

The Economics of Tobacco Taxation

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The Summer Institute, Phoenix AZ, July 21, 2008

Overview

- History/description of cigarette and other tobacco taxes in the US and states
- Review of evidence on the impact of taxes on prices and tobacco use
 - Consumption
 - Prevalence
 - Cessation
 - Initiation
- Brief review of evidence on the impact of earmarked tobacco taxes
- Myths and Facts about the “economic costs” of tobacco taxation and tobacco control

Tobacco industry clearly understands the impact of tobacco taxation

"With regard to taxation, it is clear that in the US, and in most countries in which we operate, tax is becoming a major threat to our existence."

"Of all the concerns, there is one - taxation - that alarms us the most. While marketing restrictions and public and passive smoking (restrictions) do depress volume, in our experience taxation depresses it much more severely. Our concern for taxation is, therefore, central to our thinking...."

Philip Morris, "Smoking and Health Initiatives", 1985

Tobacco Taxation in the U.S.

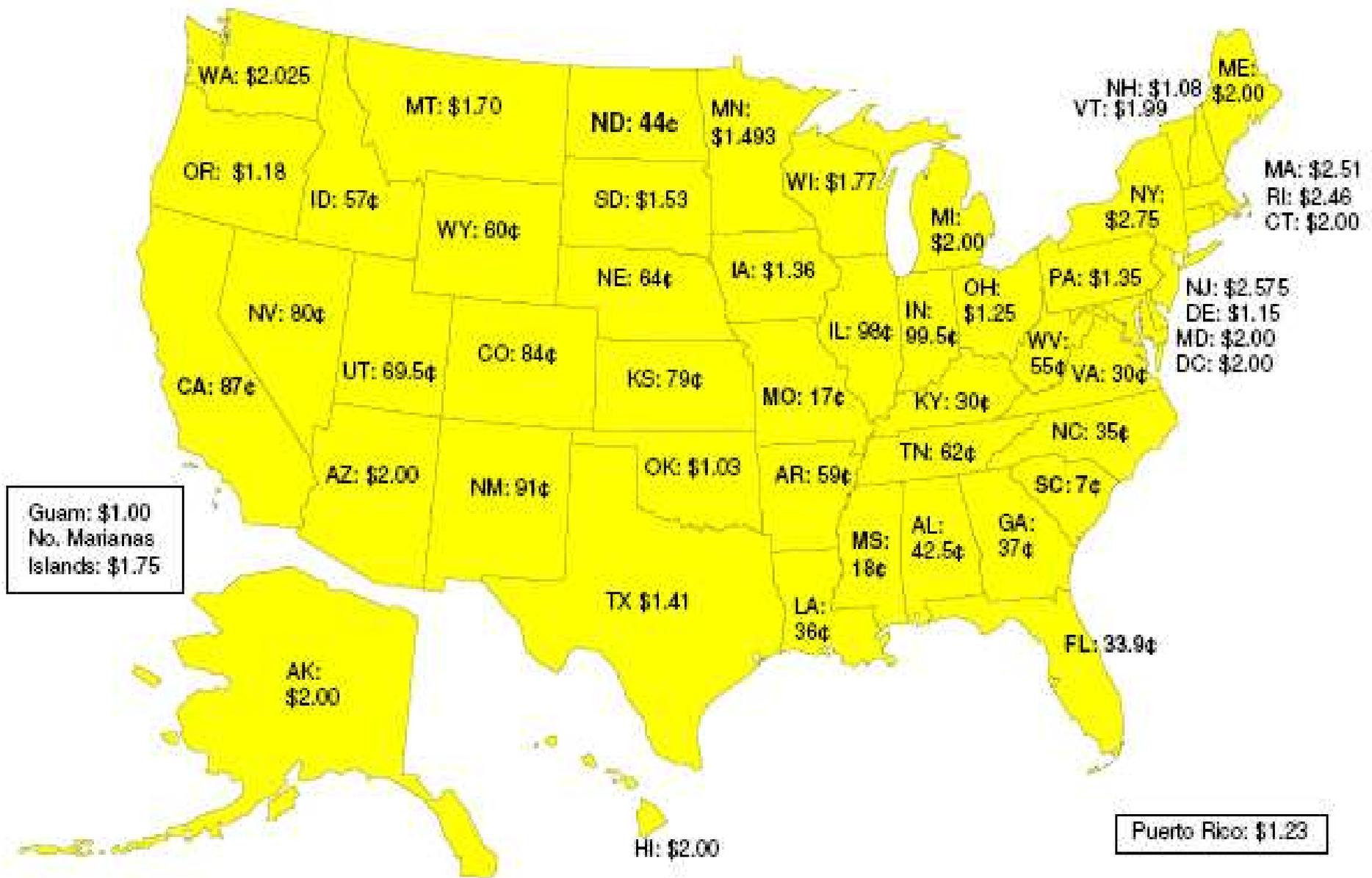
- Federal cigarette tax
 - Specific (per unit) excise tax
 - initially adopted in 1864
 - Raised during war time/lowered during peace time
 - Set at 8 cents per pack in 1951
 - Doubled to 16 cents per pack in 1983
 - Currently 39 cents per pack
 - About 60% of inflation adjusted value of 1951 tax
- Other 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 \$2.75/pack (NY)
 - Numerous state tax increases over past 5 years
 - Average \$1.18 per pack (33.5 cents in tobacco growing states; \$1.30 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

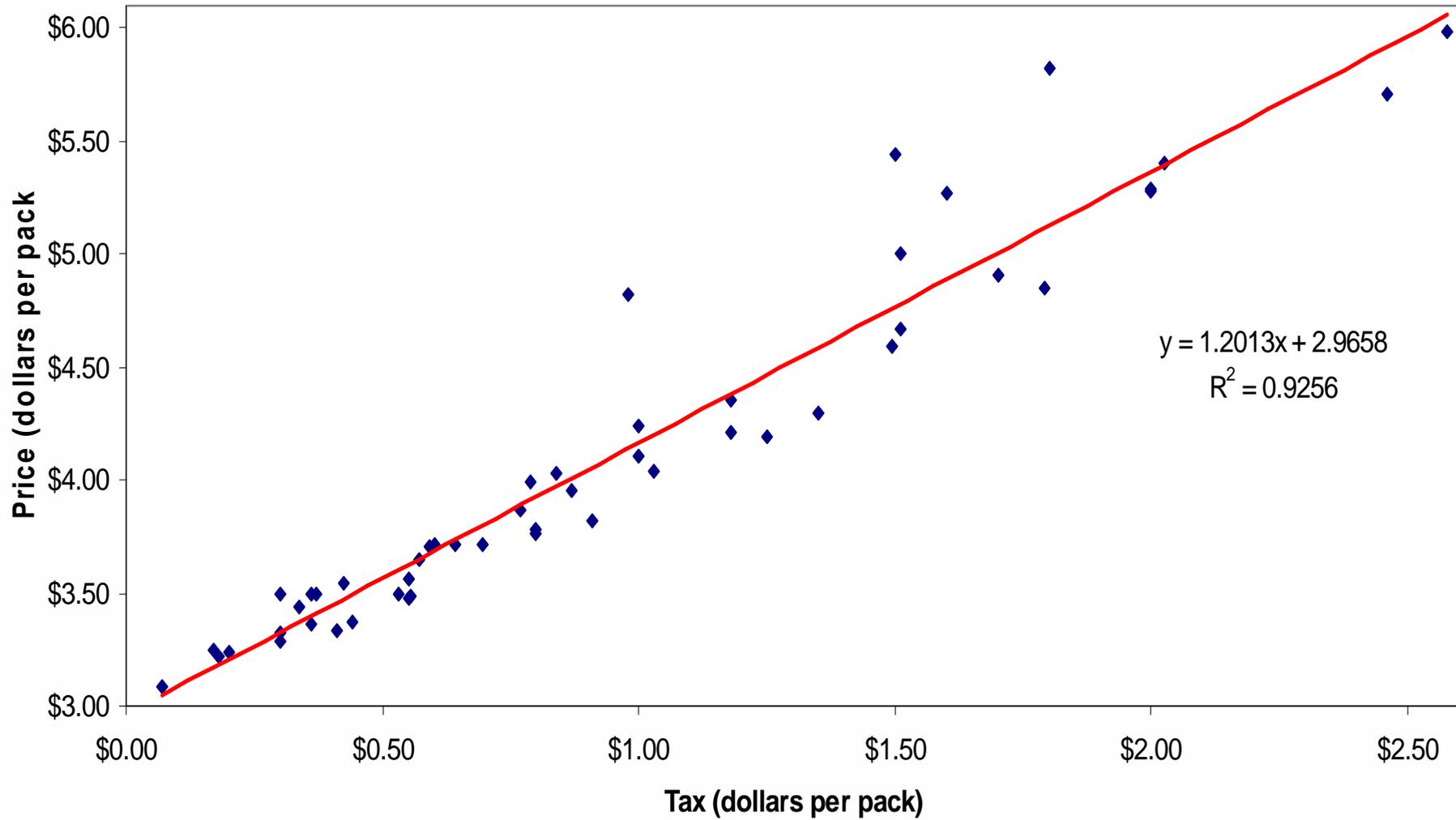
Local Taxes

- 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



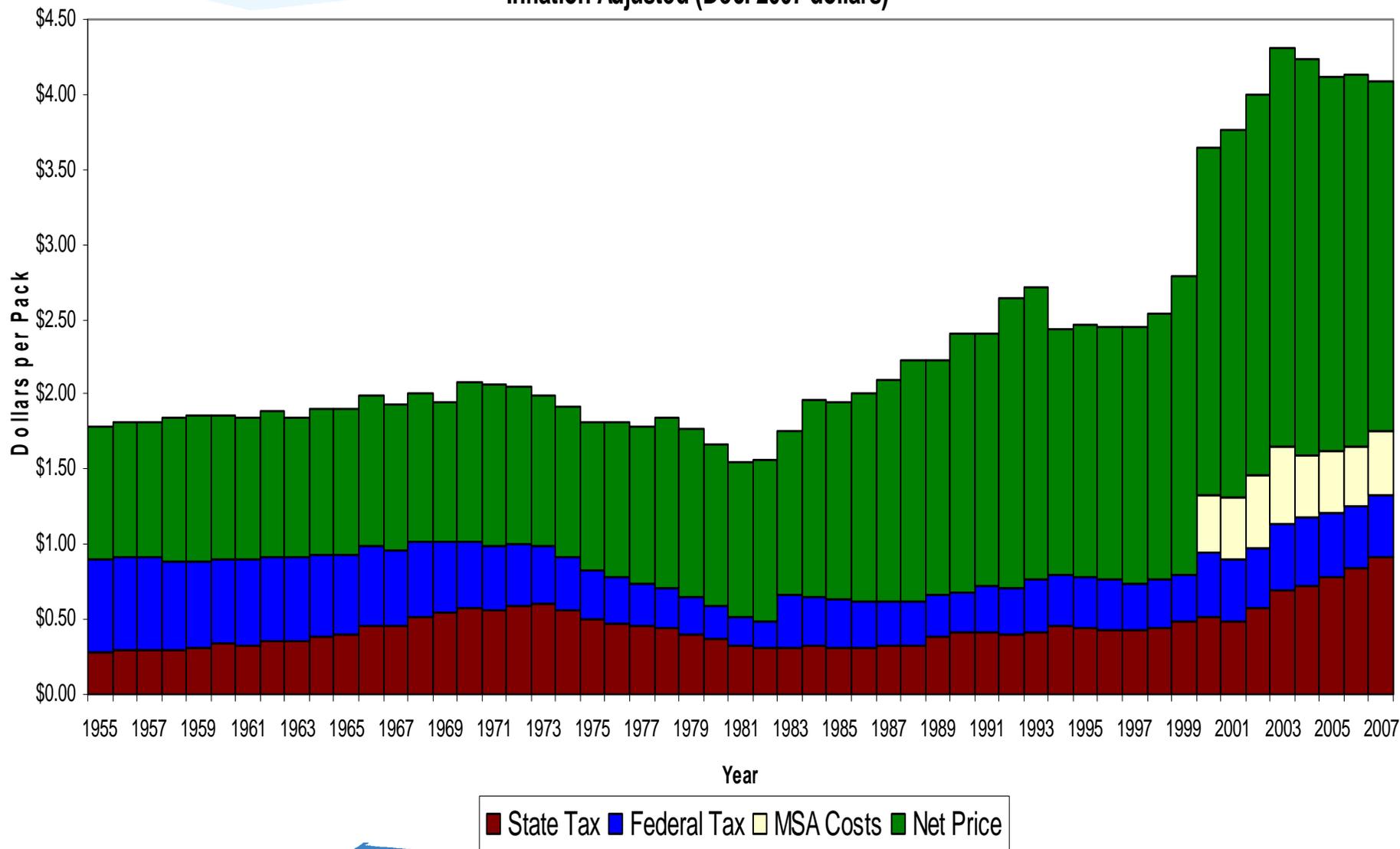
Source: Tobacco-Free Kids, 2008

State Cigarette Taxes and Prices, November 1, 2006

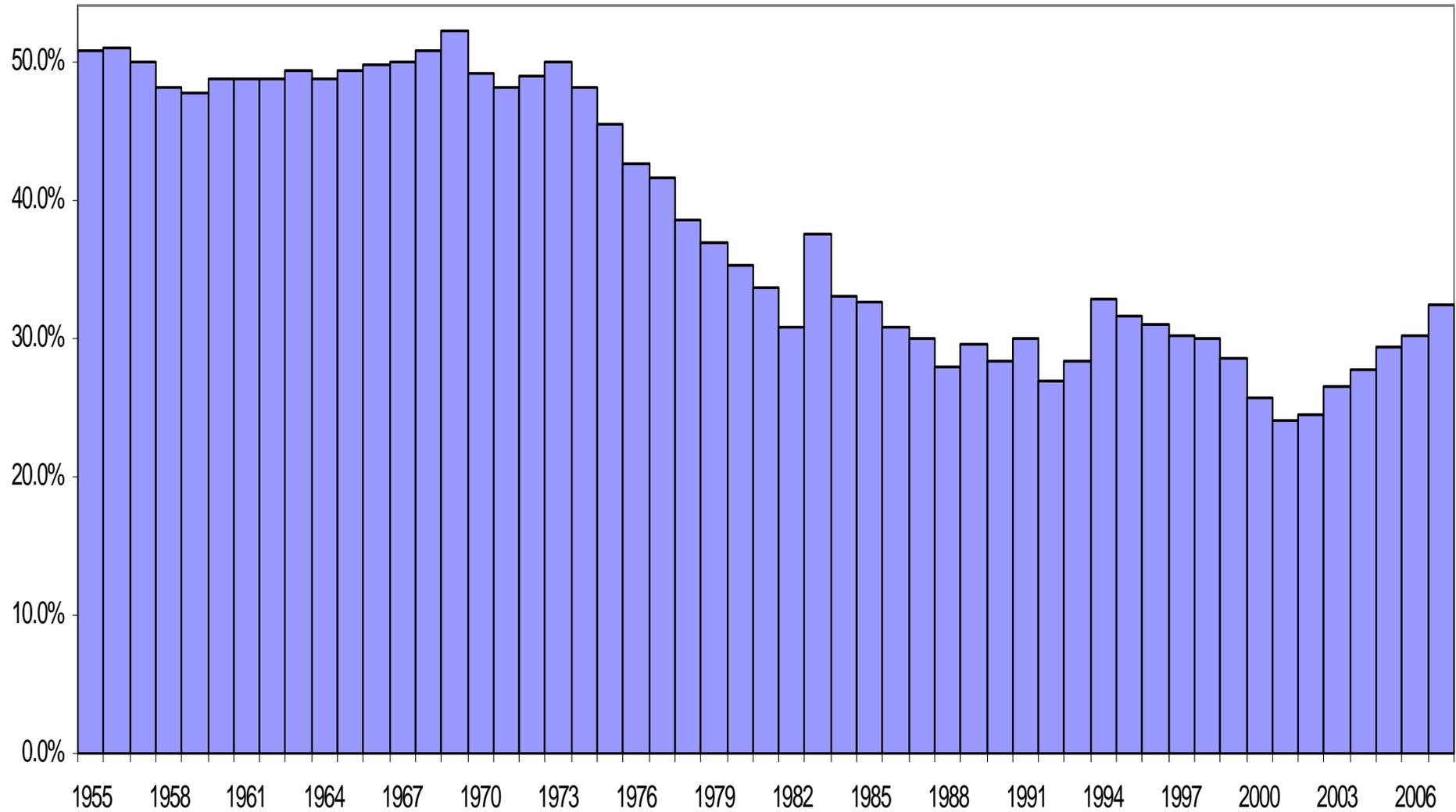


Cigarette Taxes and Prices, 1976-2007

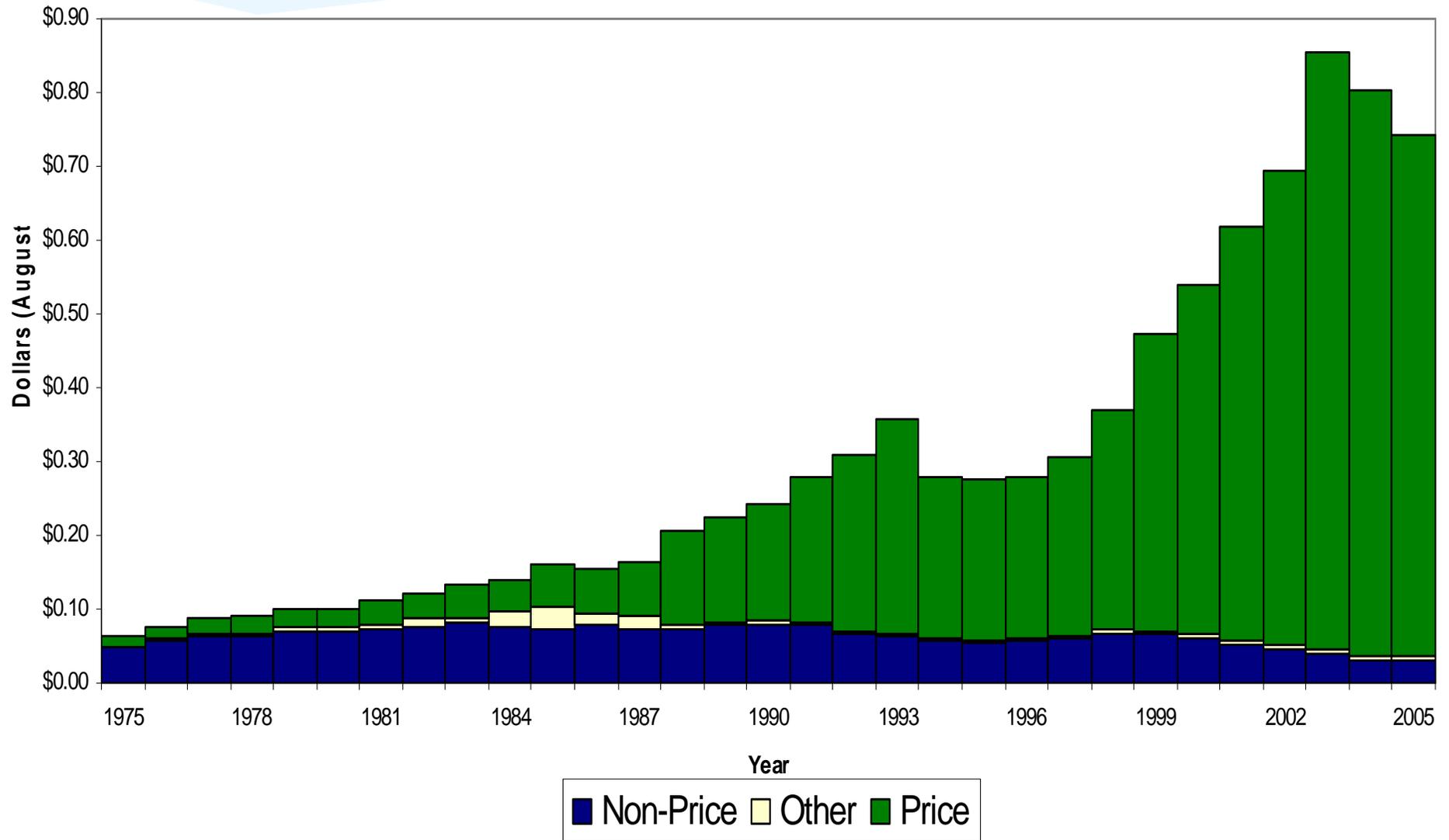
Inflation Adjusted (Dec. 2007 dollars)



Tax as Percent of Price United States, 1955-2007

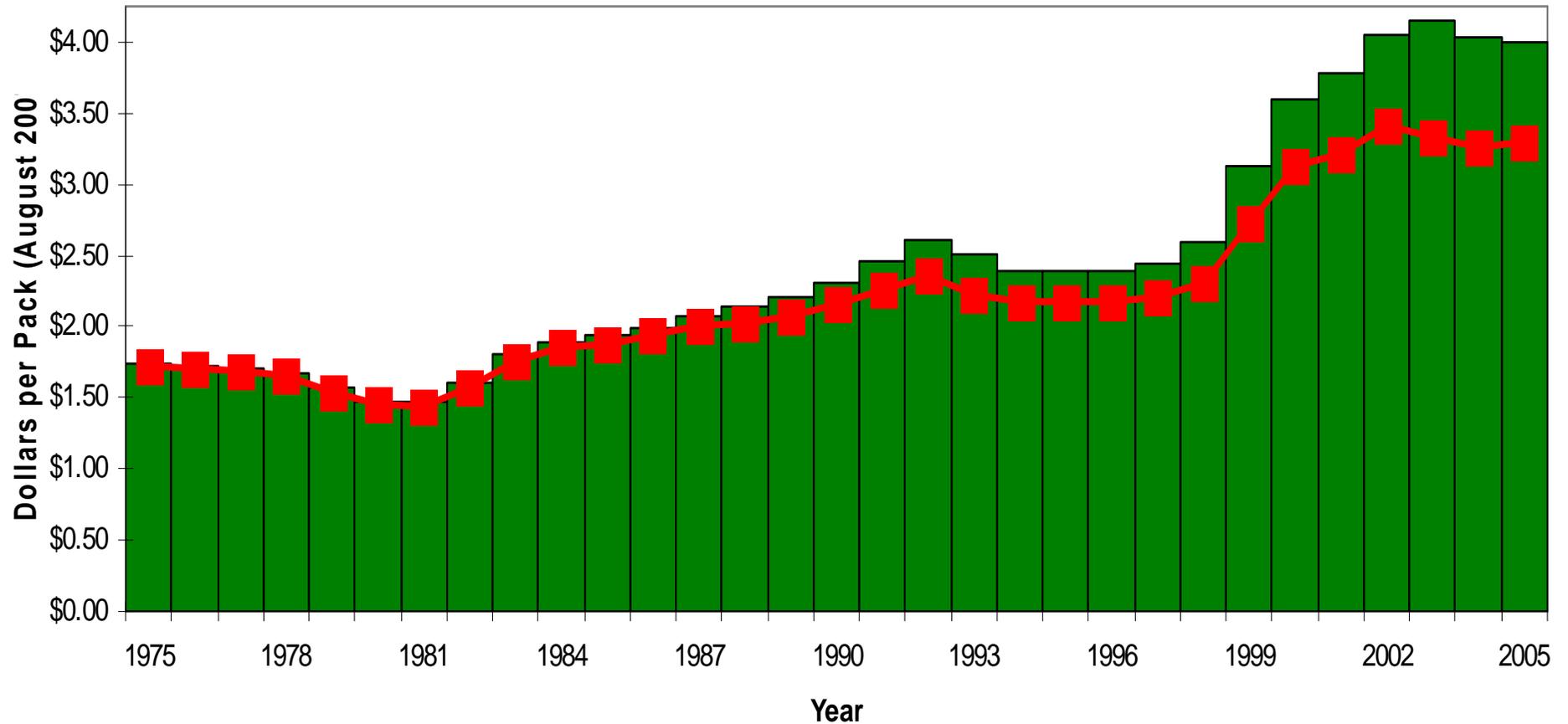


Cigarette Marketing Expenditures per Pack Inflation Adjusted, 1975-2005



Average Cigarette Prices, 1975-2005

Inflation Adjusted



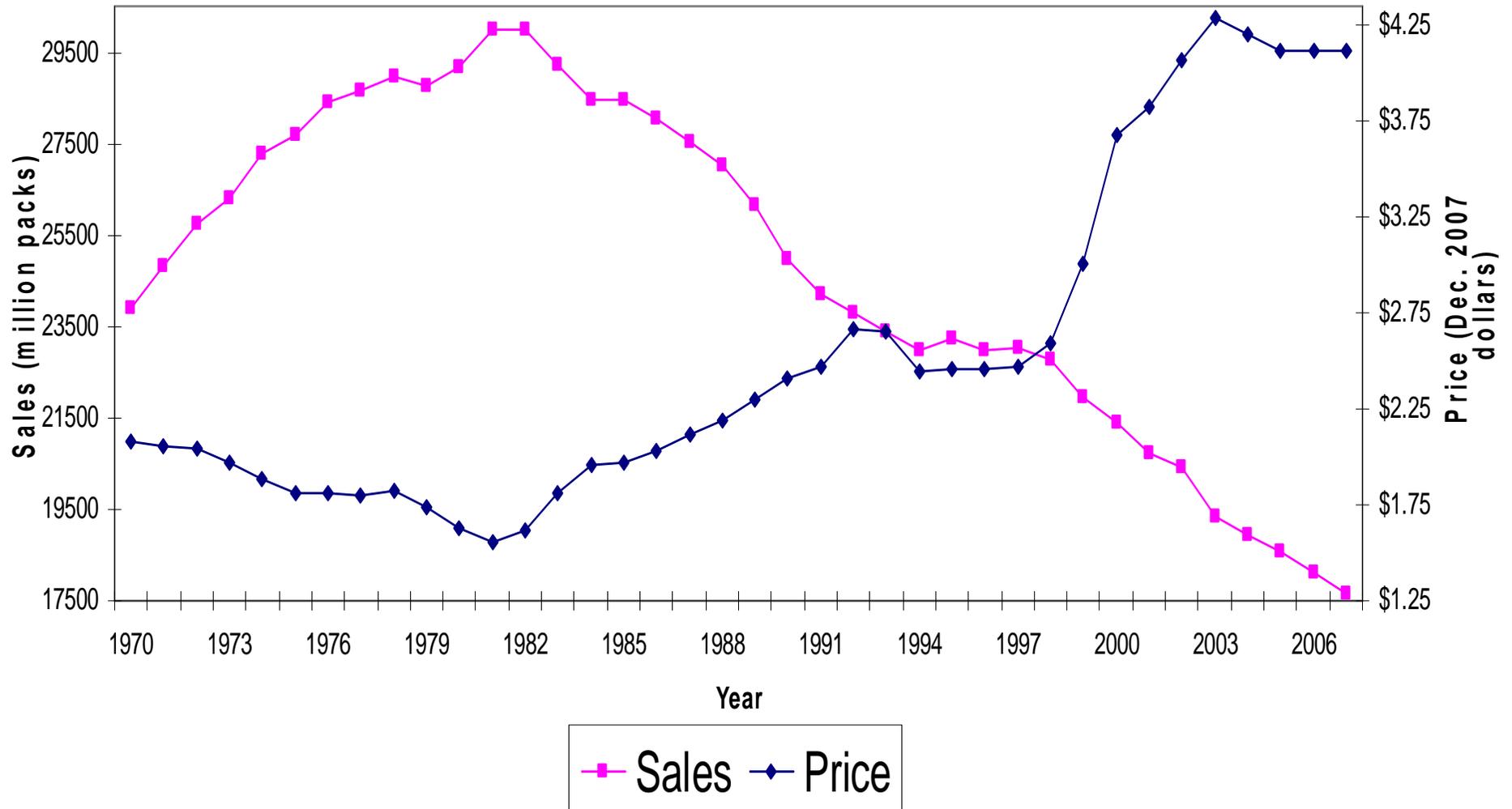
Price Price-Price Related Marketing

Tobacco Taxes and Tobacco Use

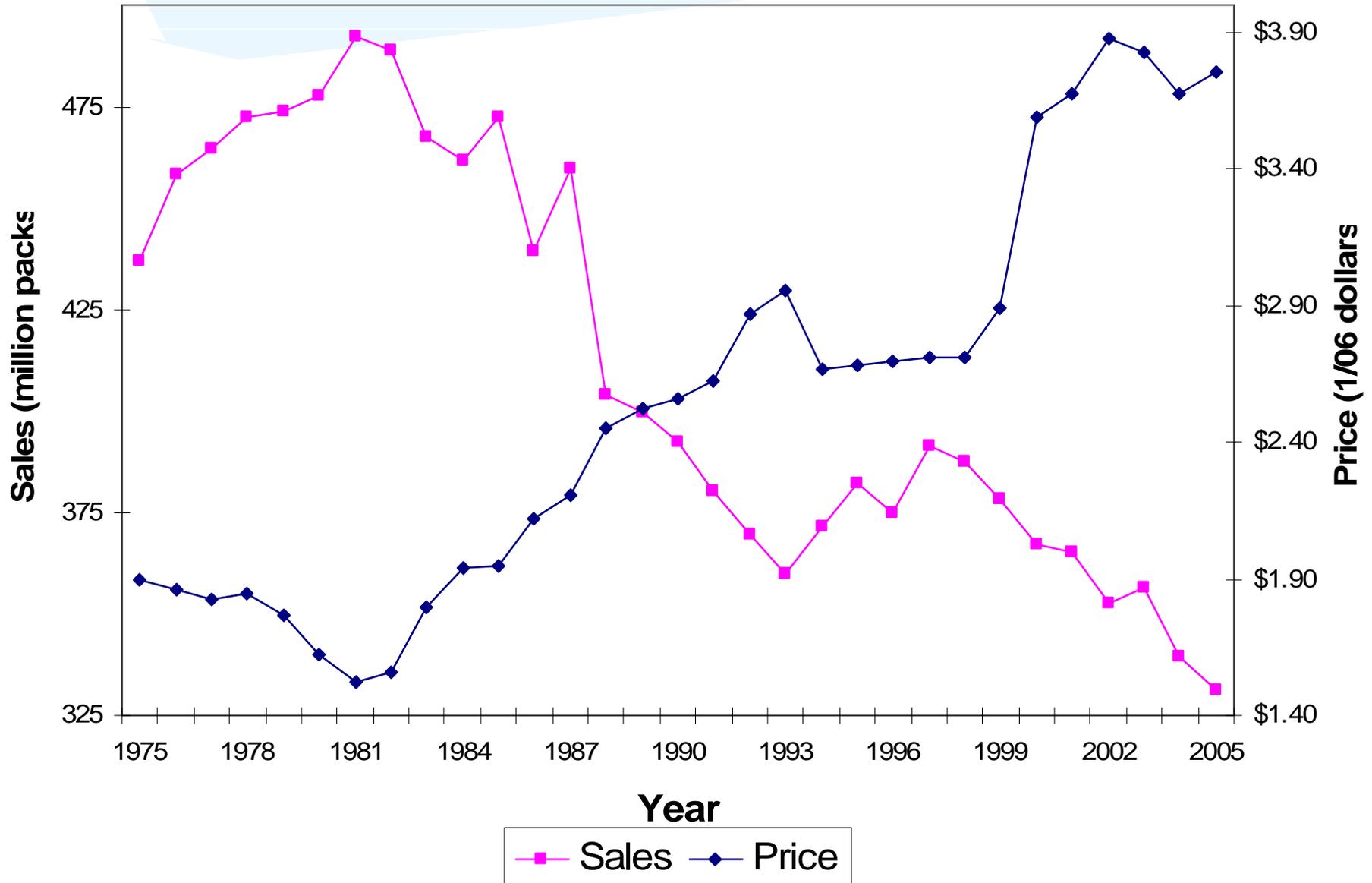
- Higher taxes induce quitting, prevent relapse, reduce consumption and prevent starting.
- Estimates from high-income countries indicate that 10% rise in price reduces overall cigarette consumption by about 4%
 - price elasticity of demand: percentage reduction in consumption resulting from one percent 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 not accounted for in studies

Cigarette Prices and Cigarette Sales

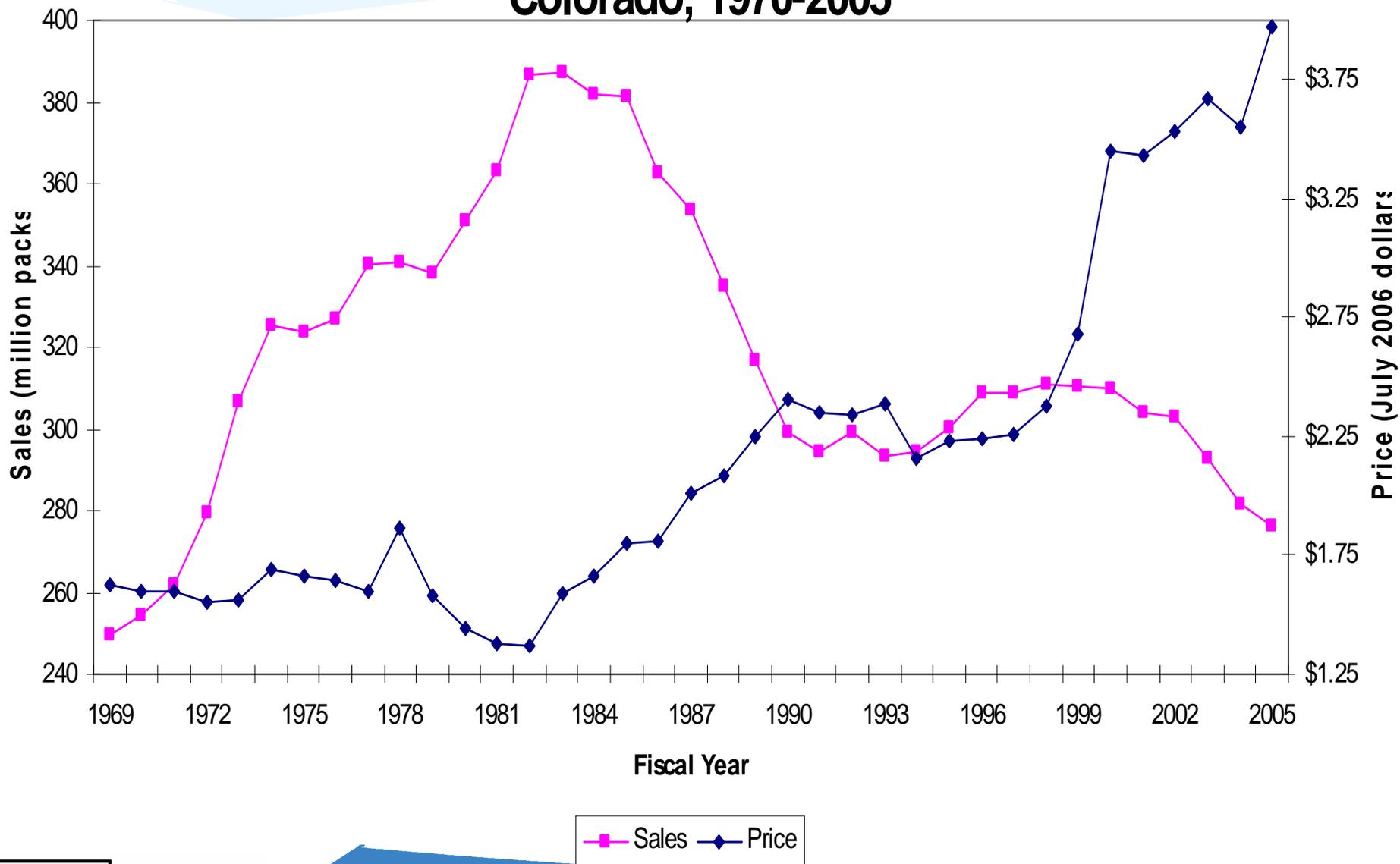
United States, 1970-2007



Cigarette Sales and Cigarette Prices, Minnesota, 1975-2005



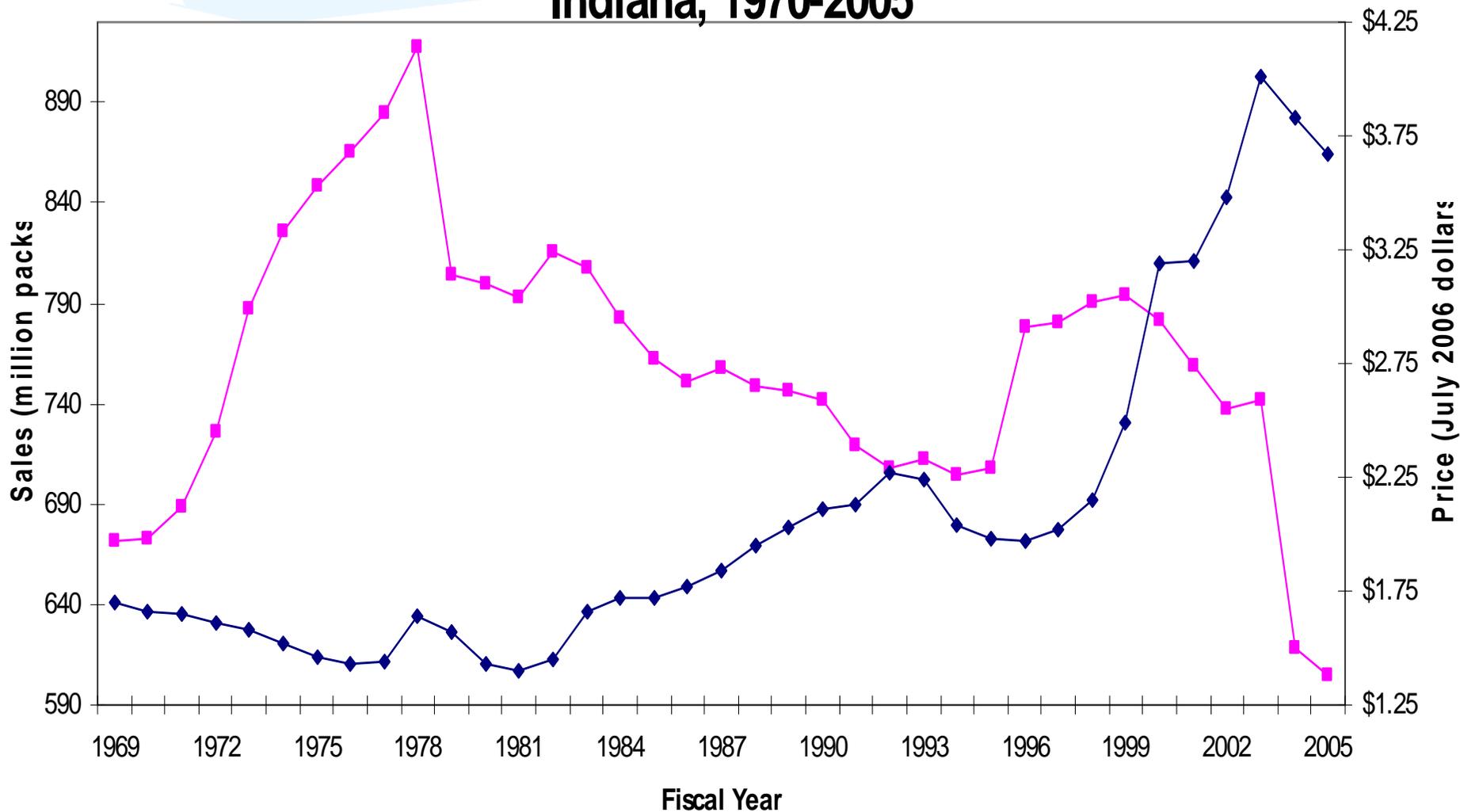
Cigarette Prices and Sales Colorado, 1970-2005



Source: *Tax Burden on Tobacco, 2007*, and author's calculations

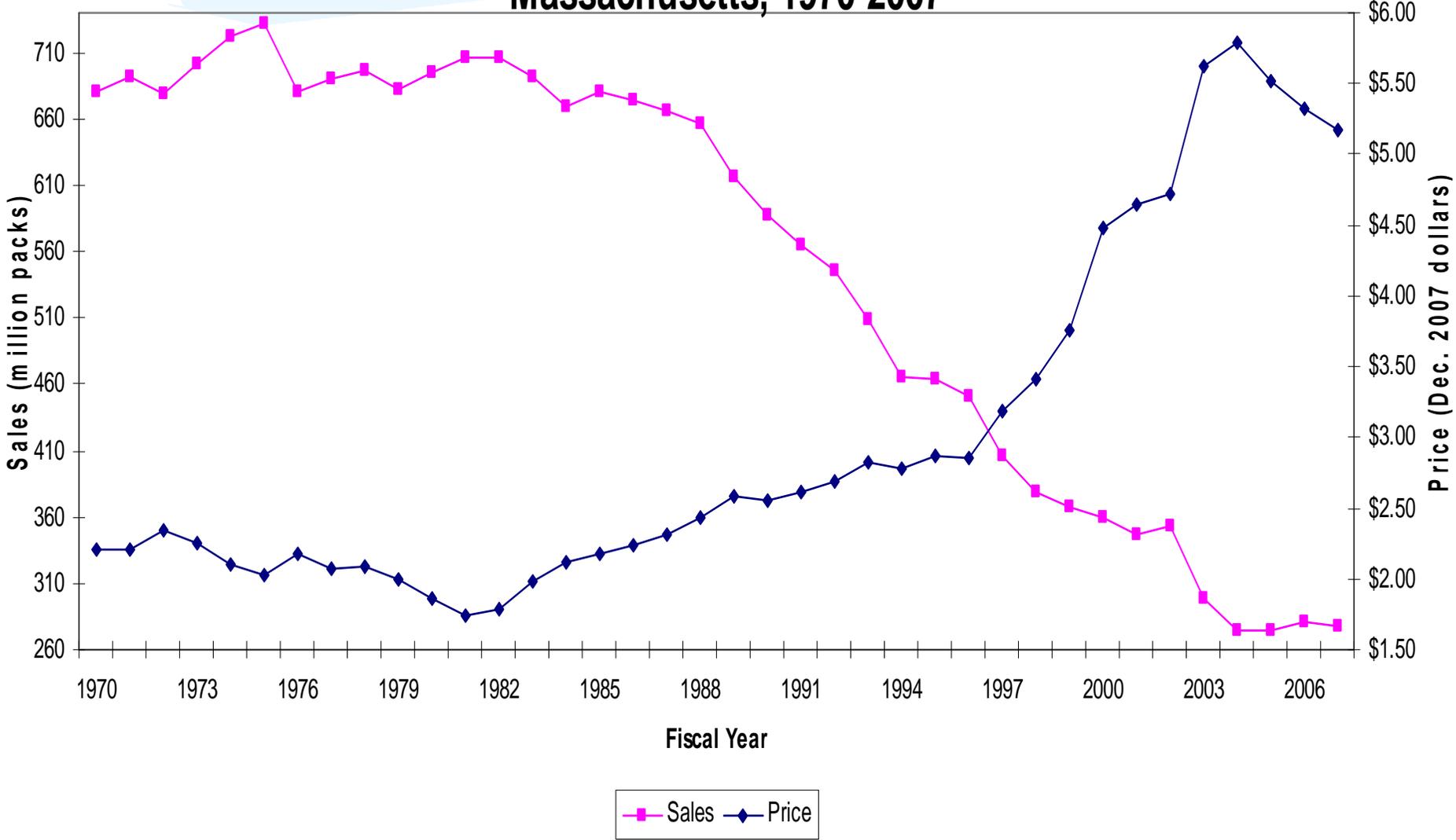
Cigarette Prices and Sales

Indiana, 1970-2005



—■— Sales —◆— Price

Cigarette Prices and Sales Massachusetts, 1970-2007

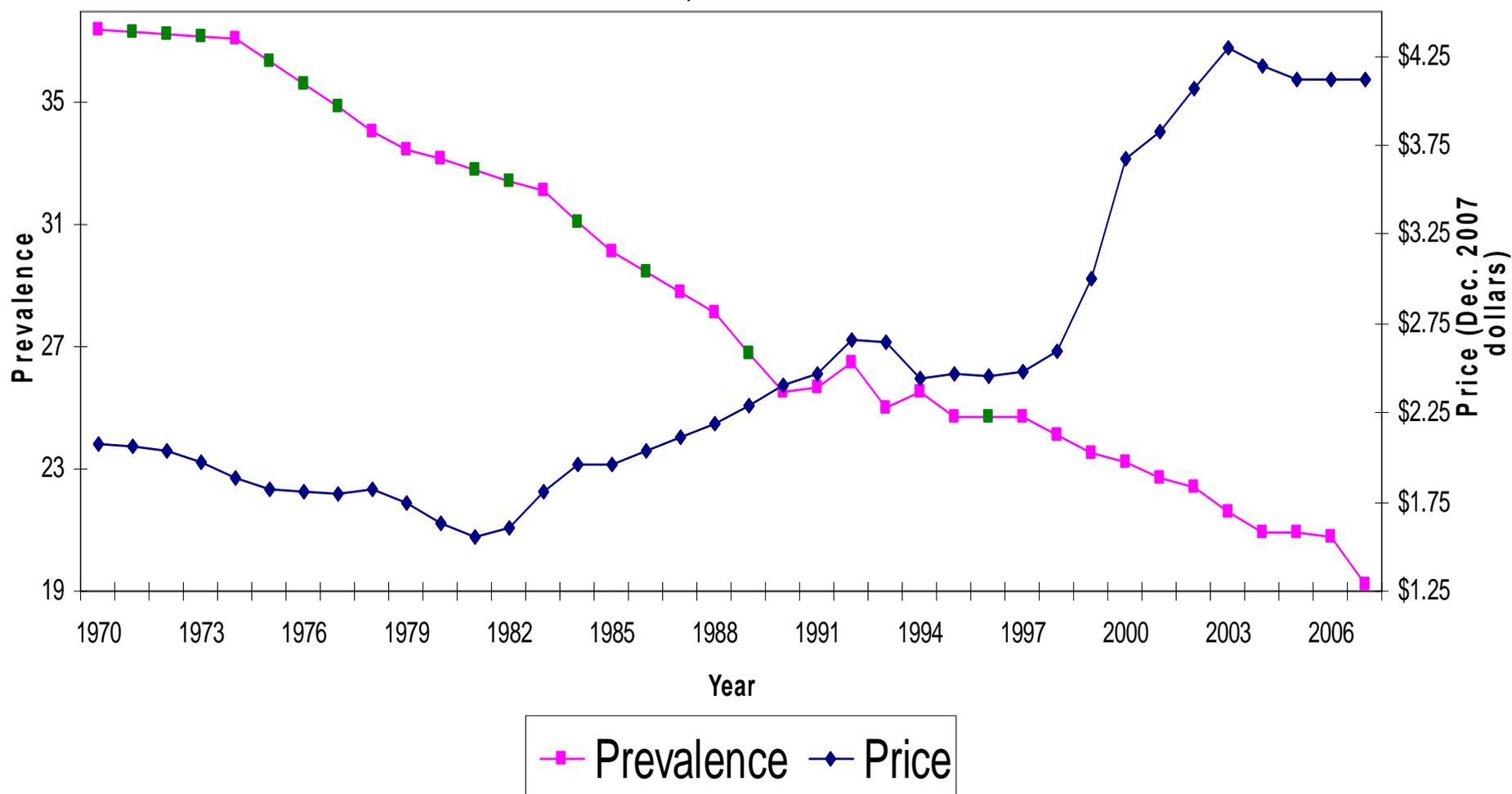


Source: *Tax Burden on Tobacco, 2007*; Connolly, unpublished data; and author's calculations

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%
- **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%**

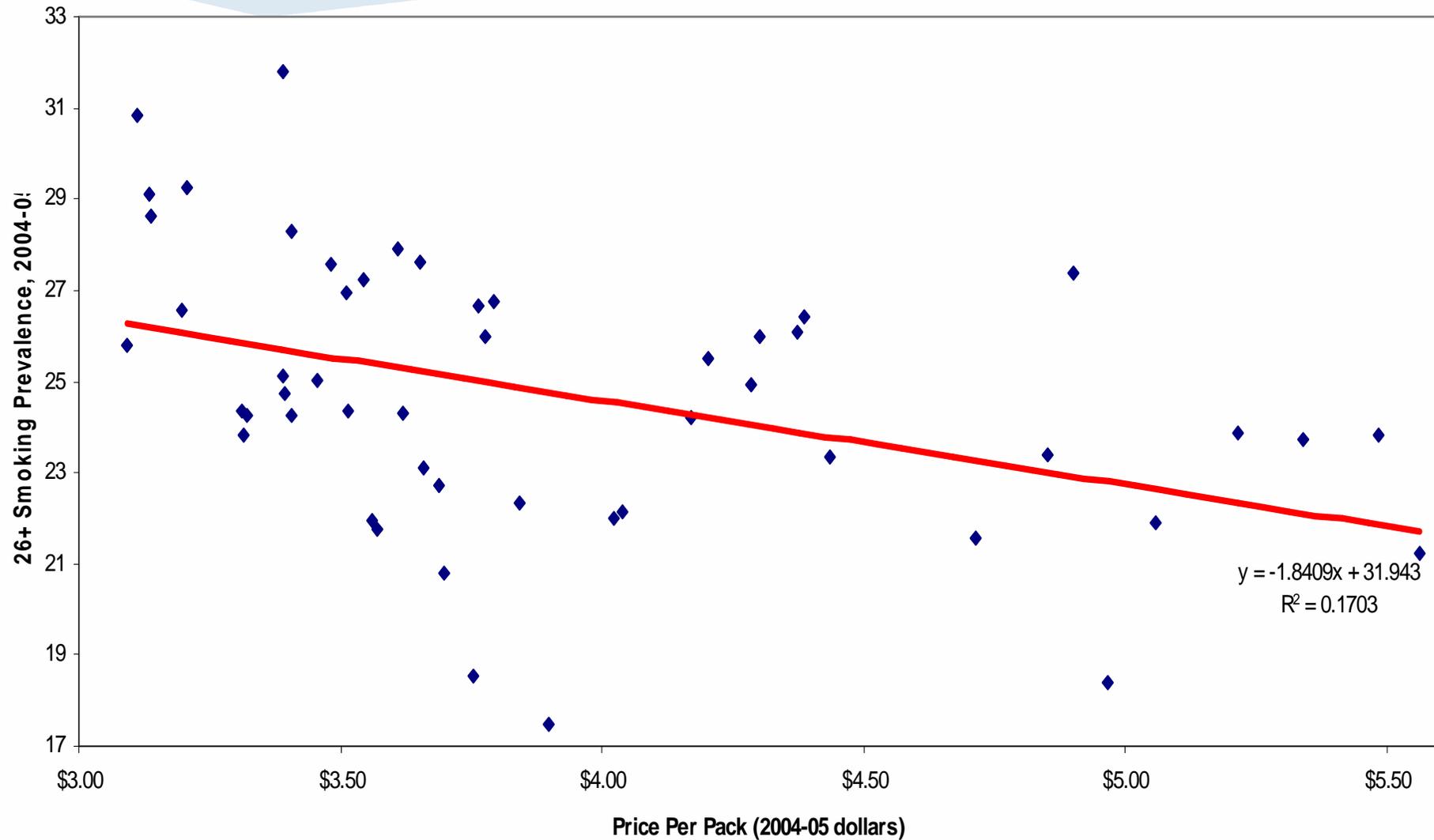
Cigarette Prices and Adult Smoking Prevalence, United States, 1970-2007



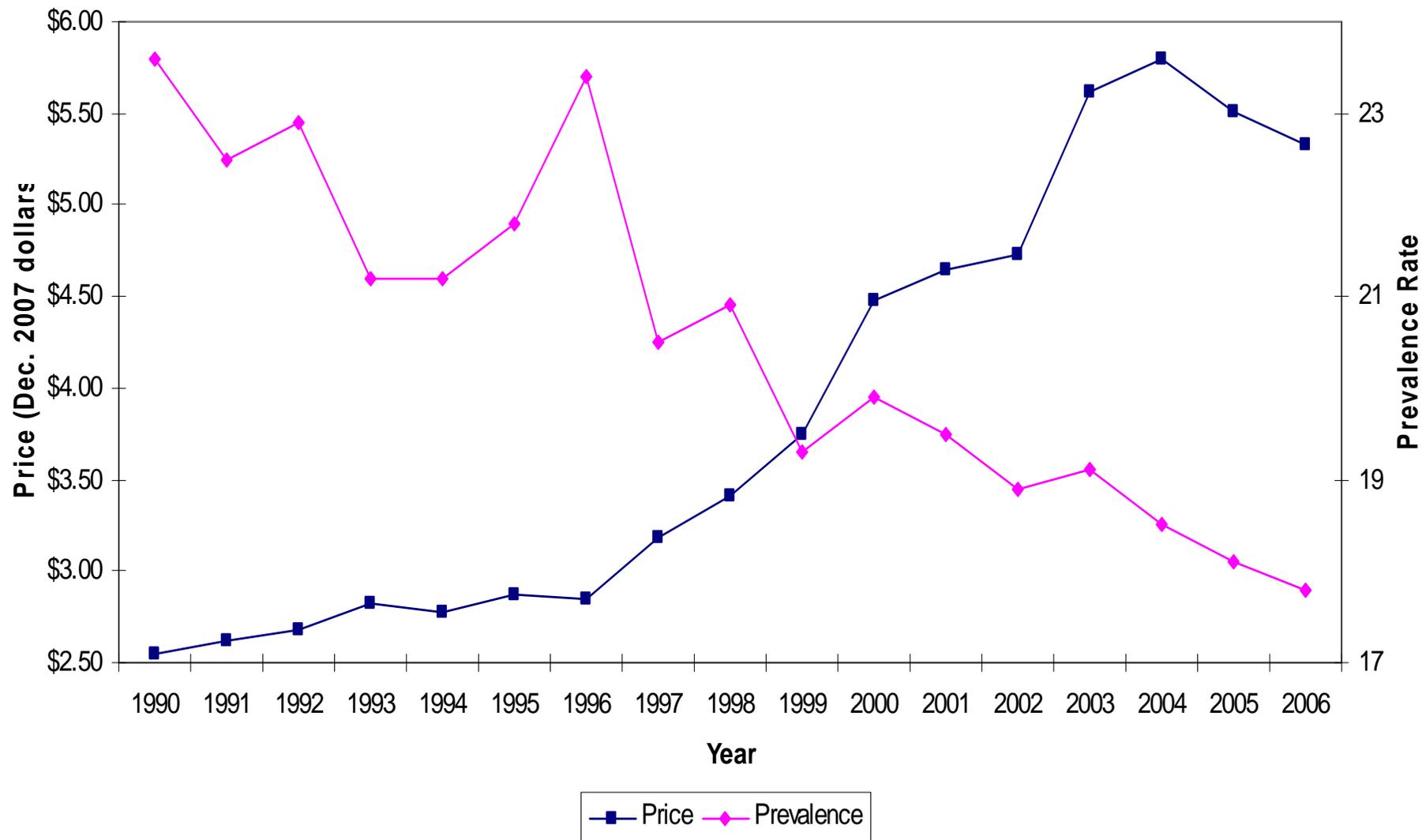
Source: NHIS, *Tax Burden on Tobacco, 2007*, and author's calculations

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

Cigarette Prices and Adult (26+) Smoking Prevalence US State-Level Data, 2004-05



Cigarette Price and Adult Smoking Prevalence in Massachusetts, 1990-2006



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
- **Some evidence of substitution among tobacco products in response to relative price changes**
 - **Comparable increases across all products minimize potential for substitution and maximize revenue impact**

Tobacco Taxes and Tobacco Use

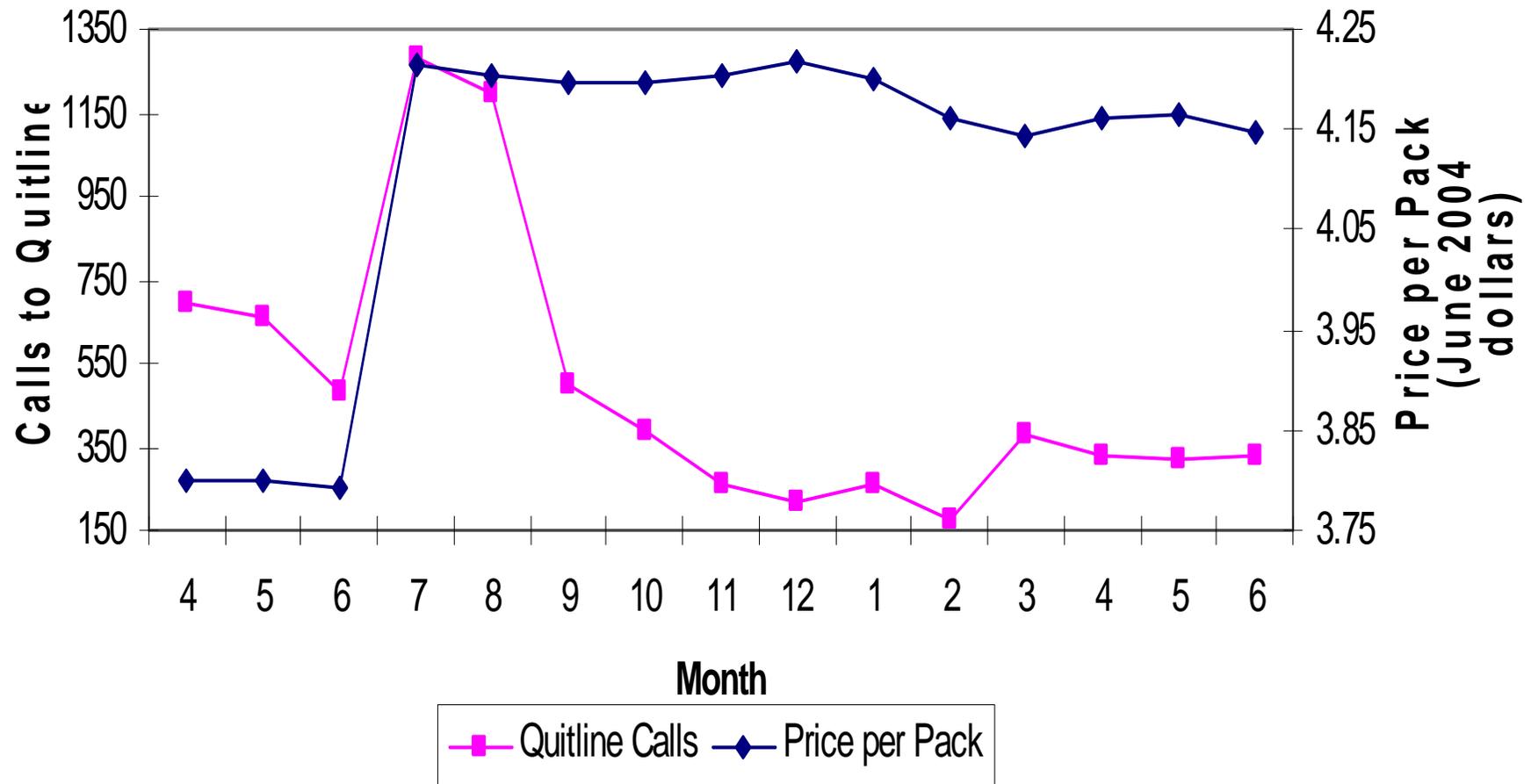
- Higher taxes induce quitting, prevent relapse, reduce consumption and prevent starting.
- Estimates from high-income countries indicate that 10% rise in price reduces overall cigarette consumption by about 4%
- About half of impact of price increases is on smoking prevalence; remainder on consumption by smokers
- Some evidence of substitution among tobacco products in response to relative price changes
- **Long run impact of sustained price increases about double the short run impact**

Cigarette Prices and Smoking Cessation

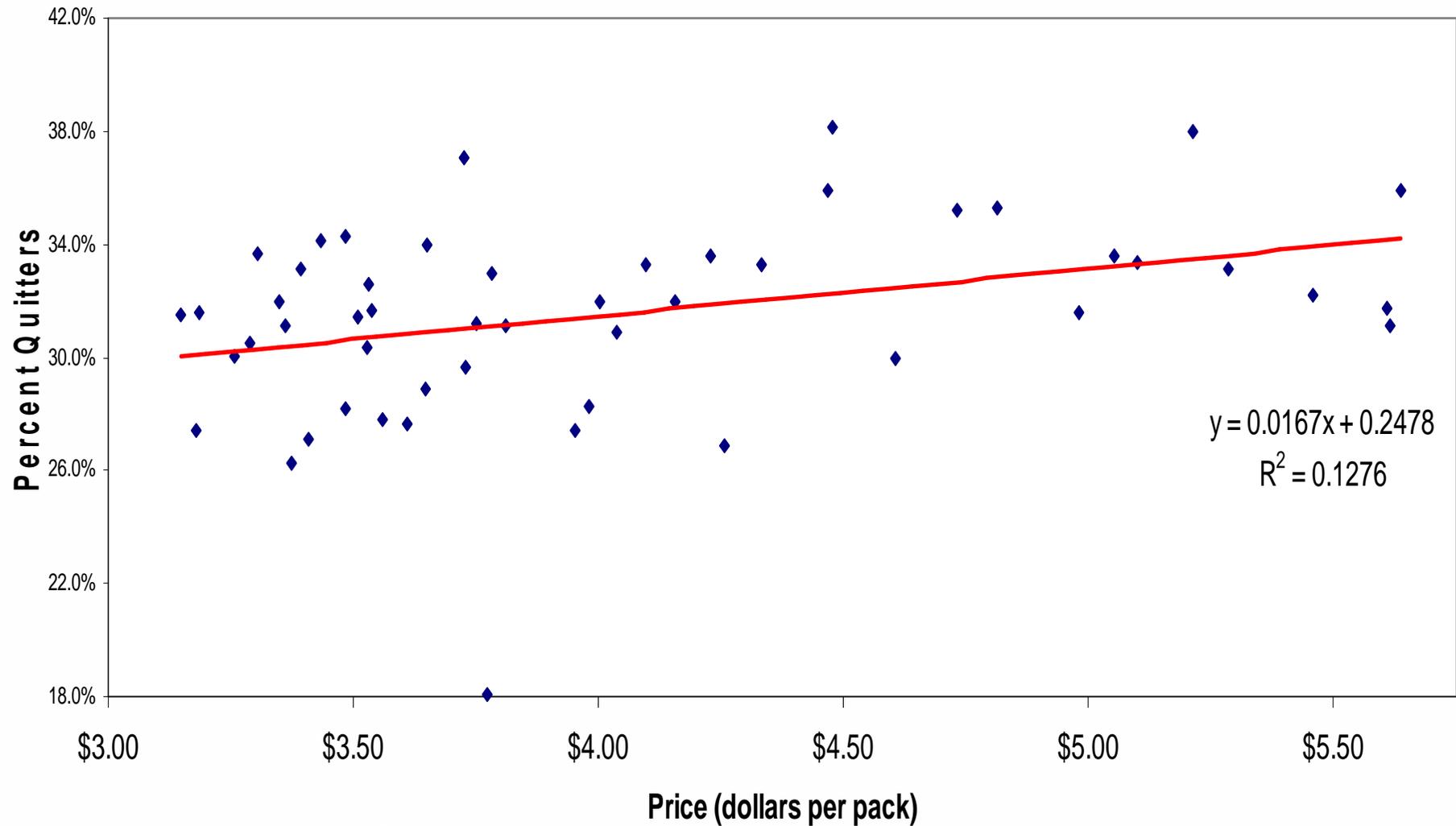
- Growing evidence that higher cigarette prices induce smoking cessation
 - 10% price increase reduces duration of smoking by about 10%
 - 10% price increase raises probability of cessation attempt by 10-12%
 - 10% price increase raises probability of successful cessation by 1-2%
 - Higher cigarette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

Sources: Douglas, 1999; Tauras and Chaloupka, 2001; Tauras, 2001; Tauras and Chaloupka, 2003

Cigarette Price and Quitline Calls - Illinois, 2002-2003



Cigarette Prices and Percentage of Ever Smokers Who Have Quit Smoking



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

Cigarette Prices and Smoking among Pregnant Women

- Several studies find that higher taxes and prices significantly reduce smoking among pregnant women
 - 10% price rise reduces prevalence by 5-7%
 - Higher cigarette prices significantly reduce prevalence of low birthweight births and other pregnancy complications caused by smoking
 - Improved birth outcomes result in substantial reductions in health care costs

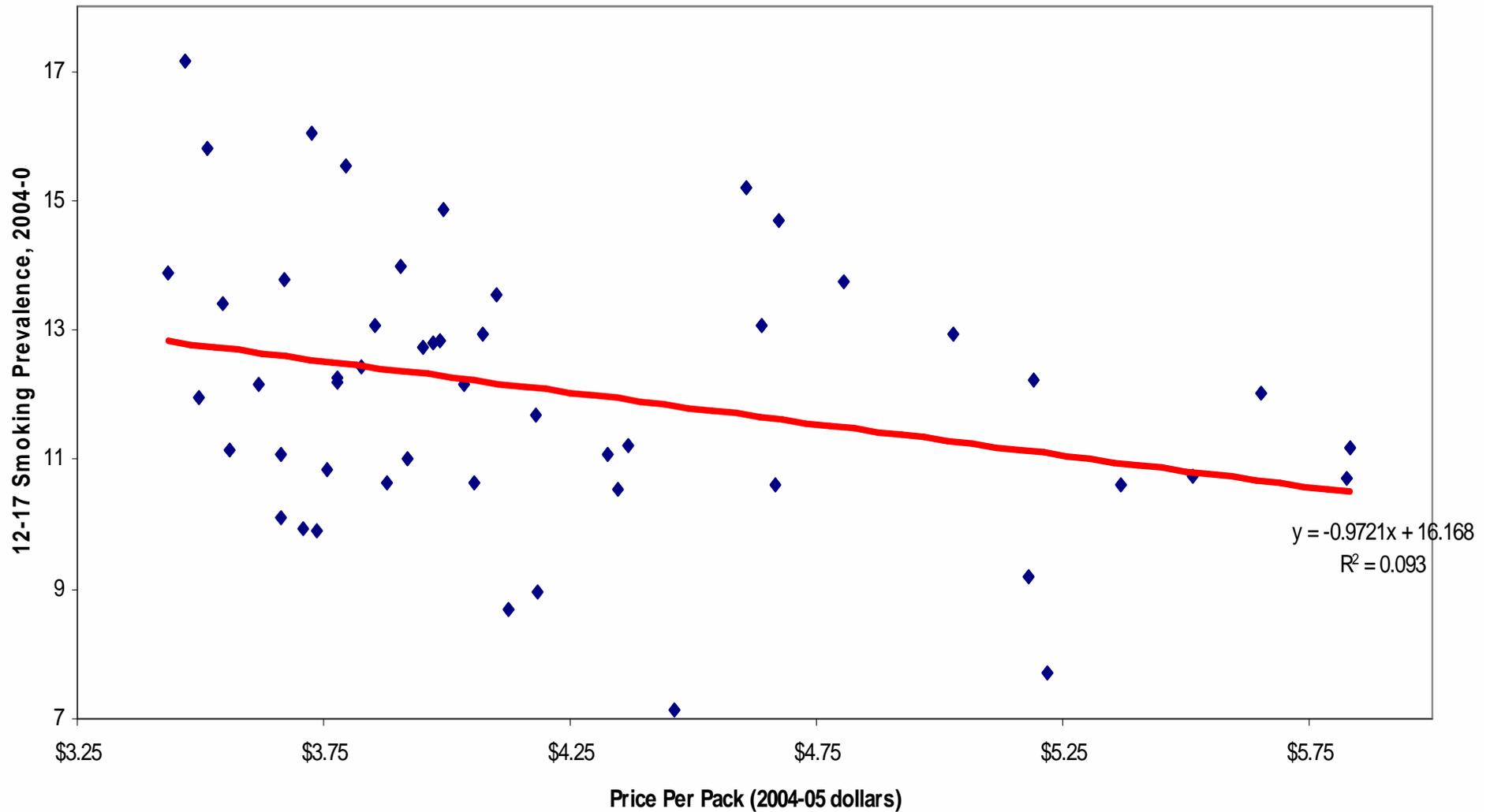
Young People More Responsive to Price Increases

- 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

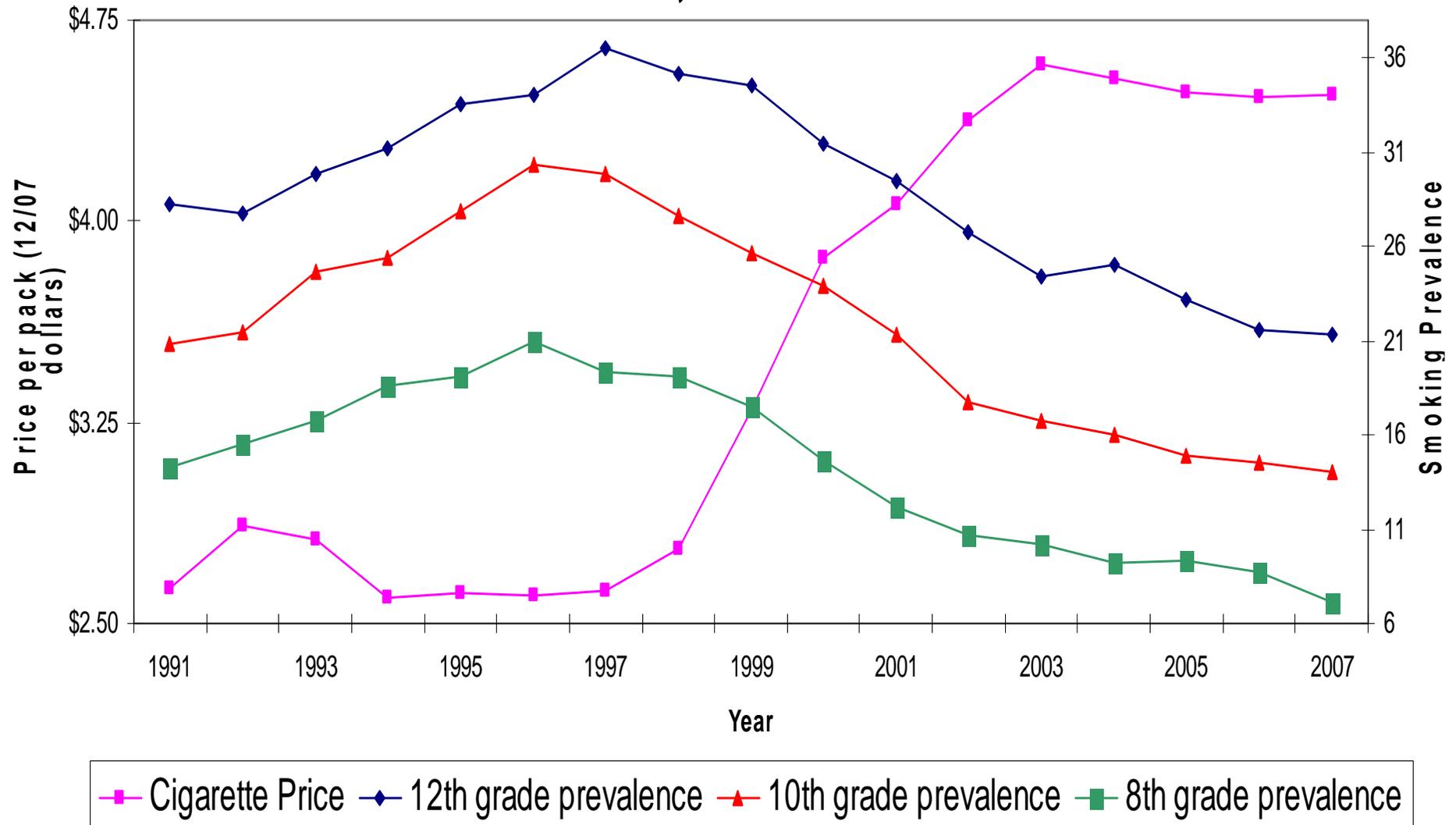
Cigarette Prices And Youth

- 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 Ages 12-17, State-Level Data, 2004-05

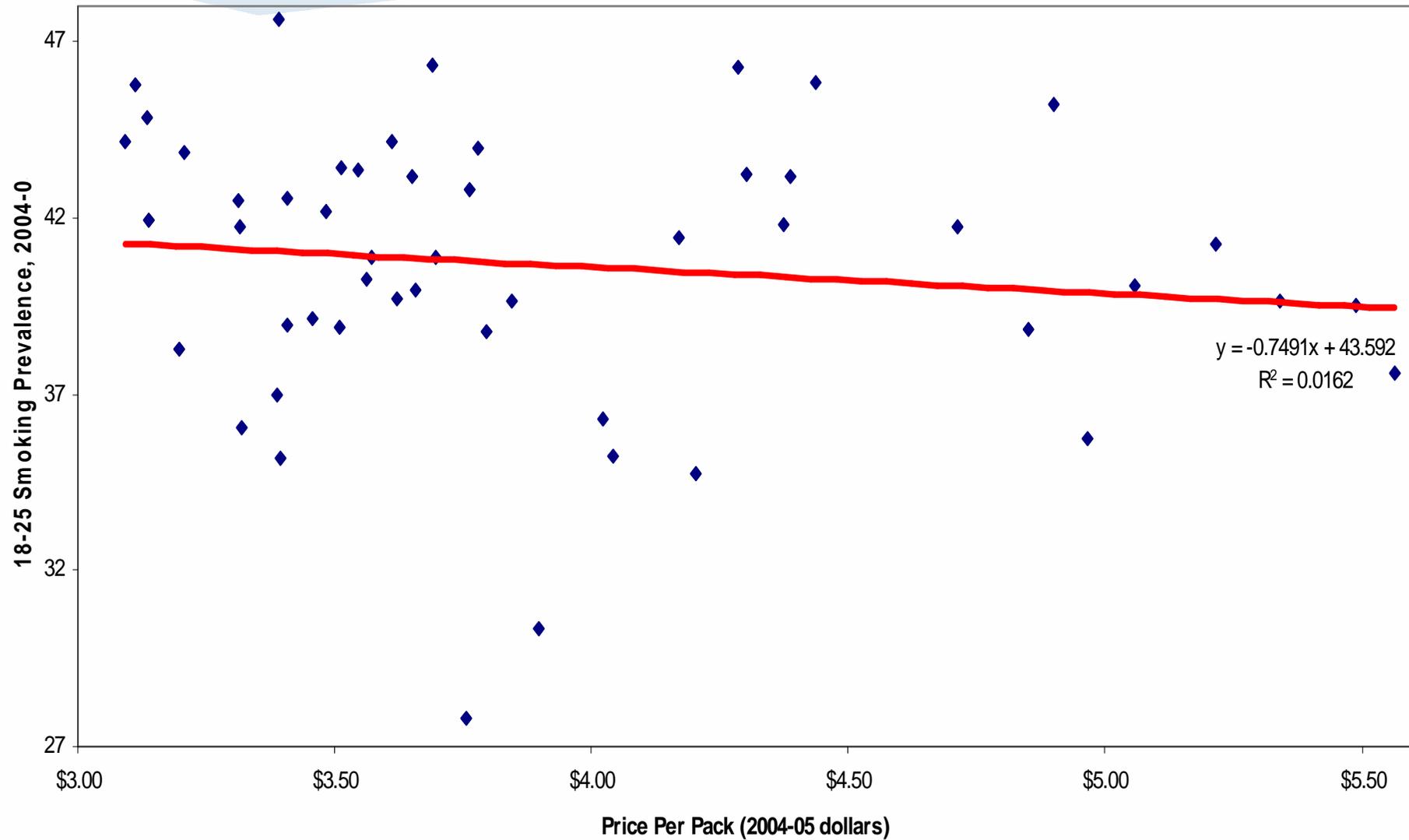


Cigarette Price and Youth Smoking Prevalence, United States, 1991-2007



Source: MTF, *Tax Burden on Tobacco*, 2007, and author's calculations

Cigarette Prices and Young Adult Smoking Prevalence Ages 18-25, US State-Level Data, 2004-05



Support for Tobacco Tax Increases

- Generally consistent support among voters for tobacco tax increases
 - recent polls: 71% of SC voters; 73% of FL voters
 - about 2 to 1 support among voters for tax increase
- Greater support when revenues dedicated to tobacco control efforts or other health-related activities
 - NJ poll found 57% supported 50 cent increase with revenue for deficit reduction and tobacco prevention program vs. 29% support for 40 cent increase for budget deficit reduction only
- Bipartisan support
 - VT: 83% of Democrats and 76% of Republicans supported 67 cent increase

Support for Tobacco Tax Increases

- Greater support for tobacco tax increases than for other revenue generating measures
 - IA: for deficit reduction, 69% supported cigarette tax increase vs. 37% for sales tax and 24% for gas tax
- Support tends to be consistent across demographic and socioeconomic groups
- Amount of increase generally makes little difference in support and strong support even in states where taxes have increased recently
- Significant numbers of smokers support tax increases
 - Average of 37% of smokers supported in 45 polls

Impact of a Federal Cigarette Tax Increase

Based on these estimates, 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

Source: Chaloupka and Tauras, 2006

Impact of a Federal Cigarette Tax Increase

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

- Increased cessation and reduced initiation would prevent over 900,000 premature deaths caused by smoking
- Generate significant reductions in spending on health care to treat diseases caused by smoking
- Reduce state excise tax and MSA revenues, but could be easily offset with portion of federal revenues

Source: Chaloupka and Tauras, 2006

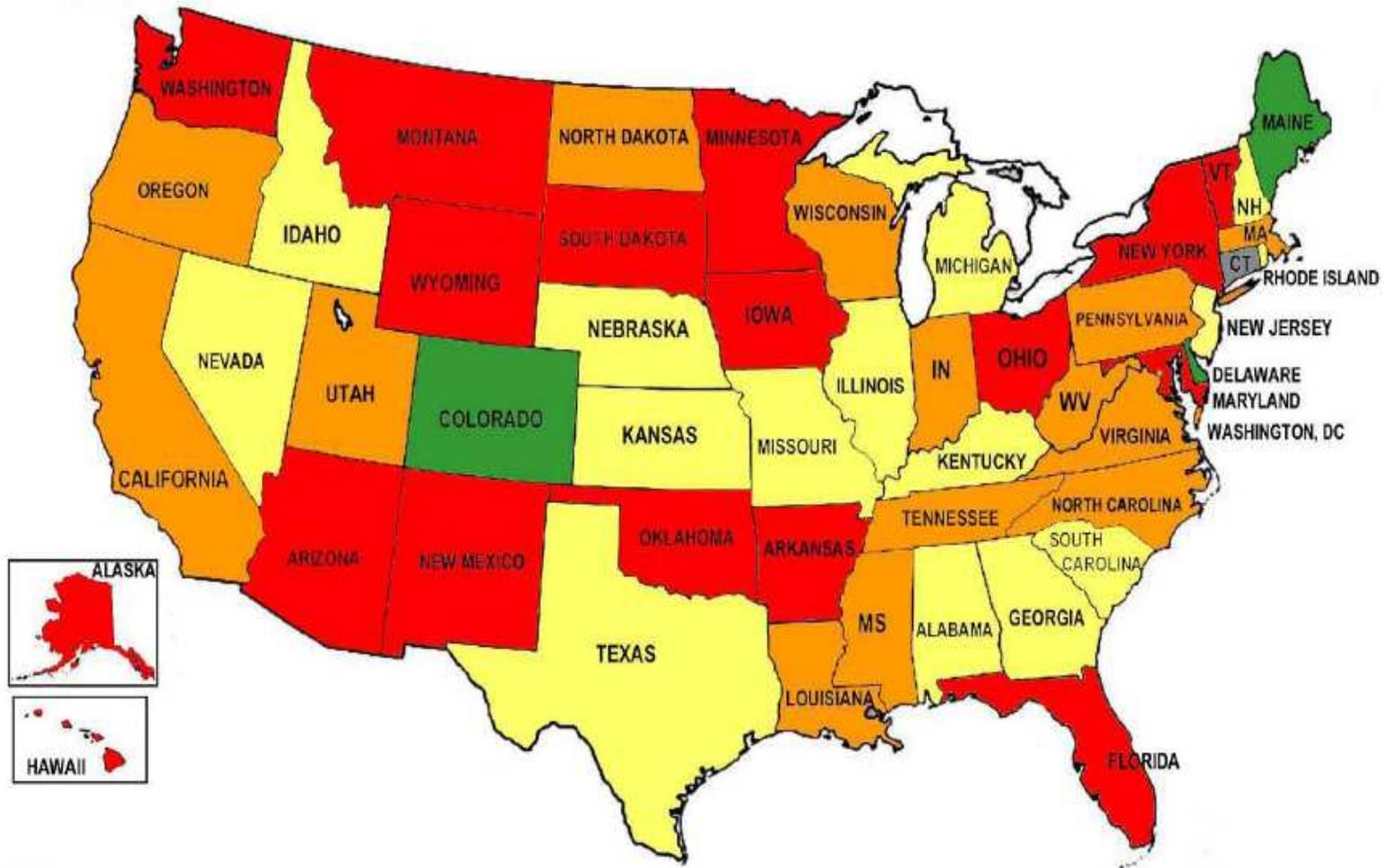
Earmarked Tobacco Taxes

- 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

Earmarked Tobacco Taxes

- 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 add to the impact of tax increases in promoting cessation and preventing initiation

Funding for Tobacco Prevention, FY2008



■ ≥ 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. (2007)

Research Findings – Comprehensive Programs and State Cigarette Sales

- Higher spending on tobacco control efforts significantly reduces cigarette consumption and adult smoking prevalence
- 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

Sources: *Farrelly, Pechacek and Chaloupka. 2001; Liang et. al 2001; Farrelly et al., 2008*

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

Sources: *Farrelly, et al. 2001; Chaloupka et. al 2001*

Myths About Economic Impact of Tobacco Taxation and Tobacco Control

- Impact on Revenues?
- Impact on Jobs?
- Impact on Tax Evasion/Avoidance?
- Impact on the poor?

Reality is that tobacco control is one of the “best buys” among health and public health interventions

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

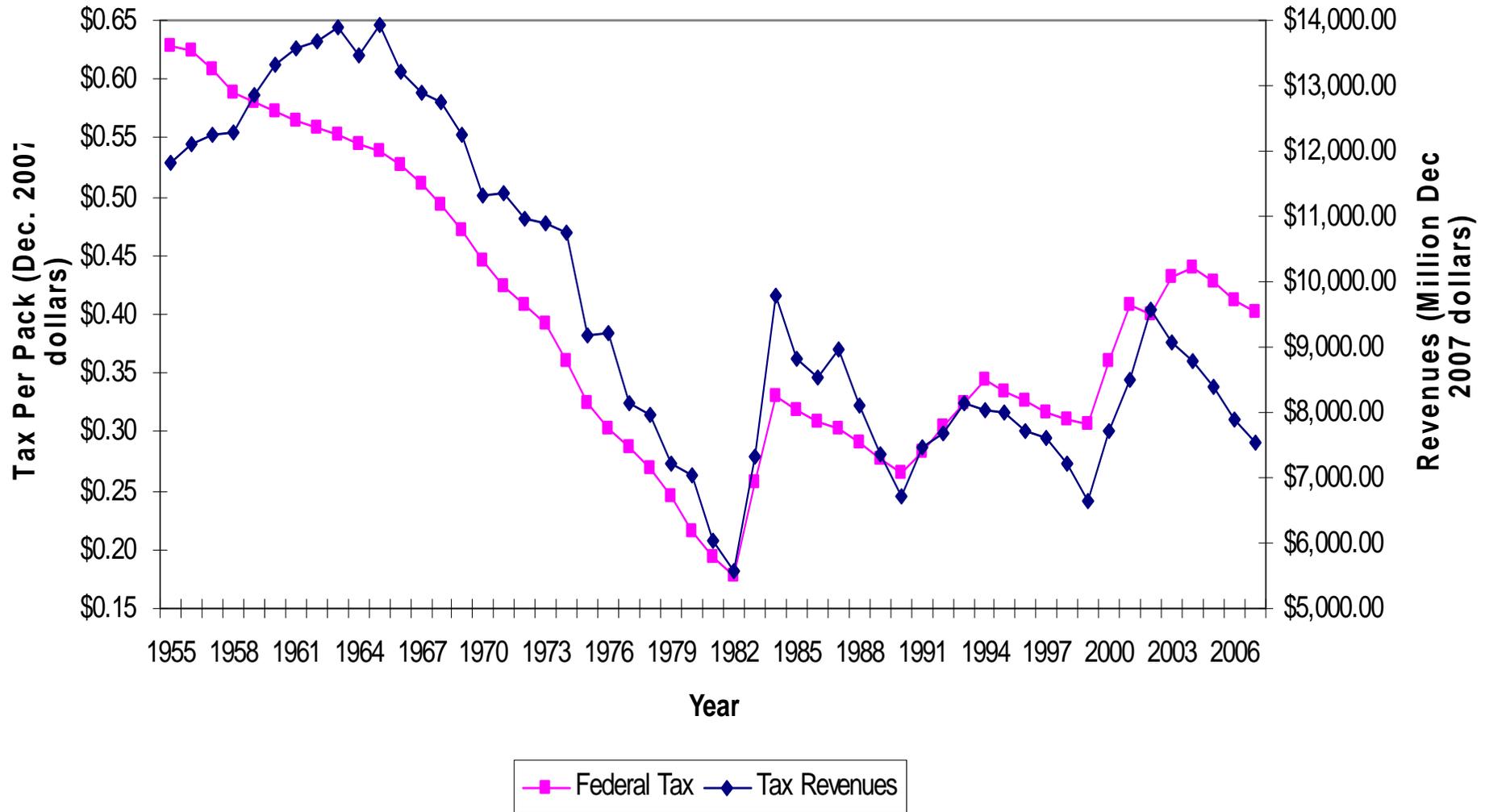
Truth: Cigarette tax revenues rise with cigarette tax rates, even as consumption declines

- With one exception, every significant increase in federal and state cigarette taxes has resulted in a significant increase in cigarette tax revenues

Sources: Sunley, et al., 2000; World Bank, 1999; Farrelly et al., 2003

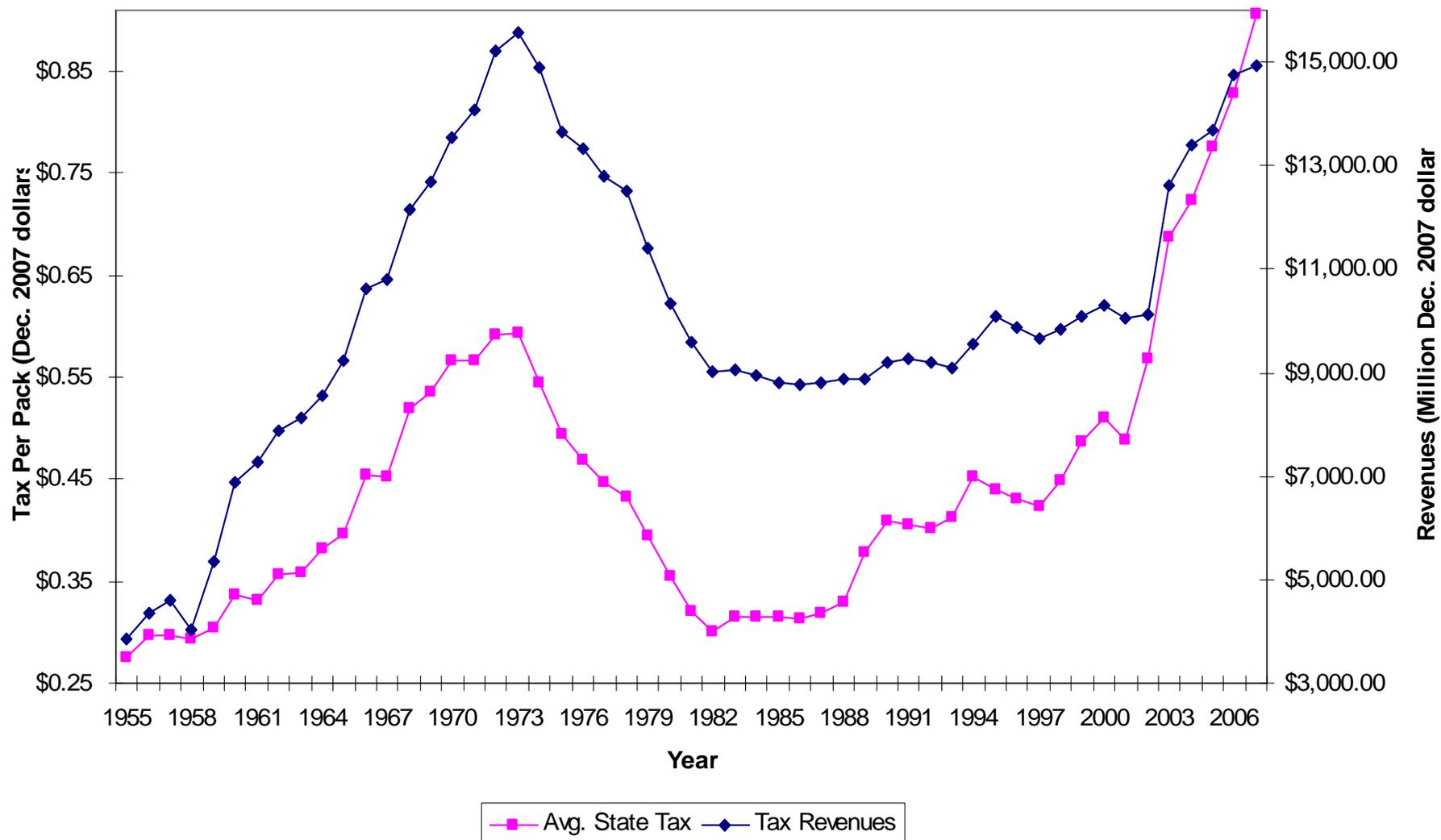
Federal Cigarette Tax and Tax Revenues

Inflation Adjusted (Dec. 2007 dollars), 1955-2007

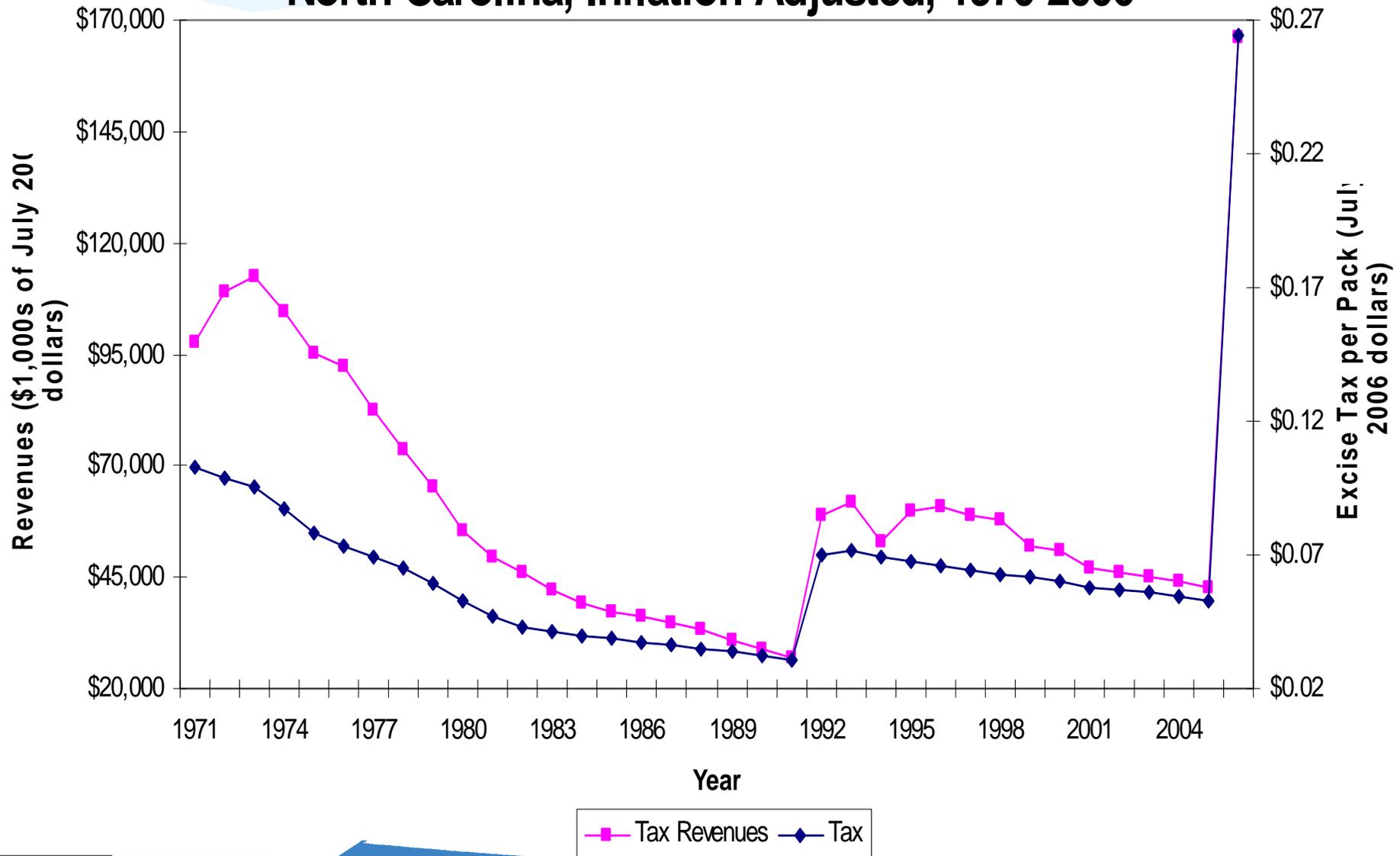


State Cigarette Taxes and Tax Revenues

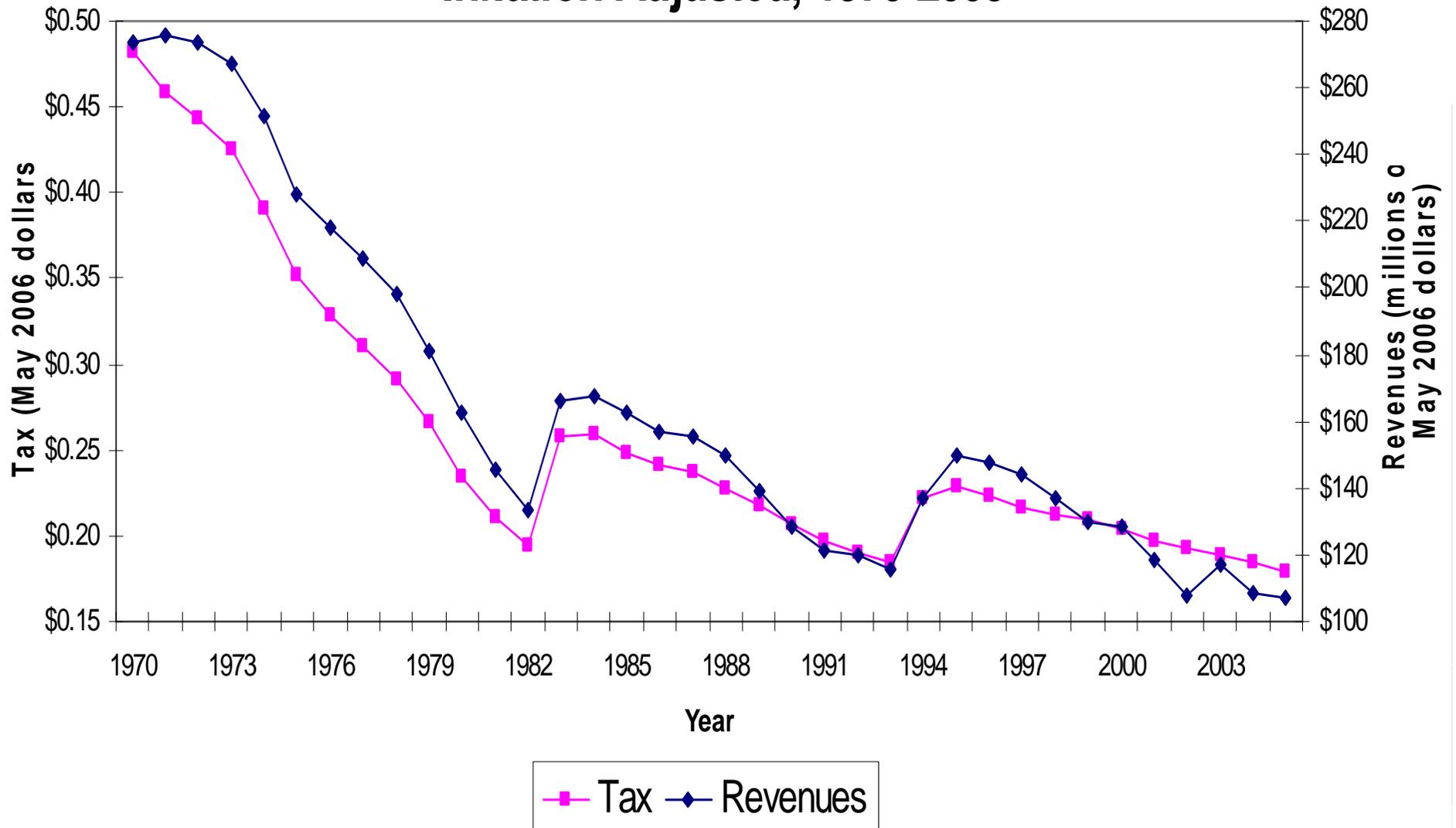
Inflation Adjusted (12/07 dollars), 1955-2007



Cigarette Excise Tax and Excise Tax Revenues, North Carolina, Inflation Adjusted, 1970-2006

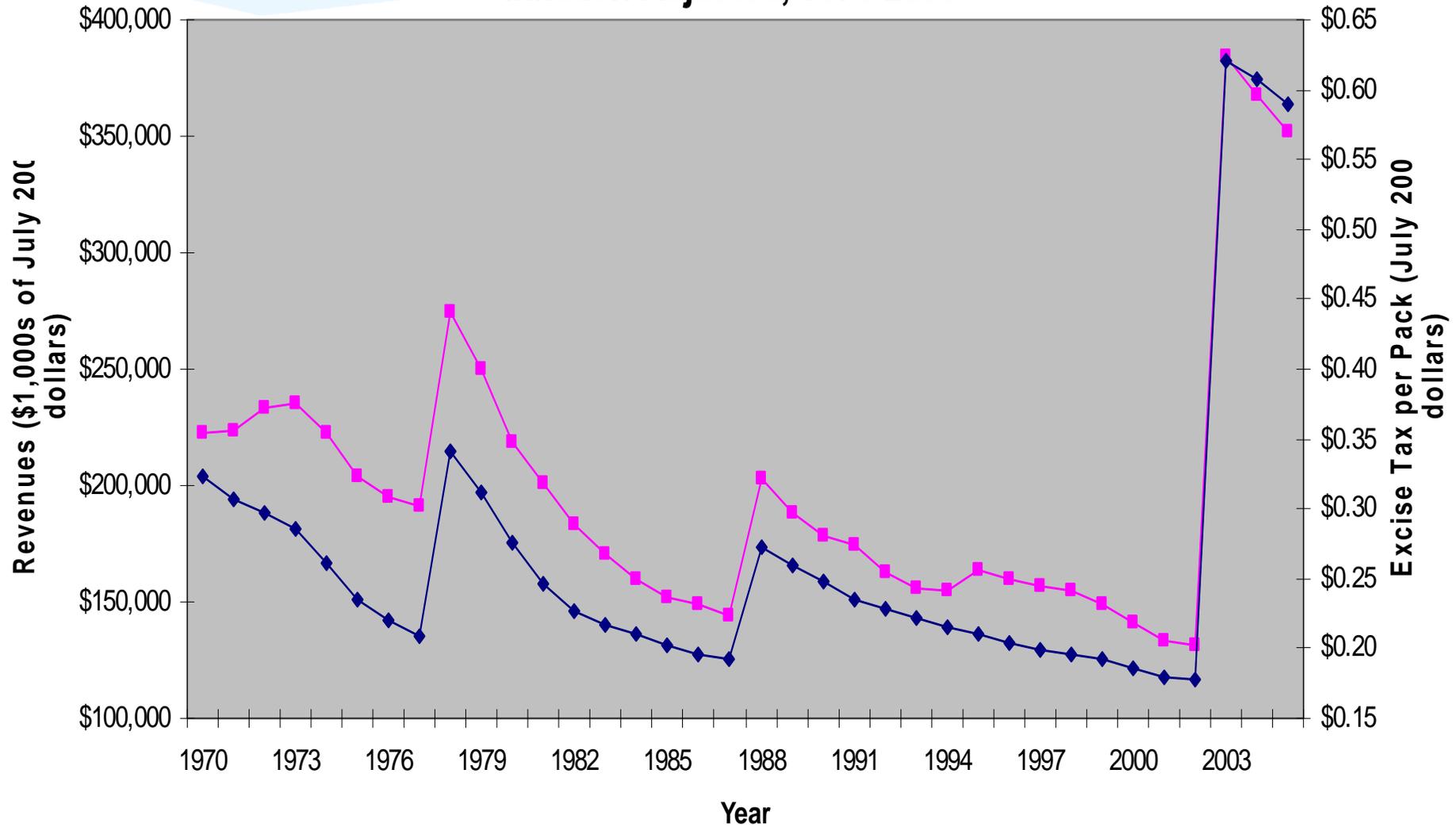


Missouri Cigarette Tax and Tax Revenues, Inflation Adjusted, 1970-2005



Cigarette Excise Tax and Excise Tax Revenues in Indiana

Inflation Adjusted, 1970-2005



—■— Tax Revenues —◆— Tax

Positive Effect of Tax Increases on Revenues Results from:

Low share of tax in price:

- state taxes account for less than 20% of price
- total taxes account for just over 25% of price
- *Implies large tax increase has much smaller impact on price*

Less than proportionate decline in consumption:

- 10% price increase reduces consumption by 4%

Positive Effect of Tax Increases on Revenues Results from:

- *Example:*

- Price \$4.00, State tax \$1.00
- Doubling of tax raises price to \$5.00
 - 100% increase in tax
 - 25% increase in price
- 25% price increase reduces sales by 10%
 - *90% of original sales at double the tax increases revenues by 80%*

Sustainability of Cigarette Tax Revenues

Some suggest increases in revenues won't be sustained over time as consumption declines, tax evasion increases

- Looked at significant state tax increases over past 15 years where increase was maintained for at least 5 years
 - Separately for states with major tobacco control programs

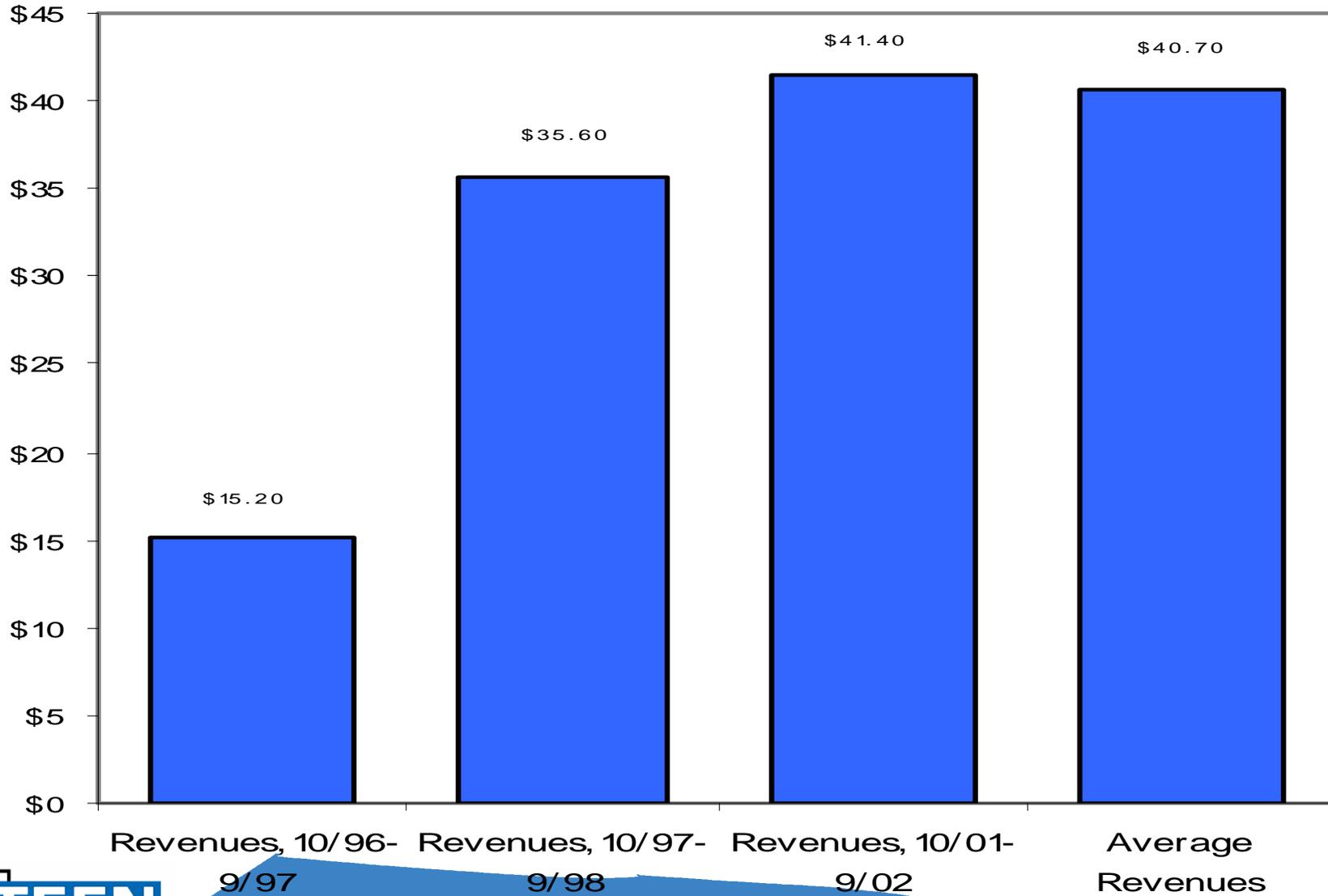
Sustainability of Cigarette Tax Revenues

- *Conclusions:*

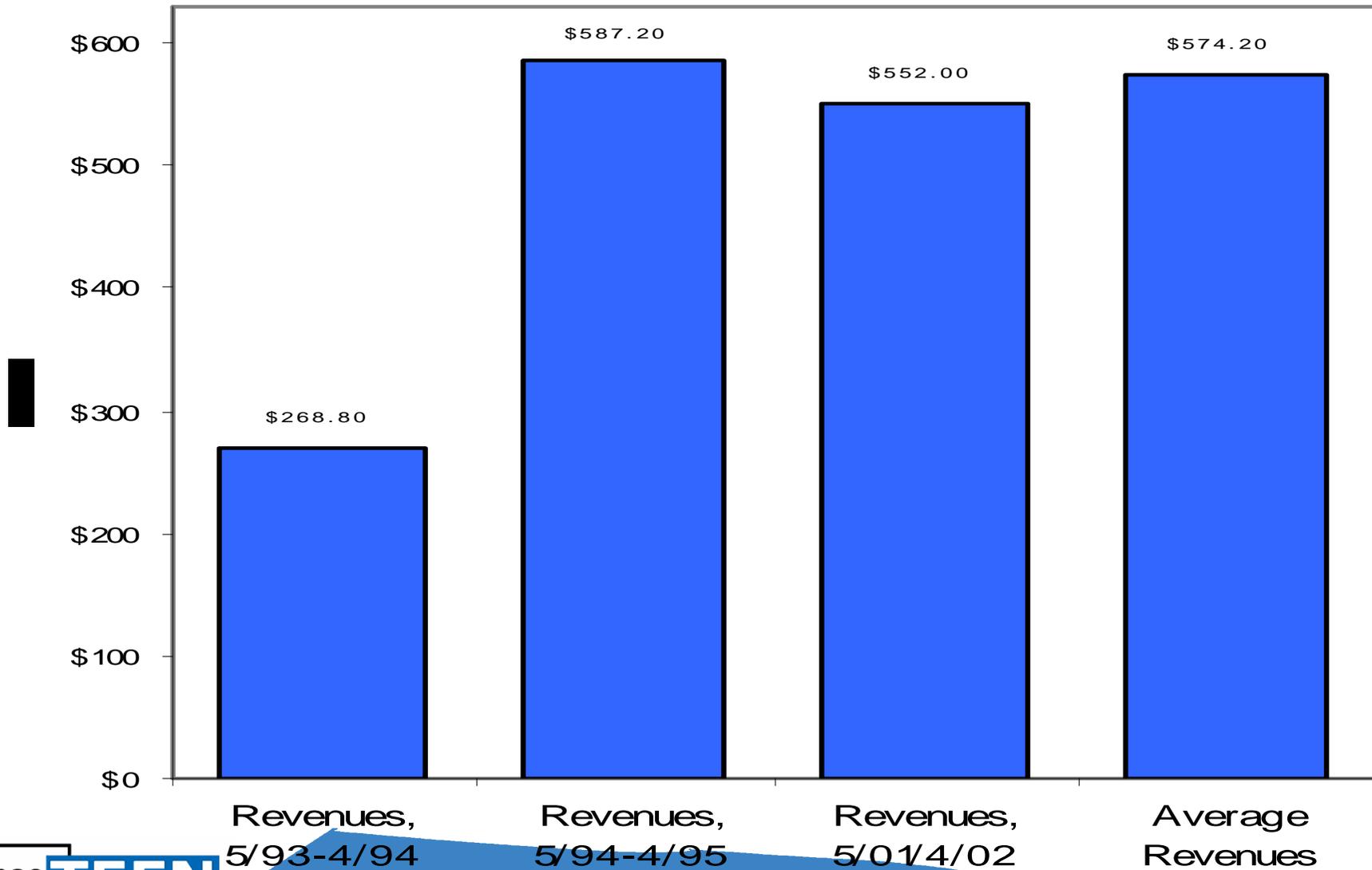
- All significant state tax increases resulted in significant increases in state tax revenues
 - Nominal increases in revenues sustained over time in states without tobacco control programs
 - Nominal revenues decline in states with tobacco control programs, but are significantly higher than before tax increase
 - Additional cost reductions due to declines in smoking
- Tobacco tax revenues more predictable than other revenues

Cigarette Excise Tax Revenues, Alaska

29 cents to \$1.00, 10/1/97

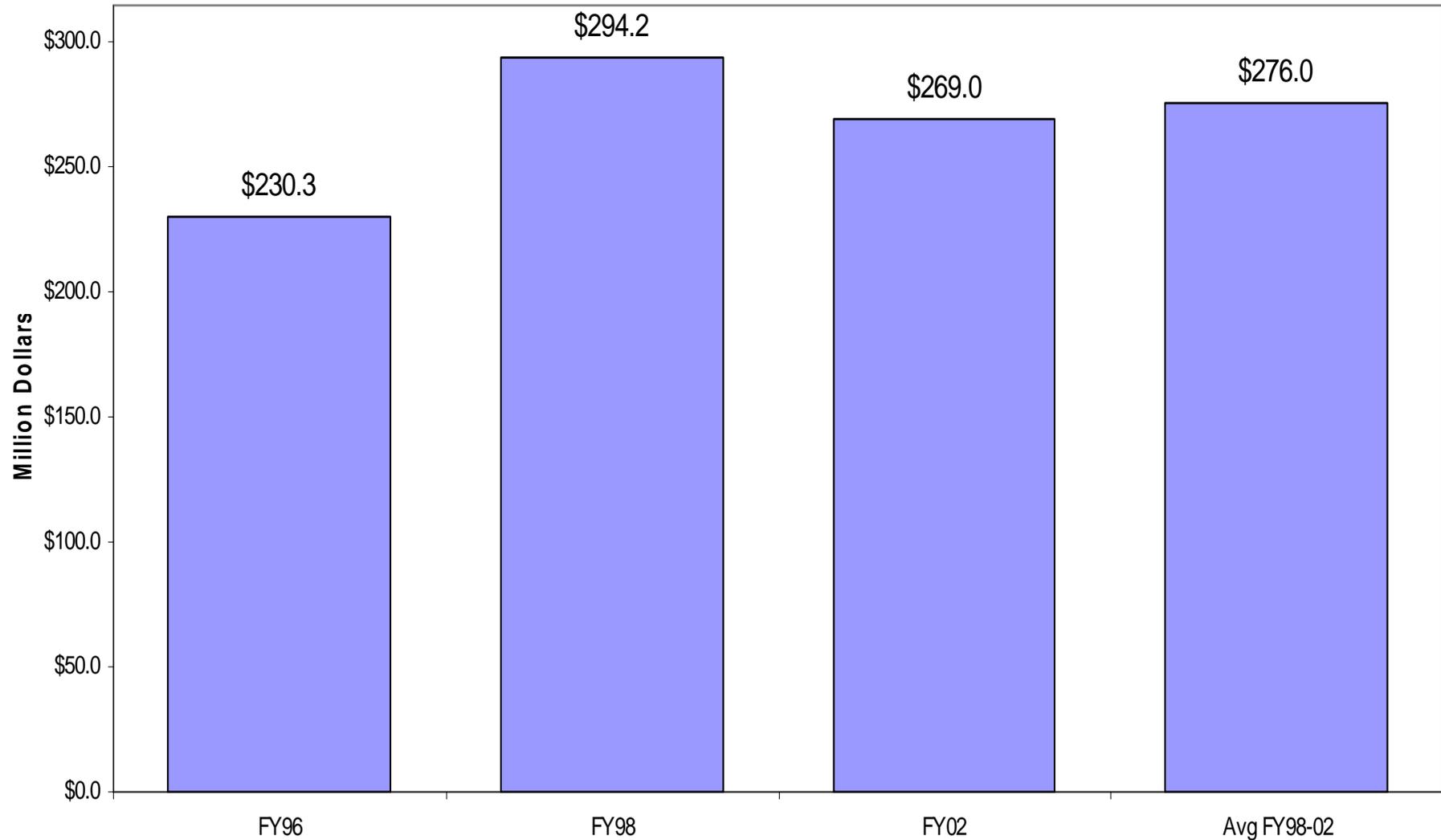


Cigarette Excise Tax Revenues, Michigan 25 cents to 75 cents, 5/1/94

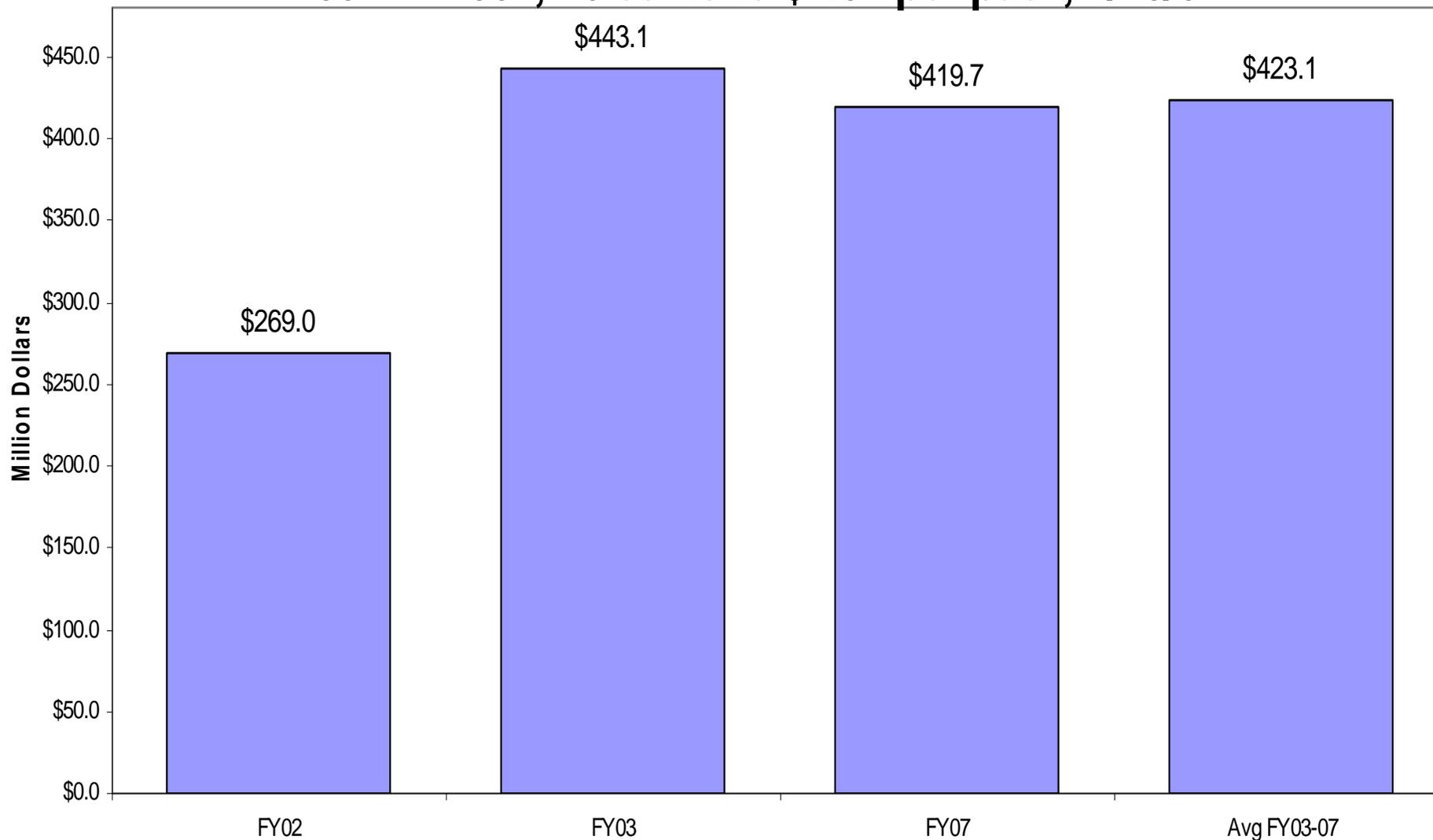


Cigarette Tax Revenues, Massachusetts, FY1996-FY2002

51 cents to 76 cents per pack, 10/1/96



Cigarette Tax Revenues, Massachusetts, FY2002-FY2007, 76 cents to \$1.51 per pack, 7/25/02



Myths About Economic Impact of Tobacco Taxation and Tobacco Control

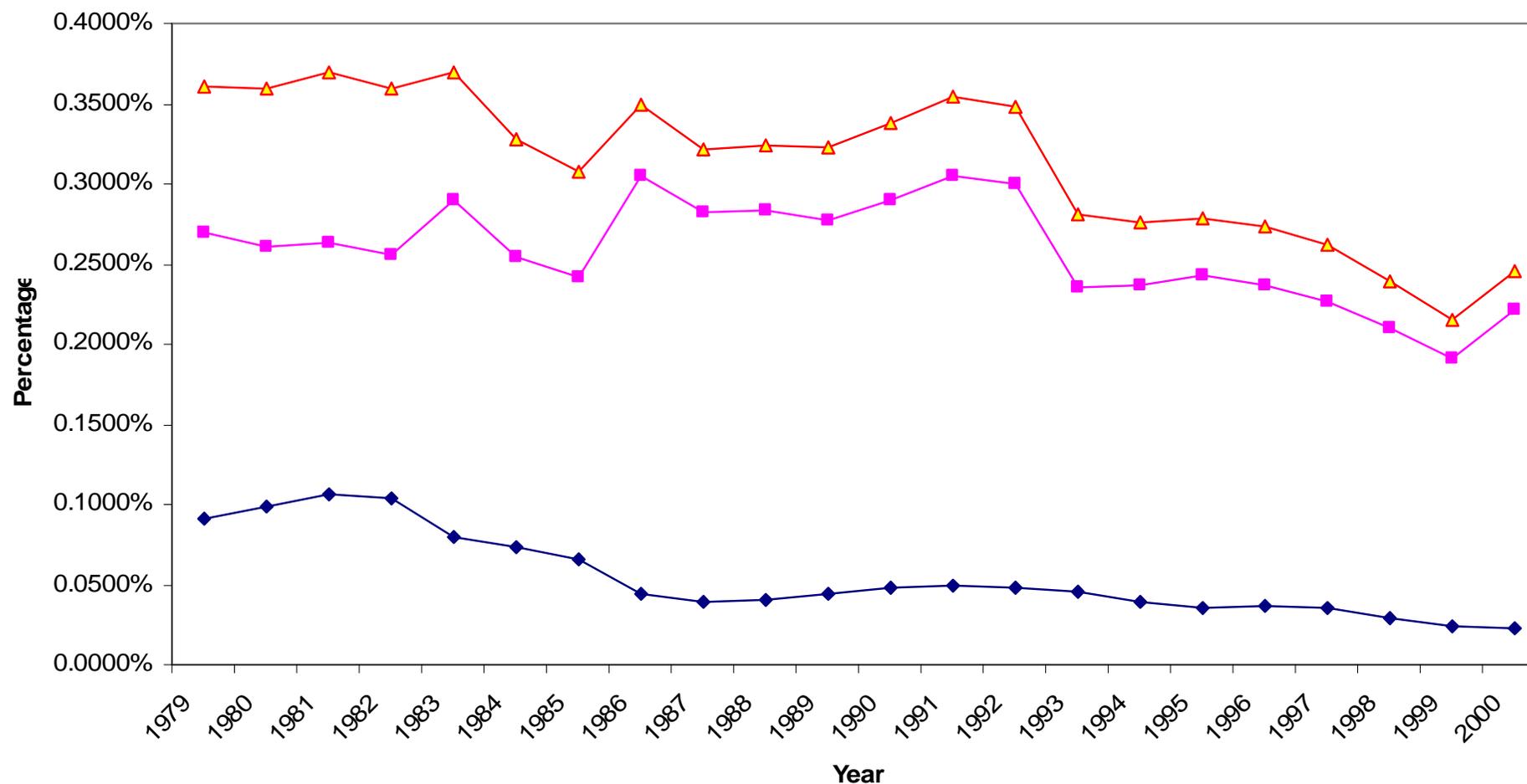
- Impact on Jobs?

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

- Presence does not imply dependence
- Many countries/states will see net gains in employment as tobacco consumption falls

Tobacco Farming and Manufacturing as Share of Gross Domestic Product, United States

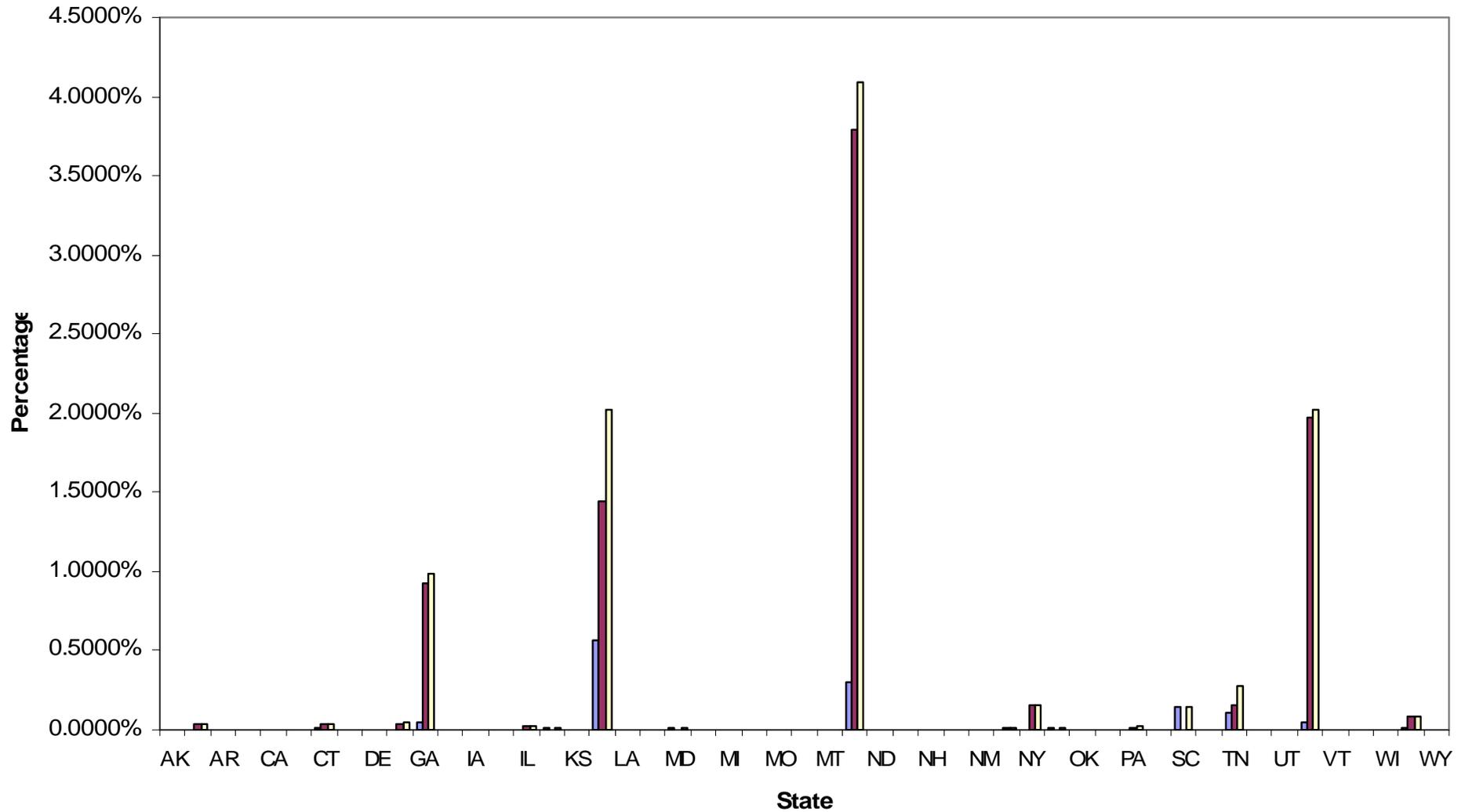


◆ Tobacco Farming
 ■ Tobacco Manufacturing
 ▲ Tobacco Farming and Manufacturing



Source: Chaloupka et al., 2007

Tobacco Farming and Manufacturing as Share of Gross State Product, 2000



Myths About Economic Impact of Tobacco Taxation and Tobacco Control

- Impact on Jobs?

Warner et al., *JAMA*, 1996; Warner and Fulton, *JAMA*, 1994

- For Michigan (1994 study), overall employment rises as tobacco consumption falls
- For US (1996 study):
 - 8 non-tobacco regions: employment rises as tobacco consumption falls
 - “Tiny” decline in employment in tobacco region as tobacco consumption falls nationally
- Several state specific studies (including NH, VA, MD) find no negative impact on employment from tobacco tax increases or other tobacco control efforts
 - Similar evidence from several other countries

Myths About Economic Impact of Tobacco Taxation and Tobacco Control

- Impact on Tax Evasion?

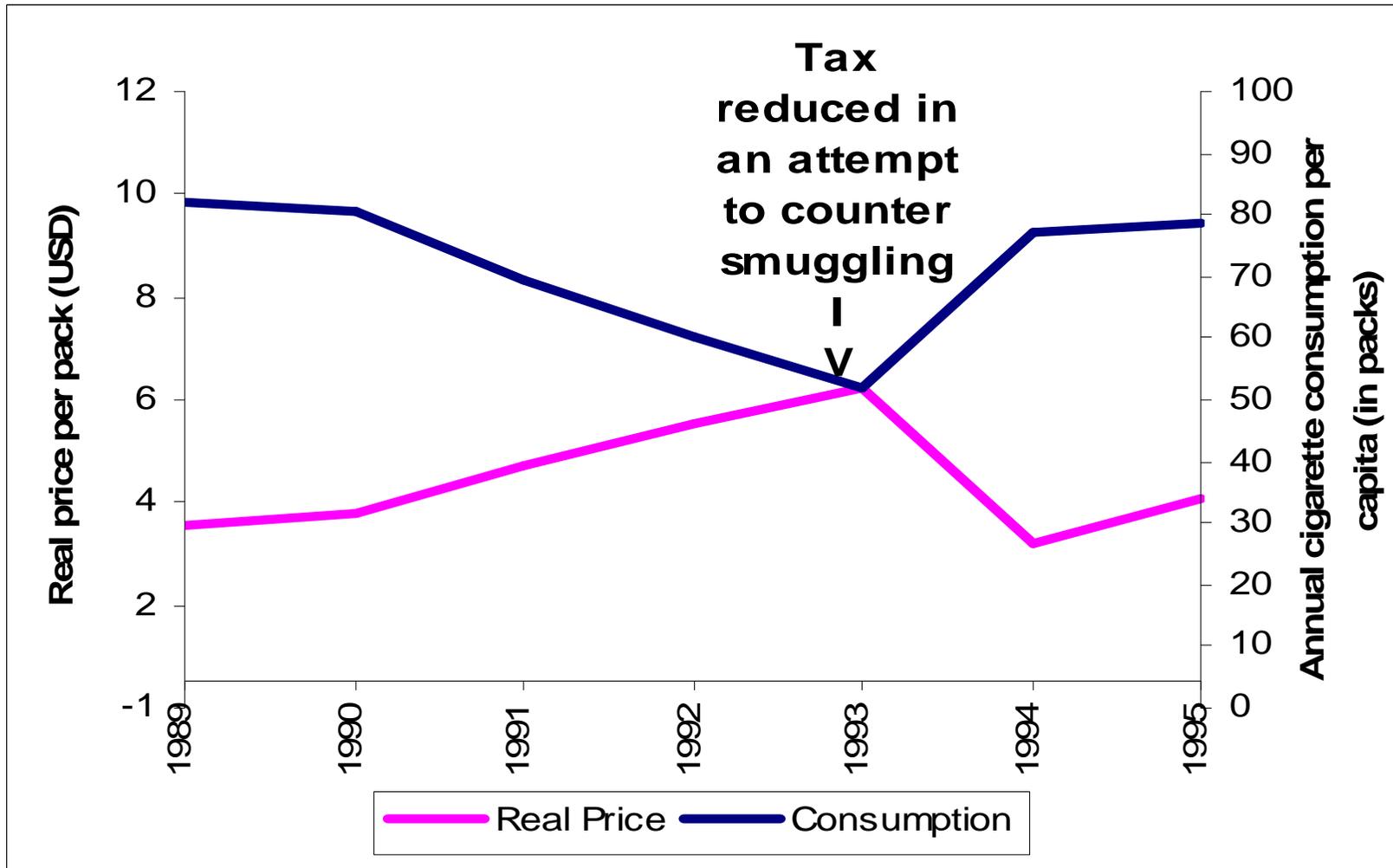
Myth: Tax evasion negates the effects of increases in tobacco taxes

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

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

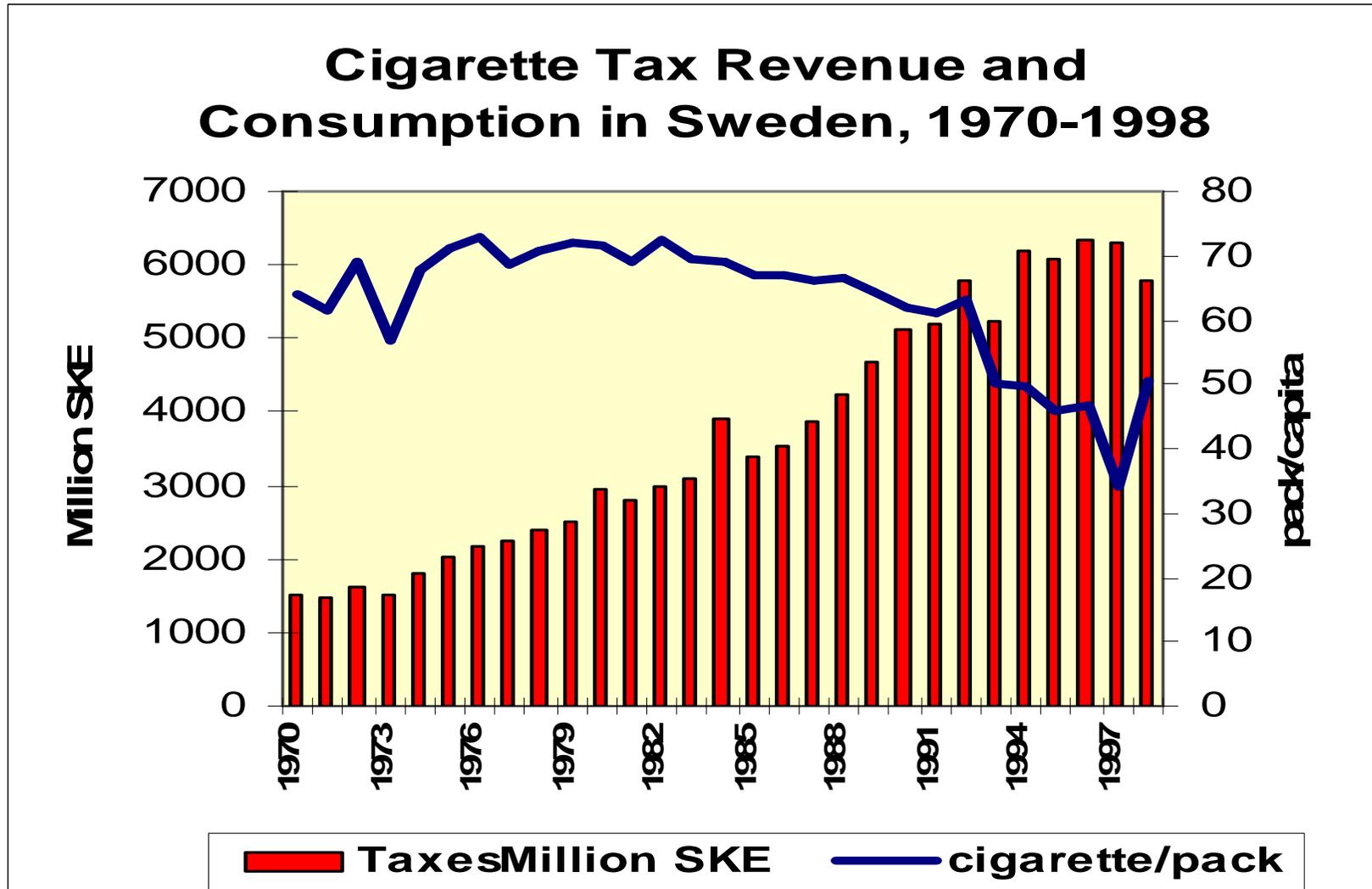
Sources: Joossens, *et al.*, 2000; Merriman, *et al.*, 2000

Canada Sharply Reduced Taxes in 1993



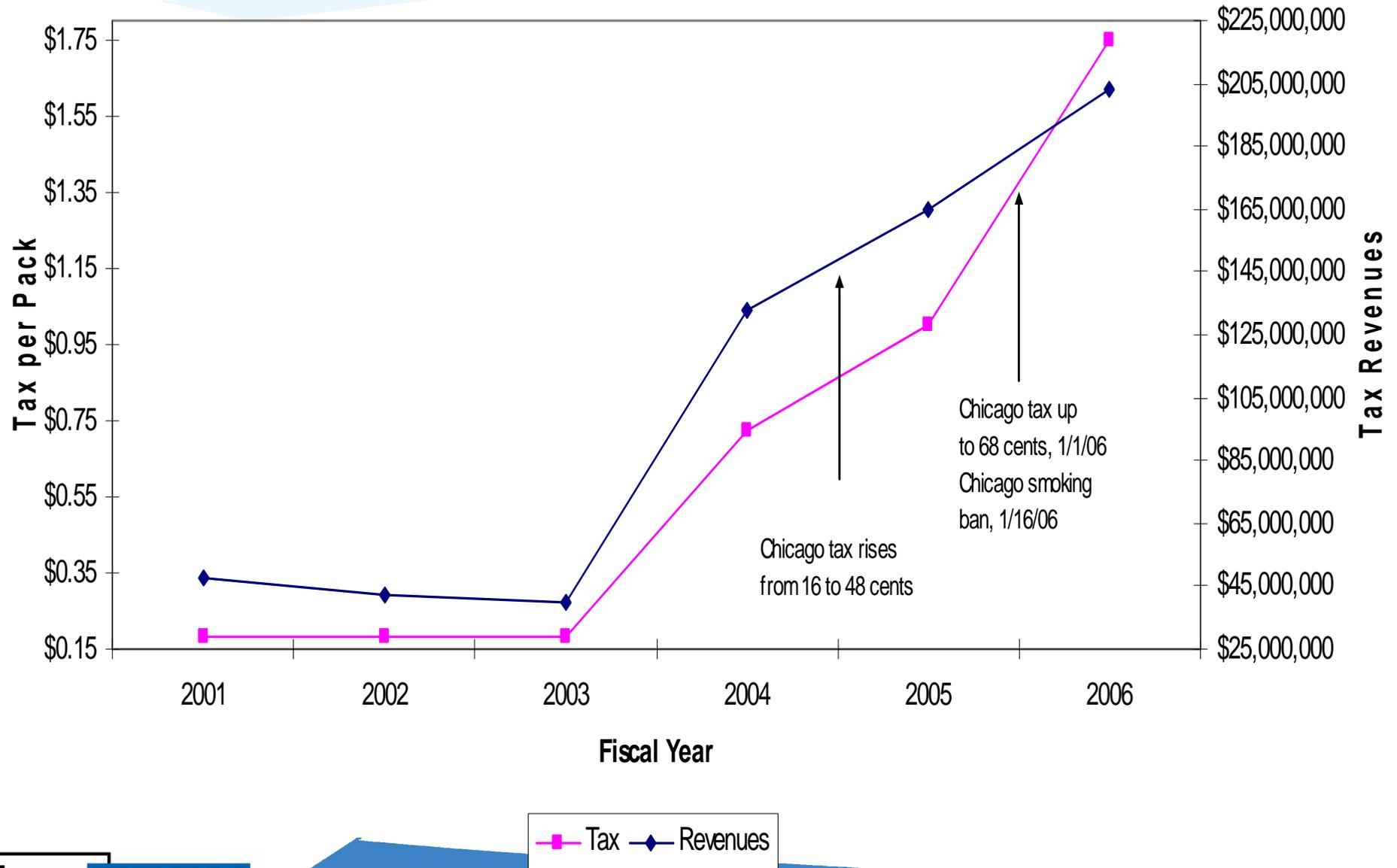
Source: World Bank, 2003

Sweden Reduced Cigarette Taxes by 17% in 1998



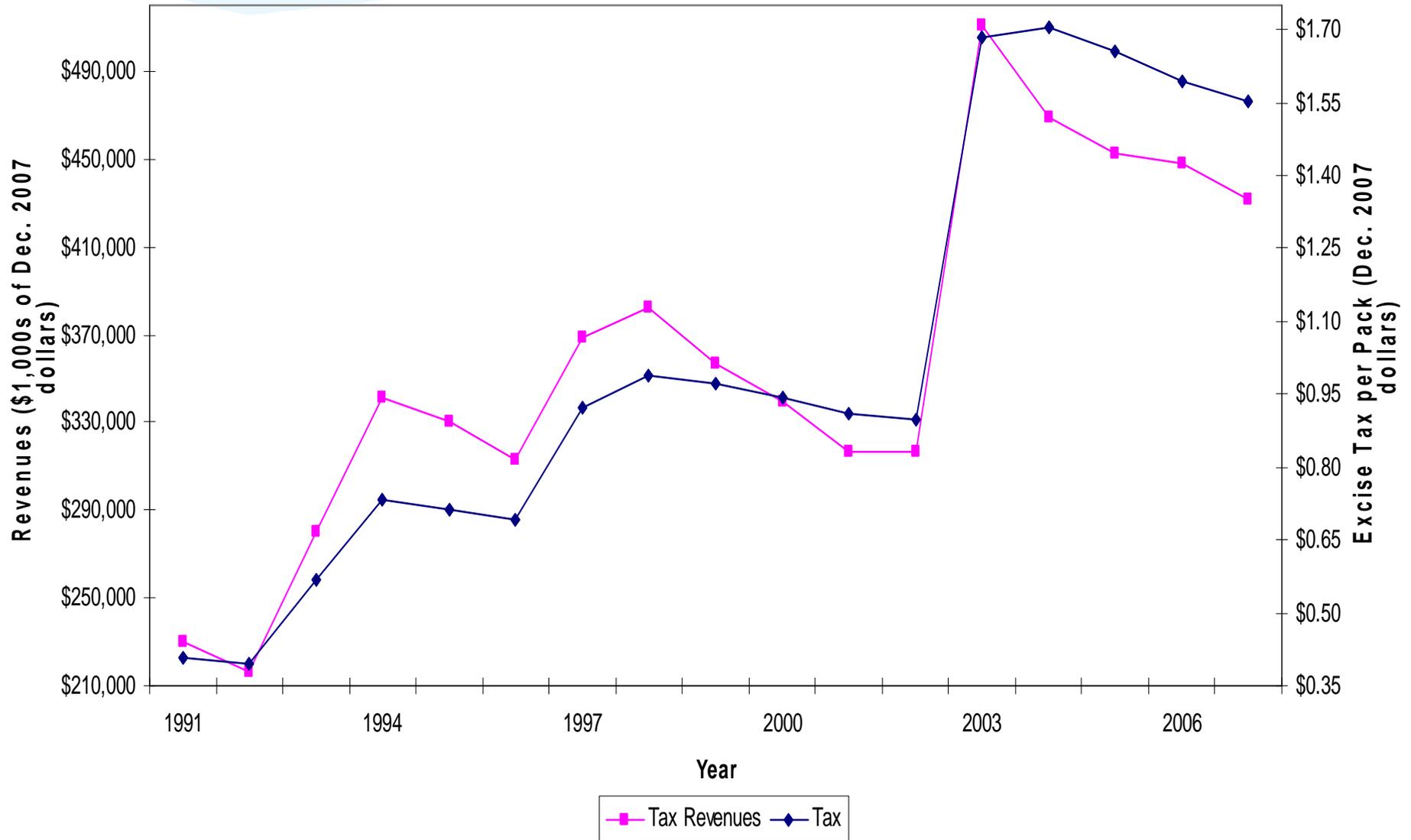
Source: World Bank, 2003

Cook County Cigarette Tax and Tax Revenues - FY01-FY06



Cigarette Excise Tax and Tax Revenues in Massachusetts

Inflation Adjusted, 1991-2007



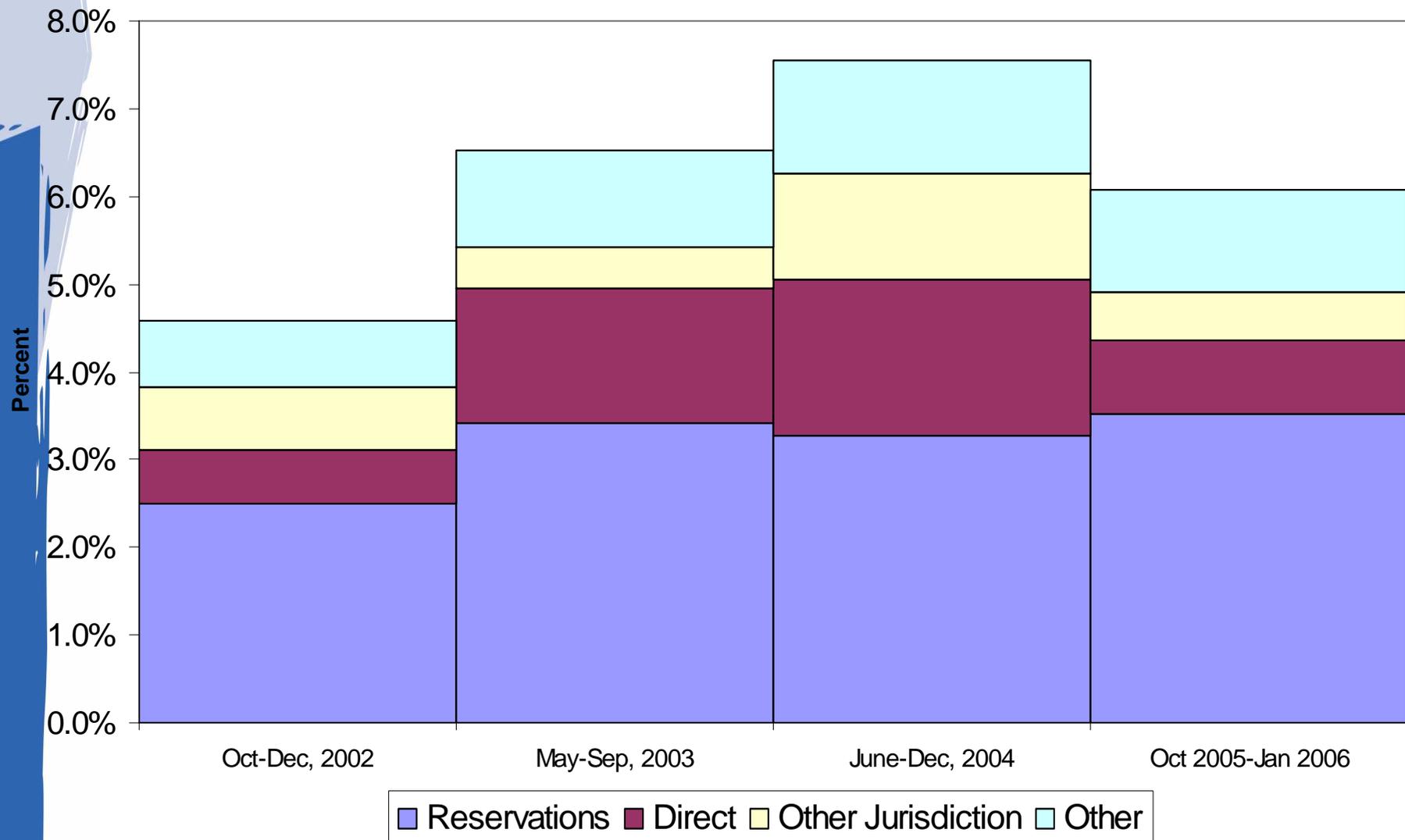
Myths About Economic Impact of Tobacco Taxation and Tobacco Control

- Extent of Tax Evasion?

International Tobacco Control Policy Evaluation Study

- Longitudinal cohort study of smokers in many countries
 - Original 4-country study focused on US, UK, Canada and Australia
 - Added Ireland, Malaysia, Thailand, China, Korea; others in preparation/planning
- Approximately 2,000 smokers surveyed in each country in each wave
 - Detailed information collected on smoking behavior and variety of related issues
 - Cigarette purchase patterns/sources

Percent of Smokers' Last Cigarette Purchase from Untaxed or Lower Taxed Sources, United States, 2002-2006



Source: International Tobacco Control Policy Evaluation Study, US Survey, Waves 1-4

Efforts to Curb Tax Evasion

- Many focused on Internet, phone and mail order sales:
 - Outright ban on direct sales (e.g. New York state policy)
 - Major shipping companies (e.g. UPS, Federal Express) agree not to ship cigarettes to consumers
 - USPS hasn't established similar policy
 - Major credit card companies agree to ban use of credit cards for direct cigarette purchases
 - States apply Jenkins Act to identify direct purchasers and to collect taxes due
 - Promising approach based on early data from several states
 - MA collected over \$4.6 million in FY07

Efforts to Curb Tax Evasion

- Reservation sales similar focus in some states
 - Some states (e.g. MN) impose tax on reservation sales with refund to reservation residents
 - Other states (e.g. WA) enter into “compacts” with tribes that result in comparable taxes imposed on reservation sales with most/all of revenues kept by tribe
 - Others apply different tax stamps for cigarettes sold to residents and non-residents of reservations
 - Quota on distributor sales to reservation outlets to reflect expected resident consumption (e.g. NY)

Efforts to Curb Tax Evasion

- High-Tech Efforts
 - Adoption of sophisticated tax stamps
 - Harder to counterfeit
 - Contain information allowing better tracking of cigarettes through distribution channels
 - Easier to implement enforcement actions
 - California:
 - Adopted 2002; fully implemented 2005
 - Coupled with better licensing standards
 - Can be examined with hand-held scanners
 - Thousands of compliance checks, hundreds of citations
 - Generated over \$124 million in revenues during 20 month period (mid-2004 through late 2005)

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 smokers bear disproportionate share of health consequences from smoking and are more responsive to price increases

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

Conclusions

- Substantial increases in tobacco excise taxes lead to large reductions in tobacco use and, in the long run, reduce the public health toll caused by tobacco use.
- Additional reductions in overall smoking and in the prevalence of youth smoking result when tax increases are coupled with comprehensive tobacco control efforts.
- Arguments about economic consequences of tobacco control and tax increases misleading, overstated, or false

For more information:

<http://www.impactteen.org>

<http://www.tobaccoevidence.net>

<http://www.uic.edu/~fjc>

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