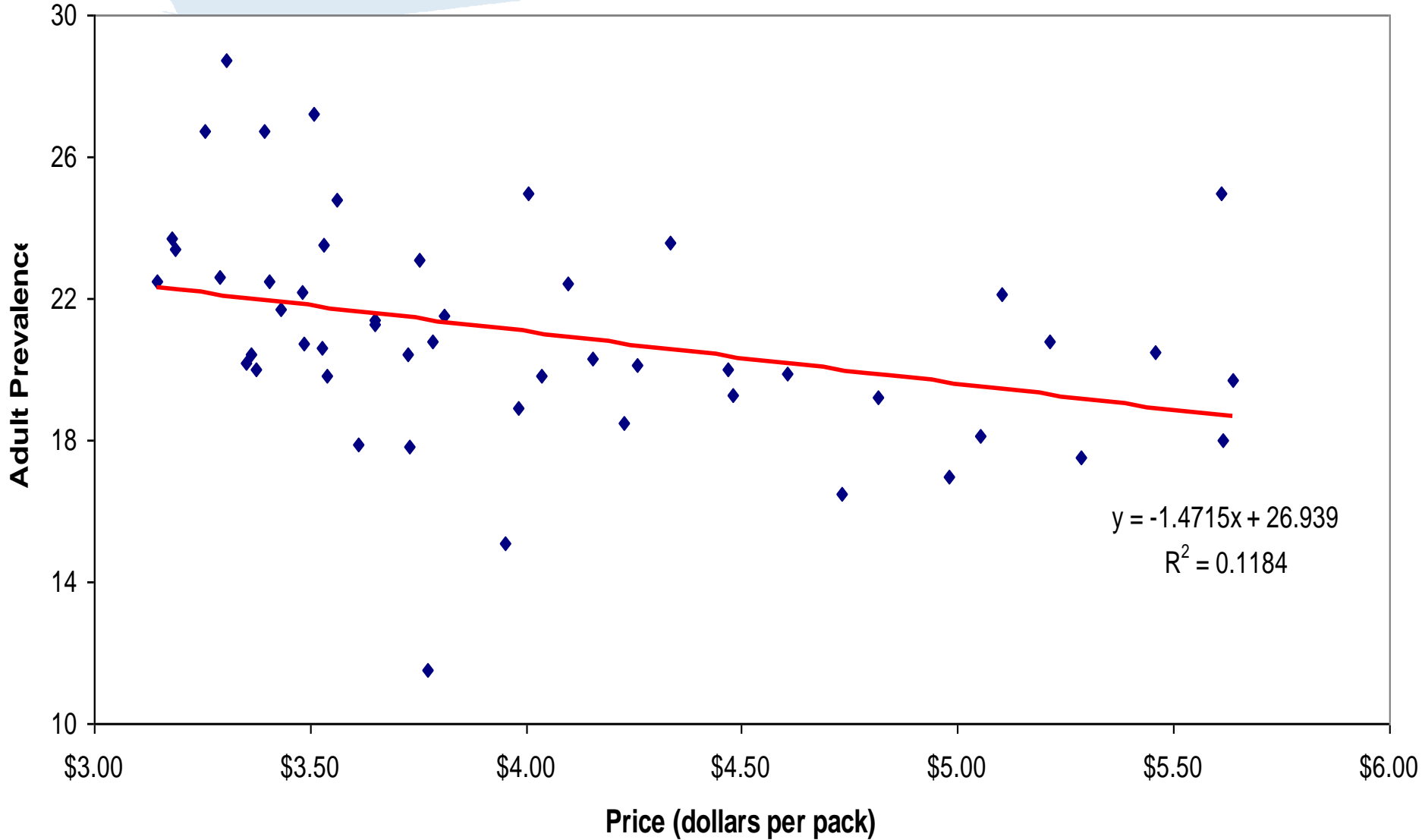
Cigarette Prices and Adult Smoking Prevalence, United States, 1970-2006



Source: NHIS, *Tax Burden on Tobacco, 2006*, and author's calculations



Cigarette Prices and Adult Smoking Prevalence



$y = -1.4715x + 26.939$
 $R^2 = 0.1184$

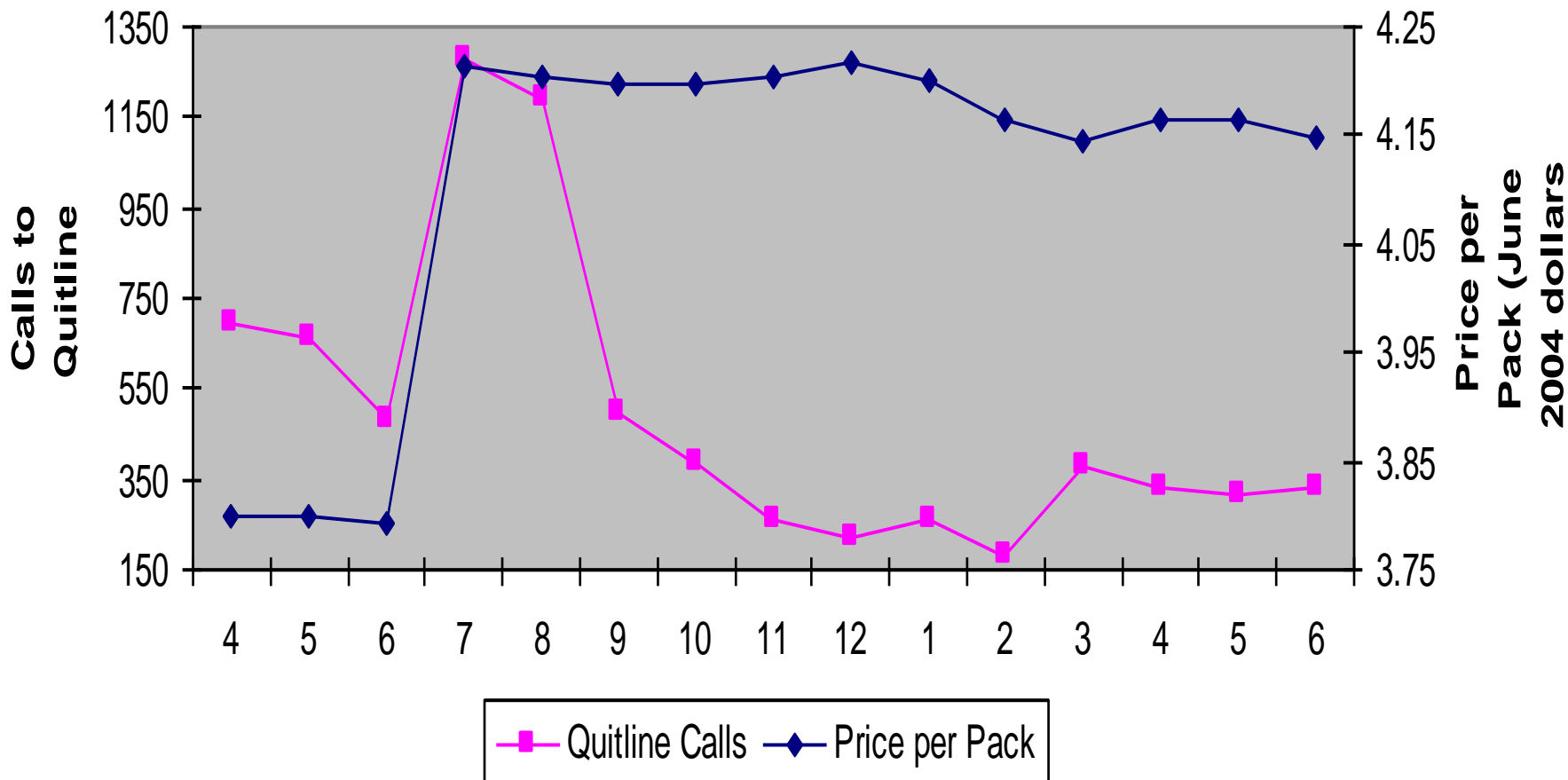
Tobacco Taxes and Tobacco Use

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- About half of impact of price increases is on smoking prevalence; remainder is on average cigarette consumption among smokers
- **Some evidence of substitution among tobacco products in response to relative price changes**

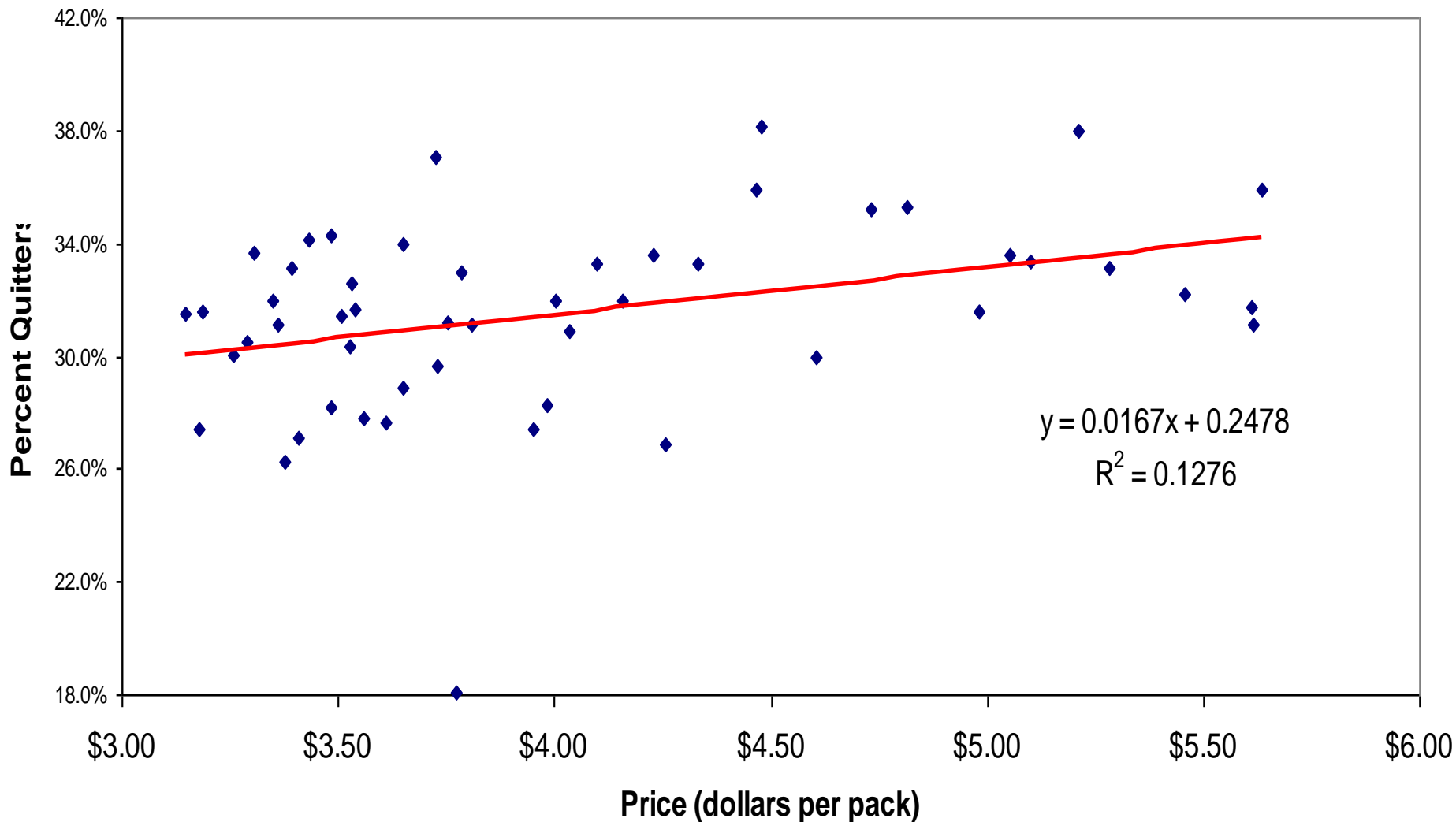
Cigarette Prices and Smoking Cessation

- Growing evidence that higher cigarette prices Induce smoking cessation
 - 10% price increase reduces duration of smoking by about 10%
 - 10% price increase raises probability of cessation attempt by 10-12%
 - 10% price increase raises probability of successful cessation by 1-2%
 - Higher cigarette taxes/prices increase demand for NRT and cessation services

Cigarette Price and Quitline Calls - Illinois, 2002-2003



Cigarette Prices and Percentage of Ever Smokers Who Have Quit Smoking



$y = 0.0167x + 0.2478$
 $R^2 = 0.1276$

Lower SES populations are more price responsive

- Economic theory implies greater response to price by lower income persons
- Growing international evidence shows that smoking is most price responsive in lowest income countries
- Evidence from U.S. and U.K. shows that cigarette price increases have greatest impact on smoking among lowest income and least educated populations
- In U.S., for example, estimates indicate that smoking in households below median income level about four times more responsive to price than those above median income level

Implies tax increases may be progressive

Young People More Responsive to Price Increases

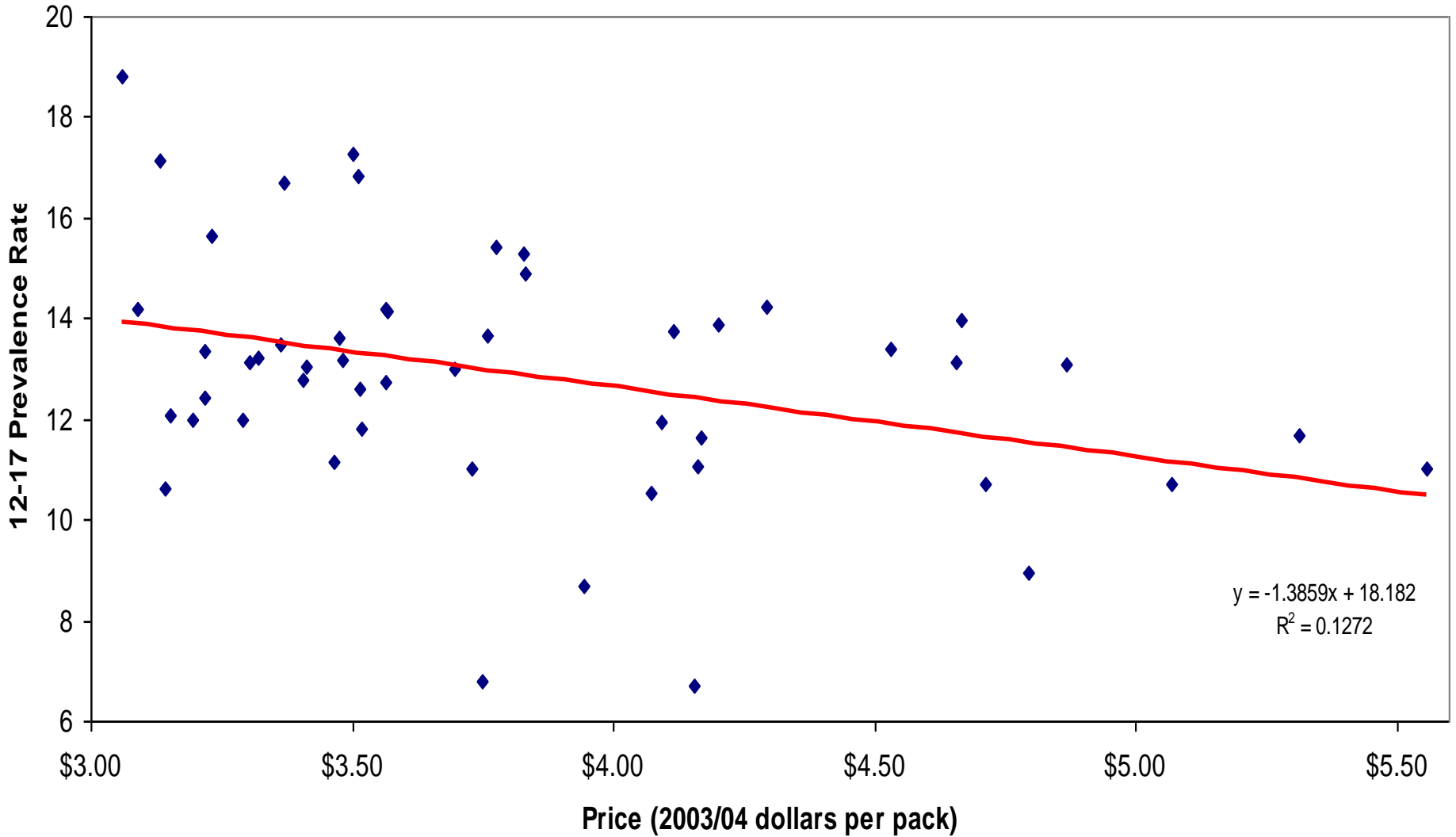
- Proportion of disposable income youth spends on cigarettes likely to exceed that for adults
- Peer influences much more important for young smokers than for adult smokers
 - recent estimates indicate about 1/3 of overall impact of price on youth accounted for by indirect impact through peers
- Young 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 Youth

- 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%

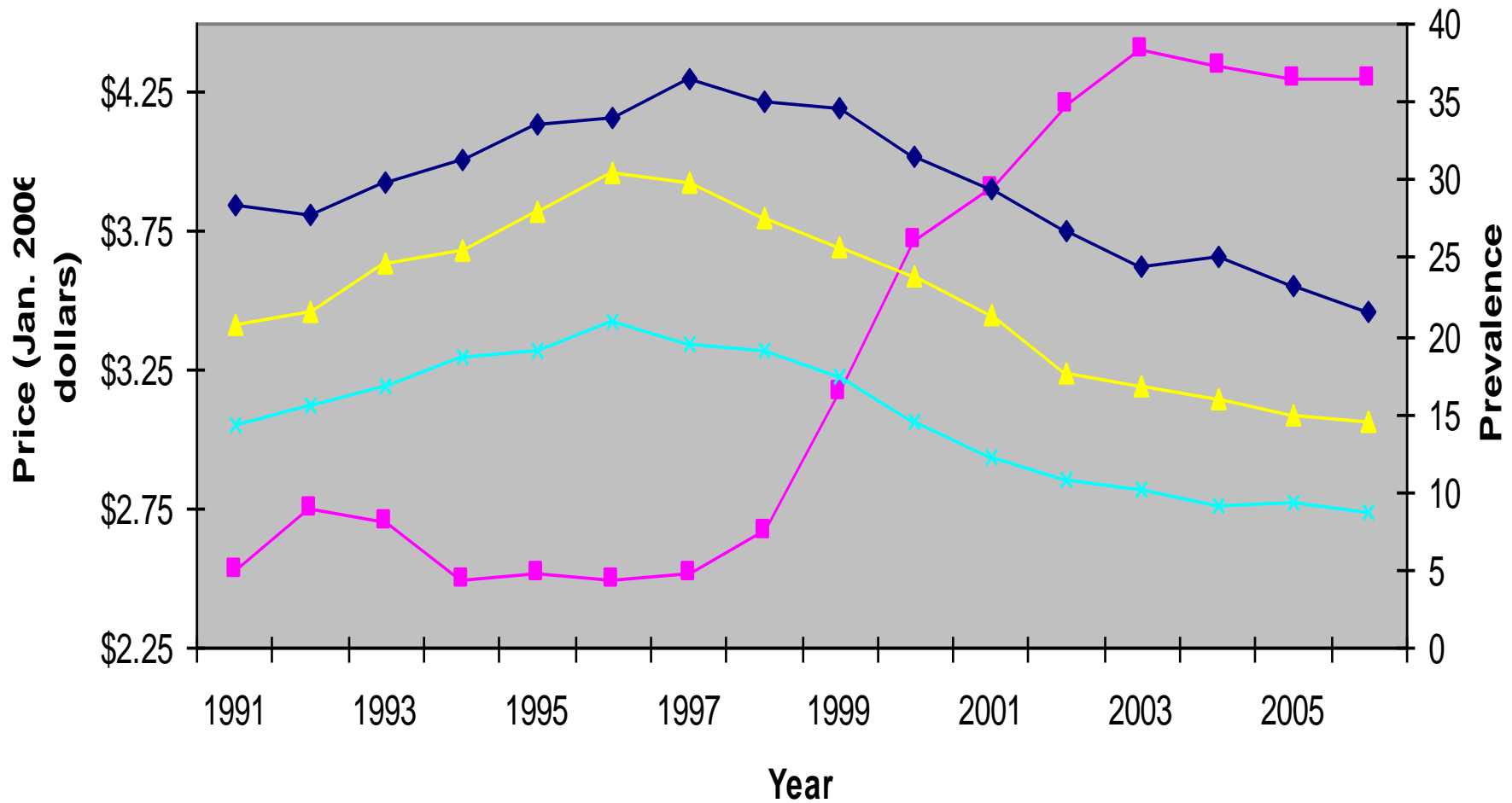
Cigarette Prices and Smoking Prevalence

12-17 Year Olds, 2003-04



$y = -1.3859x + 18.182$
 $R^2 = 0.1272$

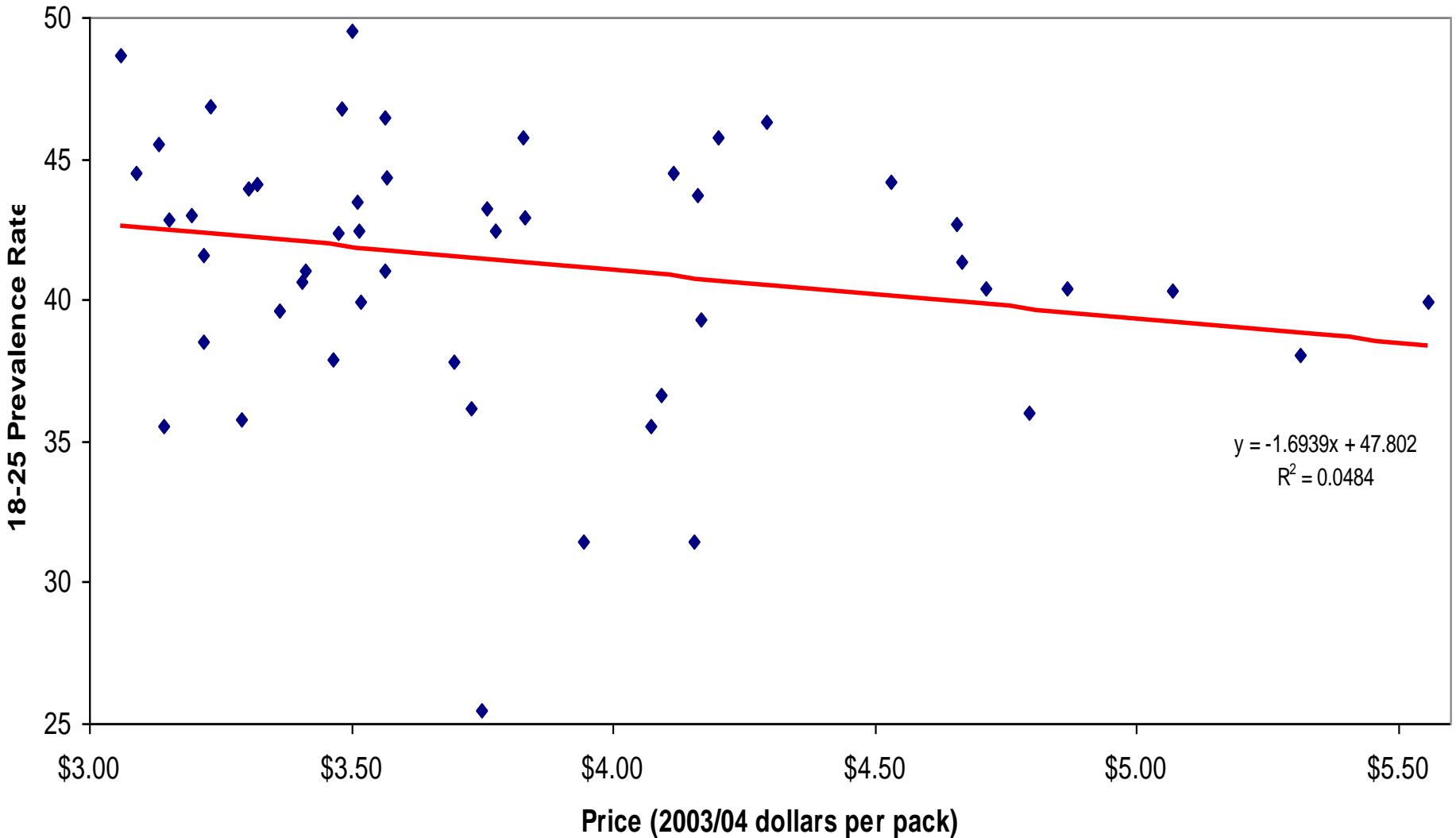
8th, 10th, and 12th Grade Smoking Prevalence and Cigarette Price



■ Price
 ◆ 12th grade
 ▲ 10th grade
 ✕ 8th grade

Cigarette Prices and Smoking Prevalence

18-25 Year Olds, 2003-04



$y = -1.6939x + 47.802$
 $R^2 = 0.0484$

Support for Tobacco Tax Increases

Generally consistent support among voters for tobacco tax increases

- Greater support when revenues dedicated to tobacco control efforts or other health-related activities
- Often supported by large share of smokers, particularly when tied to efforts to prevent youth smoking initiation
- Support tends to be bipartisan
- Greater support for tobacco tax increases than for other revenue generating measures
- Support tends to be consistent across demographic and socioeconomic groups

Impact of a Federal Cigarette Tax Increase

Based on these estimate, a \$0.61 per pack increase in the Federal cigarette tax (to \$1.00 per pack) would:

- Reduce cigarette sales by over 1.1 billion packs
- Generate over \$10 billion in new revenues
- Lead over 1.4 million current smokers to quit
- Prevent almost 1.9 million youth from taking up smoking
- Prevent over 900,000 premature deaths caused by smoking
- Generate significant reductions in spending on health care to treat diseases caused by smoking
- Reduce most state tobacco-related revenues

Tax Increases and Indiana

Based on these estimate, a \$0.50 per pack increase in the Indiana state cigarette tax would have:

- Reduce cigarette sales by about 32 million packs per year
 - Generate over \$280 million in new revenues
 - Lead almost 34,000 adult smokers to quit
 - Prevent almost 48,000 youth from taking up smoking
 - Prevent over 23,000 premature deaths caused by smoking
 - Generate significant reductions in spending on health care to treat smoking attributable diseases
- 44 cent increase effective July 1, 2007

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 Alcoholic Beverage Excise Taxes

- Federal Taxes:
 - date back to 18th 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

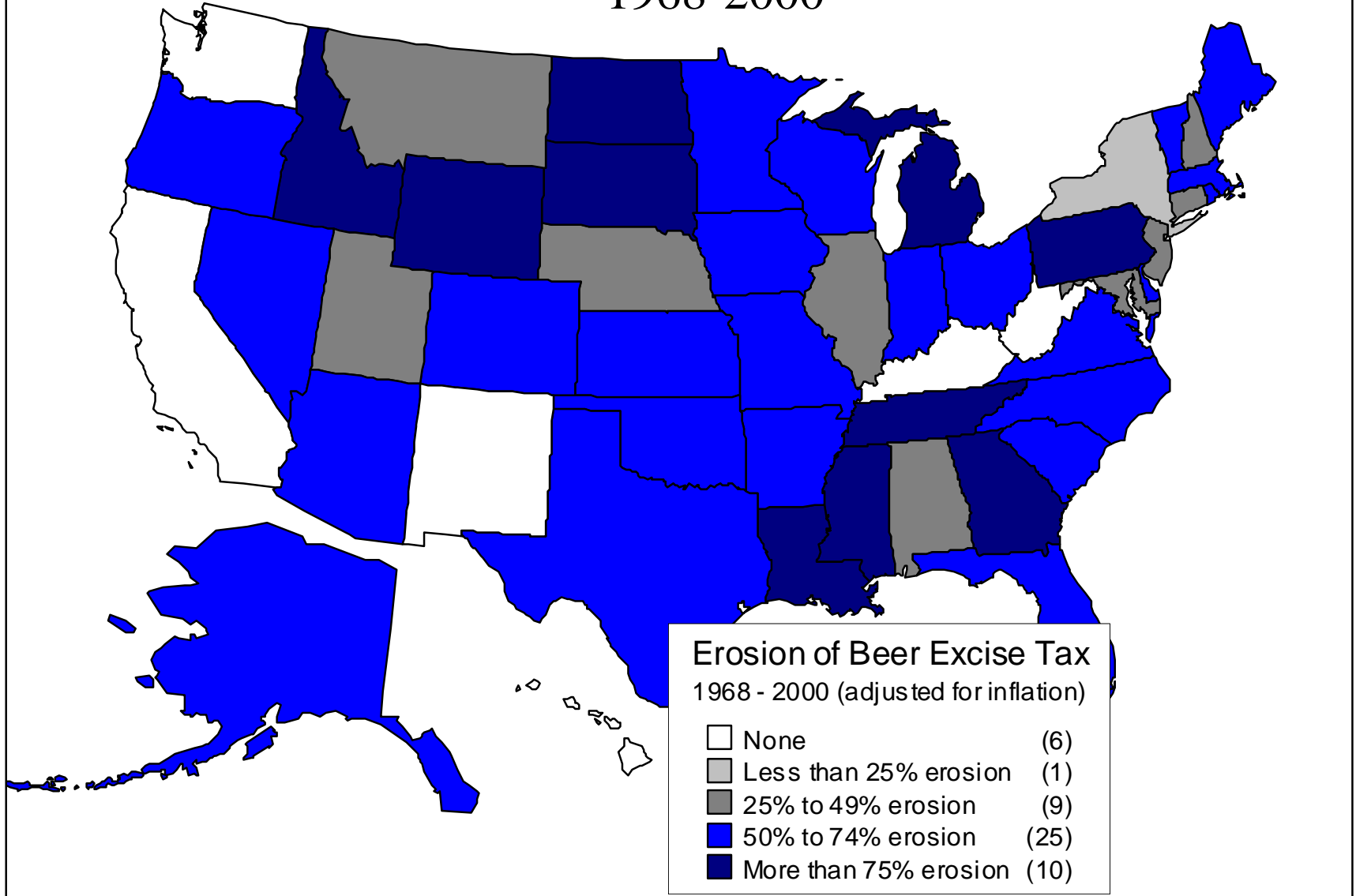
Federal Alcoholic Beverage Excise Taxes

- 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: \$71.97 per barrel
 - current value \$18.00 per barrel
 - Wine (under 14%):
 - inflation adjusted value of 1951 tax: \$1.36 per wine gallon
 - current value \$1.07 per wine gallon
 - Distilled Spirits:
 - Inflation adjusted value of 1951 tax: \$83.97 per proof gallon
 - current value: \$13.50 per proof gallon

State Alcohol Taxation

- All states apply specific excise tax to beer
 - Range from 5 cents per case of beer (WY) to \$2.41 per case (AK)
- 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
 - As of 2000, 6 states have beer taxes that retain inflation adjusted value since 1968; 35 states had erosion of more than 50 percent
 - Few changes since 2000 (5 small increases; large increase in AK; small decrease in NY)

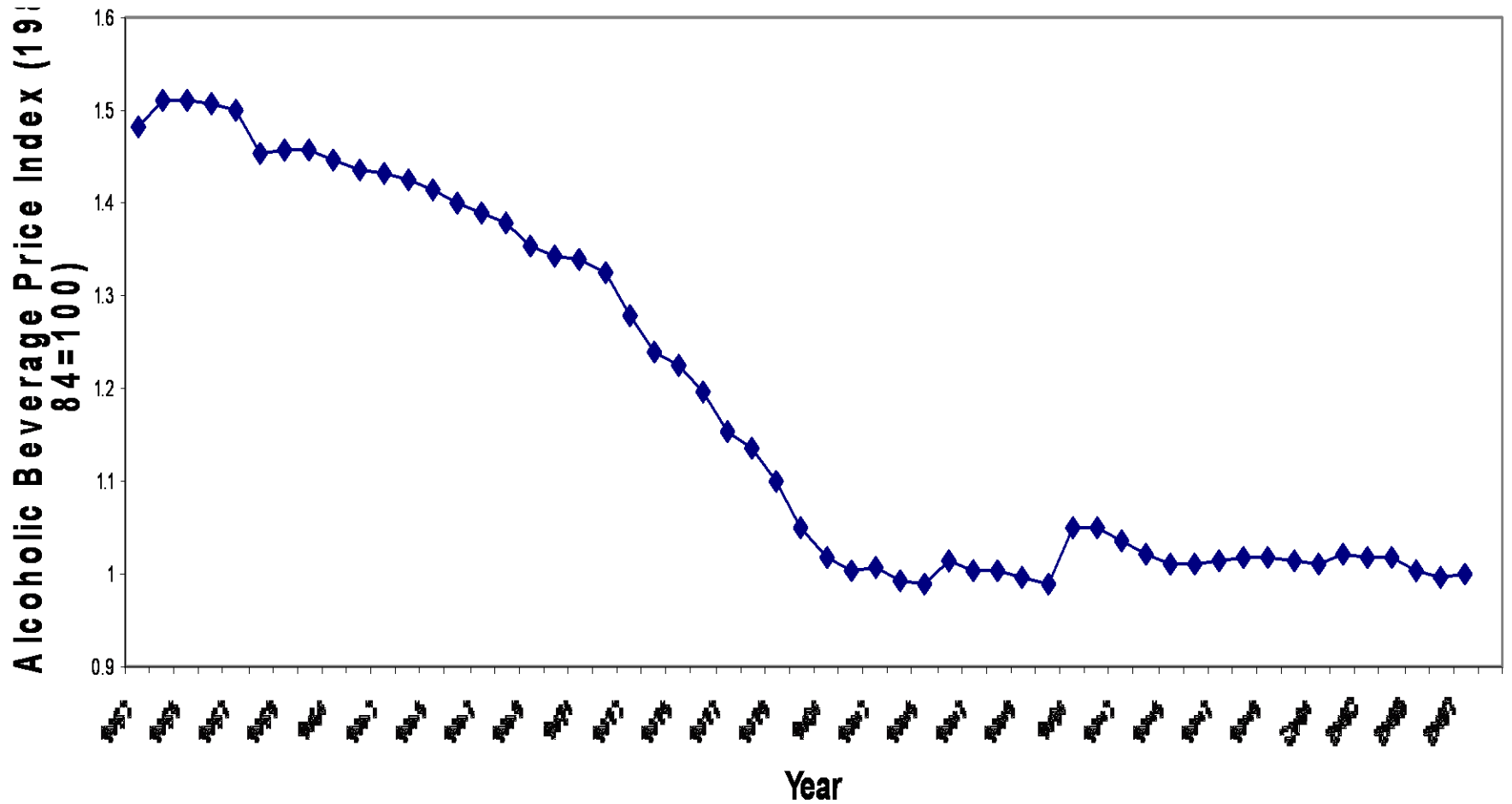
Erosion of Inflation Adjusted State Beer Excise Taxes 1968-2000



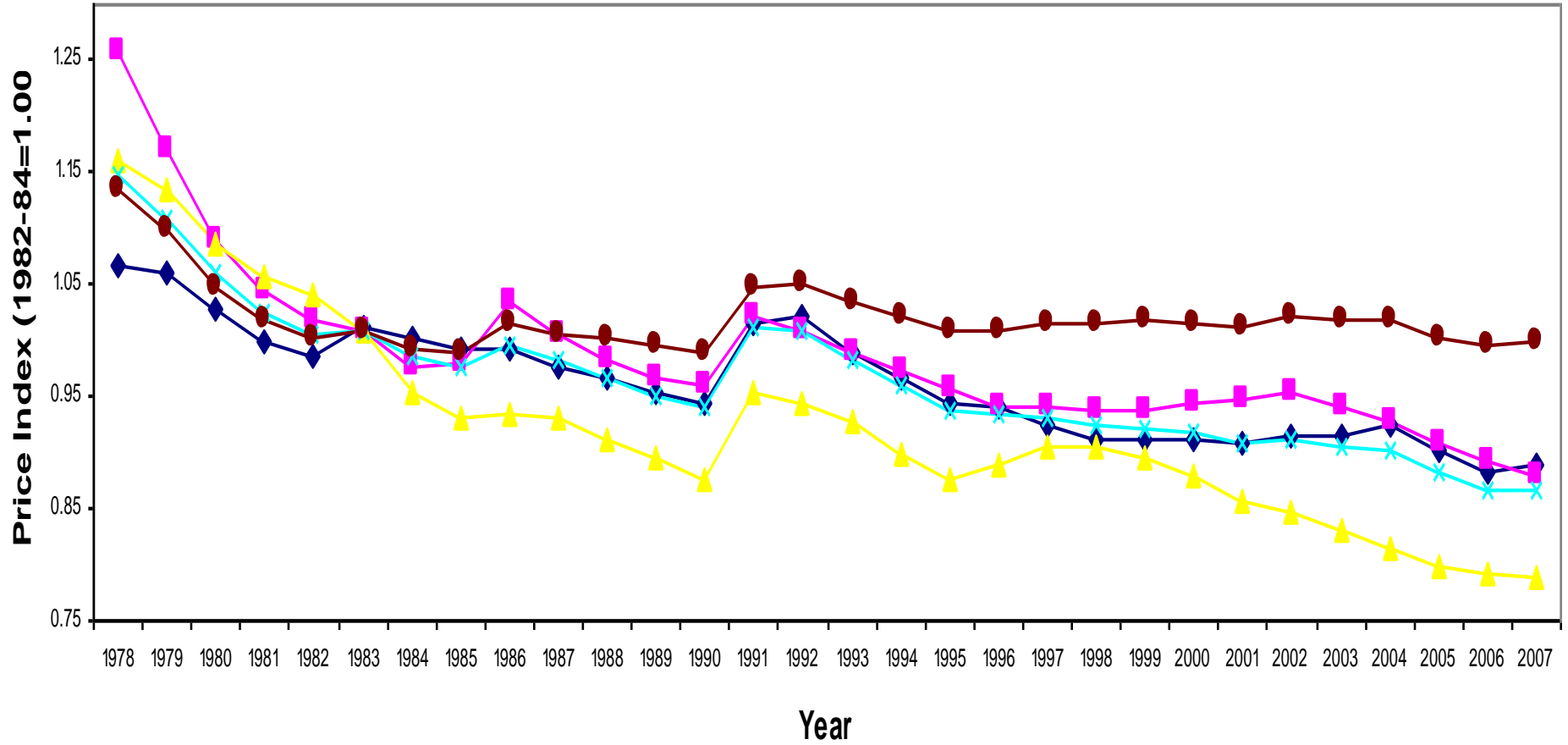
Alcohol Taxation And Price

- 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

Inflation Adjusted Alcoholic Beverage Prices 1953-2007



Inflation Adjusted Alcoholic Beverage Prices 1978-2007

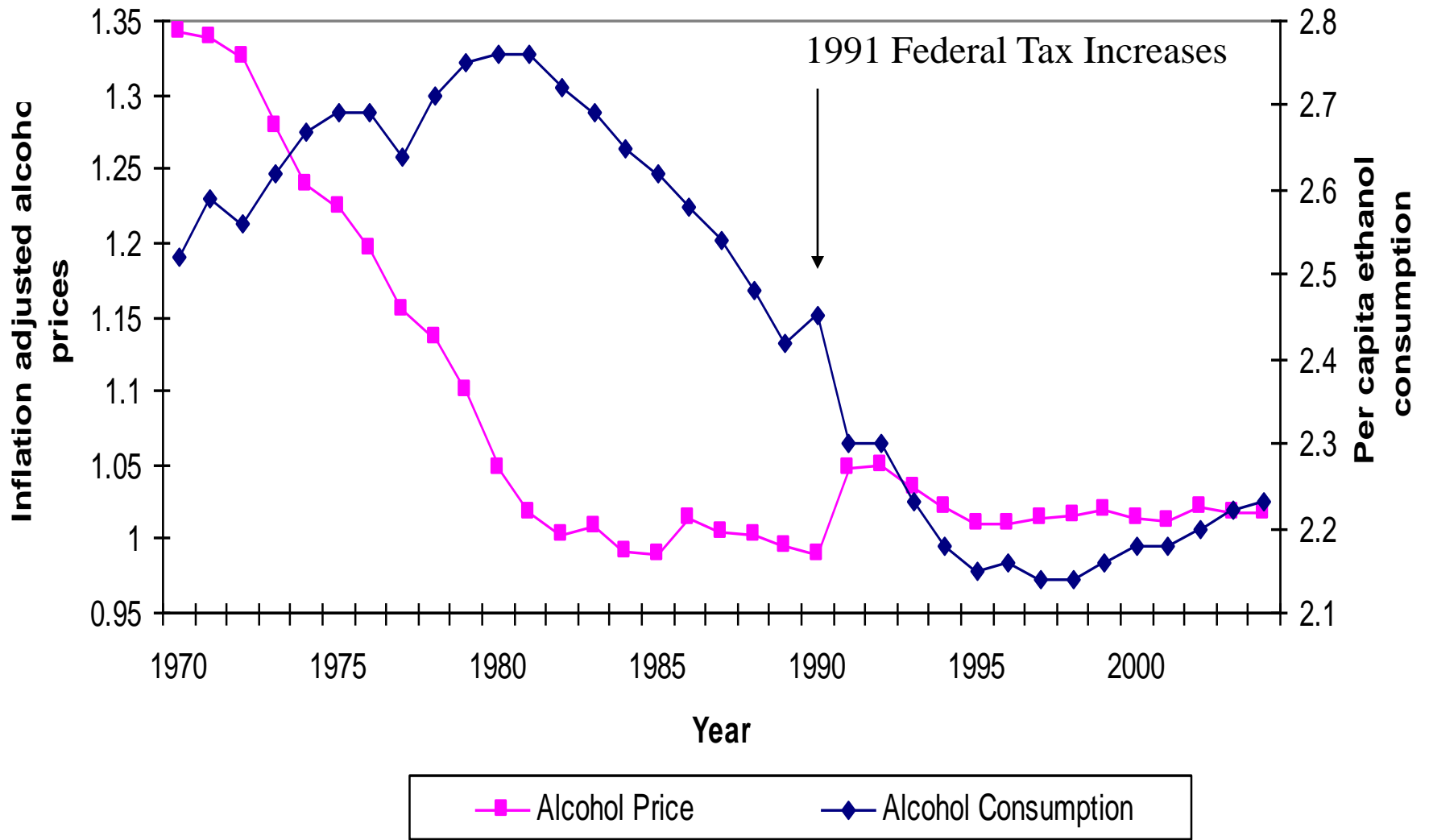


beer, at home spirits, at home wine, at home alcohol, at home all alcohol

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 larger long run impact

Alcohol Prices and Alcohol Consumption



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

- Laixuthai and Chaloupka (1993) find that youth responsiveness to price falls, but remains significant, after increase in minimum legal drinking ages
- Most other studies of prices and youth drinking conducted over the past decade reach a similar conclusions

Higher prices reduce youth drinking while lower alcoholic beverage prices lead to increases in youth drinking

Alcohol Prices and Young Adult Drinking

- Several recent studies conclude that higher alcoholic beverage prices reduce drinking among college students; for example:

- Kuo, et al. (2003) use data from the Harvard College Alcohol Study that includes self-reported data from students and observational data on pricing and promotion of alcoholic beverages around college campuses, concluding that:

“The availability of large volumes of alcohol, low sale prices, and frequent promotions and advertisements at both on- and off-premise establishments were associated with higher binge drinking rates on the college campuses.”

- 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 alcohol 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 of alcohol prices on:
 - liver cirrhosis death rates
 - 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 prices lead to significant reductions in the health consequences resulting from alcohol use and abuse

Alcohol Prices and Violence and Other Crime

- Growing literature examining the impact of alcoholic beverage 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 prices for alcoholic beverages lead to reductions in violence and other crime resulting from alcohol use and abuse

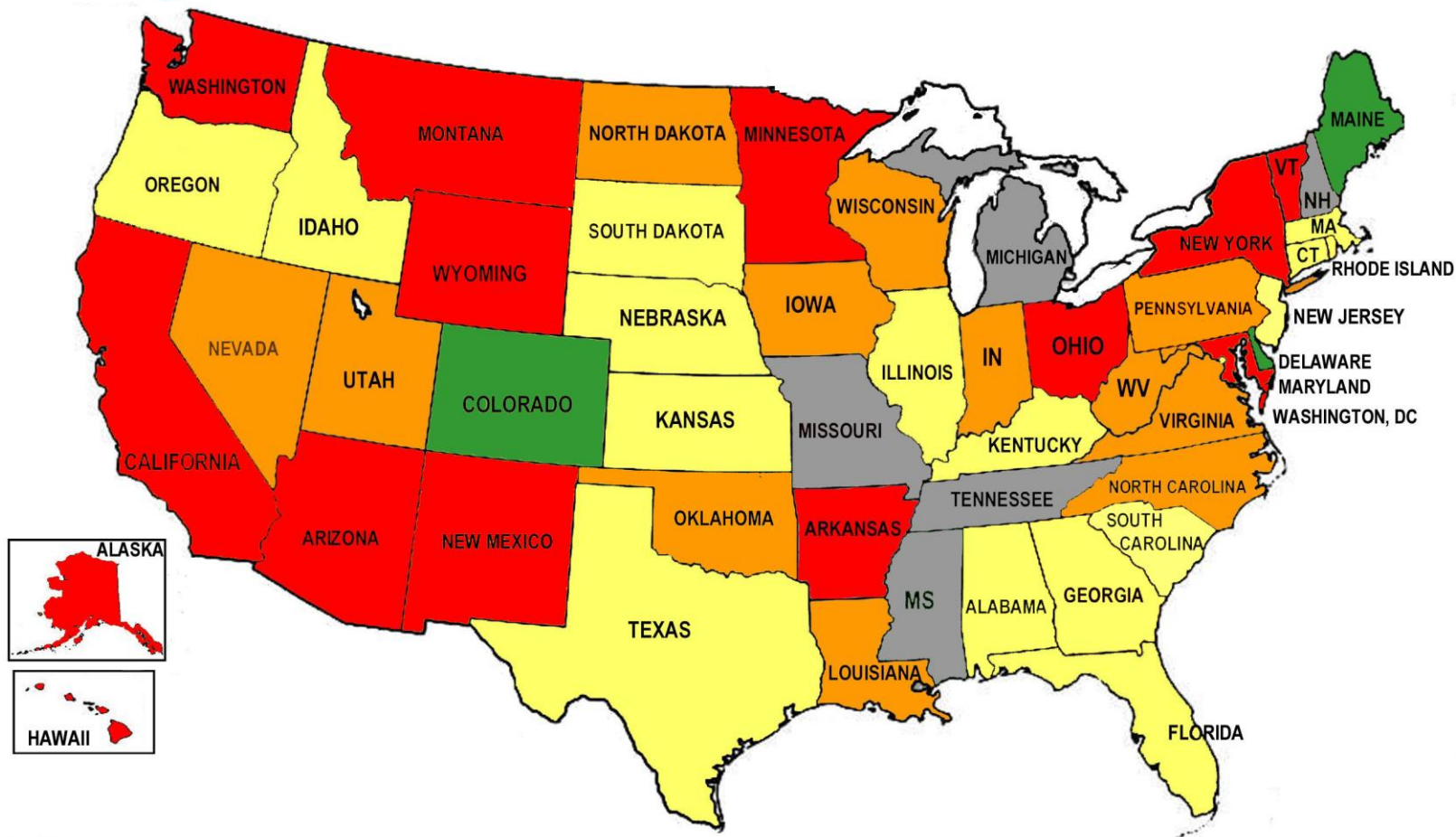
Alcohol Prices and Educational Outcomes

- Several recent studies examine impact of alcoholic beverage prices on various measures of educational attainment and related outcomes:
 - Yamada and colleagues (1996) conclude that higher prices would raise the likelihood of high school graduation
 - Cook and Moore (1993) find that higher prices 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

Earmarked Taxes: Tobacco

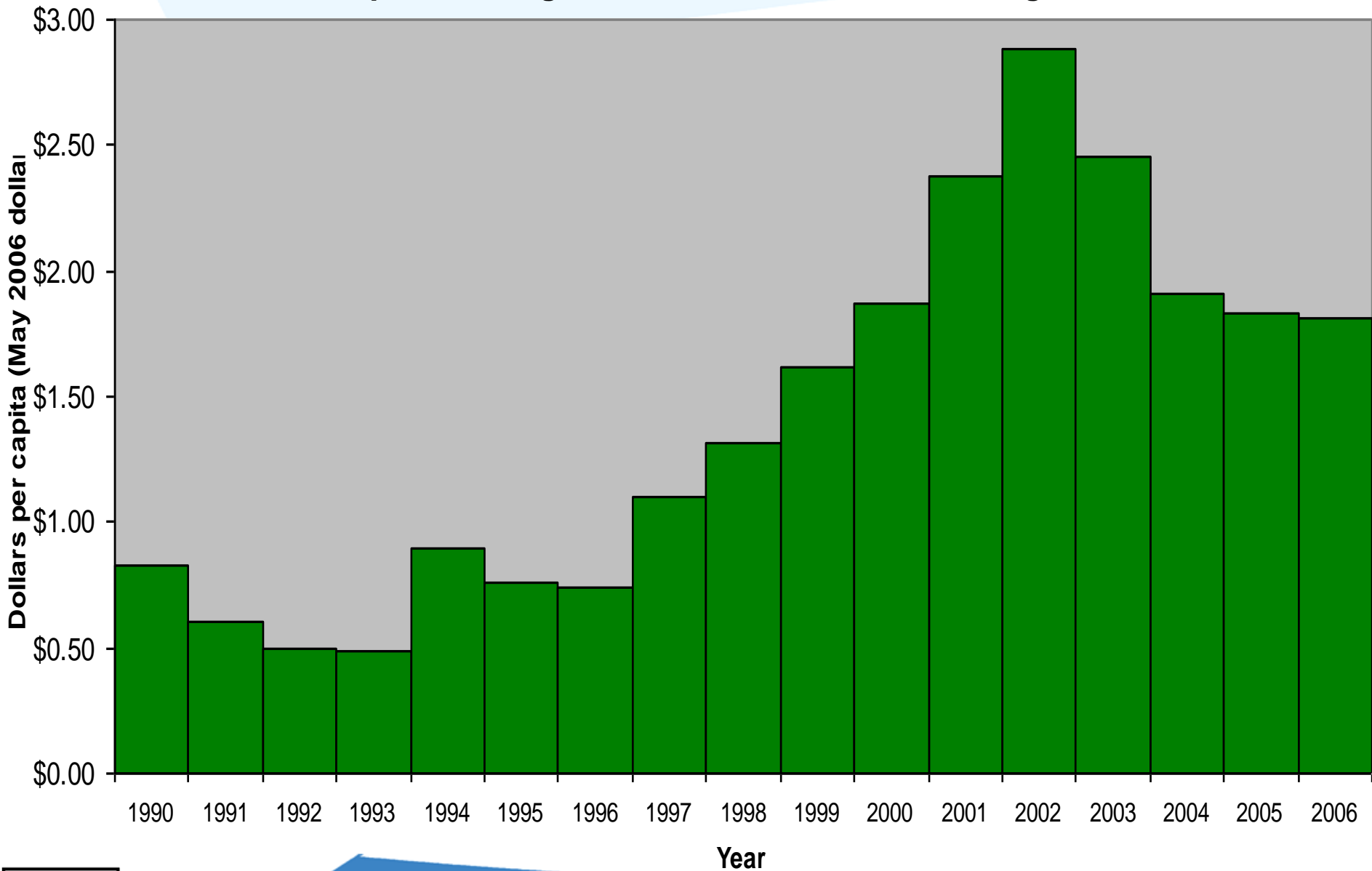
- Many states earmark tobacco tax revenues for comprehensive tobacco control programs
 - CA – 1989 and 1999 ballot initiatives
 - MA – 1993 ballot initiative
 - Several others since
- Others devote portion of MSA or other settlement revenues to comprehensive programs
- Comprehensive programs support a variety of activities:
 - Anti-smoking advertising
 - Quitlines and other cessation support
 - School based prevention programs
 - Community-based cessation and prevention efforts
 - Much more
- These activities can add to the impact of tax increases in promoting cessation and preventing initiation

Funding for Tobacco Prevention, FY2007

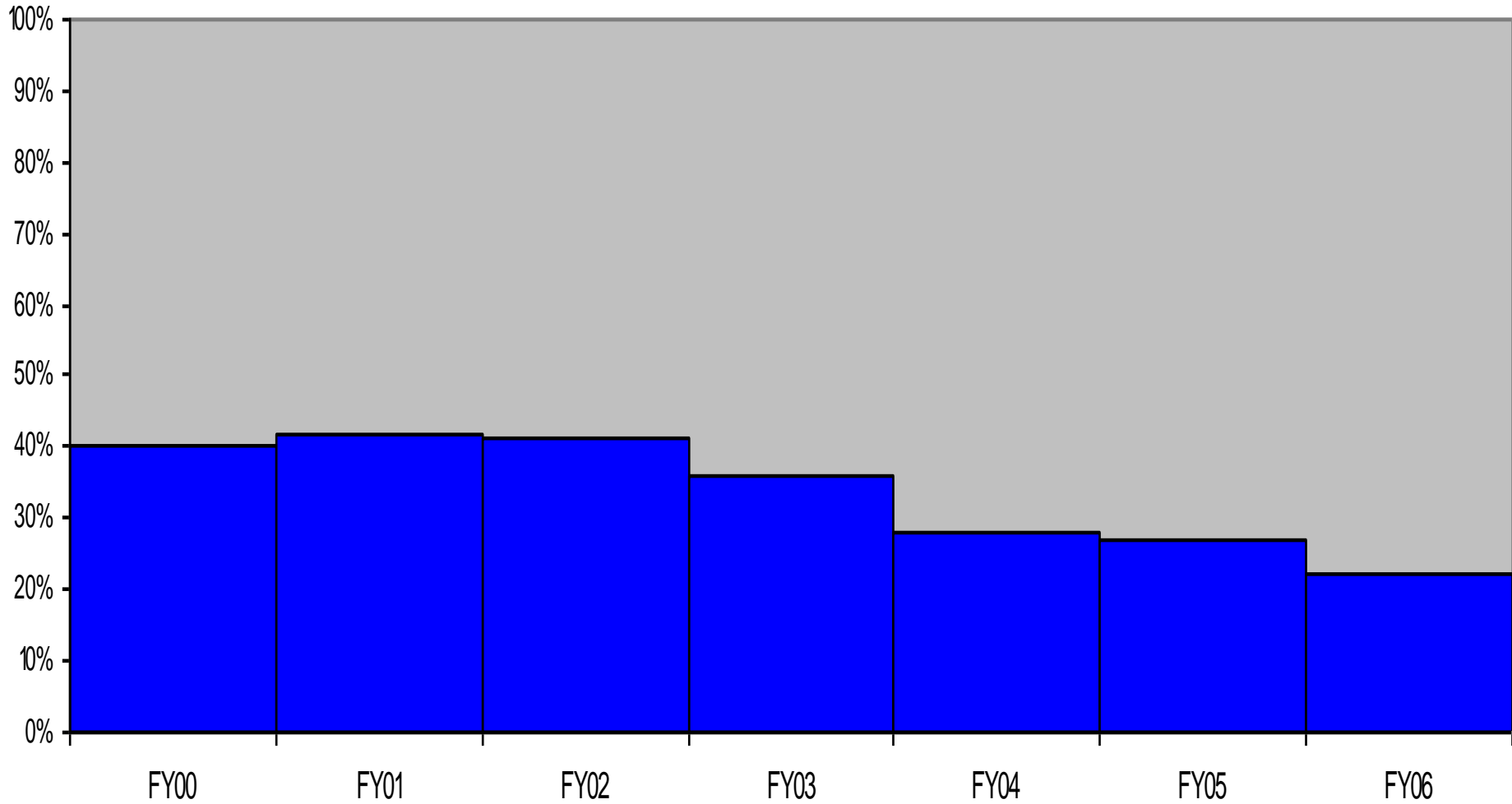


■ ≥ 100% of CDC min.; ■ >50% of CDC min.; ■ 25-50% of CDC min.; ■ <25% of CDC min.; ■ no state funding
Source: American Heart Association, et al. (2006)

Per Capita Funding for State Tobacco Control Programs



State Tobacco Control Funding as Percentage of CDC Recommended Minimum, FY00-FY06



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

Myths About Economic Impact of Taxation

- Impact on Revenues?
- Impact on Jobs?
- Impact on tax evasion?
- Regressivity?
 - Extensive research on these issues for tobacco, but comparable research has not been done for alcohol

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

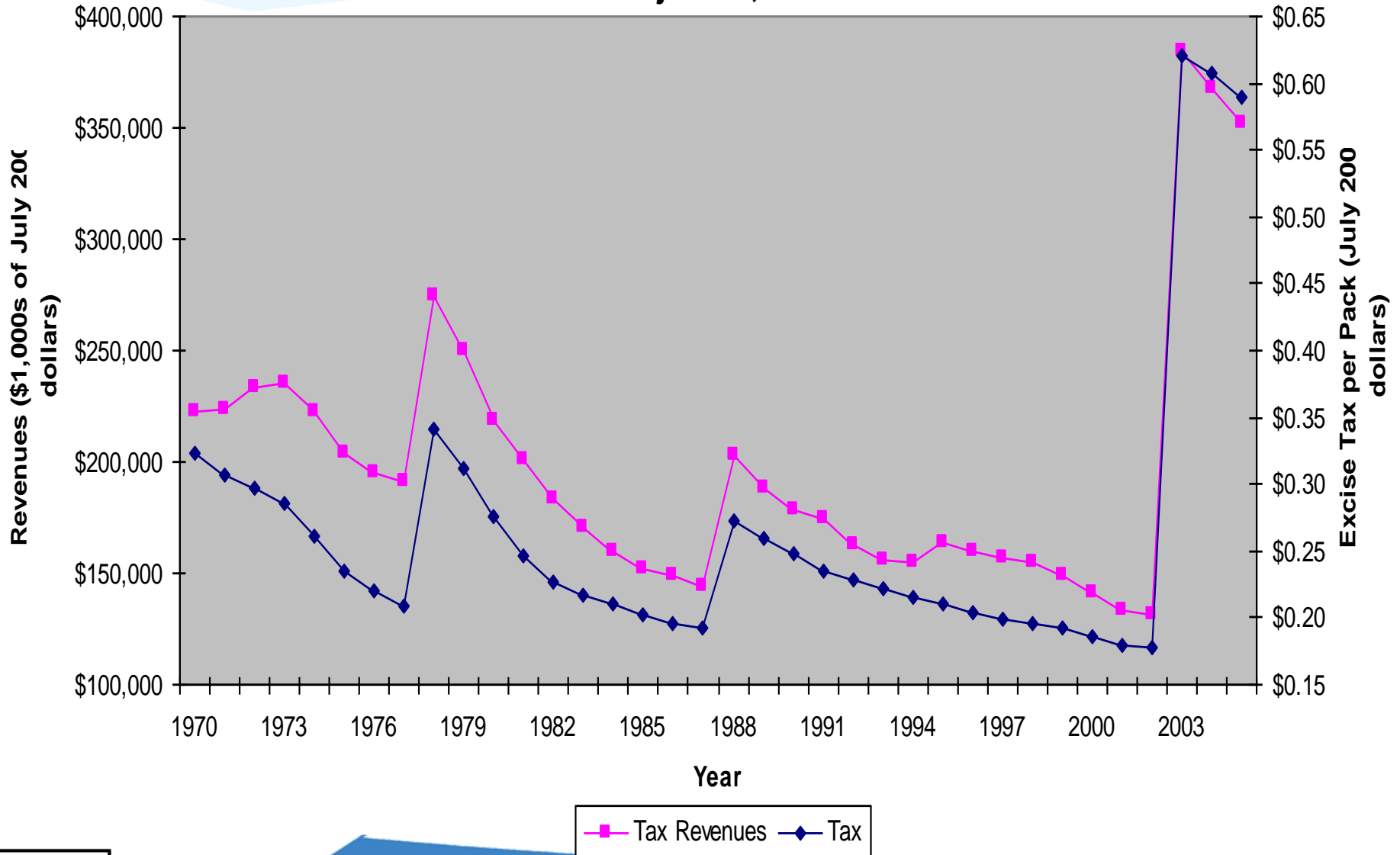
Truth: Cigarette tax revenues rise with cigarette tax rates, even as consumption declines

- 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

Cigarette Excise Tax and Excise Tax Revenues in Indiana

Inflation Adjusted, 1970-2005



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?

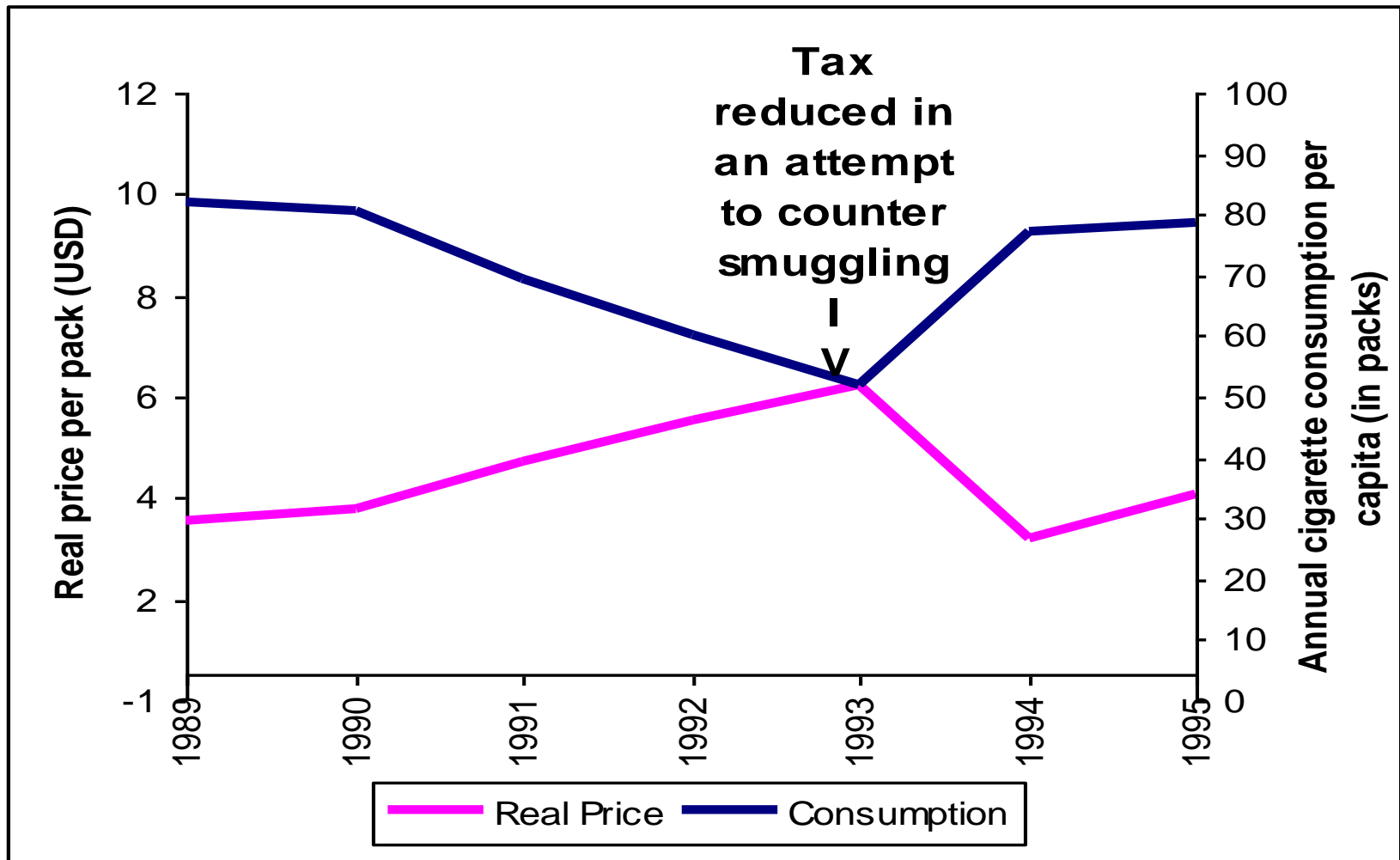
Myth: Tax evasion negates the effects of increases in tobacco taxes

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

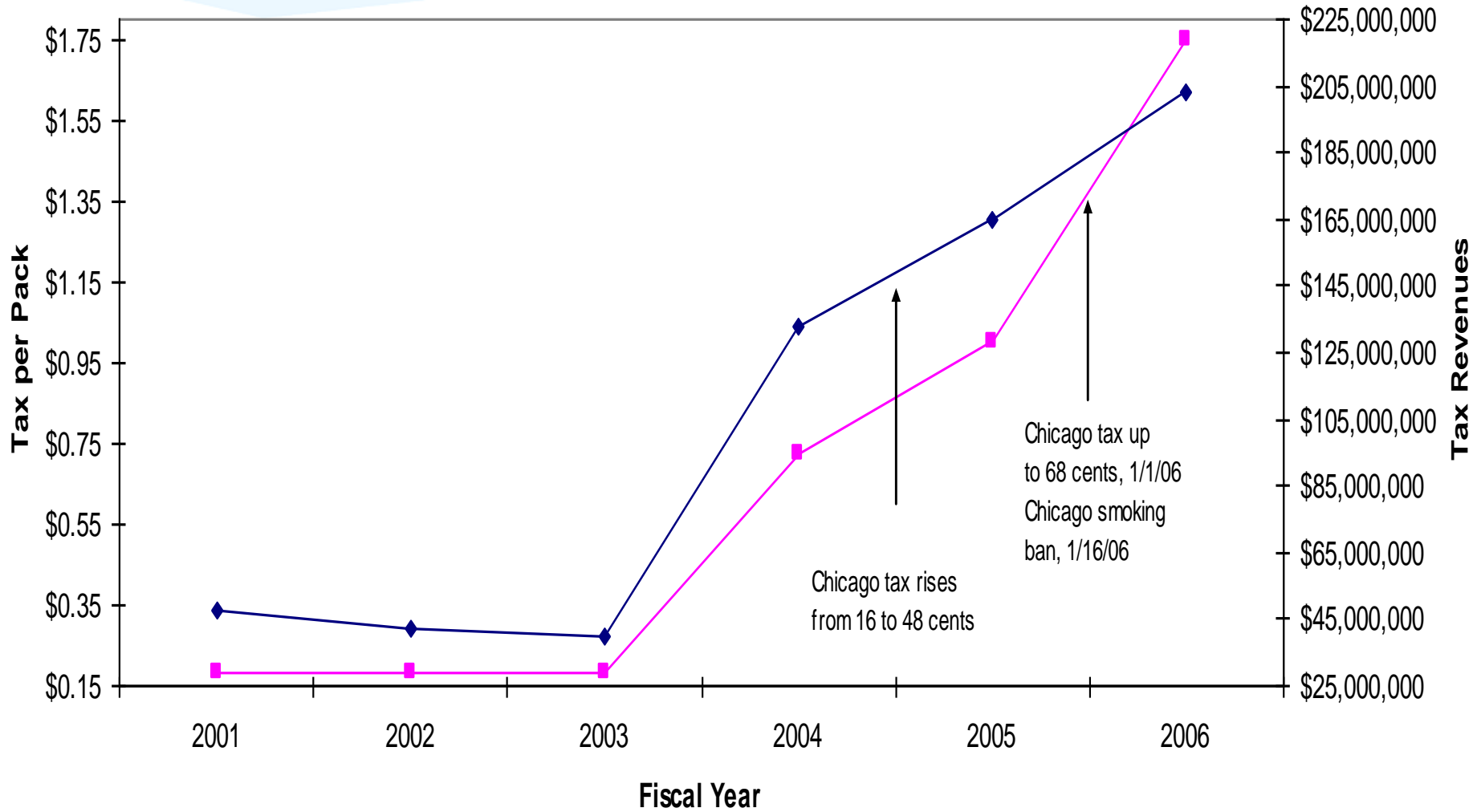
Tax evasion expected to be less significant for alcoholic beverages than for tobacco

Canada Sharply Reduced Taxes in 1993



Source: World Bank, 2003

Cook County Cigarette Tax and Tax Revenues - FY01-FY06



—■— Tax —◆— Revenues

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

Taxation and Obesity?

- Given evidence for tobacco and alcohol, some have suggested taxing junk food and soda
 - Specific federal and state taxes on junk food and soft drinks date back to the 1930s
 - Generally short term efforts to raise revenues
 - e.g. the Federal War Revenue Act of 1917 included the “War Tax on Beverages” imposing various taxes on soft drinks
 - Eventually repealed when revenue needs abate
 - Almost all specific state taxes repealed in 1990s/early 2000s
 - Few states continue to impose an excise tax on beverages:
 - » AR: \$2.00 per gallon of soft drink syrup, and \$0.21 per gallon of bottled soft drinks
 - » WV: 1 cent per bottle of 16.9 oz or half liter or less of bottled soft drinks; \$0.84 per four liters of syrup
 - » VA: excise tax on gross receipts of carbonated soft drink sales

Taxation and Obesity?

- Sales taxes potentially more viable option for influencing relative prices of healthy/unhealthy foods and beverages
 - All but 5 states impose a general sales tax
 - 8 of these impose the same tax on all foods and beverages regardless of the item
 - 38 states (including DC) vary sales tax depending on product:
 - Many exempt food or apply a lower tax rate to food than to other goods/services
 - Some generally exempt food but exclude certain food categories from the exemption (“disfavored” status)
 - » Candy, chewing gum, chips, pretzels, ice cream, popsicles, milkshakes, baked goods, soft drinks
 - Some apply higher rates to products sold in vending machines

Taxation and Obesity?

- Sales taxes: examples:
 - California:
 - » General sales tax 6.25%
 - » Food exempt (0%)
 - » Soft drinks not exempt (6.25%)
 - » Vending machine sales of candy, chewing gum, chips/pretzels, ice cream, baked goods not exempt
 - Illinois:
 - » General sales tax 6.25%
 - » Lower tax on food (1.0%)
 - » Soft drinks taxed at 6.25%
 - Indiana
 - » General sales tax 6.0%
 - » Food exempt (0%)
 - » Soft drinks, candy, gum 6.0%
 - » Vending machine sales of chips, 6.0%

Taxation and Obesity?

- Little empirical evidence on impact of taxes on consumption, weight outcomes
 - Our research finds that adolescent consumption and weight affected by relative prices of healthier and less healthy foods
 - Higher fast food prices associated with more frequent fruit and vegetable consumption, lower BMI, and lower likelihood of obesity
 - Lower fruit and vegetable prices have similar impact
 - Impact appears greatest on those at highest risk
 - Similar evidence from other studies
 - Estimates suggest that modest increases in existing taxes would:
 - Have negligible impact on consumption, obesity
 - Could generate significant revenues
 - To impact obesity, would need relatively large increases in existing taxes

Summary

- Consistent evidence that variety of health behaviors respond to changes in prices
 - Higher taxes, by raising prices, can:
 - Induce current smokers to quit and prevent young people from becoming regular smokers
 - Reduce drinking, particularly heavy/binge drinking and drinking among young people
 - Raise the likelihood of healthy eating
 - ***Improve Public Health***
 - in addition:
 - Raise significant new revenues that can be used to support other efforts to improve health and wellness
 - Arguments about economic consequences are either false or overstated

<http://www.impactteen.org>
<http://www.tobaccoevidence.net>
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