

tobacconomics

Economic Research Informing Tobacco Control Policy

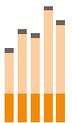
Economics of Tobacco Taxation

Jidong Huang, Ph.D. and Frank J. Chaloupka, Ph.D.
University of Illinois at Chicago

Prepared for “Sin Taxes: The Sobering Fiscal Reality” Forum
The Civic Federation and The Federal Reserve Bank of Chicago
Chicago, IL, April 2nd, 2015

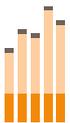
Overview-Part I

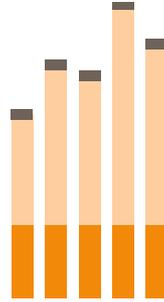
- Tobacco Taxation
 - Why tax tobacco products?
 - Types of tobacco taxes
 - Impact of taxes and prices on tobacco use
 - Economic impact of tobacco taxes



Overview-Part II

- Tobacco Taxation: Oppositional Arguments
 - Won't generate additional revenues
 - Revenues won't be sustained over time
 - Will harm the poor
 - Will adversely affect the economy (employment, small business, inflation)
 - Will cause extensive tax avoidance & evasion





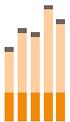
Why Tax Tobacco Products?

Why Tax Tobacco?

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

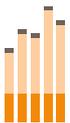
Adam Smith

*An Inquiry into the Nature and Causes
of The Wealth of Nations*



Why Tax Tobacco?

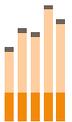
- Efficient revenue generation
 - Primary motive historically and still true in many countries today
 - Very efficient source of revenue given:
 - Historically low share of tax in price in many countries
 - Relatively inelastic demand for tobacco products
 - Few producers and few close substitutes
 - One of many goods/services that satisfies the “Ramsey Rule”



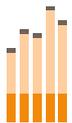
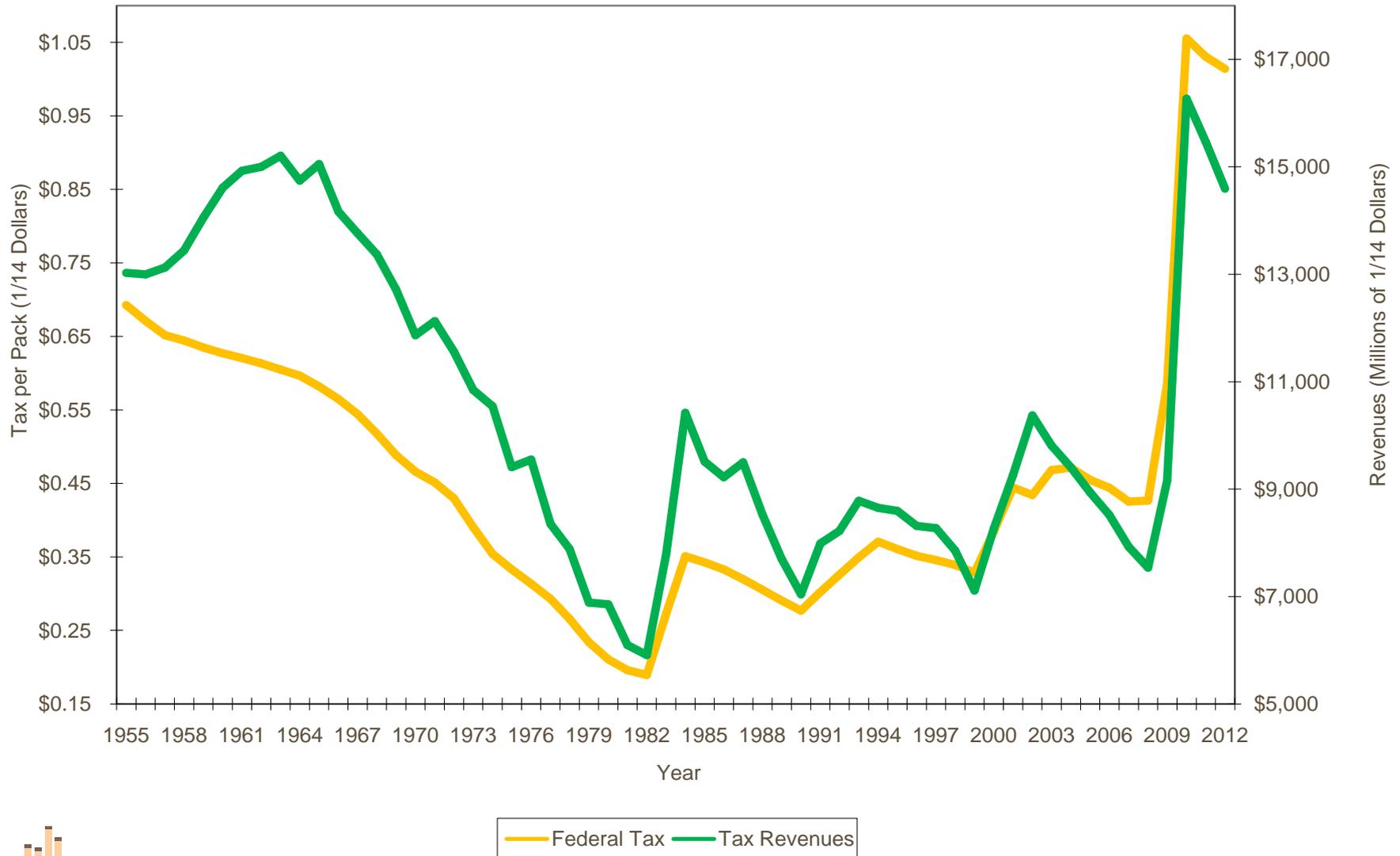
Why Tax Tobacco?

“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



Federal Cigarette Tax and Tax Revenues Inflation Adjusted, 1955-2012



Source: *Tax Burden on Tobacco*, 2013, and author's calculations

Why Tax Tobacco?

- **To promote public health**
 - Increasingly important motive for higher tobacco taxes in many high income countries
 - Emerging as important factor in some low and middle 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

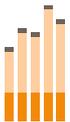
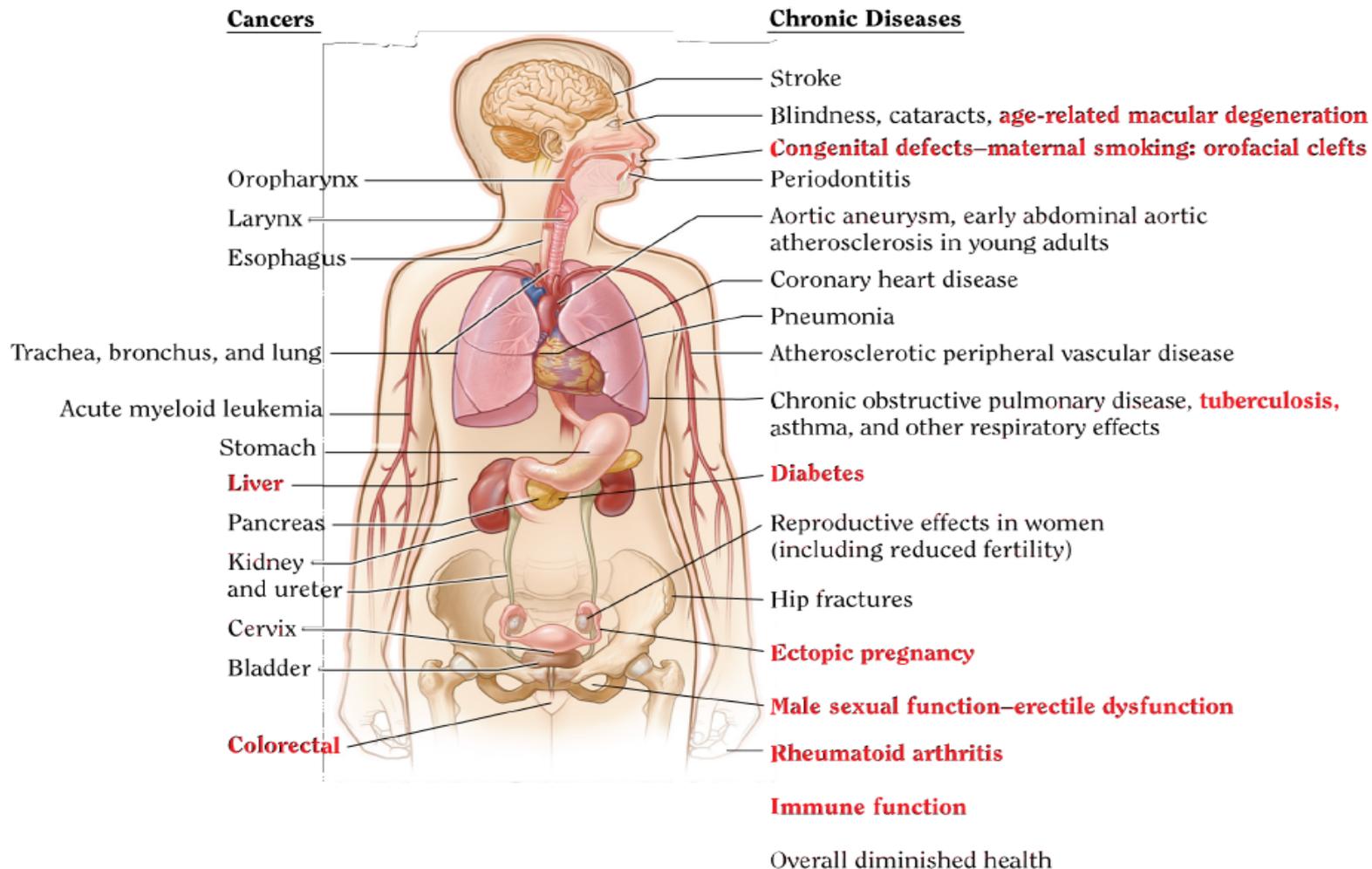


Figure 1.1A The health consequences causally linked to smoking

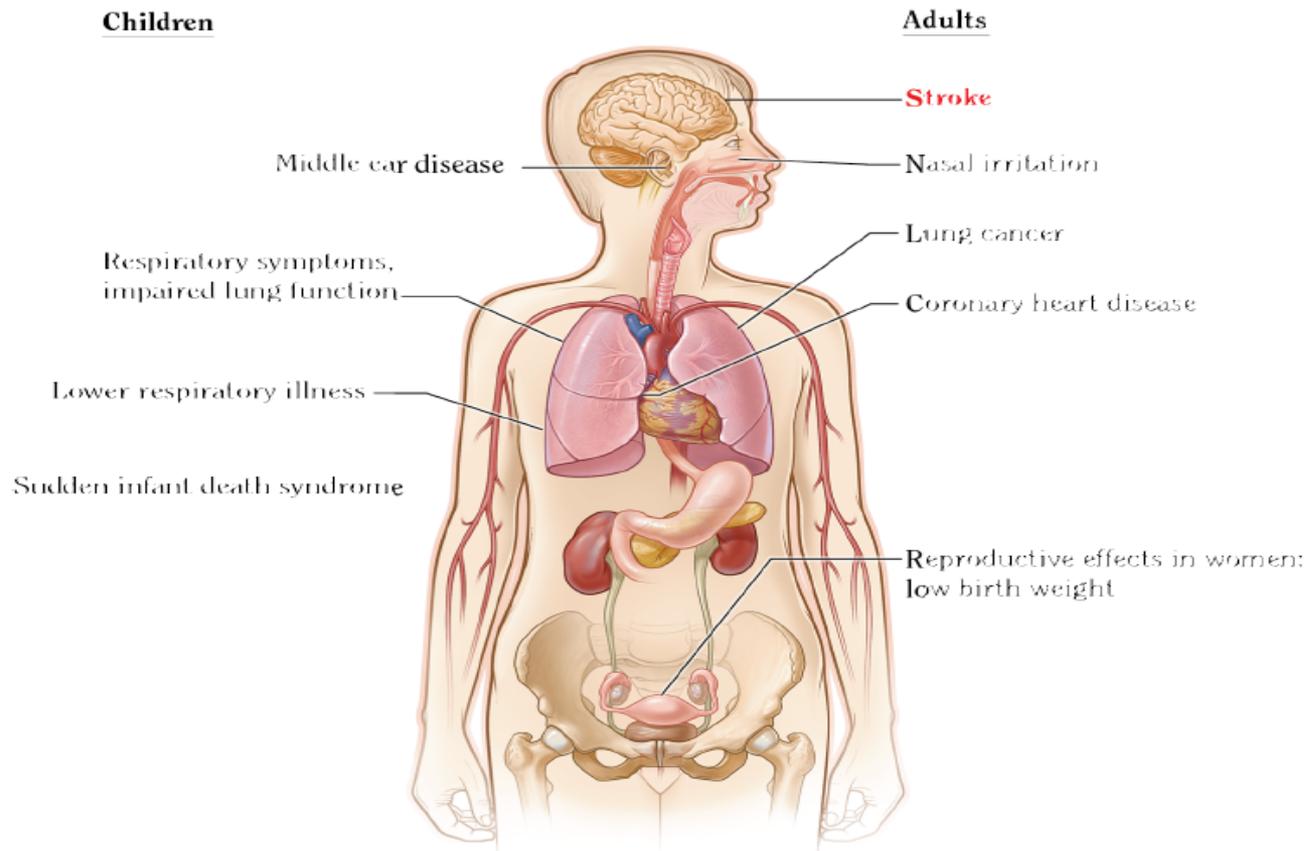


Source: USDHHS 2004, 2006, 2012.

Note: The condition in red is a new disease that has been causally linked to smoking in this report.

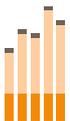


Figure 1.1B The health consequences causally linked to exposure to secondhand smoke



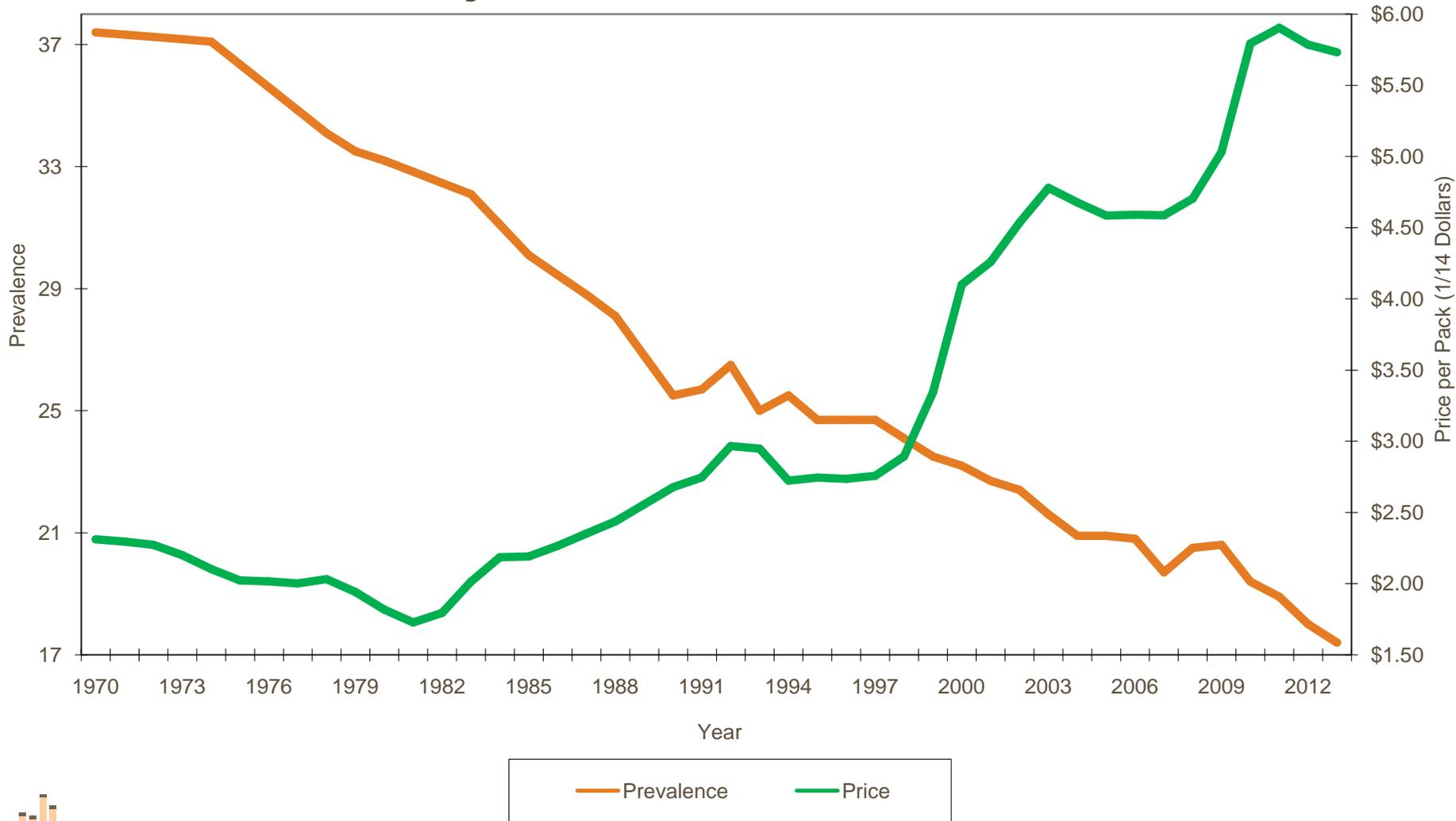
Source: USDHHS 2004, 2006.

Note: The condition in red is a new disease that has been causally linked to smoking in this report.

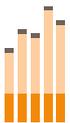


Cigarette Price & Adult Smoking Prevalence

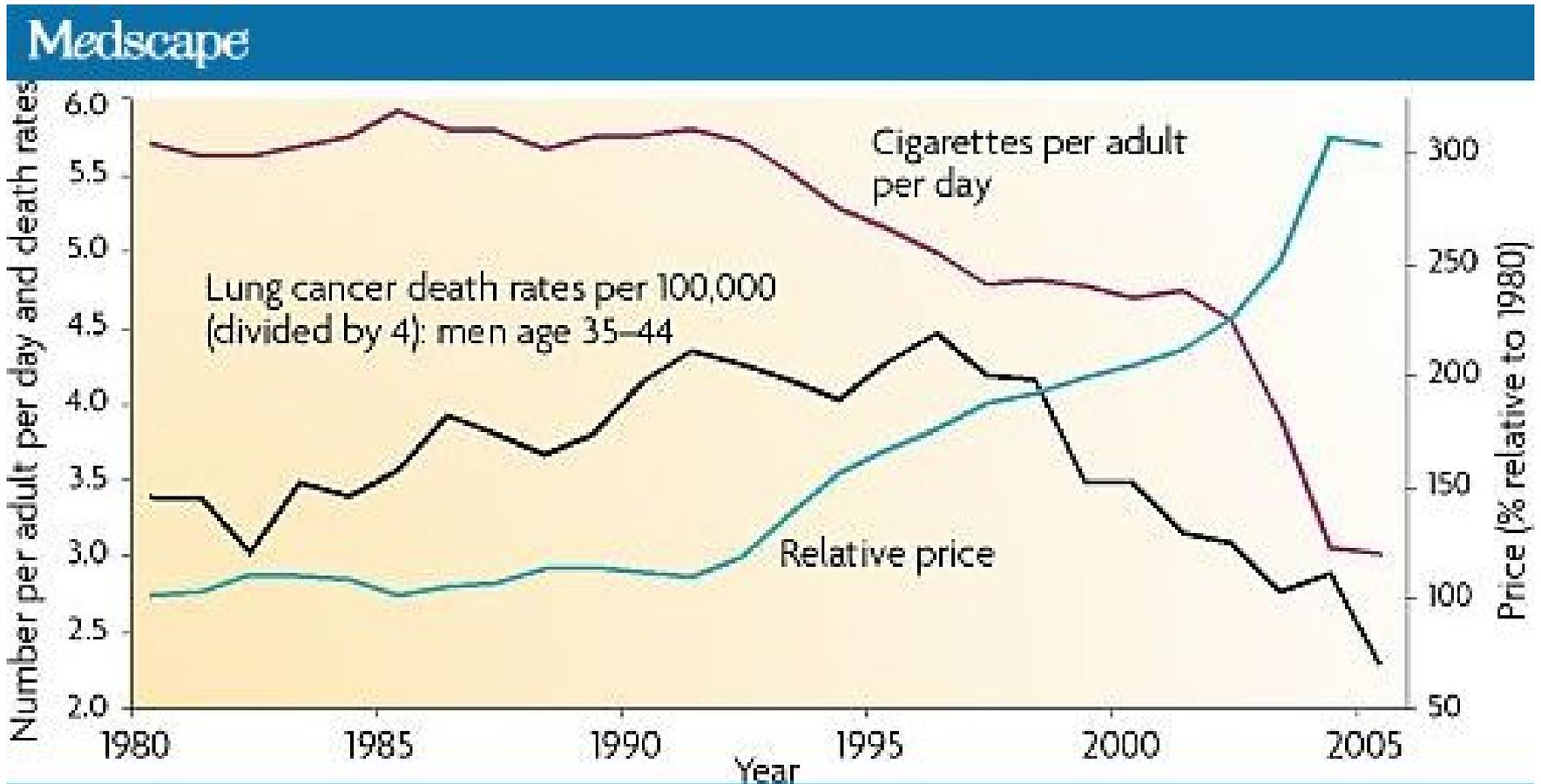
Inflation Adjusted, United States, 1970-2013



Source: *Tax Burden on Tobacco*, 2013, National Health Interview Survey, and author's calculations



Taxes, Prices and Health: US, 1980-2005

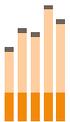


Source: Nat Rev Cancer © 2009 Nature Publishing Group

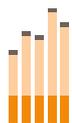
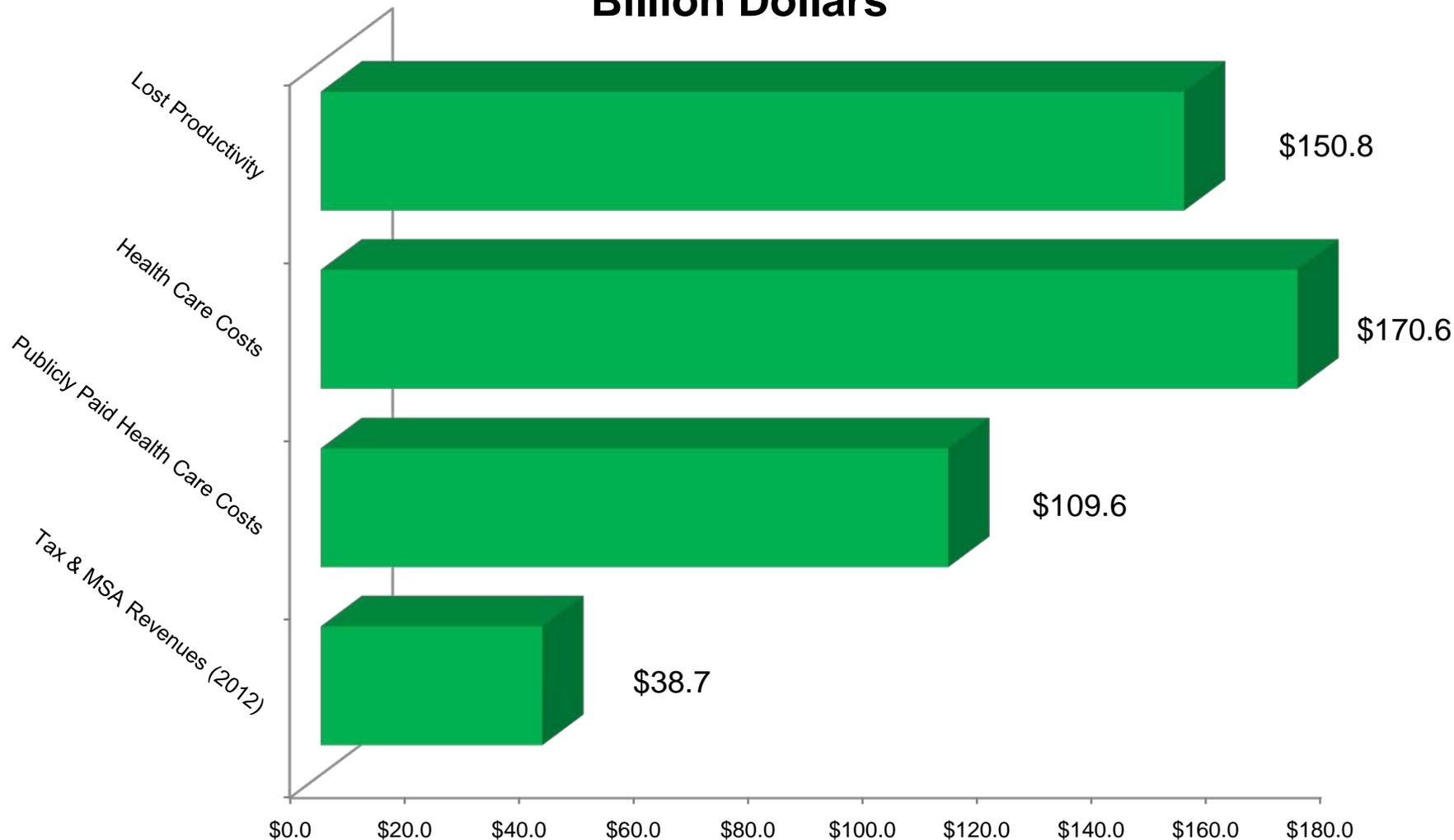


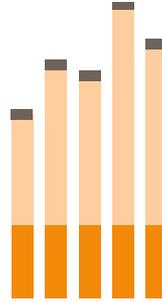
Why Tax Tobacco?

- Cover the external costs of tobacco
 - “Pigouvian” tax
 - Less frequently used motive
 - Account for costs resulting from tobacco use imposed on non-users
 - Increased health care costs, lost productivity from diseases/death caused by exposure to tobacco smoke
 - Increased financial costs related to publicly financed health care used to treat diseases caused by tobacco use
 - Can also include “internalities” that result from addiction and time inconsistent preferences



Annual Economic Costs of Smoking (2010) & Cigarette Tax & MSA Revenues (2012), Billion Dollars

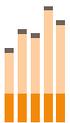




Types of Tobacco Taxes

Types of Tobacco Taxes

- **Variety of tobacco taxes**
 - Taxes on value of tobacco crop
 - Customs duties on tobacco leaf imports and/or exports
 - Customs duties on tobacco product imports and/or exports
 - Sales taxes/Value added taxes
 - Implicit taxes when government monopolizes tobacco product production and/or distribution
 - Tobacco excise taxes (or similar taxes)

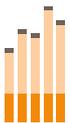


Types of Tobacco Taxes

- **Tobacco Excise Taxes**

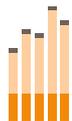
- Two types of excises

- Specific Taxes: excises based on quantity or weight (e.g. tax per pack of 20 cigarettes)
- Ad Valorem taxes: excises based on value of tobacco products (e.g. a specific percentage of manufacturer's prices for tobacco products)
- Some countries use a mix of specific and *ad valorem* tobacco excises, differential taxes for different products of given type, minimum taxes, etc.
- Many countries apply different types of taxes and/or tax rates on different types of tobacco products (e.g. manufactured cigarettes vs. bidis)

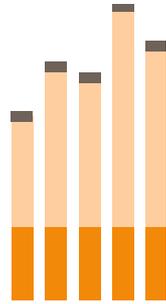


Excise systems for cigarettes

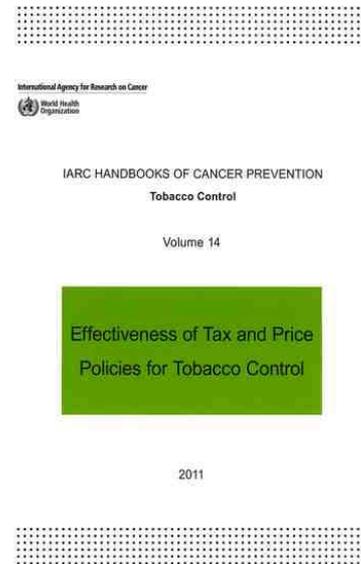
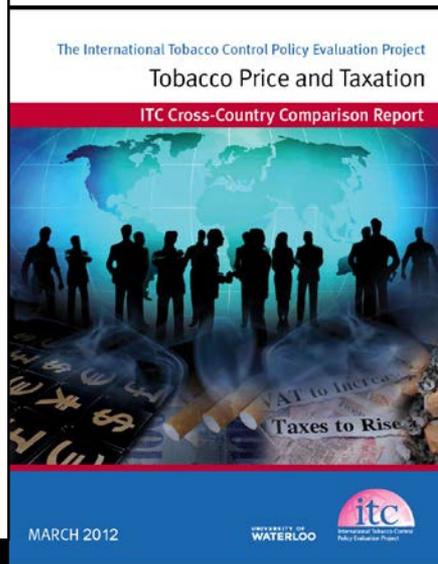
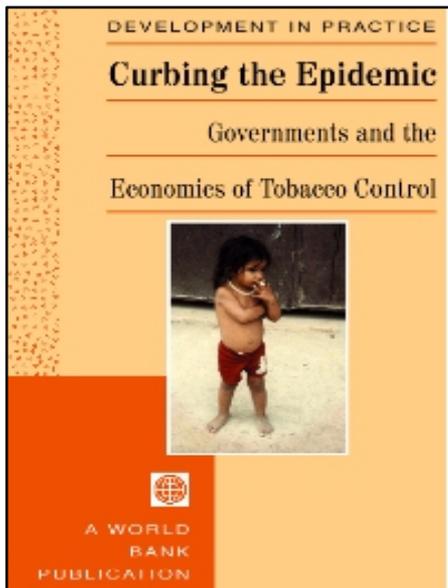
	Number of countries
Total covered	186
Specific excise only	56
Ad valorem excise only	50
Mixture of both excises	60
No Excise	20



Source: WHO GTCR IV

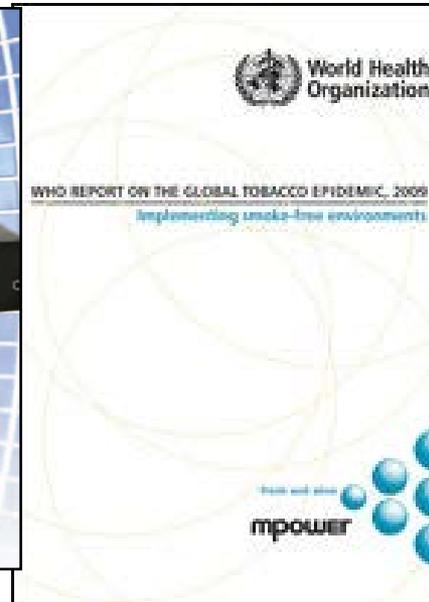
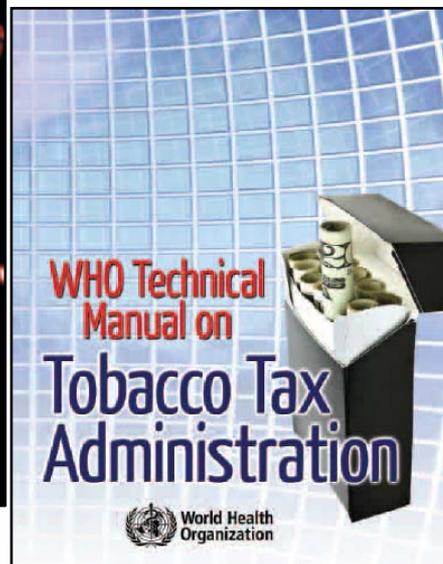
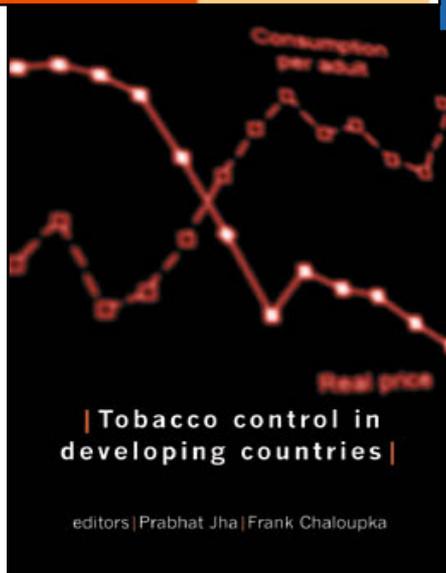
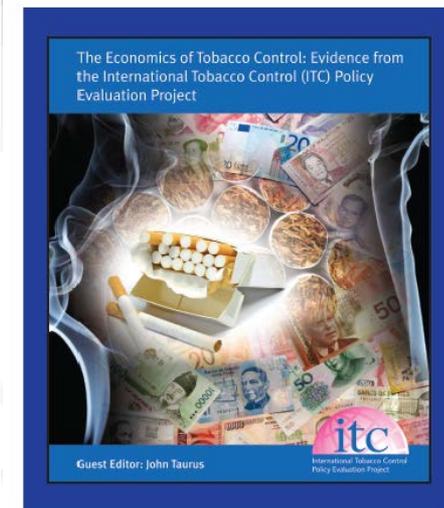


Tobacco Taxes, Prices & Tobacco Use



March 2014 Volume 23 Supplement 1

TOBACCO CONTROL



tobaccocontrol.bmj.com

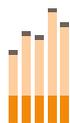
BMJ



Guidelines for implementation of Article 6
Price and tax measures to reduce the demand for tobacco

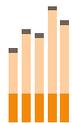
Adopted by the Conference of the Parties at its sixth session (decision FCTC/COP6(5))

Online version available at http://www.who.int/fctc/treaty_instruments/guidelines_article_6.pdf



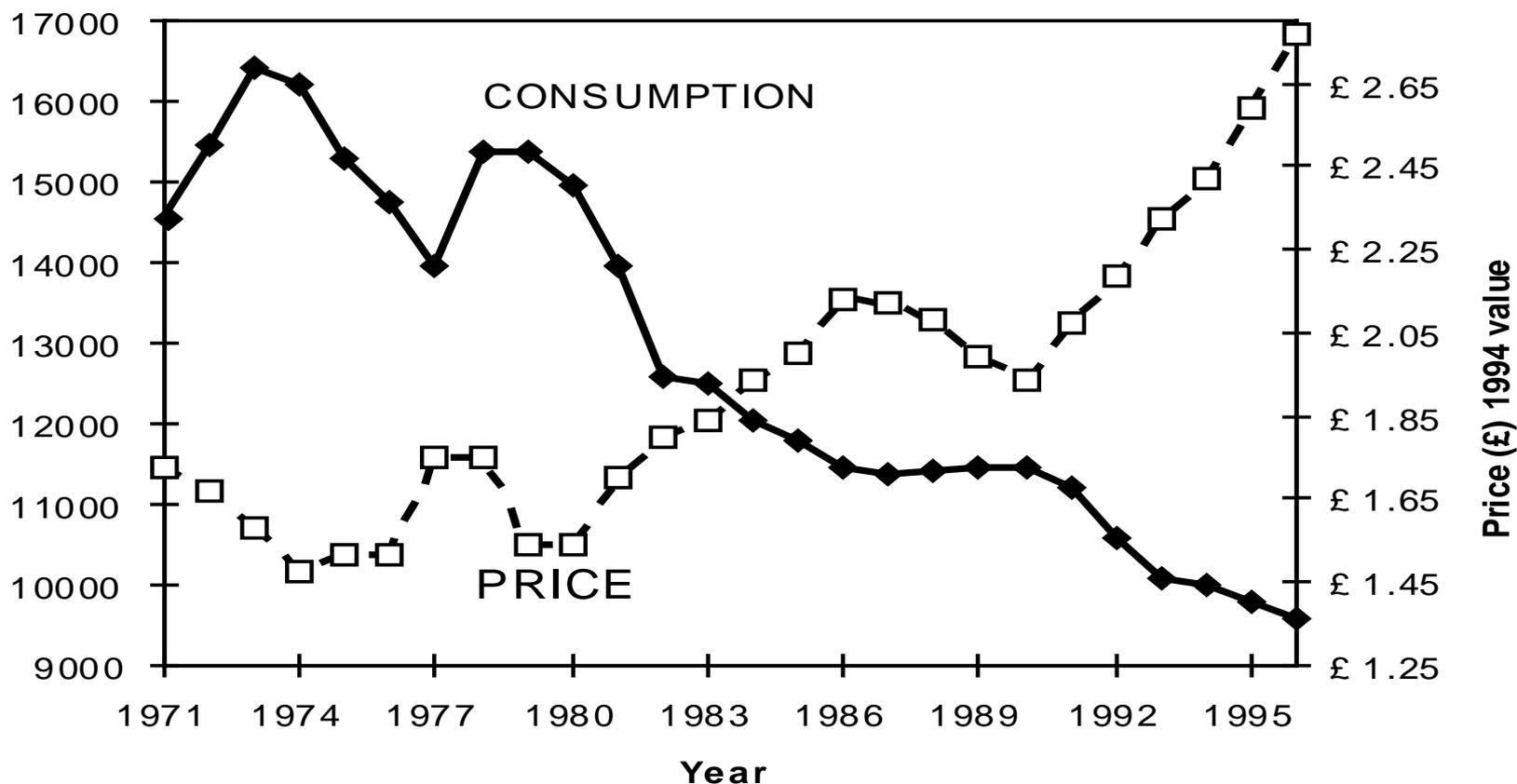
Taxes, Prices & Tobacco Use

- **Increases in tobacco product taxes and 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



Taxes, Prices & Tobacco Use

Inflation adjusted cigarette prices and cigarette consumption, United Kingdom, 1971-1996

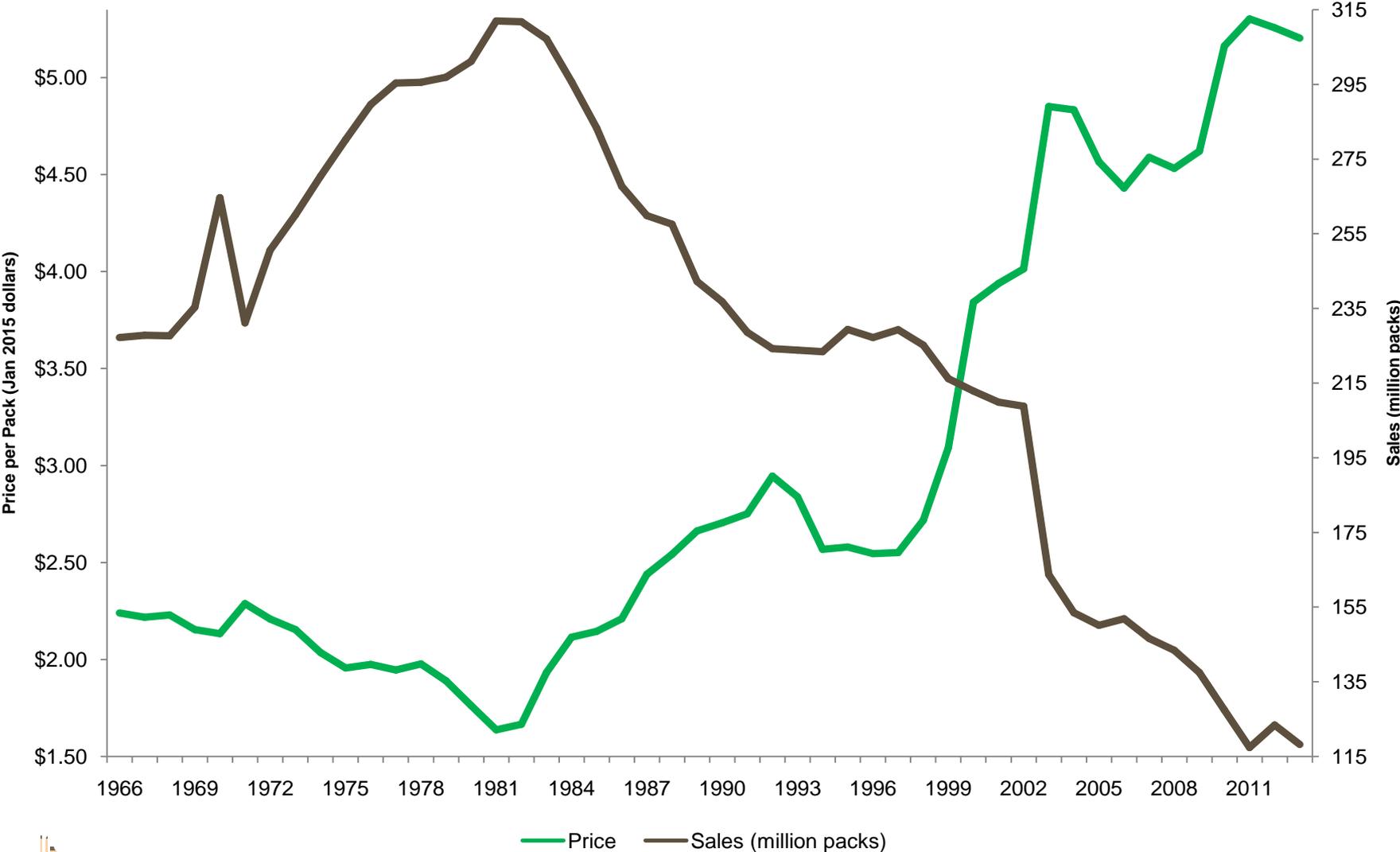


Source: Townsend 1998



Cigarette Prices and Cigarette Sales

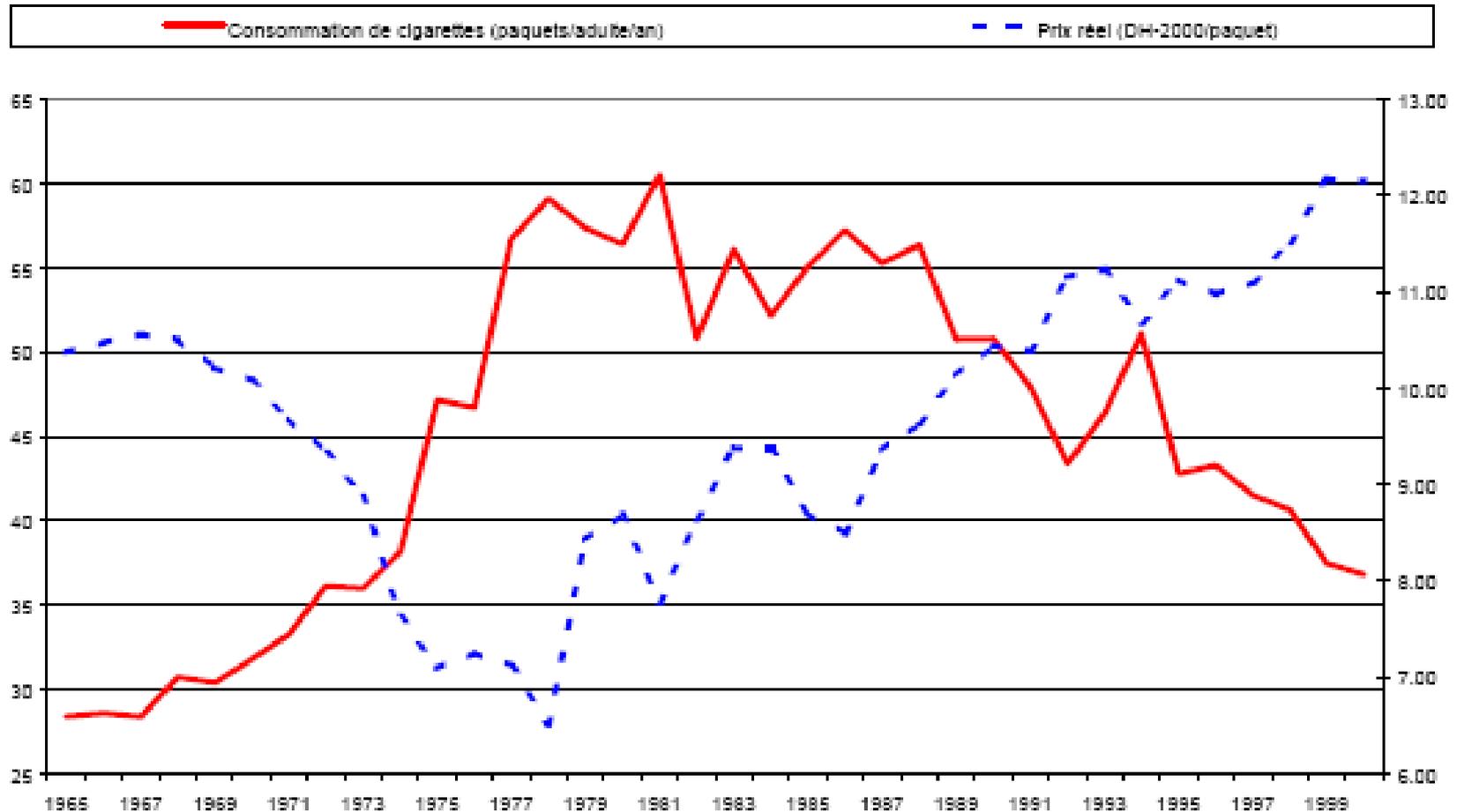
Kansas, 1966-2013, Inflation Adjusted



Sources: Tax Burden on Tobacco, 2014; Bureau of Labor Statistics; and Authors' Calculations

Taxes, Prices & Tobacco Use

Inflation Adjusted Cigarette Prices and Cigarette Consumption, Morocco, 1965-2000

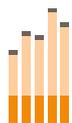


Source: Aloui, 2003

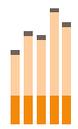
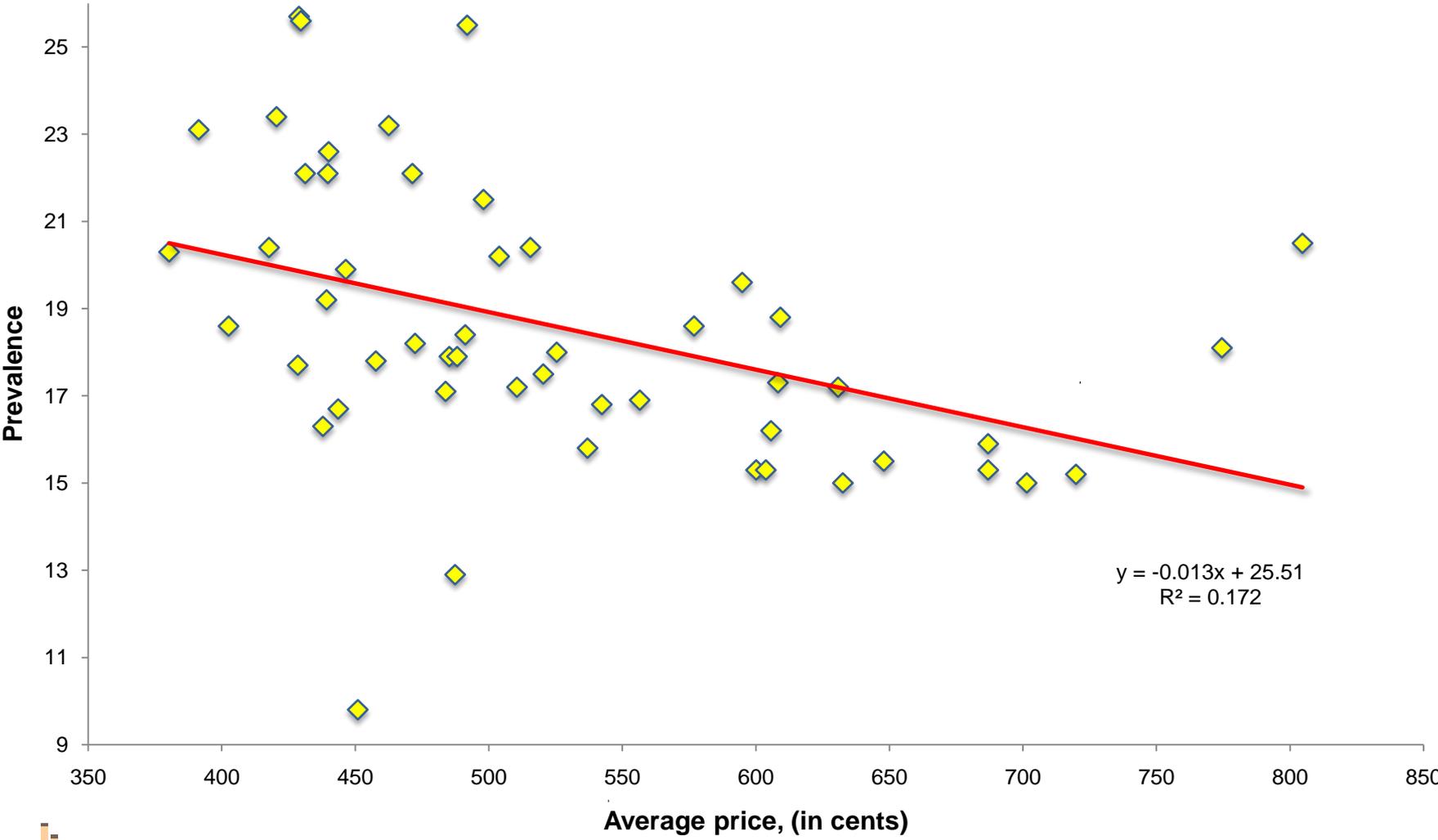


Cigarette Price & Consumption

Hungary, 1990-2011, Inflation Adjusted



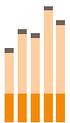
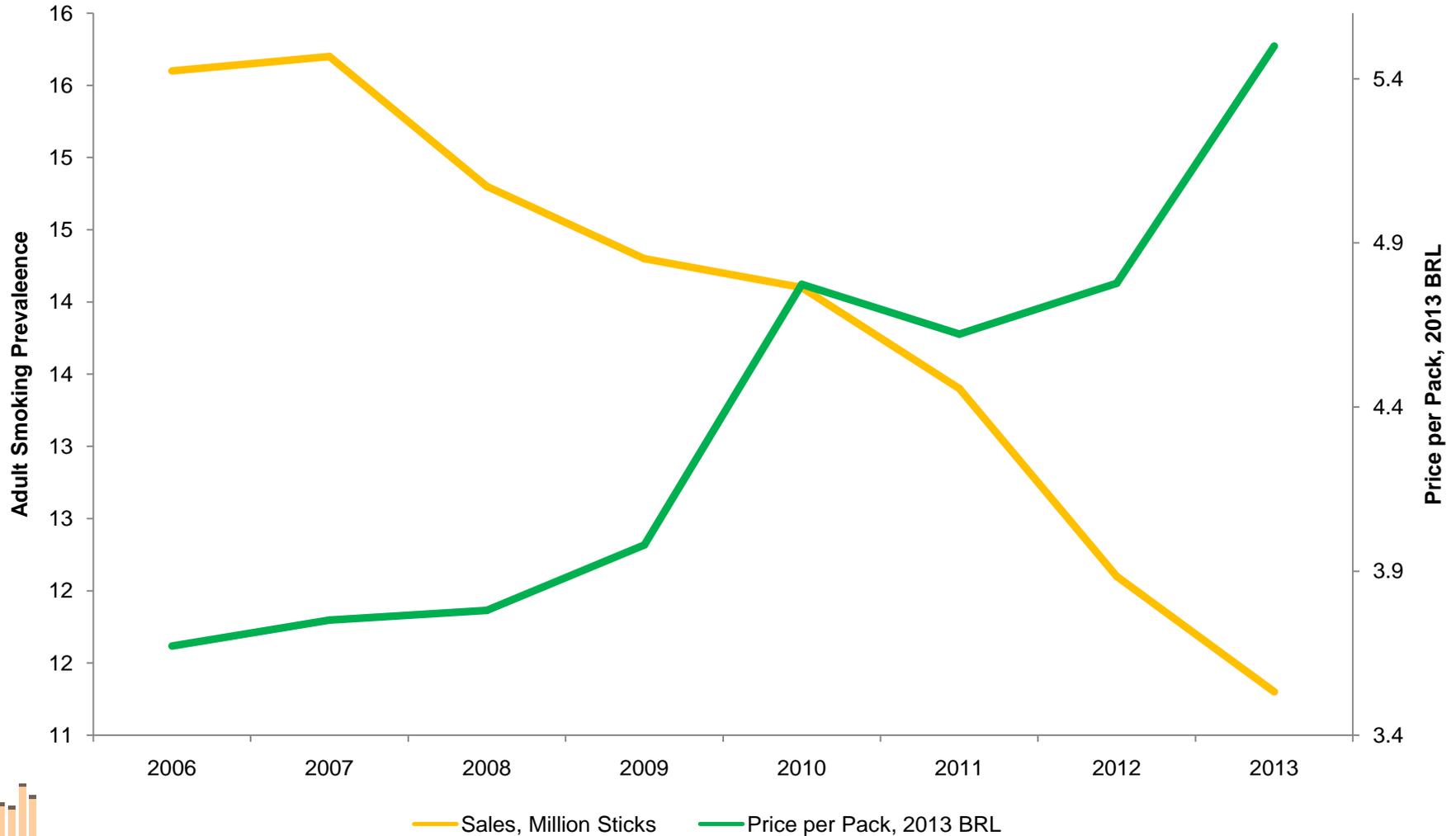
Cigarette and Adult Smoking Prevalence US States & DC, 2009



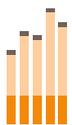
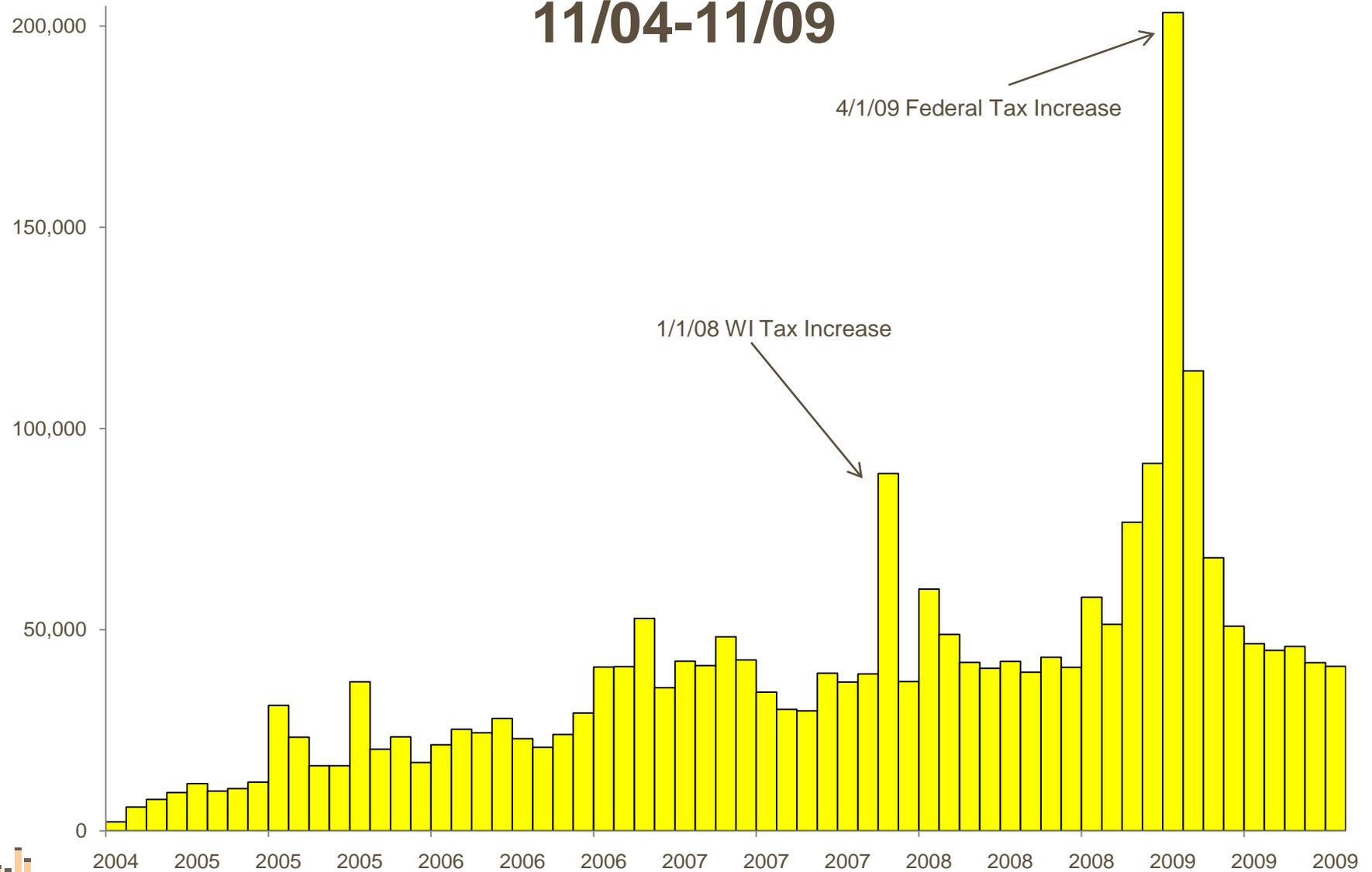
Source: BRFSS, *Tax Burden on Tobacco*, 2010, and author's calculations

Adult Prevalence & Price, Brazil

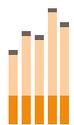
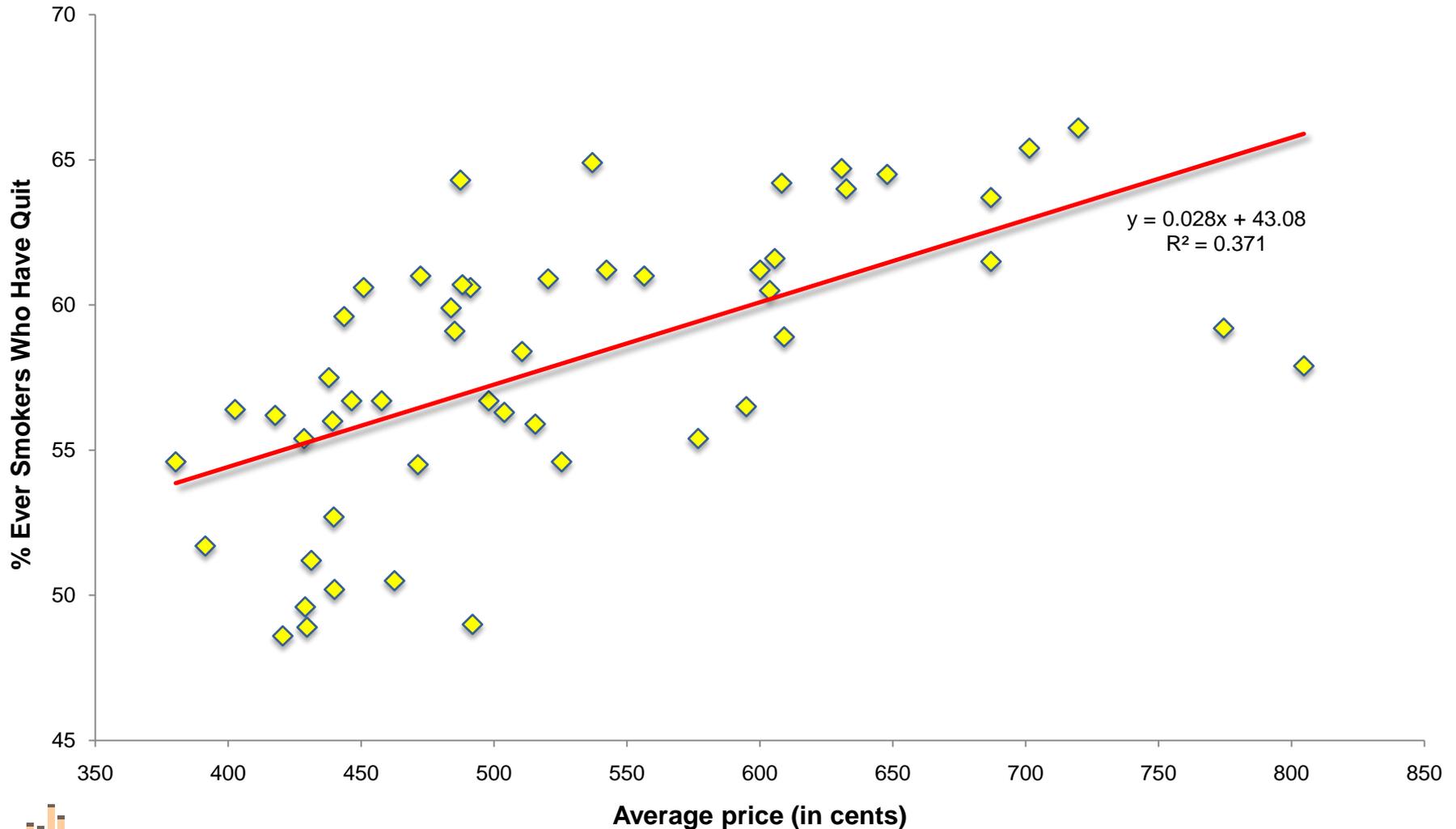
Adult Smoking Prevalence and Cigarette Price Brazil, Inflation Adjusted, 2006-2013



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

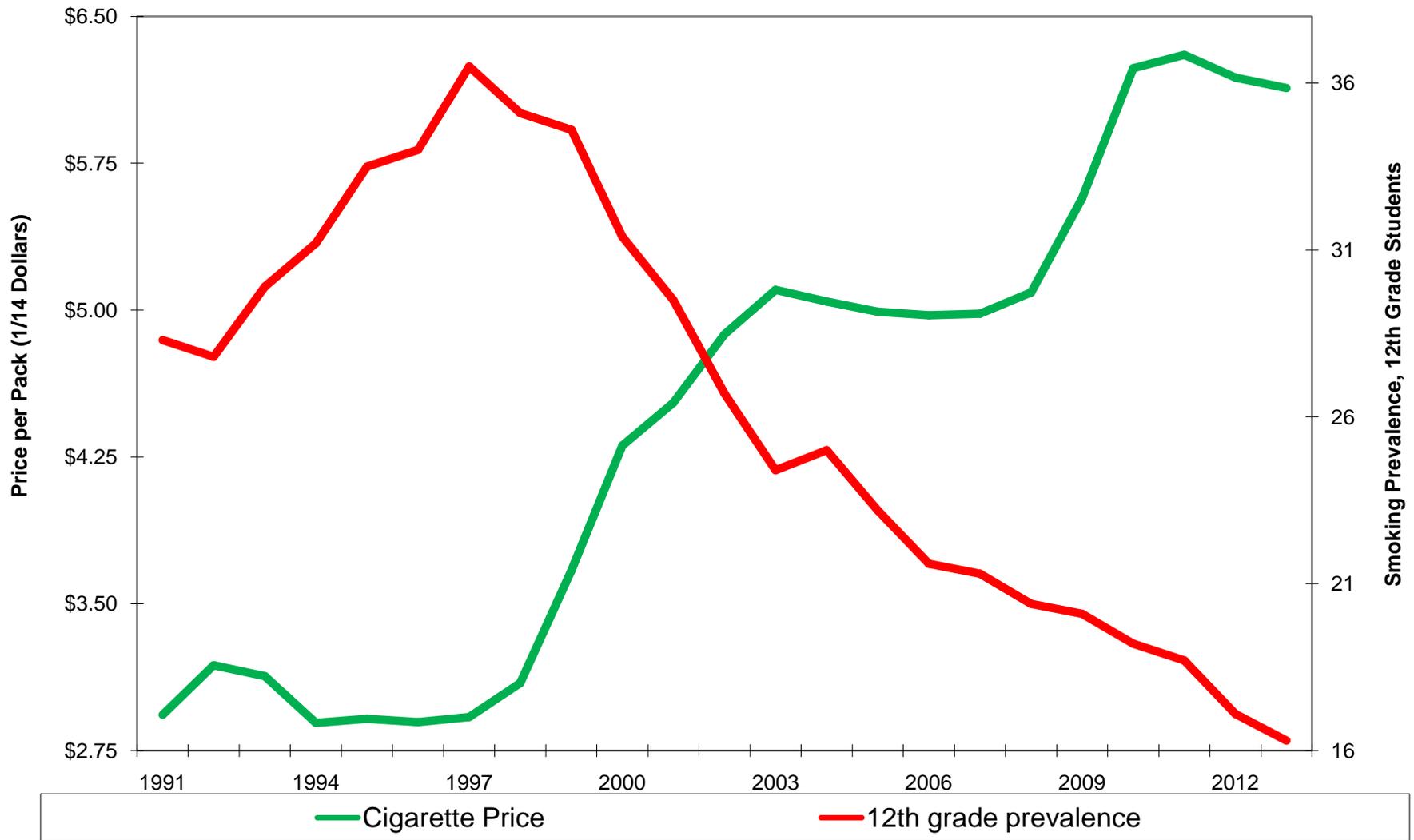


Cigarette Prices and Cessation US States & DC, 2009

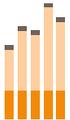


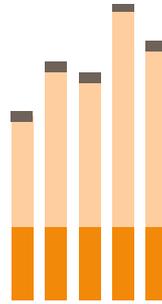
Source: BRFSS, *Tax Burden on Tobacco*, 2010, and author's calculations

Cigarette Price & Youth Smoking Prevalence High School Seniors, United States, 1991-2013



Sources: *Tax Burden on Tobacco*, BLS, MTF, and author's calculations

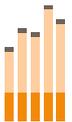


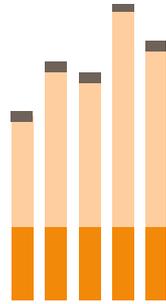


Economic Impact of Tobacco Taxes

Oppositional Arguments

- Won't generate additional revenues
- Will harm the poor
- Will adversely affect the economy
- Will cause extensive tax avoidance & tax evasion





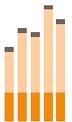
Tobacco Taxes - Oppositional Arguments: Revenue Impact

Taxes and Revenues

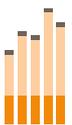
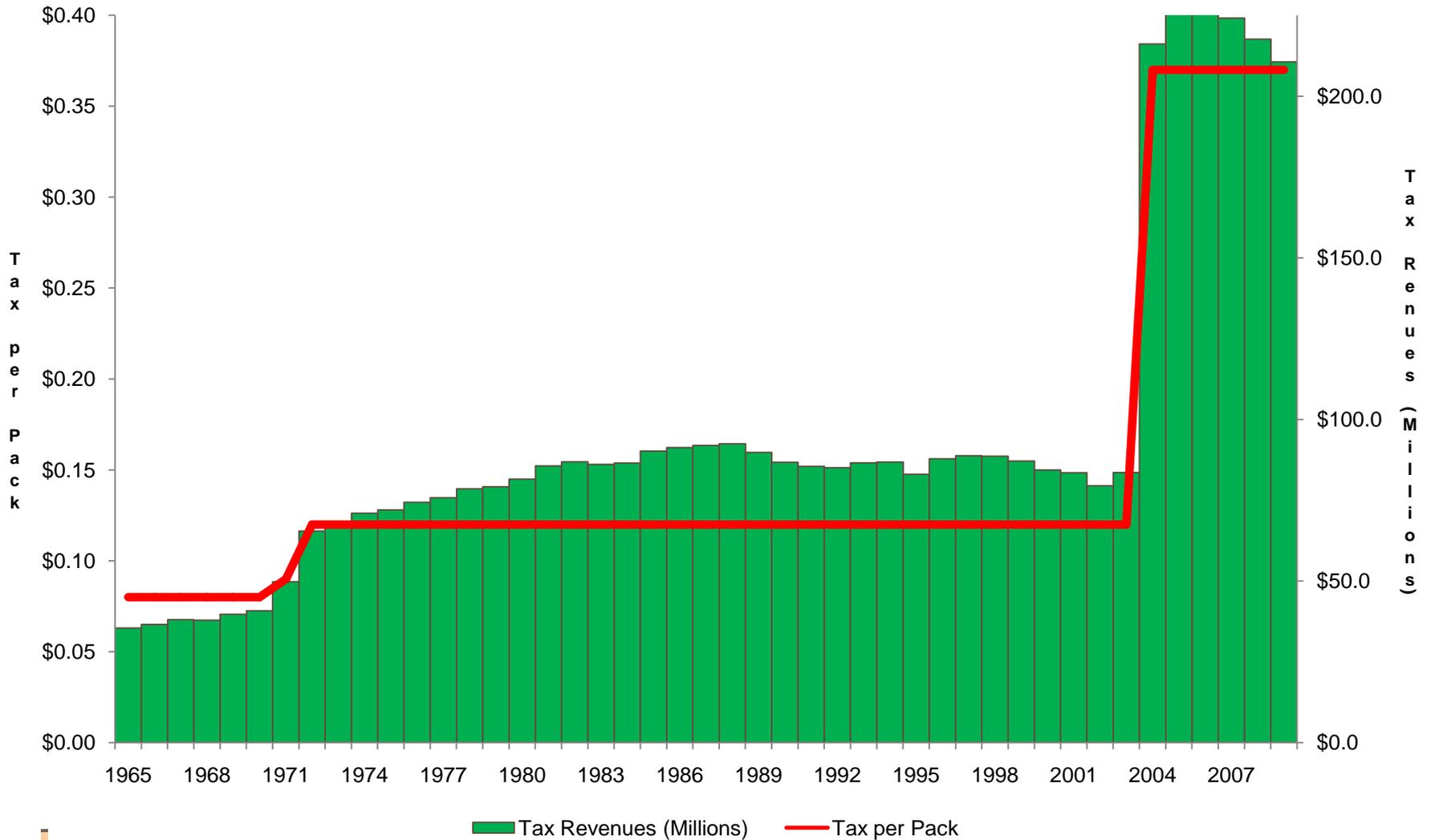
By *J Scott Moody*, 4/2/08, from an [AP story](#):

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

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

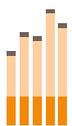
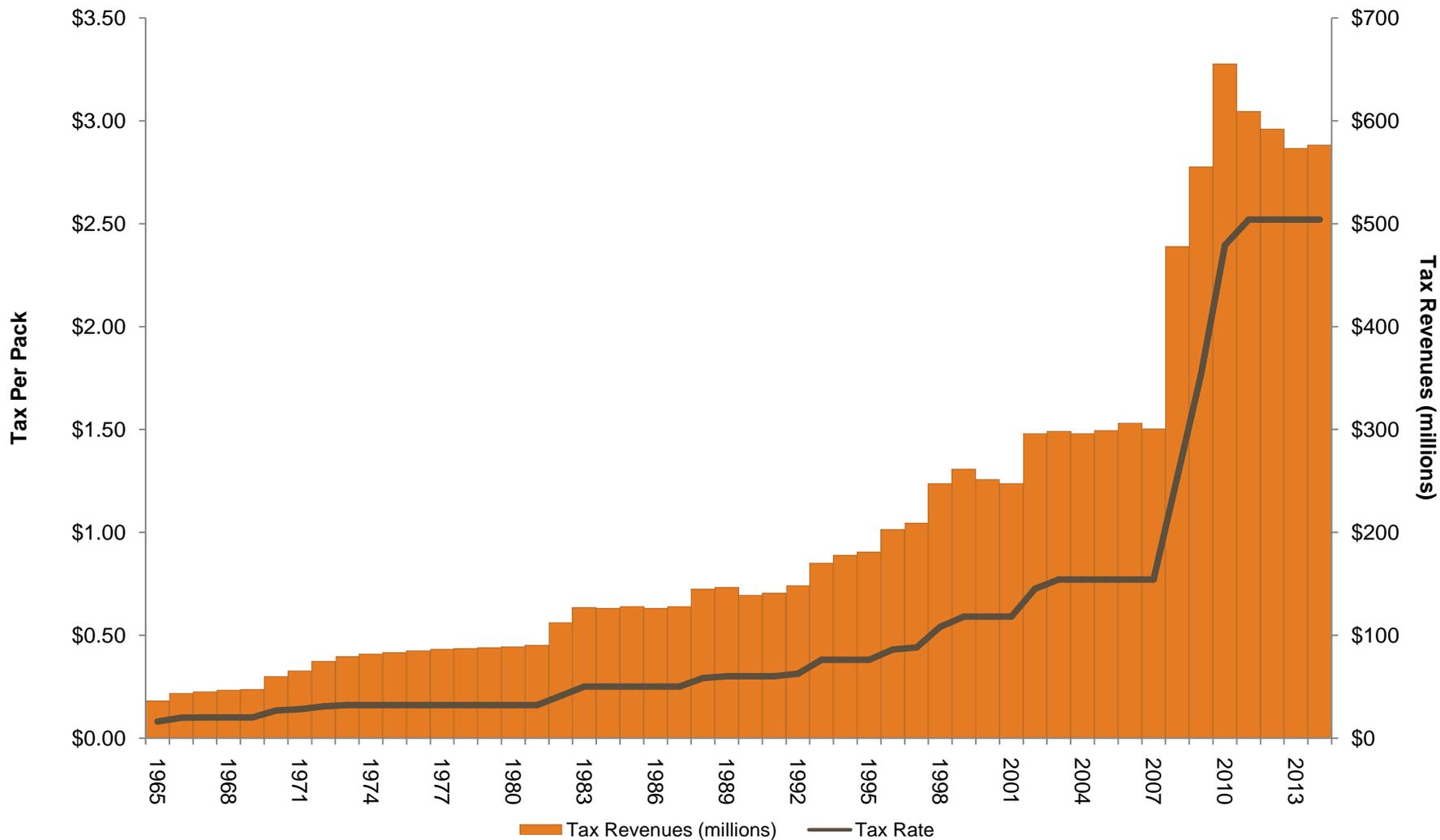


Cigarette Tax and Tax Revenues Georgia, 1965-2009



Cigarette Tax and Tax Revenues

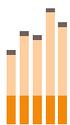
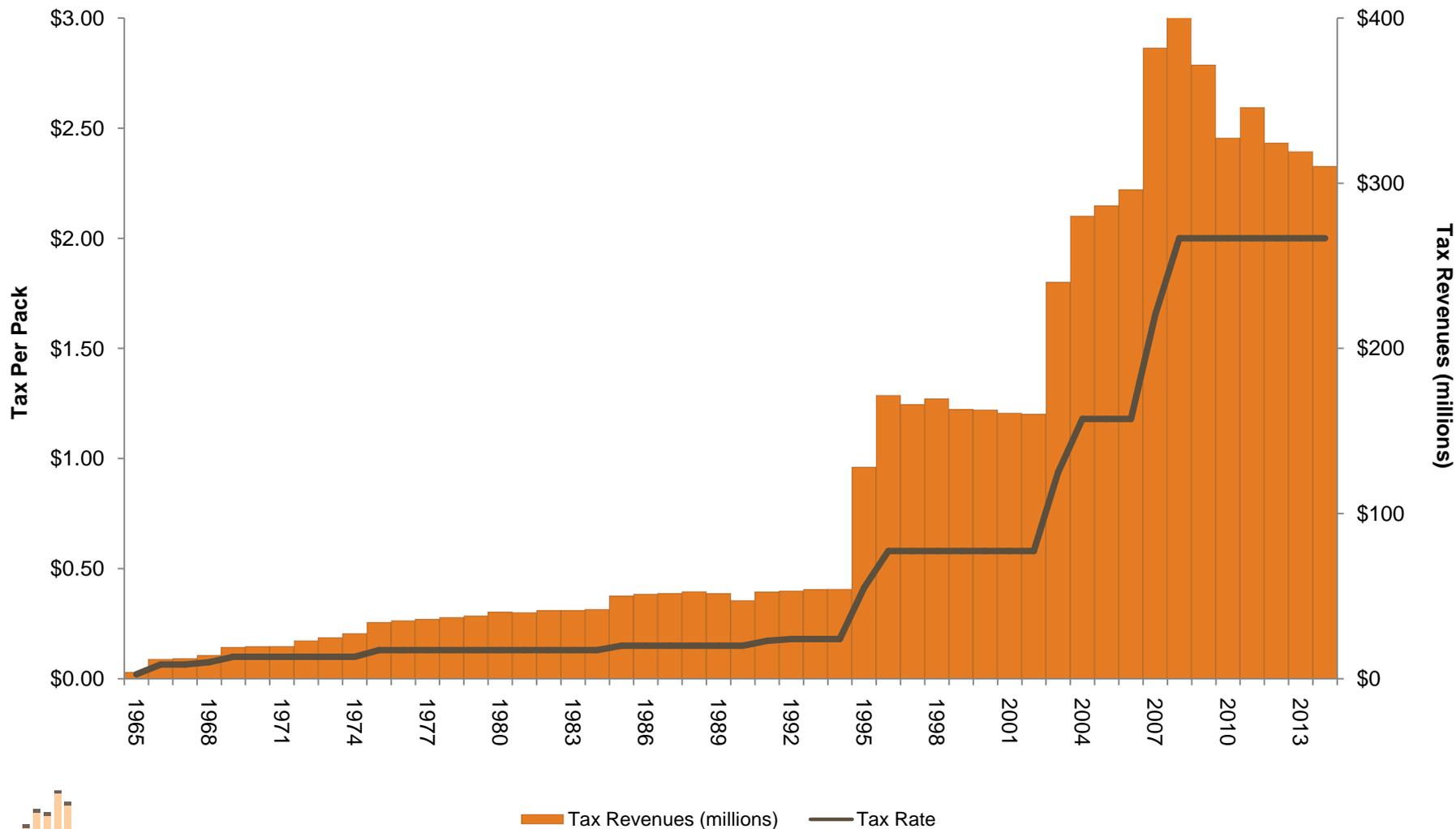
Wisconsin, 1965-2014



Sources: Tax Burden on Tobacco, 2014, and Authors' Calculations

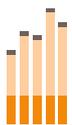
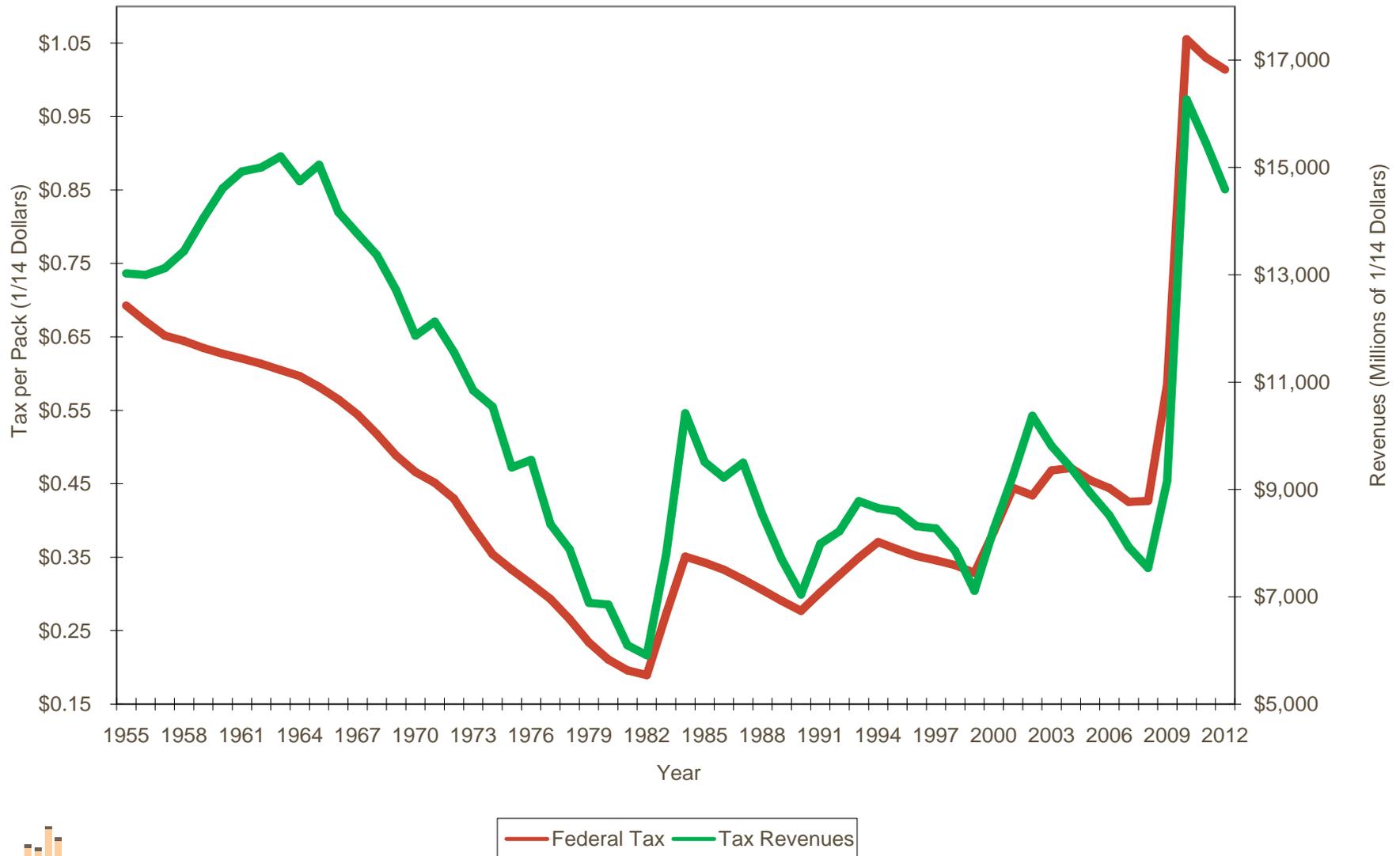
Cigarette Tax and Tax Revenues

Arizona, 1965-2014



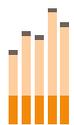
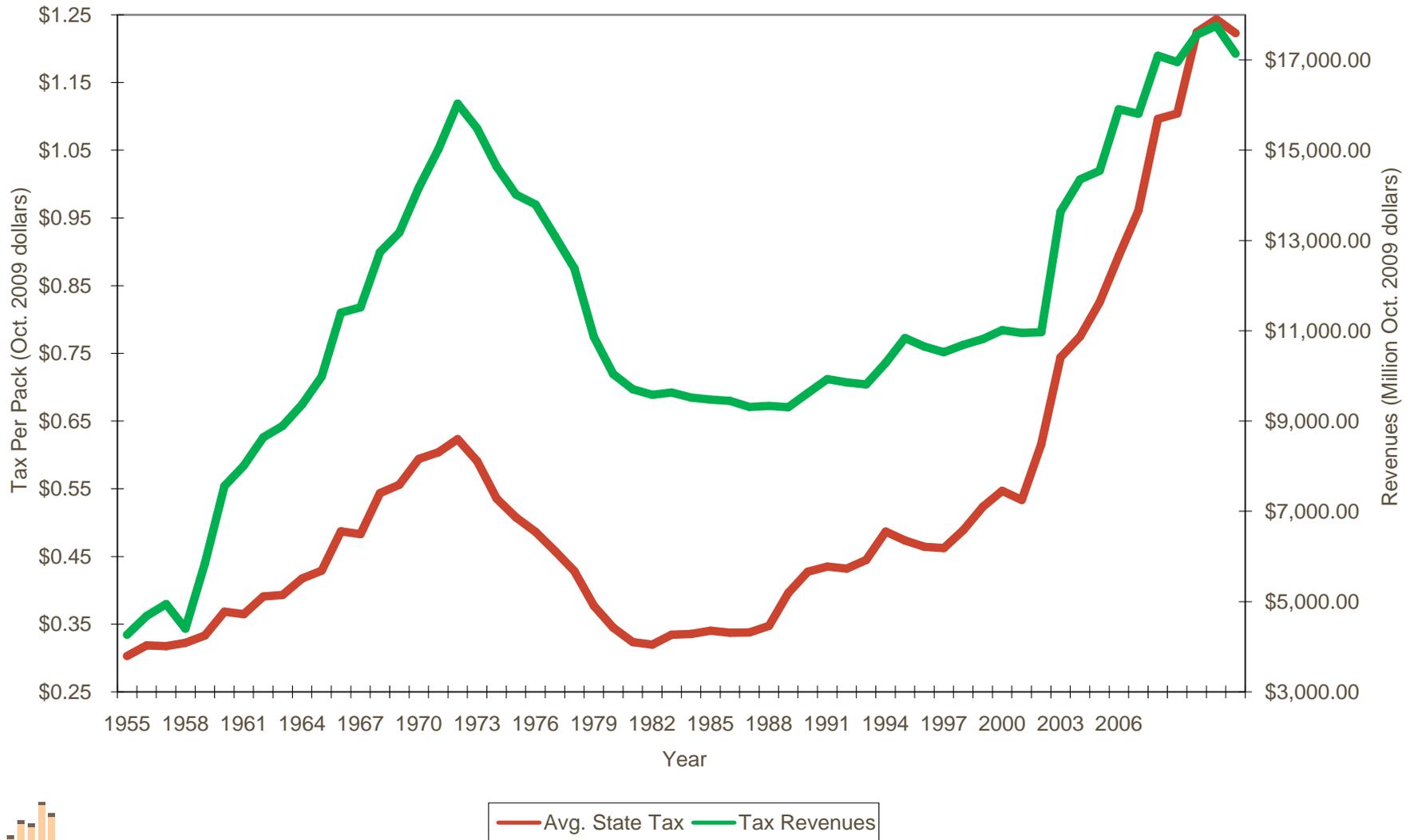
Sources: Tax Burden on Tobacco, 2013, and Authors' Calculations

Federal Cigarette Tax and Tax Revenues Inflation Adjusted, 1955-2012



Source: *Tax Burden on Tobacco*, 2013, and author's calculations

State Cigarette Taxes and Tax Revenues Inflation Adjusted, 1955-2012



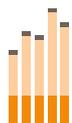
Source: *Tax Burden on Tobacco*, 2013, and author's calculations

Cigarette Tax and Tax Revenues Inflation Adjusted, Illinois, 1956-2013

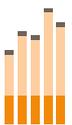
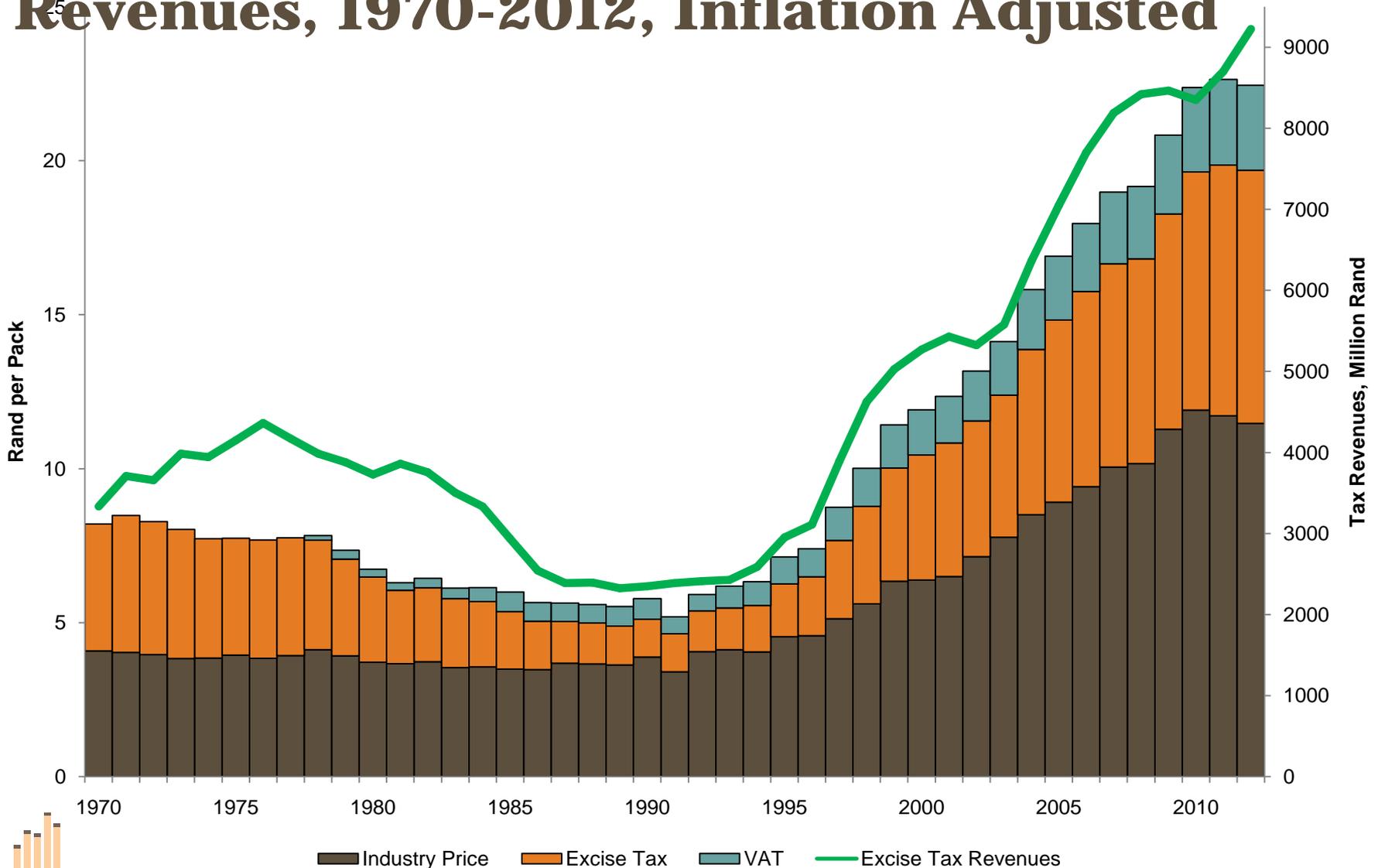


Source: *Tax Burden on Tobacco*, 2013; IL Dept. of Revenue, and author's calculations

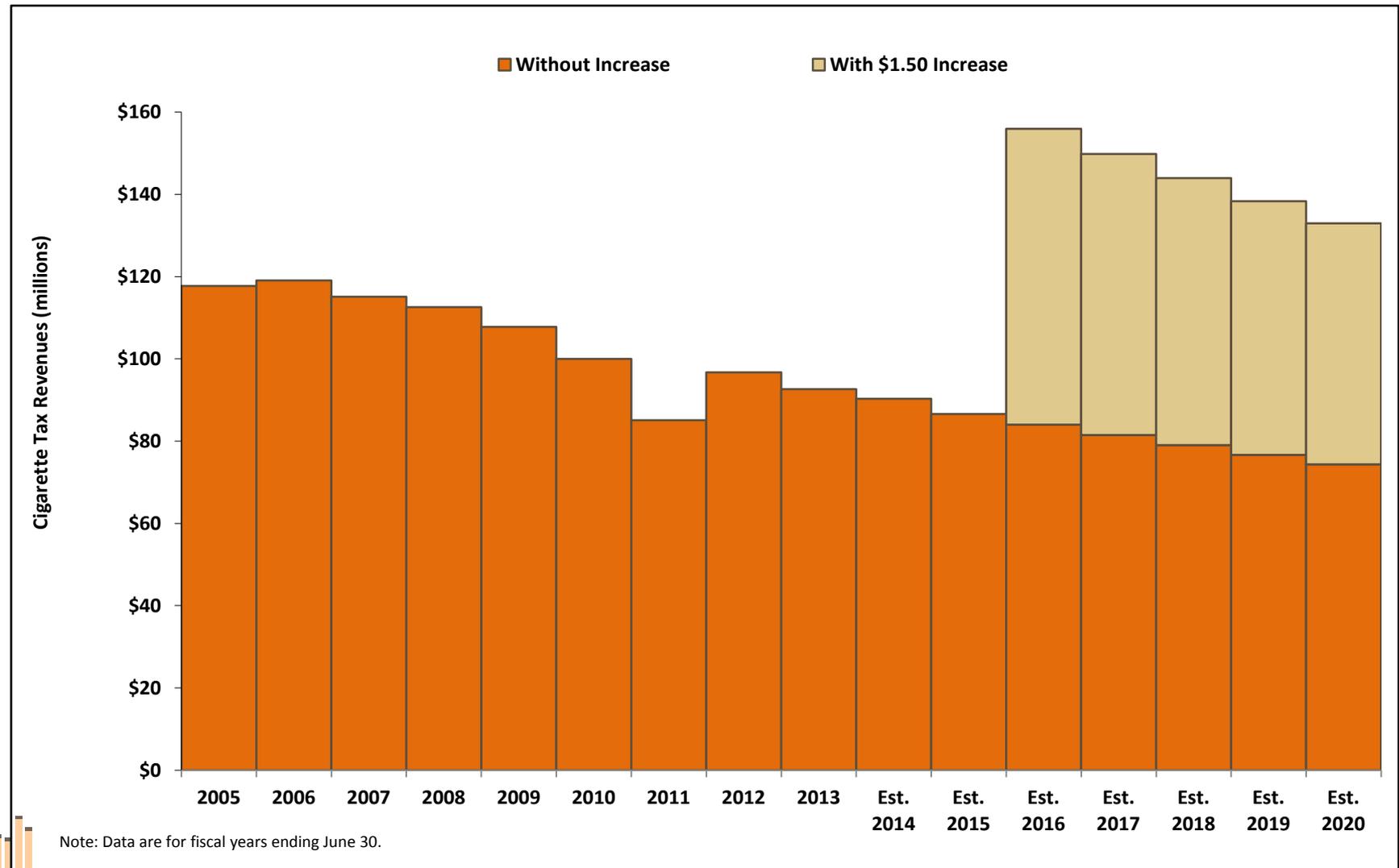
Cigarette real price & real tax revenue – United Kingdom



South Africa - Taxes, Prices, and Tax Revenues, 1970-2012, Inflation Adjusted



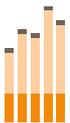
Estimated Future Cigarette Tax Revenues Kansas



Sources: Tax Burden on Tobacco, 2013 and Authors' Calculations

Sufficient Evidence that:

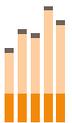
Tobacco tax increases increase tobacco tax revenues.



Sustainability of Cigarette Tax Revenues

Some suggest increases in revenues won't be sustained over time

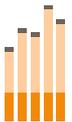
- Looked at significant state tax increases over past 20 years where increase was maintained for at least 5 years
- Separately for states with major tobacco control programs



Sustainability of Cigarette Tax Revenues

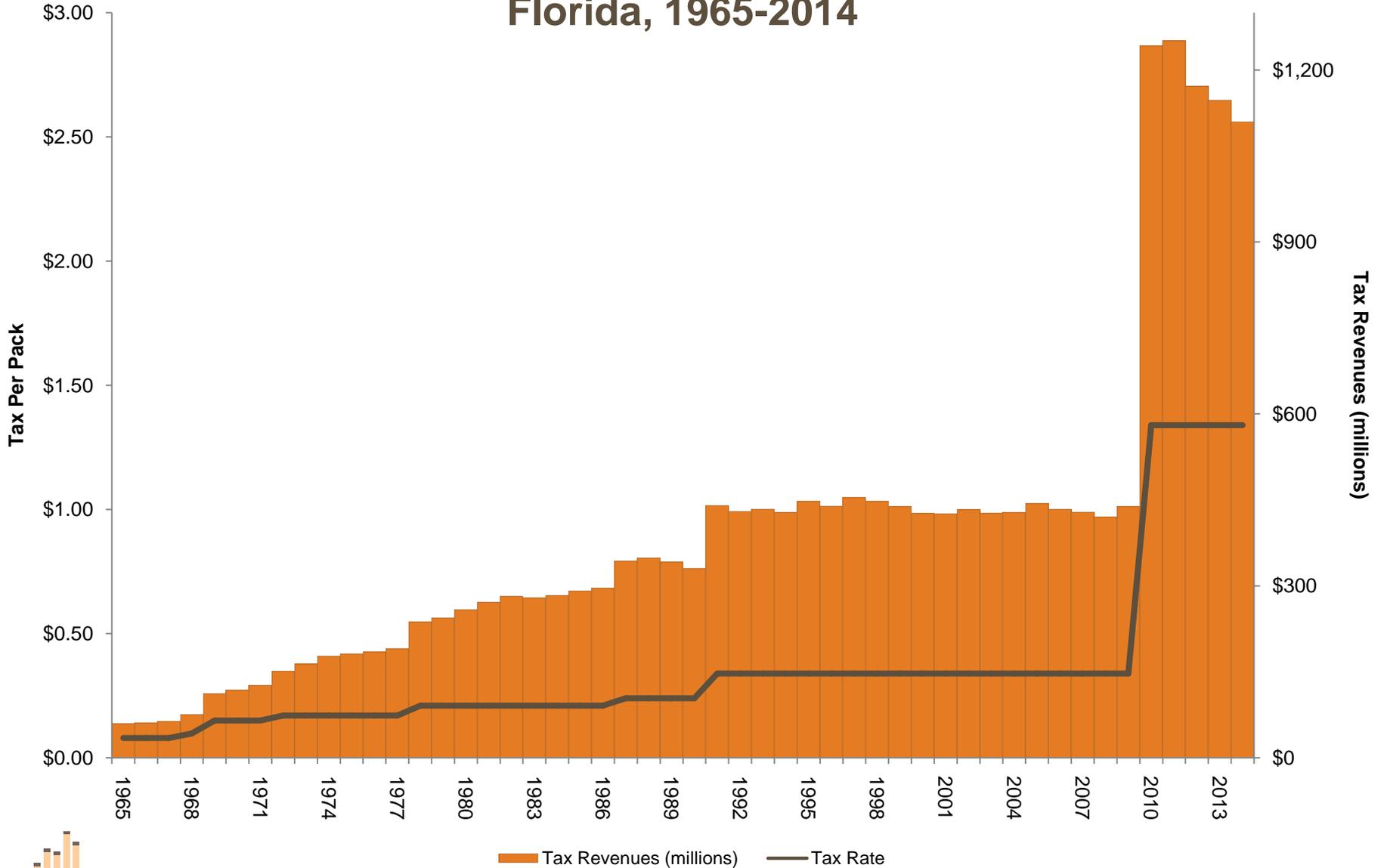
- *Conclusions:*

- All significant state tax increases result 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
 - Tobacco tax revenues more predictable than other revenues

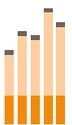


Cigarette Tax and Tax Revenues

Florida, 1965-2014

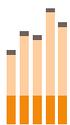
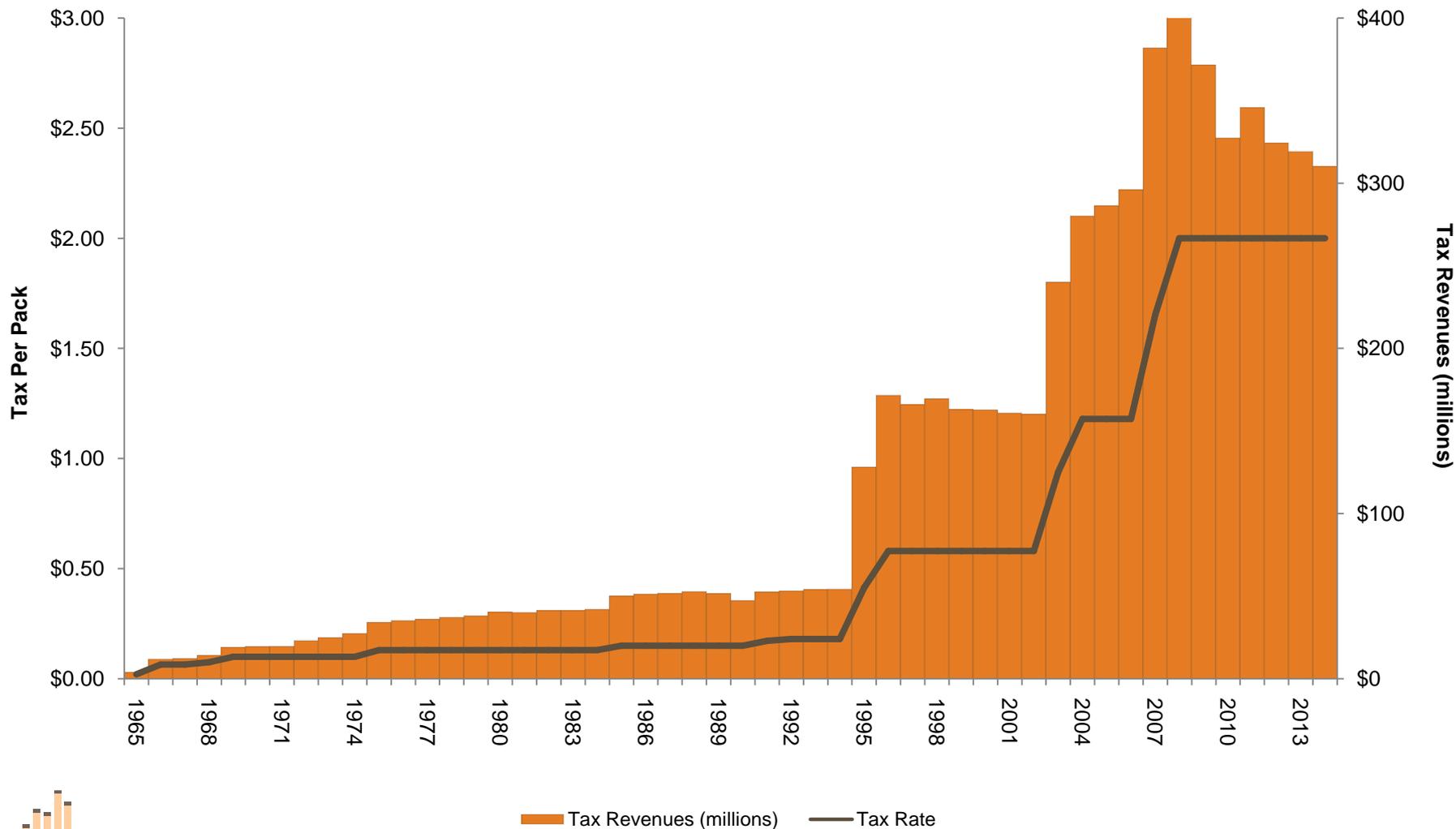


Sources: Tax Burden on Tobacco, 2013, and Authors' Calculations



Cigarette Tax and Tax Revenues

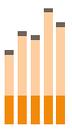
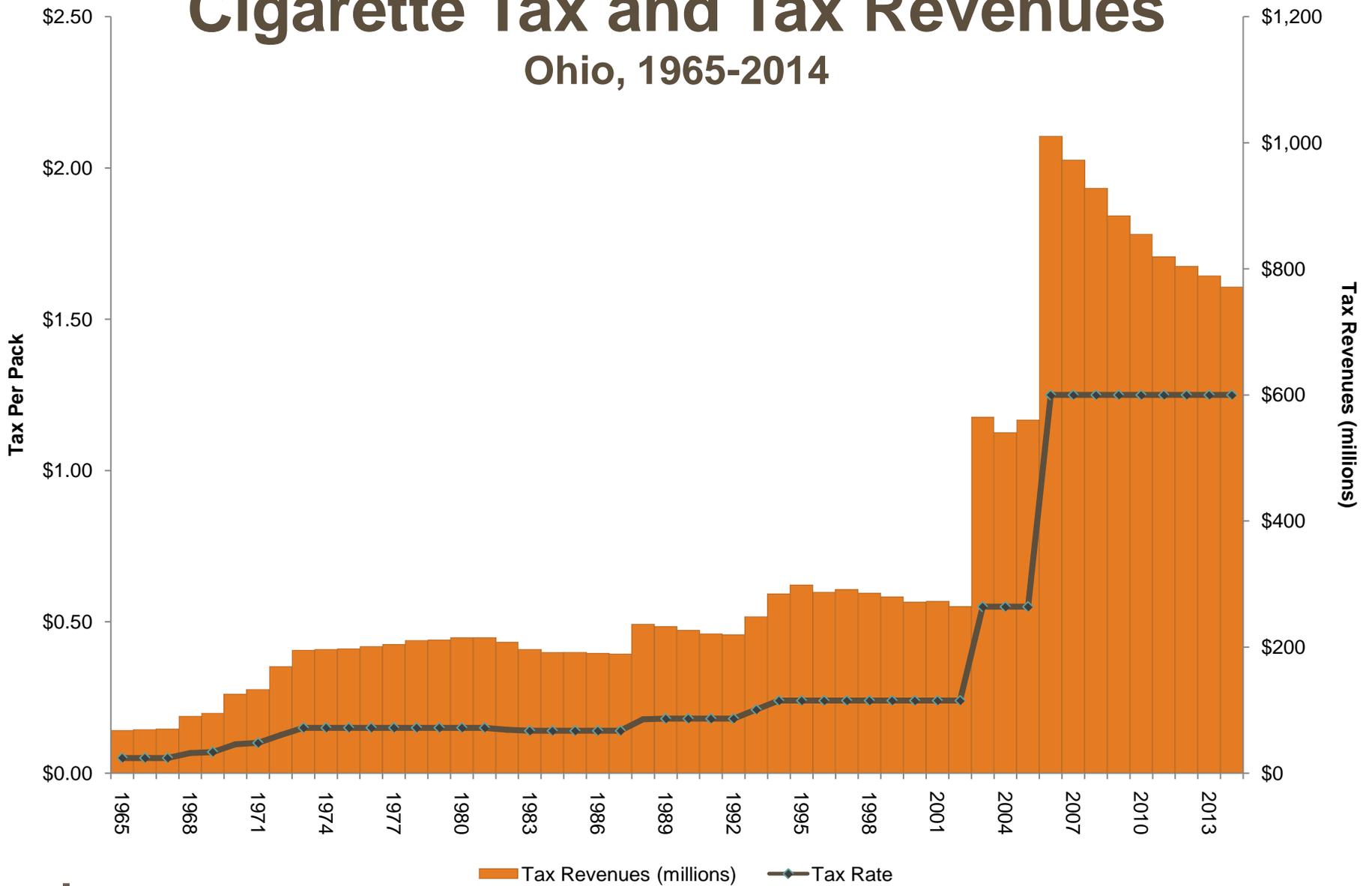
Arizona, 1965-2014



Sources: Tax Burden on Tobacco, 2013, and Authors' Calculations

Cigarette Tax and Tax Revenues

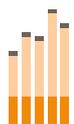
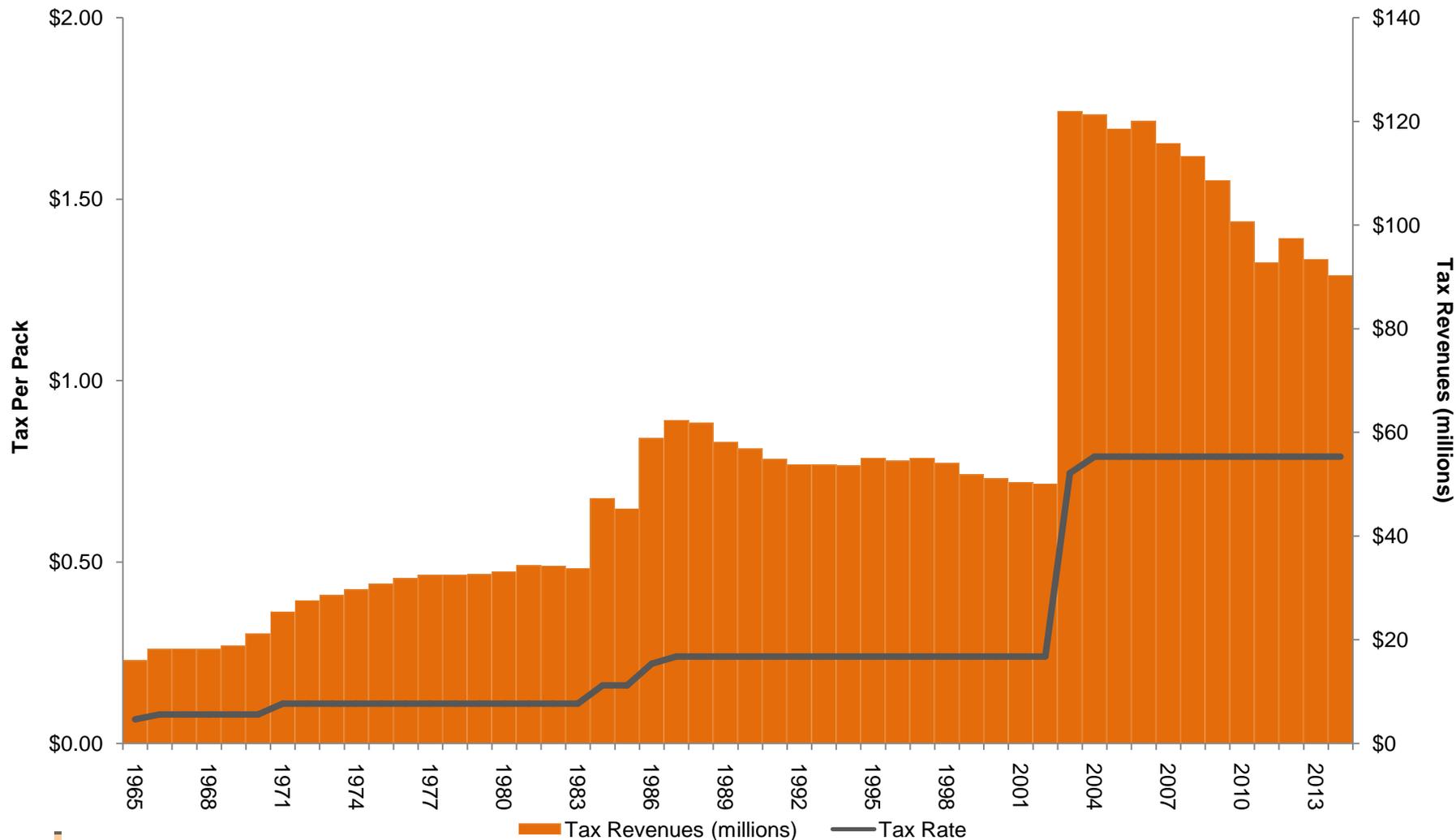
Ohio, 1965-2014



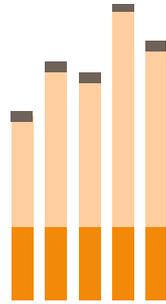
Sources: Tax Burden on Tobacco, 2013, and Authors' Calculations

Cigarette Tax and Tax Revenues

Kansas, 1965-2014



Sources: Tax Burden on Tobacco, 2014, and Authors' Calculations

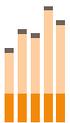


Tobacco Taxes - Oppositional Arguments: Impact on the Poor

Impact on the Poor

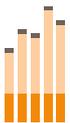
July 23, 2010 – San Francisco Examiner

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



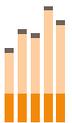
Tobacco Taxes & Equity

- Concerns about “fairness” of tobacco taxes
 - Horizontal equity: equals should be treated equally (e.g. those with the same incomes should pay the same tax)
 - Vertical equity: those with greater ability to pay should be taxed more heavily (e.g. those with higher incomes should pay greater share of income)
 - Equal disutility of tax when diminishing marginal utility of wealth
 - Benefit principle: those who get the greatest benefit from government activities should pay greater share of taxes



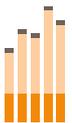
Tobacco Taxes & Equity

- Relates to tax incidence/distributional impact
 - Progressive taxes – tax rate rises as tax base increases
 - Burden of tax falls more heavily on higher income populations
 - Proportional taxes – tax rate fixed as tax base changes
 - Burden of tax shared equally by all populations
 - Regressive taxes – tax rate rises as tax base falls
 - Burden of tax greater on lower income populations
- Incidence depends on measures used
 - e.g. income vs. expenditures



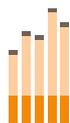
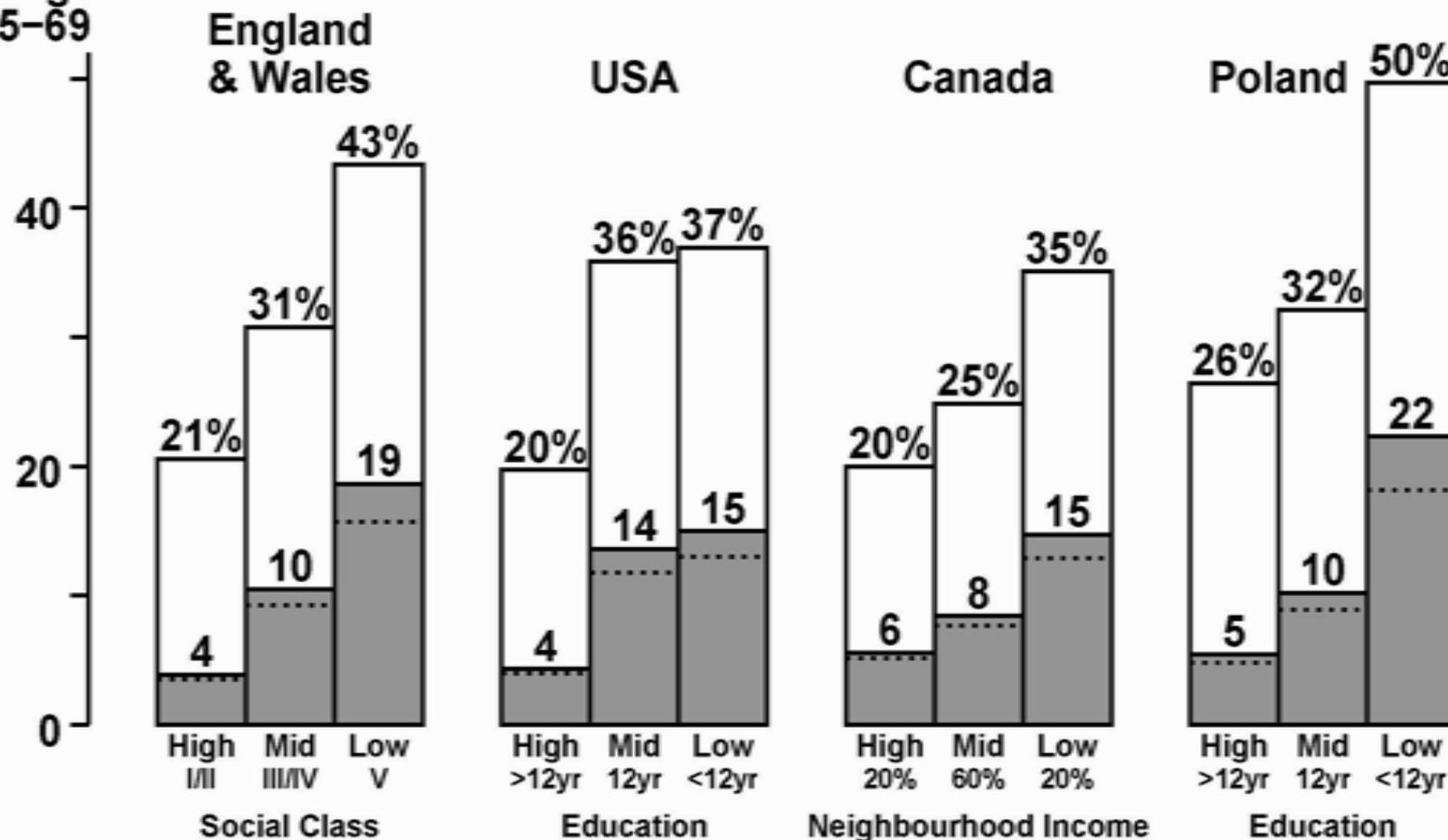
Tobacco Taxes & Equity

- Distribution of health consequences from tobacco
 - Generally “regressive” with greater share of burden of tobacco caused disease falling on lower income populations
 - Greater use of tobacco among lower income populations in many countries
 - Less access to health care to treat diseases caused by tobacco use
 - Tobacco use accounts for much of the health gap between the rich and the poor



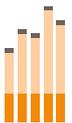
Social inequalities in male mortality in 1996 from smoking (shaded) and from any cause

% risk
of dying
at ages
35-69



Tobacco & Poverty

- Spending on tobacco crowds out other household spending
 - Growing body of evidence from LMICs; few studies for HICs
 - Spending on tobacco reduces household spending on food, housing, education, health care, clothing, and more
 - Greater impact on lower income households
 - Causes other health consequences for women, children

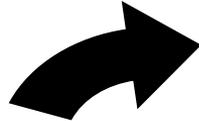


Tobacco & Poverty

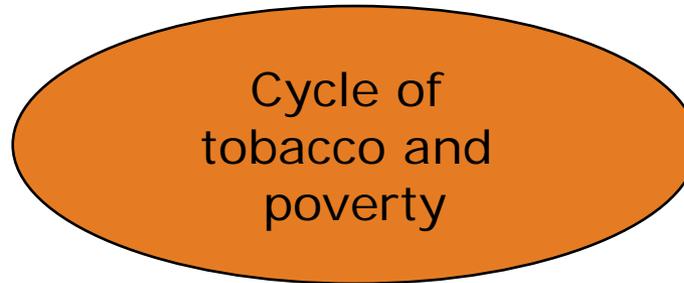
Family falls into poverty

Foregone income 3:

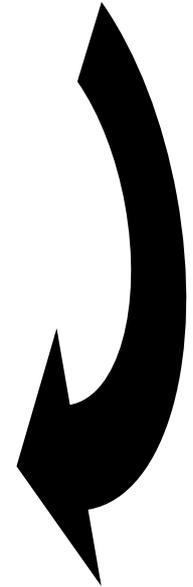
Breadwinner dies prematurely



Poor men smoke



Cycle of tobacco and poverty



Foregone income 2:

Treatment cost & Lost working days & income



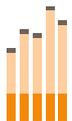
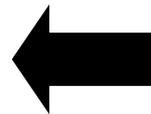
Breadwinner gets sick due to tobacco use

Foregone income 1:

More money spent on tobacco:

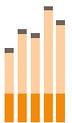
Less money spent on Education, nutrition etc

High opportunity cost



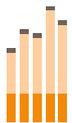
Tobacco Taxes & Equity

- Tobacco tax increases
 - Can be “progressive” even in countries where tax is regressive
 - Based on greater reductions in tobacco use among the poor in response to higher taxes and prices



Who Pays & Who Benefits

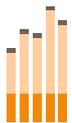
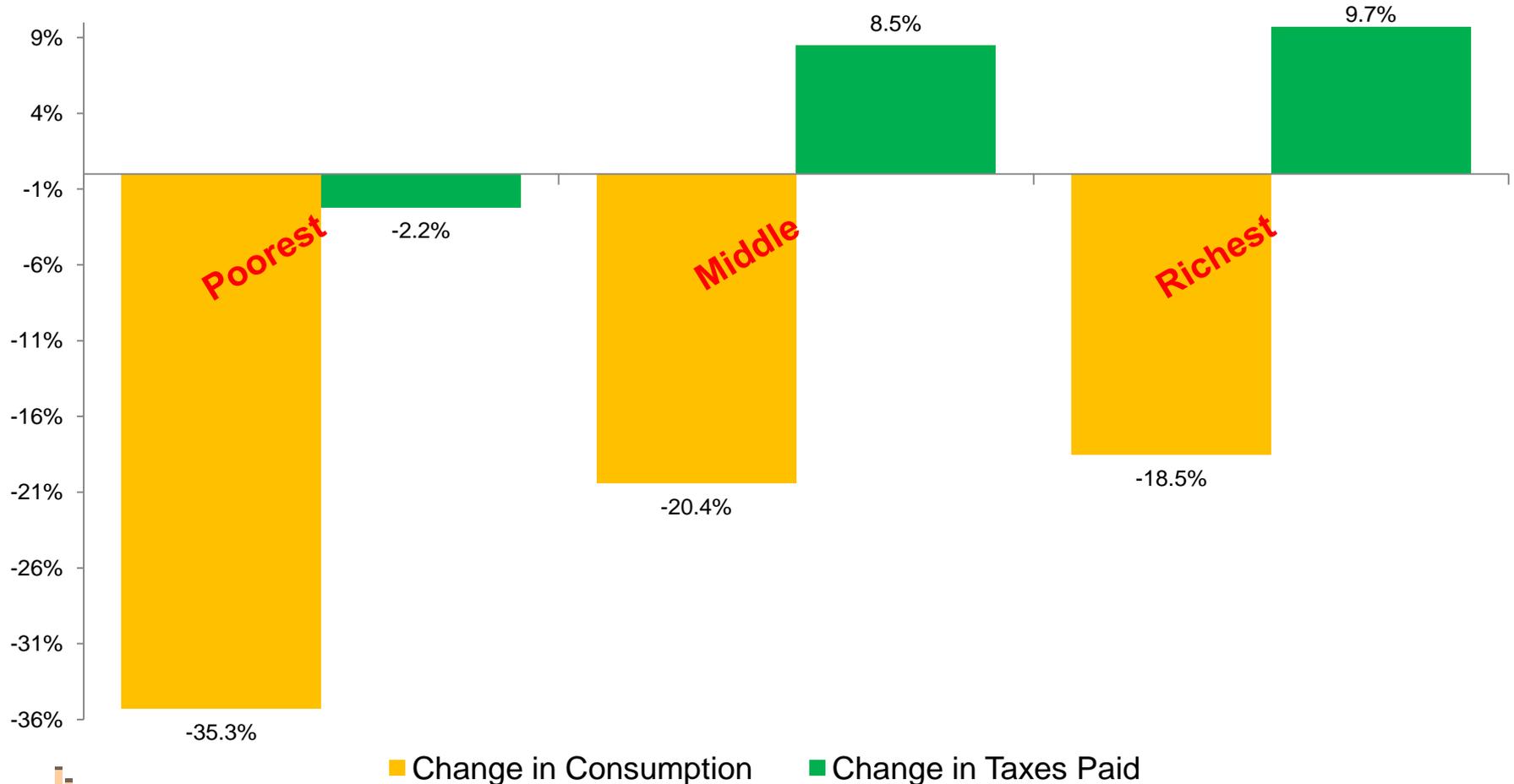
Impact of Federal Tax Increase, U.S., 2009



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

Who Pays & Who Benefits

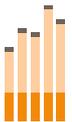
Turkey - 25% Tax Increase



Tobacco Taxes & Equity

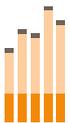
Need to consider fairness of overall fiscal system

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



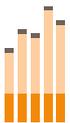
WHO “Best Practices” for Tobacco Excise Taxes

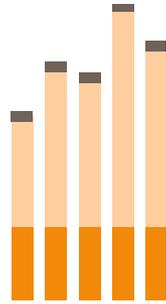
- *Do not view low taxes and prices for some tobacco products as a “pro-poor” policy*
 - High tobacco taxes on all tobacco products will result in greater reductions in tobacco use among the poor
 - Results in a progressive distribution of the health and economic benefits that result – a truly “pro-poor” policy



WHO “Best Practices” for Tobacco Excise Taxes

- *Do not allow concerns about the regressivity of higher tobacco taxes to prevent tobacco tax increases*
 - Regressive impact often overstated
 - Concerns about impact on the poor can be offset by using new revenues to support efforts to help poor tobacco users quit, health promotion efforts targeting poor and/or other poverty alleviation programs



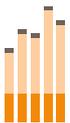


Tobacco Taxes - Oppositional Arguments: Impact on Economy

Impact on Employment

JULY, 14, 2010 – The Associated Press

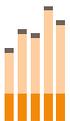
- RICHMOND, Va. — The tobacco industry is running a full-court press ahead of a federal scientific panel's meeting to discuss how to regulate menthol cigarettes, a still-growing part of the shrinking cigarette market.
- **The union representing nearly 4,000 tobacco workers sent a letter to the Food and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



Impact on Employment

Impact of tobacco use on jobs?

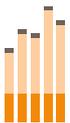
- tobacco industry argues that tobacco makes significant economic contribution
 - employment in farming, manufacturing, distribution, and related sectors
 - multiplier effects as income earned in tobacco-related jobs spent on other goods & services



Tobacco Taxes and Jobs

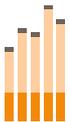
Warner et al. (1996); Warner and Fulton (1994) –

- used adapted version of REMI model to assess impact of declining tobacco use on employment
- 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



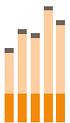
Tobacco Taxes and Jobs

- 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 most states, countries



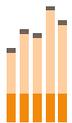
Impact on Businesses

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



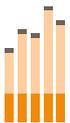
Impact on Businesses

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



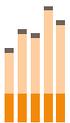
Tobacco-Related Employment

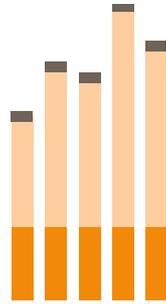
- Very small share of employment ***dependent*** on tobacco growing and manufacturing in most countries
 - Economic presence does not imply economic dependence
 - Employment in tobacco manufacturing falling over time in response to tobacco industry shift to more capital intensive production technologies.
 - Can use revenues from tobacco taxes to help those in tobacco growing/manufacturing shift to other sustainable livelihoods



WHO “Best Practices” for Tobacco Excise Taxes

- *Do not allow concerns about employment impact to prevent tobacco tax increases*
 - Tobacco employment often declining even where tobacco product consumption rising
 - Reductions in tobacco-dependent employment are offset by increases in other sectors
 - Where concerns are significant, use tax revenues to support transition from tobacco farming/manufacturing to other activities

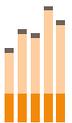


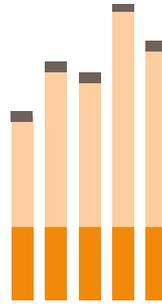


Tobacco Taxes - Oppositional Arguments: Tax Avoidance & Evasion

Overview

- Definition of terms
- Measurement of tax avoidance and tax evasion
- Determinants of tax avoidance and tax evasion
- Impact of tax avoidance and evasion on tobacco use
- Policy responses

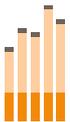




Defining Tax Avoidance and Tax Evasion

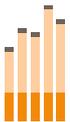
Tax Avoidance & Evasion

- Many terms used:
 - Illicit trade, contraband, smuggling, bootlegging, counterfeit, etc.
- Tax Avoidance
 - Legal methods for avoiding tobacco taxes
- Tax Evasion
 - Illegal methods for avoiding tobacco taxes



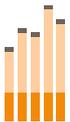
Tax Avoidance & Evasion

- Individual tax avoidance
 - Reservation, Internet and other direct, duty-free, and cross-border purchases
 - Brand/product switching, carton purchases, use of cheaper outlets
 - Mostly legal
- Bootlegging
 - Purchasing of cigarettes in low-tax/price jurisdictions for resale in high tax/price jurisdictions



Tax Avoidance & Evasion

- Organized smuggling
 - Illegal transportation, distribution and sale of large consignments of tobacco products
 - Generally avoids all taxes
- Counterfeit
 - products bearing a trademark without the approval of the trademark owner
 - Often involved in organized smuggling



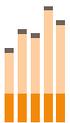
Tax Avoidance & Evasion

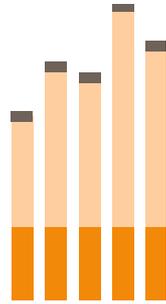
– Illegal Manufacturing

- Unreported or under-reported manufacturing, distribution and sale of large consignments of tobacco products
- Generally avoids all taxes
- Often involved in organized smuggling

– Brand Repositioning

- Industry changes in pricing, packaging, product design, etc. that change tax rate applied to product

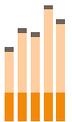




Measuring Tax Avoidance and Tax Evasion

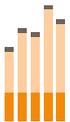
Measuring Avoidance & Evasion

- Difficult to measure given illegality
- Variety of approaches used
 - Each captures different pieces
 - None fully captures all tax avoidance and evasion
 - Difficult to distinguish avoidance and evasion



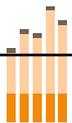
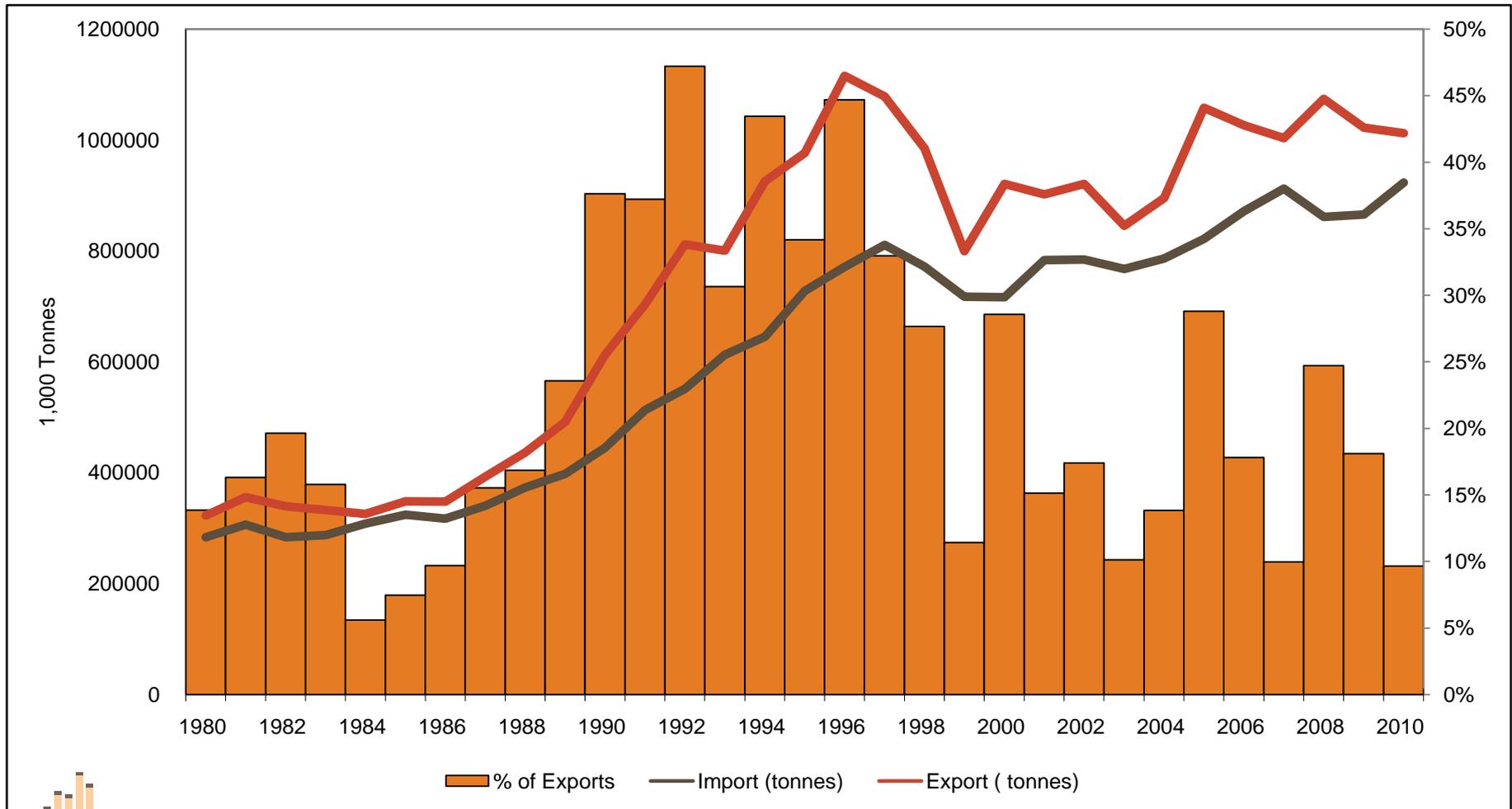
Measuring Avoidance & Evasion

- Comparing recorded exports of tobacco products to recorded imports
 - Difference reflects leakage into black markets
 - In recent years, 10-25% of exports do not appear as imports
 - 4-10 percent of global consumption
 - Will be largely organized smuggling



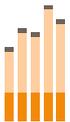
Extent of Illicit Trade

Export-Import Gap, 1980-2010



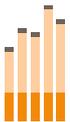
Measuring Avoidance & Evasion

- Comparing tax paid sales and self-reported consumption
 - Under-reporting of consumption in surveys
 - Better for assessing trends and relative size of problem than absolute size of problem



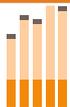
Measuring Avoidance & Evasion

- NRC/IOM estimates for 2010/11
 - TUS/CPS data
 - Difference between national tax paid sales and total self-reported consumption used to adjust for underreporting in all states
 - May be differences in extent of underreporting based on social norms about tobacco
 - Estimated 8.5% of total consumption avoided or evaded taxes
 - 1.24 billion packs; \$2.95 billion in lost revenue
 - Will underestimate cross-border sales for states with both positive and negative tax differentials with bordering states.



Distribution of the U.S. Illicit Tobacco Market

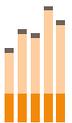
State	Self-Reported Consumption (millions of packs)	Tax-Paid Sales (millions of packs)	Adjusted SRC (millions of packs)	Adjusted SRC:TPS	Adjusted SRC-TPS (millions of packs)	2011 State Excise Tax per Pack	Estimated State Revenue Lost or Gained (millions of dollars)
Top Five Net Exporters (by revenue)							
California	474.43	960.82	790.99	0.82	-169.82	\$0.87	\$147.75
South Carolina	159.27	458.87	265.55	0.58	-193.31	\$0.57	\$110.19
New Hampshire	42.31	126.60	70.54	0.56	-56.05	\$1.78	\$99.77
Virginia	213.57	545.93	356.08	0.65	-189.85	\$0.30	\$56.96
Delaware	27.52	79.93	45.88	0.57	-34.05	\$1.60	\$54.48
Top Five Net Importers (by revenue)							
New York	424.47	389.45	707.70	1.82	318.25	\$4.35	\$(1,384.39)
Washington	162.10	147.43	270.27	1.83	122.84	\$3.03	\$(371.58)
Ohio	484.43	659.94	807.67	1.22	147.73	\$1.25	\$(184.67)
Michigan	317.40	463.99	529.20	1.14	65.21	\$2.00	\$(130.41)
Arizona	135.97	163.43	226.70	1.39	63.26	\$2.00	\$(126.53)



Measuring Avoidance & Evasion

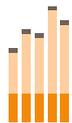
– “Expert Opinions”

- Customs officials, tobacco industry representatives, tax authorities, and others
 - Potential bias in some sources
- Widely varying estimates across countries
- Recent estimates 10-12%
 - 6-7% in US; rising over time
- Largely reflects organized smuggling



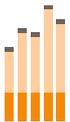
Measuring Avoidance & Evasion

- Econometric analyses of tax paid sales that account for various factors, including:
 - tax/price differences
 - population density
 - travel patterns and distance
- US estimates suggest up to 12.5% of total consumption in early 2000s
- Western European estimates about 3% of consumption in 1980s/1990s



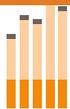
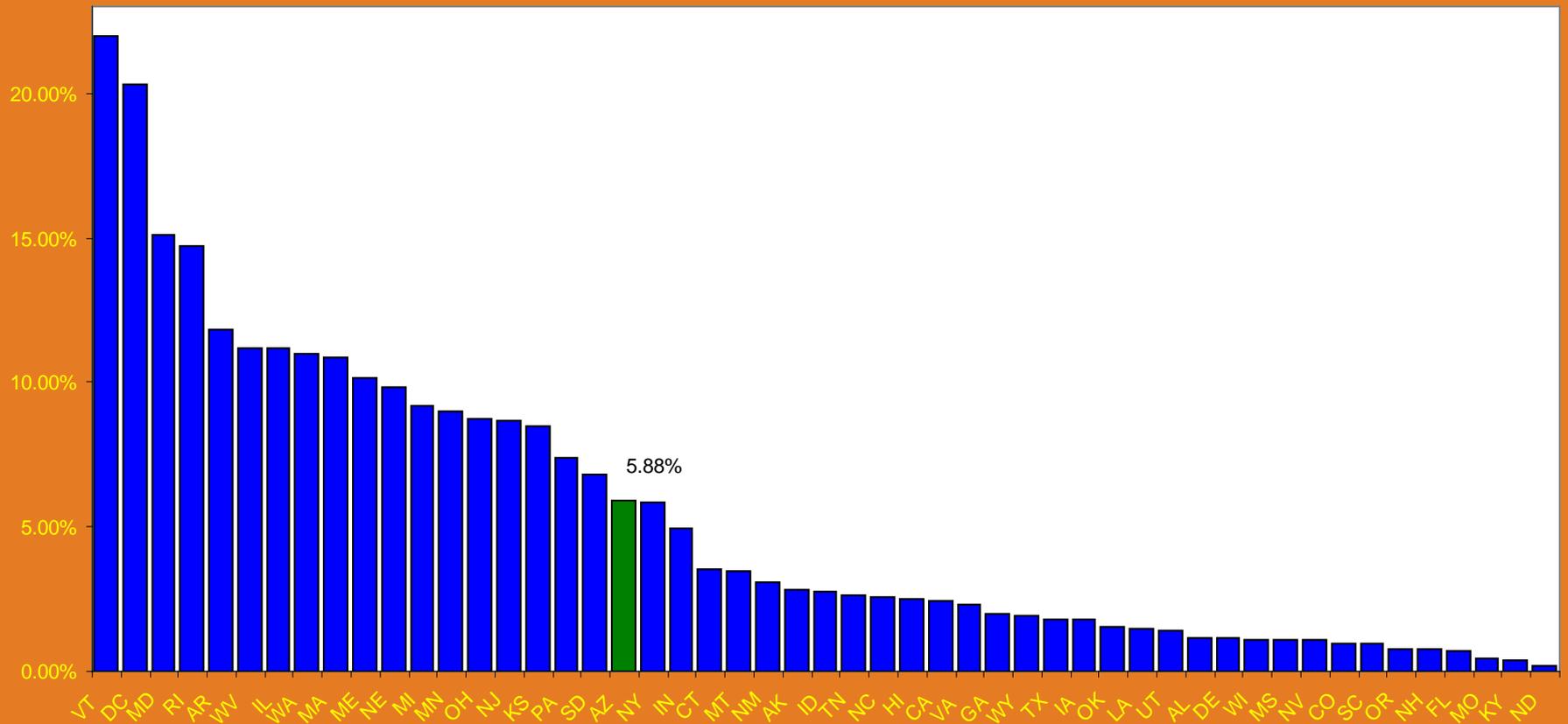
Measuring Avoidance & Evasion

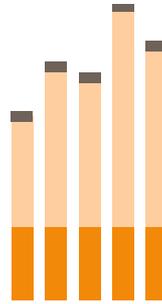
- Individual tax avoidance – self-reported data
 - Tobacco Use Supplement to the Current Population Survey
 - Periodic state representative, cross-sectional samples
 - Includes questions on price paid, whether or not purchased in own state, other state or through other channels (e.g. Internet or phone) – 2003 and 2006/07 surveys only
 - Did not ask about in-state tax avoidance (e.g. reservation purchases)
 - 2006/07: 5.2%



Tax Avoidance – United States

% Tax Avoiders, 2006/07



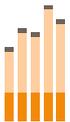


Determinants of Tax Avoidance and Evasion

Determinants of Avoidance & Evasion

– Tax and price differentials

- More important for individual tax avoidance and bootlegging
- Key factor in U.S.
- Larger scale efforts avoid all taxes

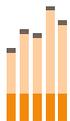
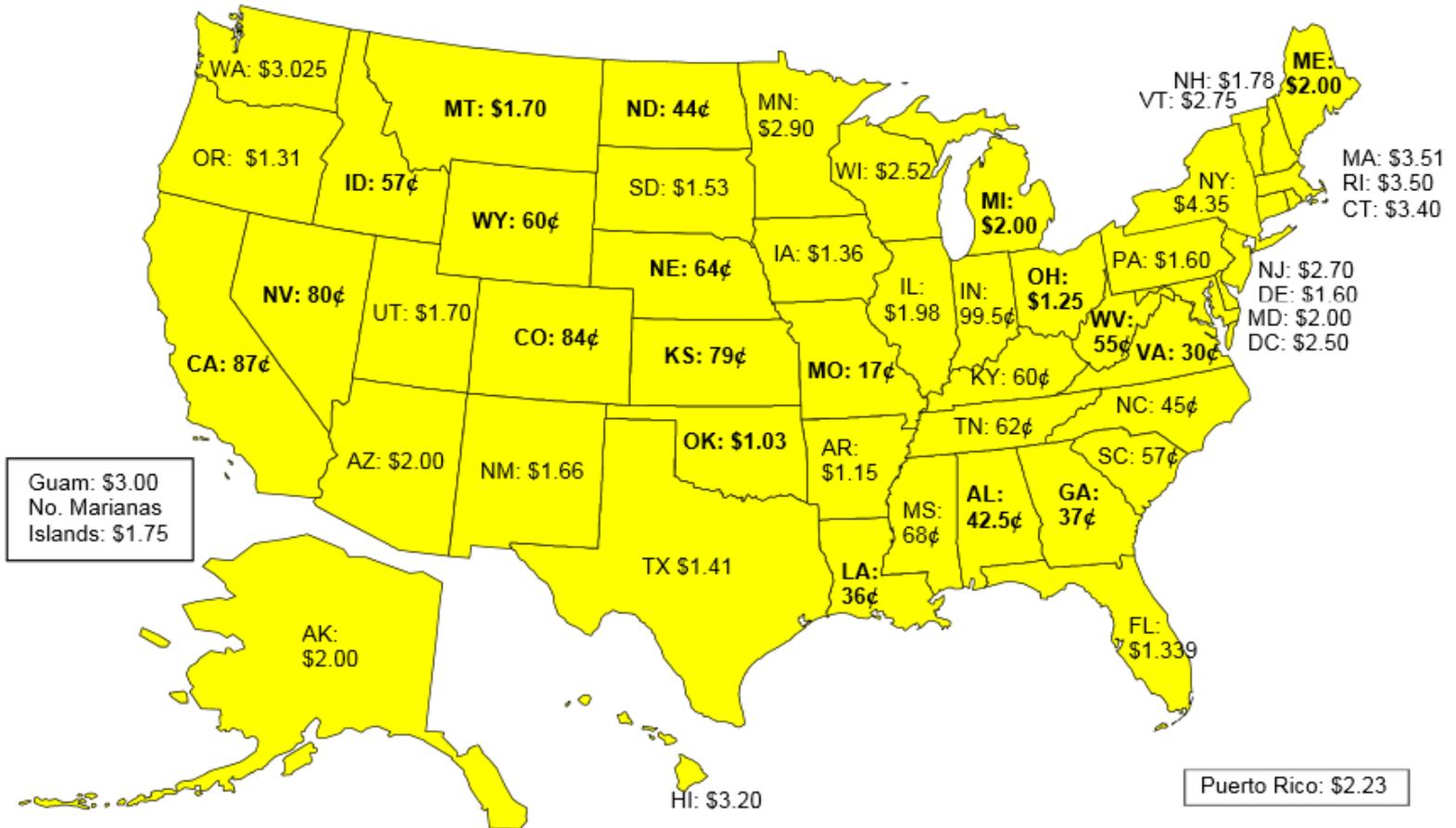


State Cigarette Excise Tax Rates

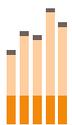
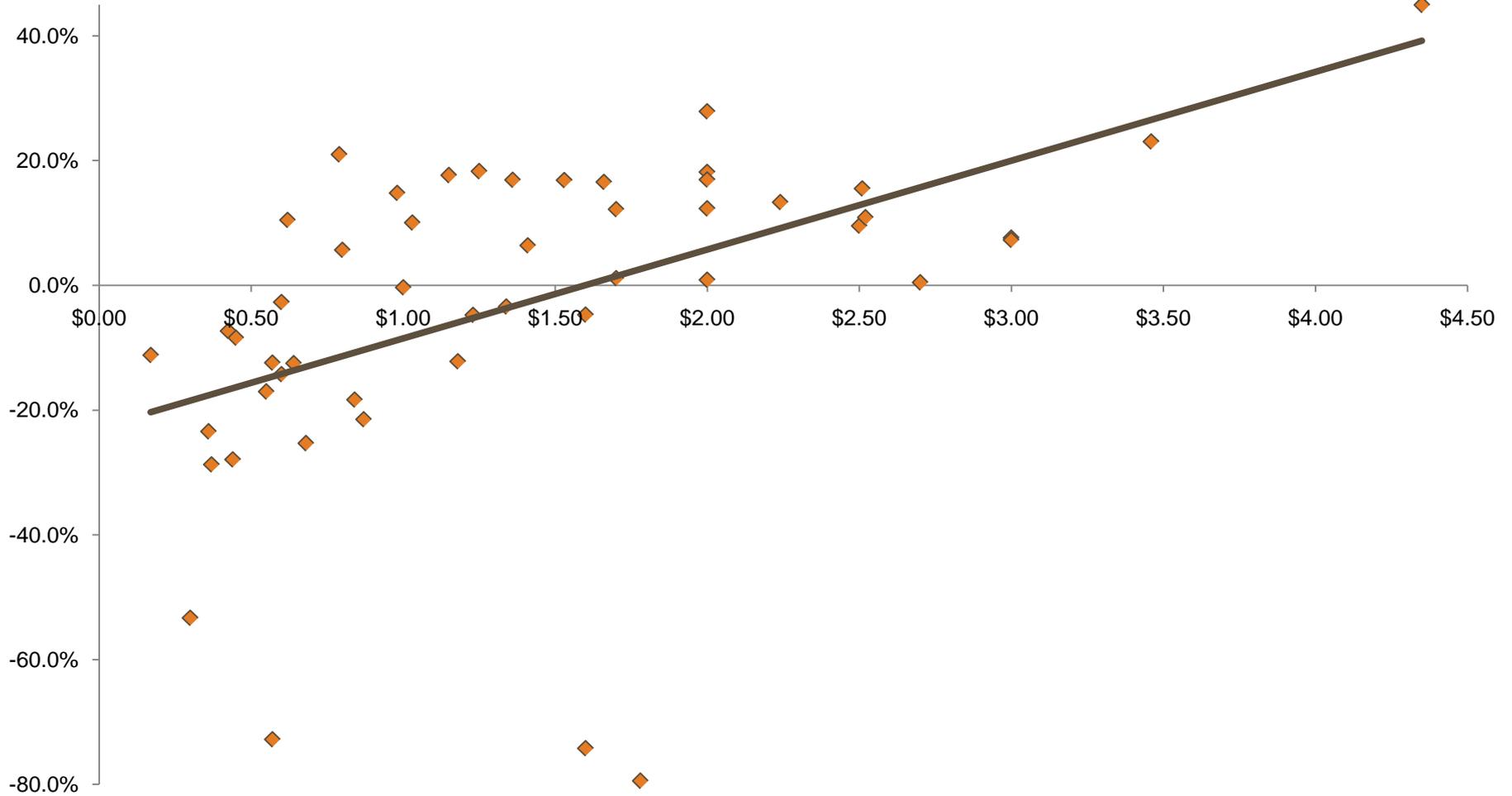
Average State Cigarette Tax: \$1.54 per Pack

Average Cigarette Tax in Major Tobacco States: 48.5 cents per Pack

Average Cigarette Tax in Non-Tobacco States: \$1.68 per Pack

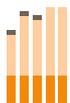
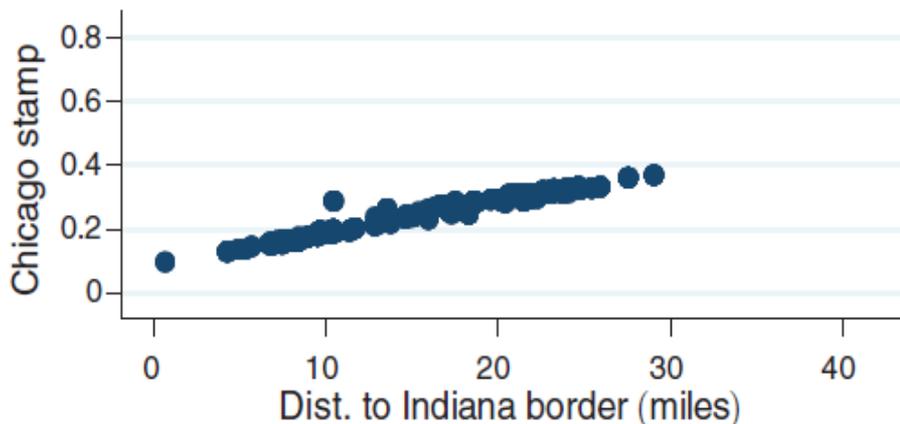
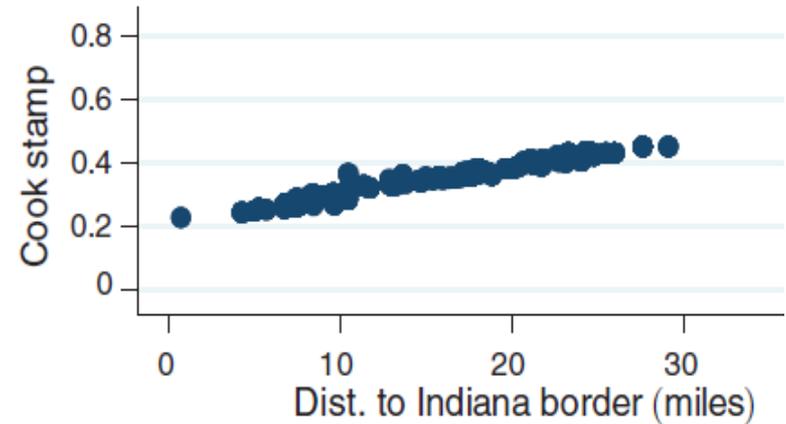
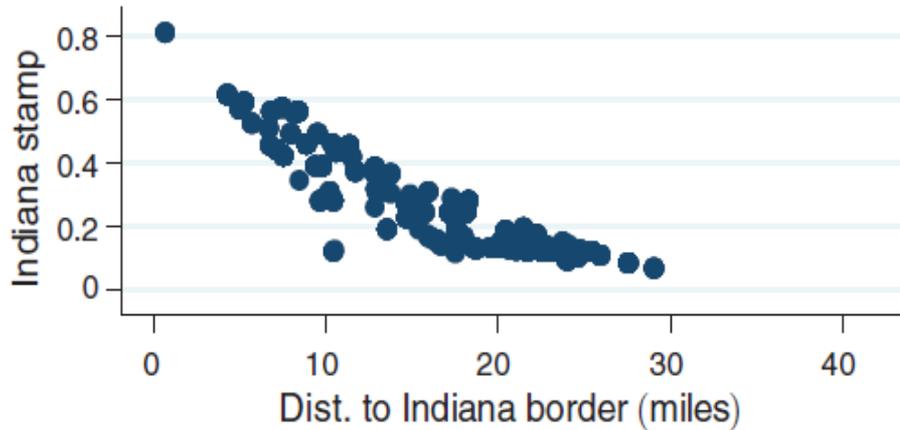


Tax Avoidance – United States

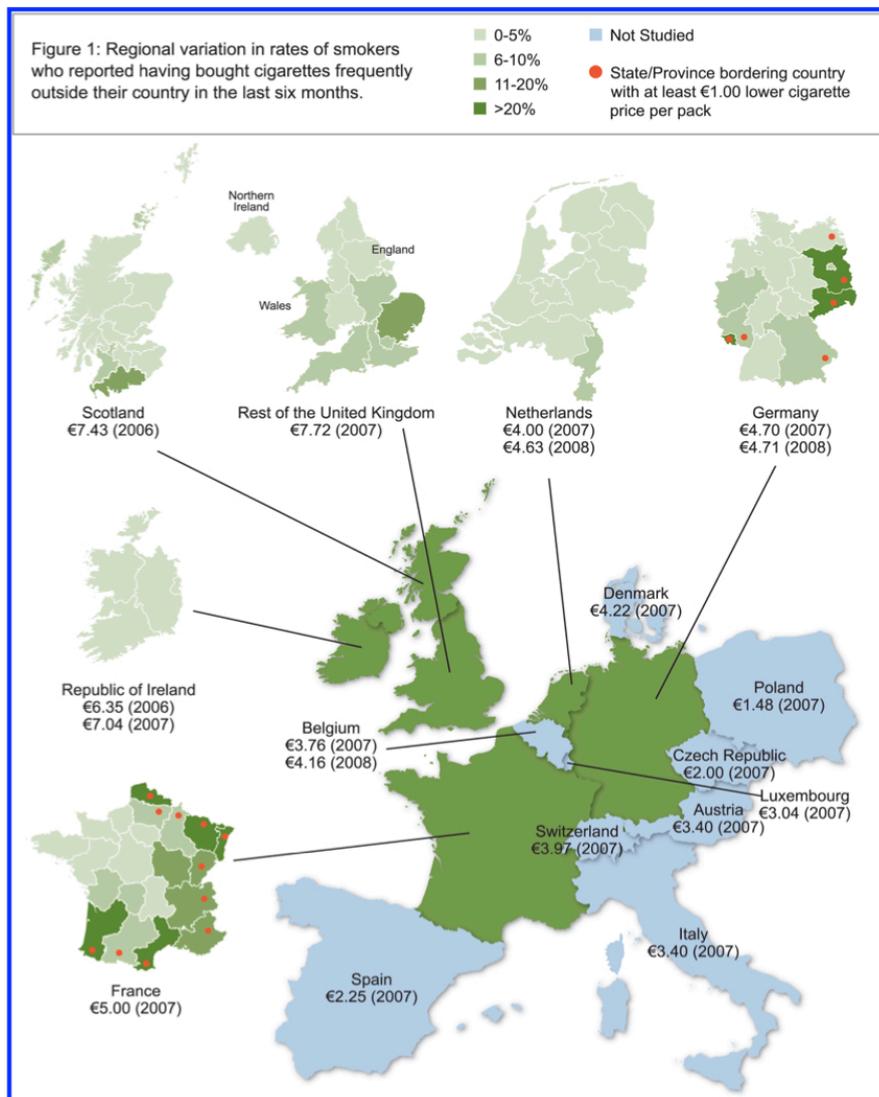


Chicago/Cook County, Illinois

For 96 TAZs in Chicago



Cross-Border Shopping Among ITC EU Countries

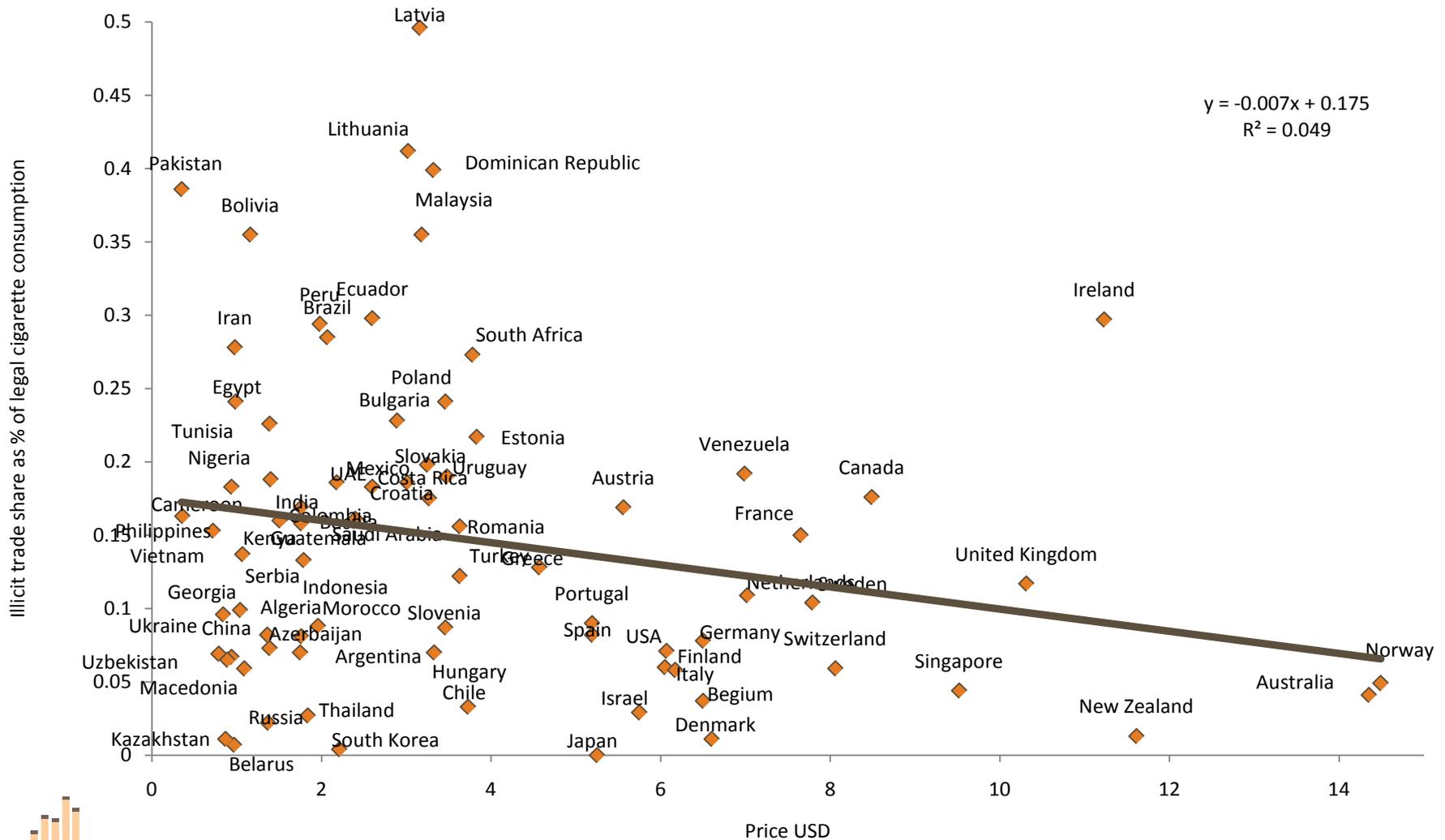


ITC Europe Surveys: Cross-border purchasing in German states and French provinces

13–24% when bordering countries with lower prices

2–7% (in these states/provinces and in UK & Ireland) when NOT bordering countries with lower prices.

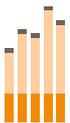
Illicit Cigarette Market Share & Cigarette Prices, 2012



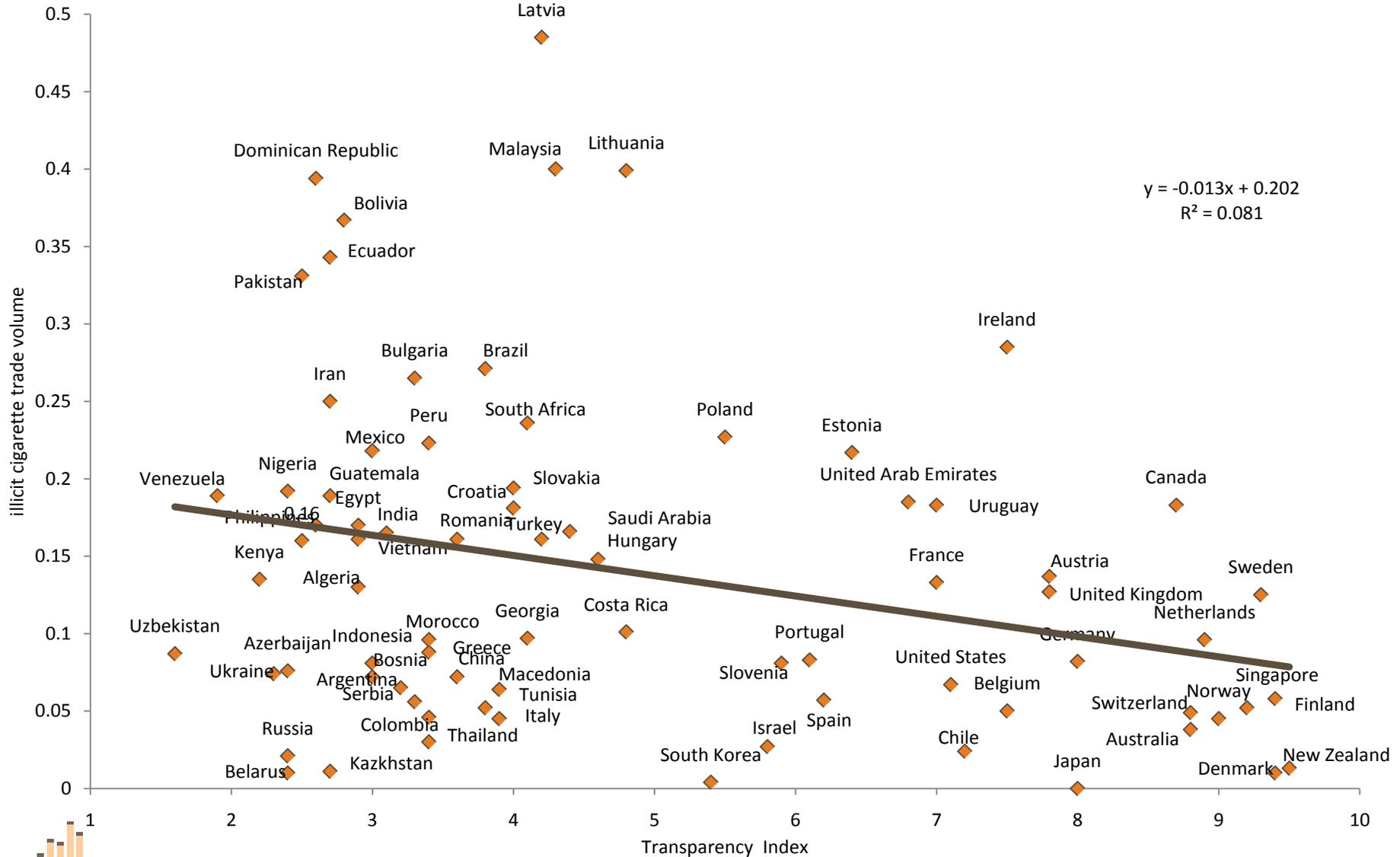
Sources: Euromonitor, WHO

Determinants of Avoidance & Evasion

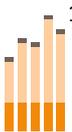
- Corruption
- Weak tax administration
 - Absence of tax stamps; weak or non-existent physical controls; unlicensed manufacturers, distributors, retailers;
 - weak customs authorities
- Presence of informal distribution channels
 - e.g. Street vendors, unlicensed distributors



Smuggling and Corruption, 2011

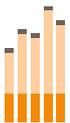


Sources: Euromonitor, Transparency International

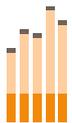
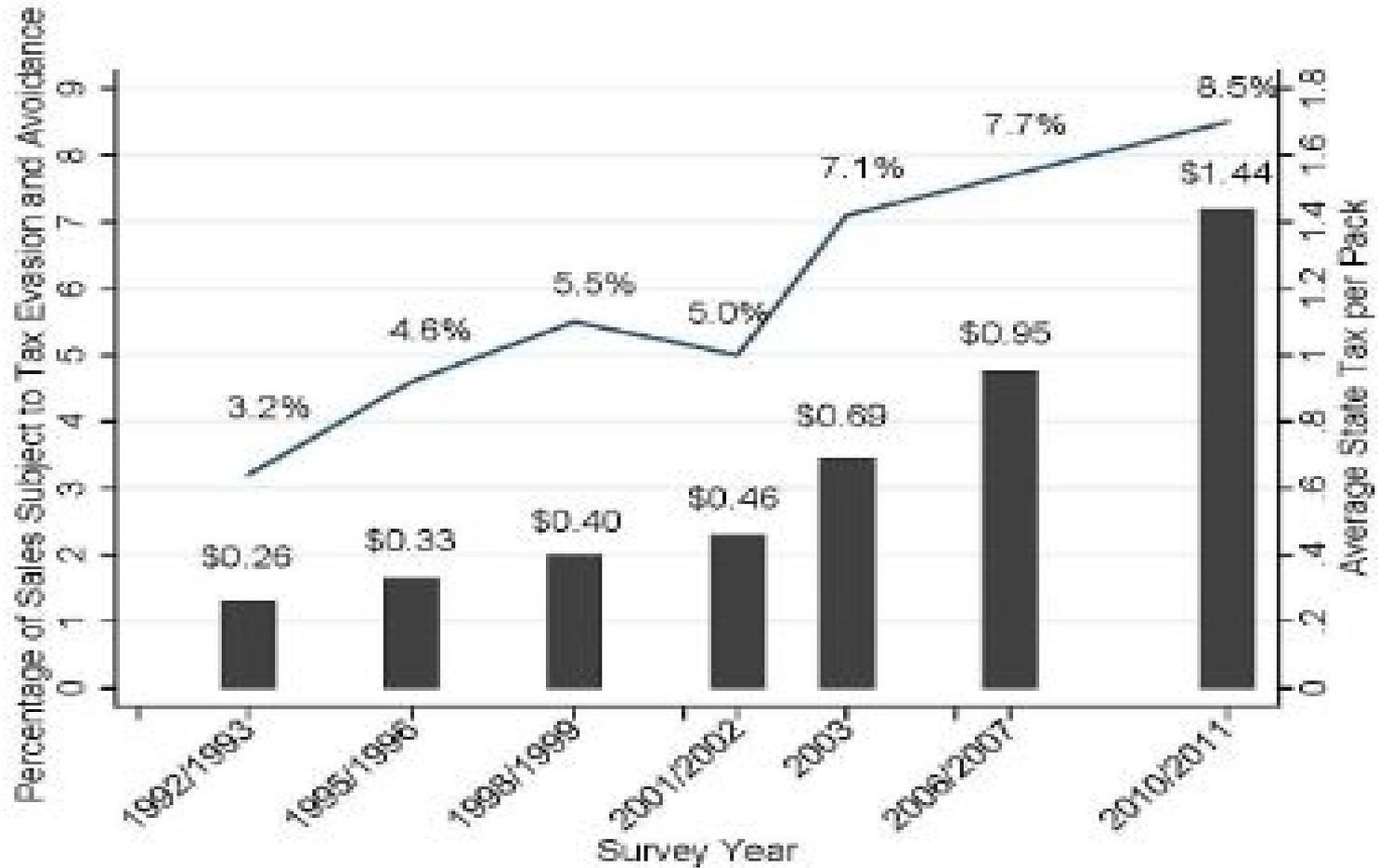


Determinants of Avoidance & Evasion

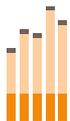
- Poor enforcement
 - Limited resources for border patrols, customs authorities, etc; low penalties
- Presence of criminal networks
 - e.g. Organized crime, terrorist organizations

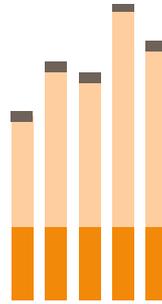


Trends in Net Tax Avoidance and Evasion in the U.S.



Trends in Illicit Tobacco Enforcement in the U.S.

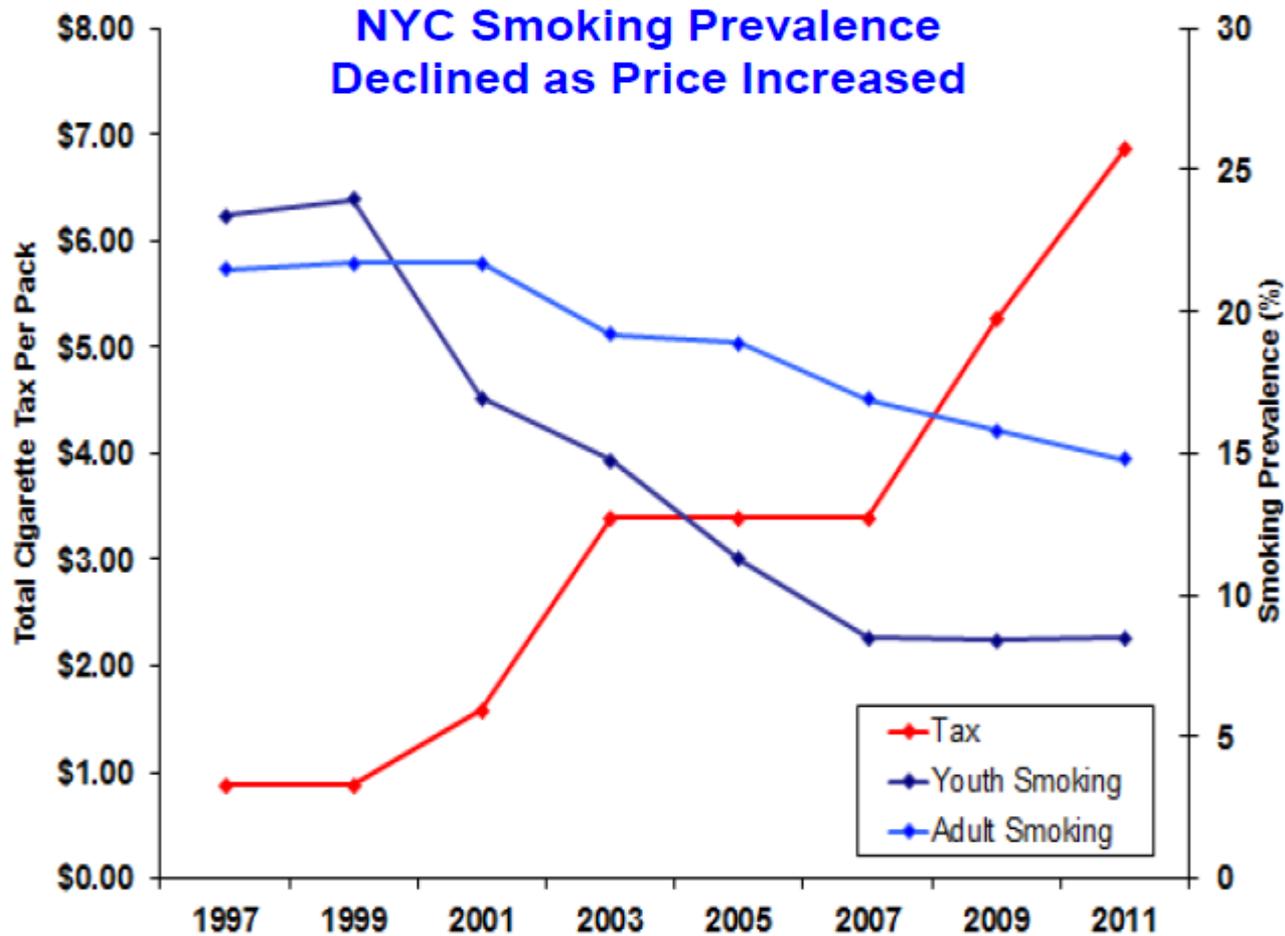




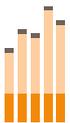
Impact of Tax Avoidance and Evasion

Tax Avoidance & Evasion

Do NOT Eliminate Health Impact of Higher Taxes



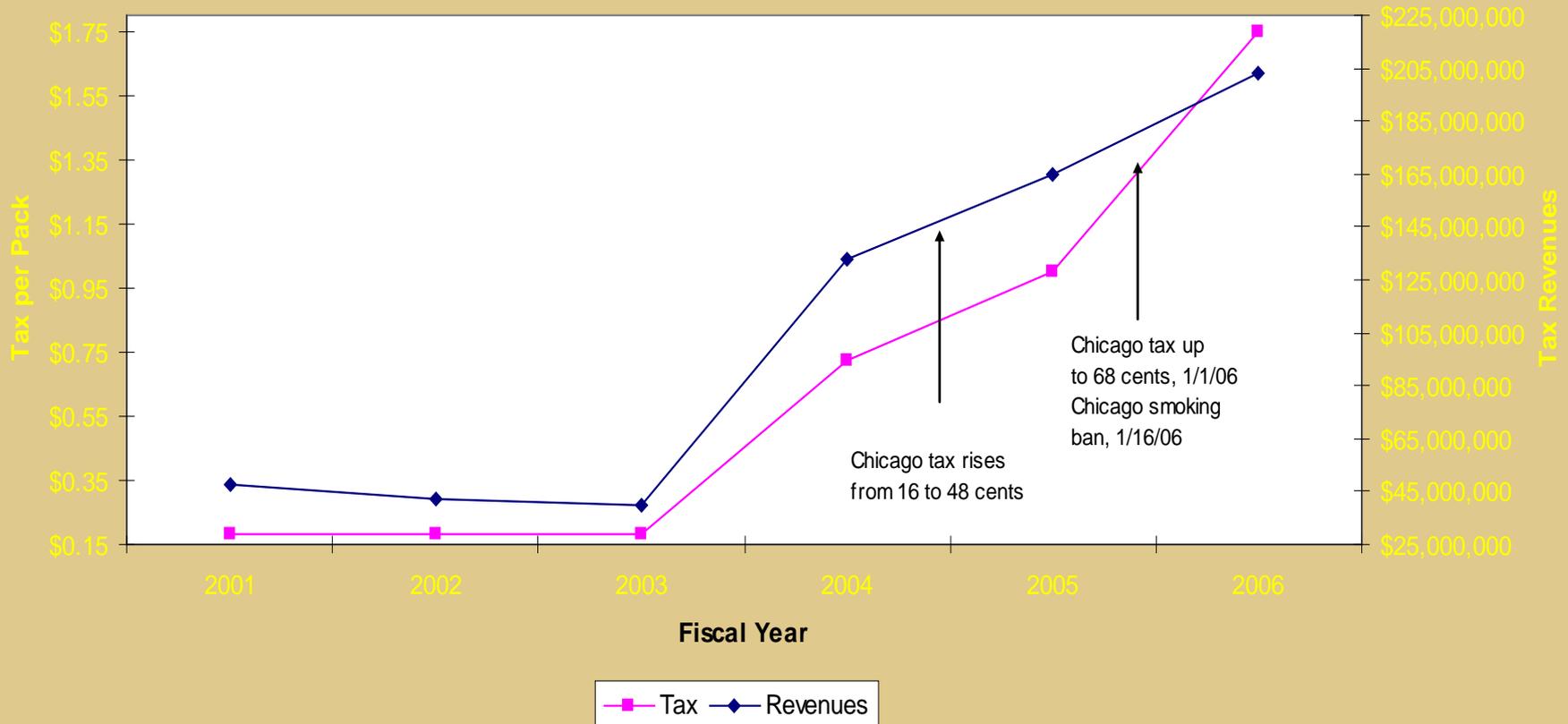
Source: Schroth, 2014



Tax Avoidance & Evasion

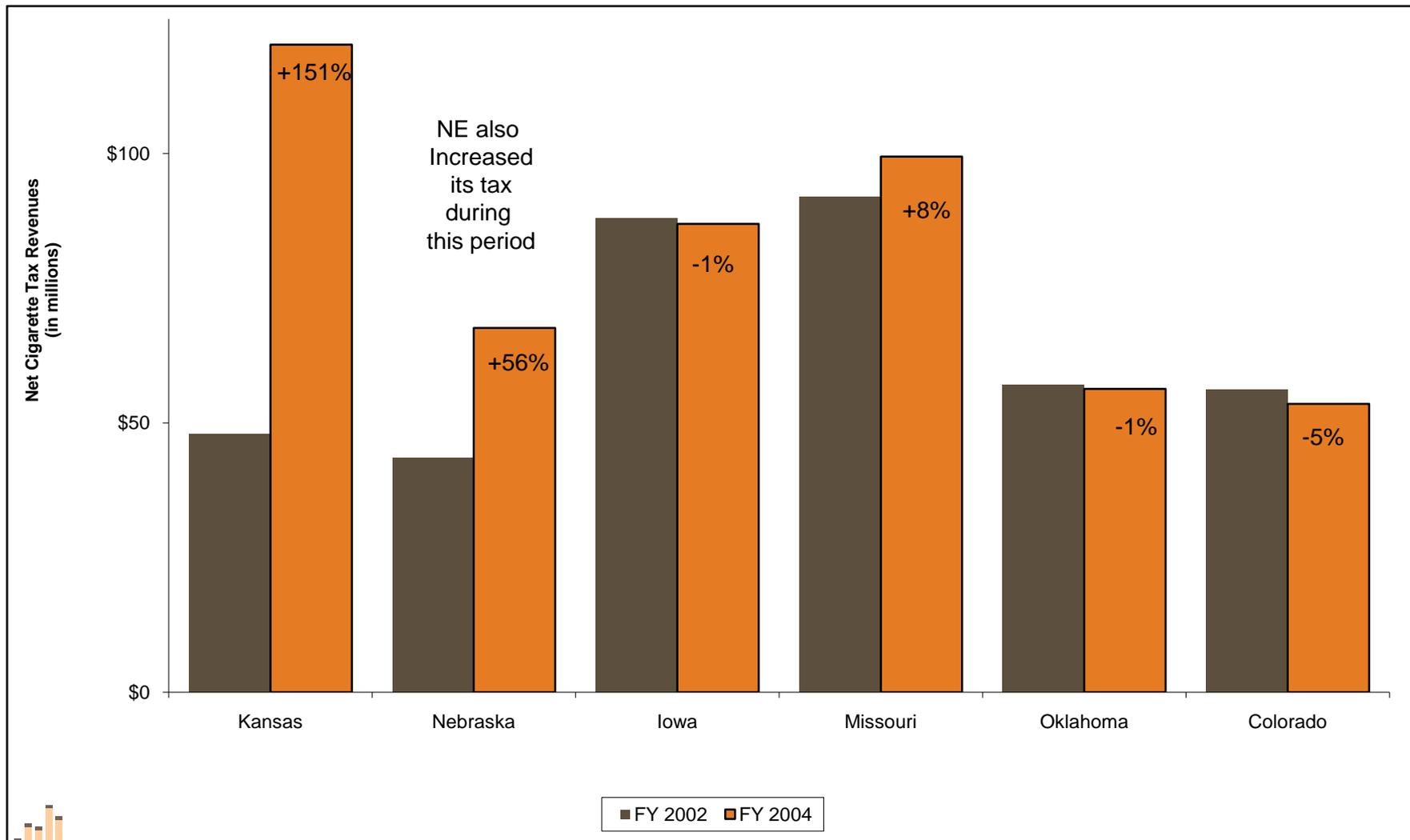
Do NOT Eliminate Revenue Impact of Higher Taxes

Cook County Cigarette Tax and Tax Revenues - FY01-FY06

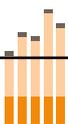


Cigarette Tax and Tax Revenues

Kansas & Neighboring States, FY2002 & FY2004

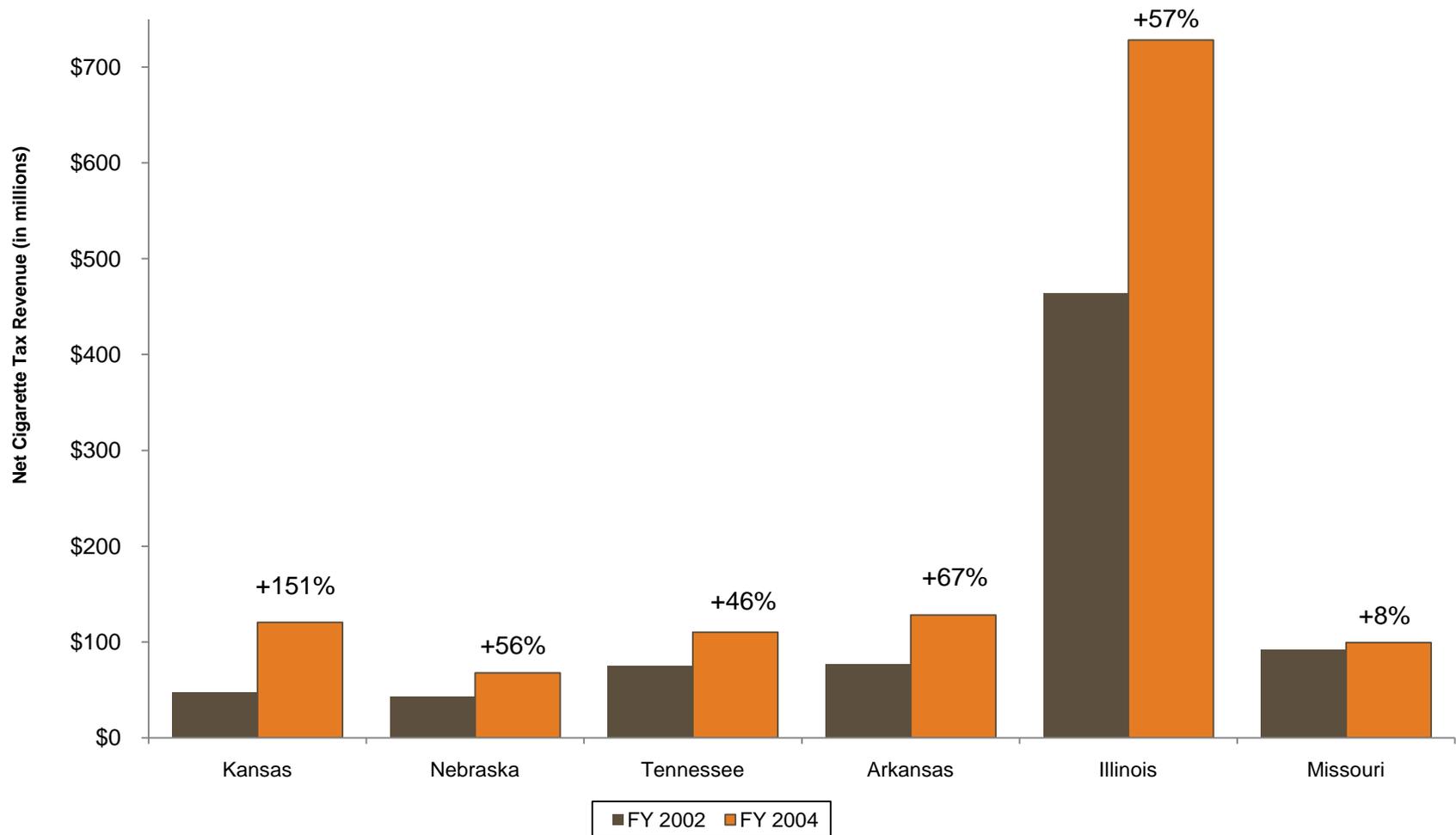


Sources: Tax Burden on Tobacco, 2013

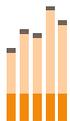


Cigarette Tax and Tax Revenues

Missouri & Neighboring States, FY2002 & FY2004

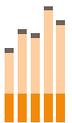


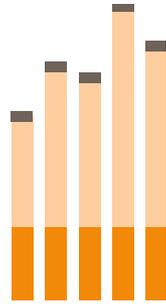
Notes: Tax increases include: KS, 24 to 79 cents/pack; NE, 34 to 64 cents/pack; TN, 13 to 20 cents/pack; AR, 34 to 59 cents/pack; and IL 58 to 98 cents/pack. Source: Tax Burden on Tobacco, 2013



Impact of Avoidance & Evasion

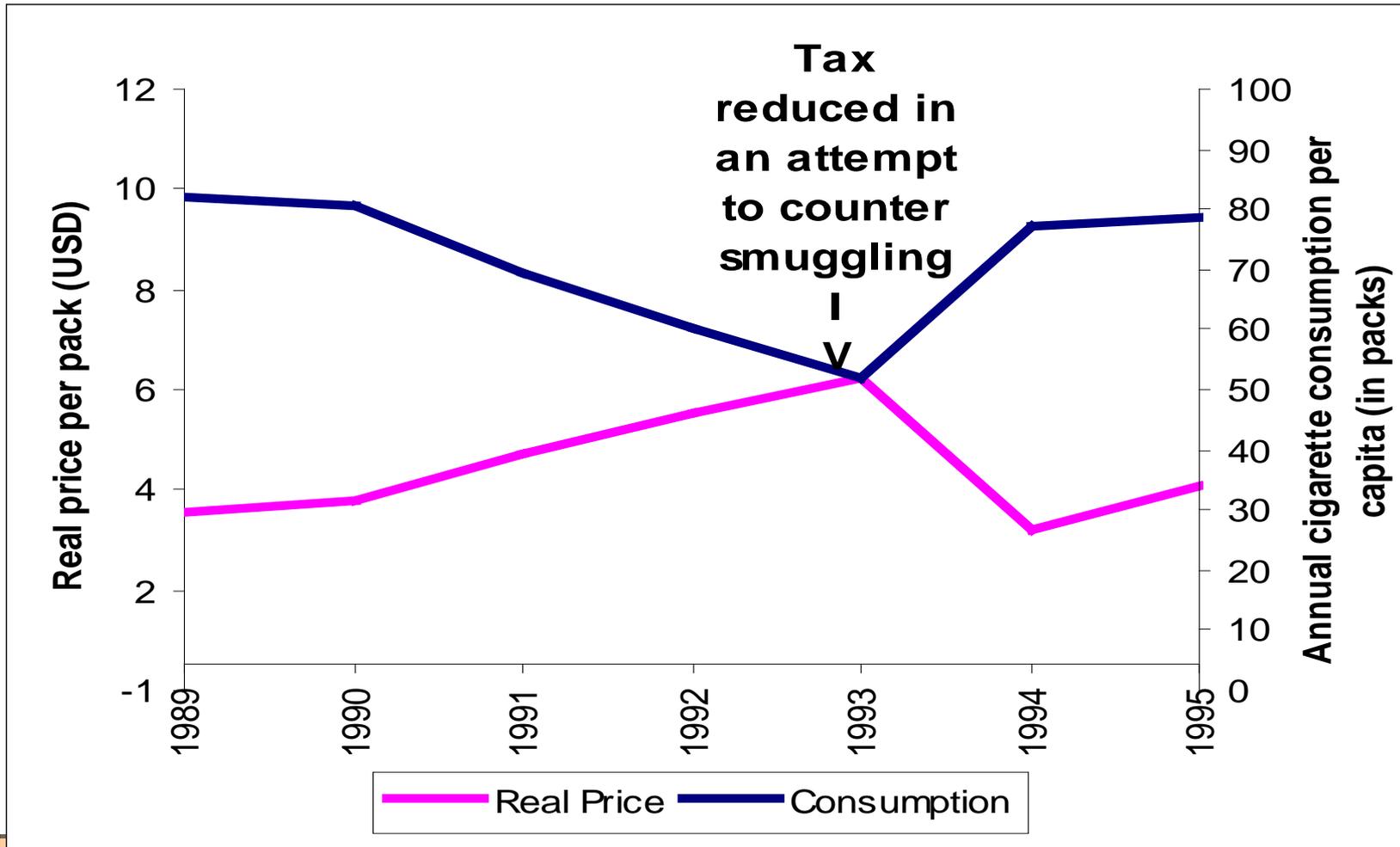
- IARC Handbook 14:
 - Sufficient Evidence that tax avoidance and tax evasion reduce, but do not eliminate, the public health and revenue impact of tobacco tax increases





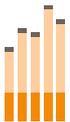
Policy Responses

Government Responses: Canada, 1990s

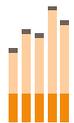
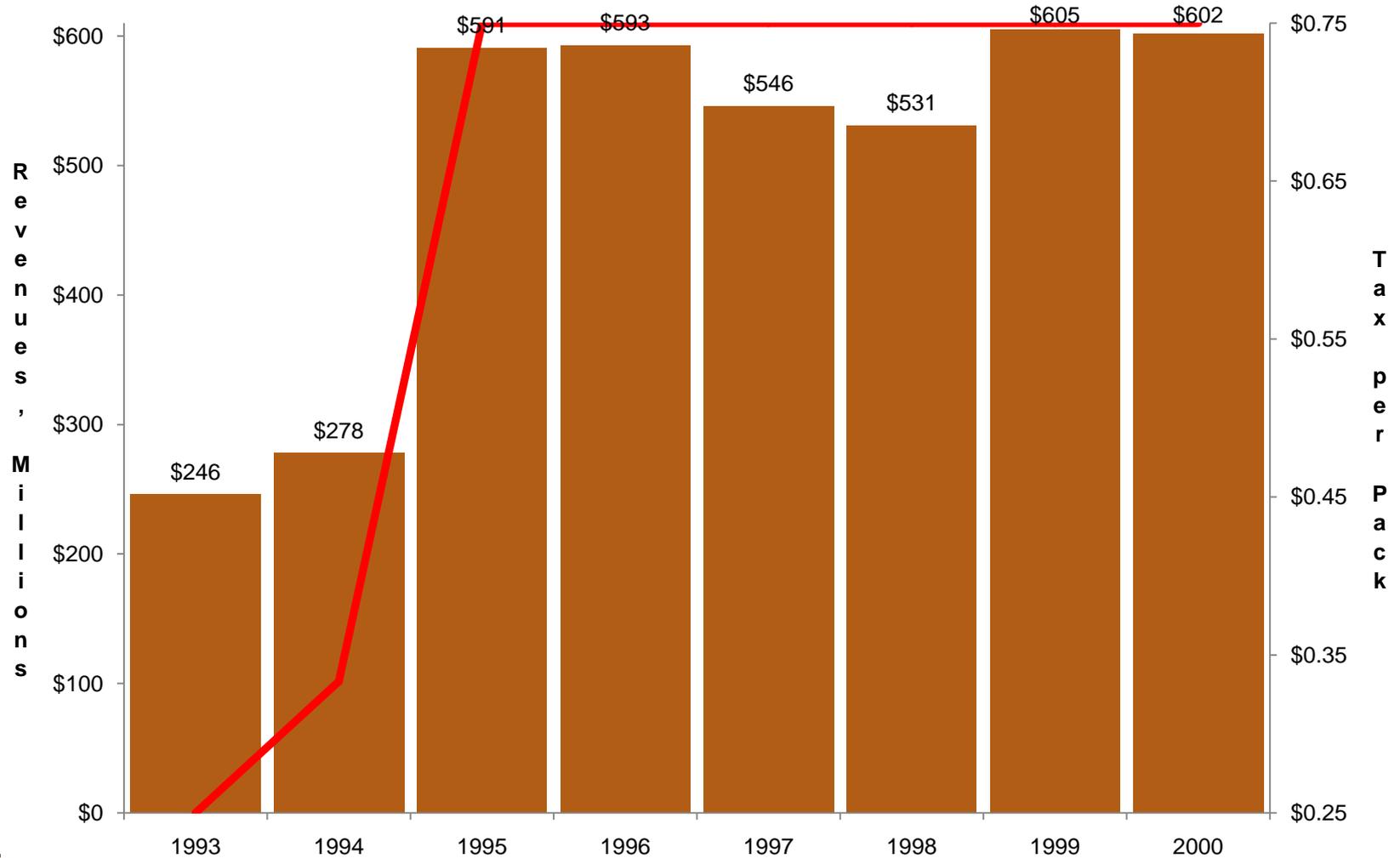


Combating Illicit Trade

- Tax stamps
- Michigan and tax stamps
 - Raised tax from 25 to 75 cents per pack, May 1, 1994; no tax stamp at the time
 - Initial large increase in revenues
 - From just under \$250 million last full fiscal year before increase to almost \$600 million first full year after increase
 - Smuggled cigarettes gain significant market share
 - NC (5 cent tax) eliminated tax stamp soon after MI tax increase; SC (7 cents) followed in 1997
 - Michigan adopts tax stamp in 1998
 - 14% increase in revenues following stamp
 - NC sales fall about 9%; SC more than 13%



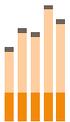
Michigan: Taxes & Tax Revenues



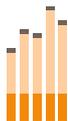
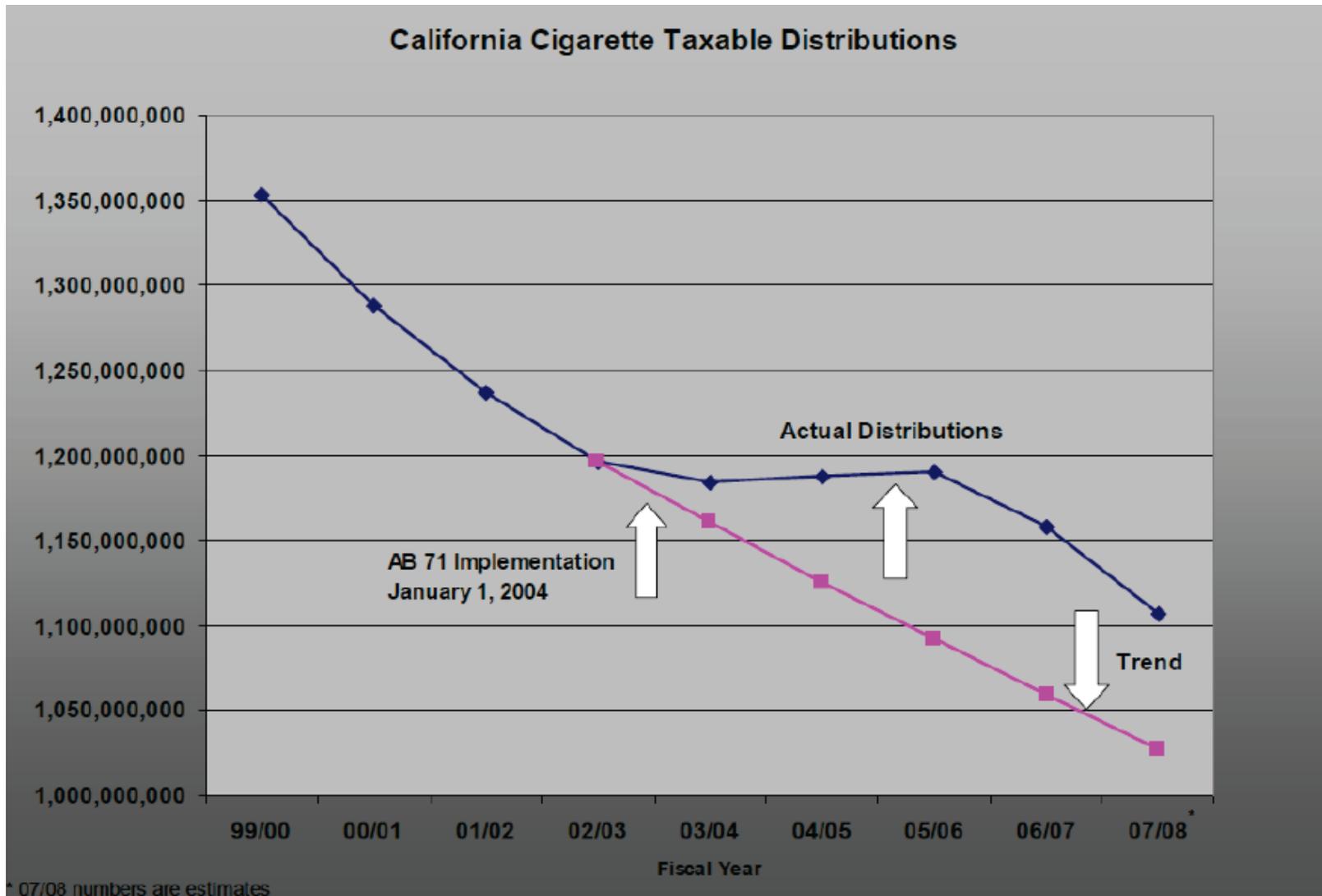
Source: Tax Burden on Tobacco and author's calculations

Combating Illicit Trade

- Adopt high tech tax stamp and enforce
 - Reduces tax evasion
 - More than pays for itself with increases in revenues

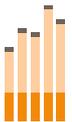


Combating Illicit Trade



Combating Illicit Trade

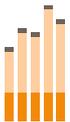
- California's high-tech tax stamp
 - Adopted 2002; fully implemented 2005
 - Coupled with better licensing standards
 - Can be examined with hand-held scanners
 - Thousands of compliance checks, hundreds of citations
 - Generated over \$124 million in revenues during 20 month period (mid-2004 through late 2005)
- Slow uptake by other states (MA, MI, NJ)



Combating Illicit Trade

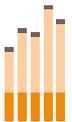
Many US efforts focused on Internet, phone and mail order sales:

- 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 last to do so under PACT Act
- 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 data from several states
 - MA collected over \$4.6 million in FY07



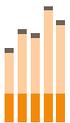
Combating Illicit Trade

- 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

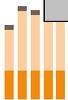
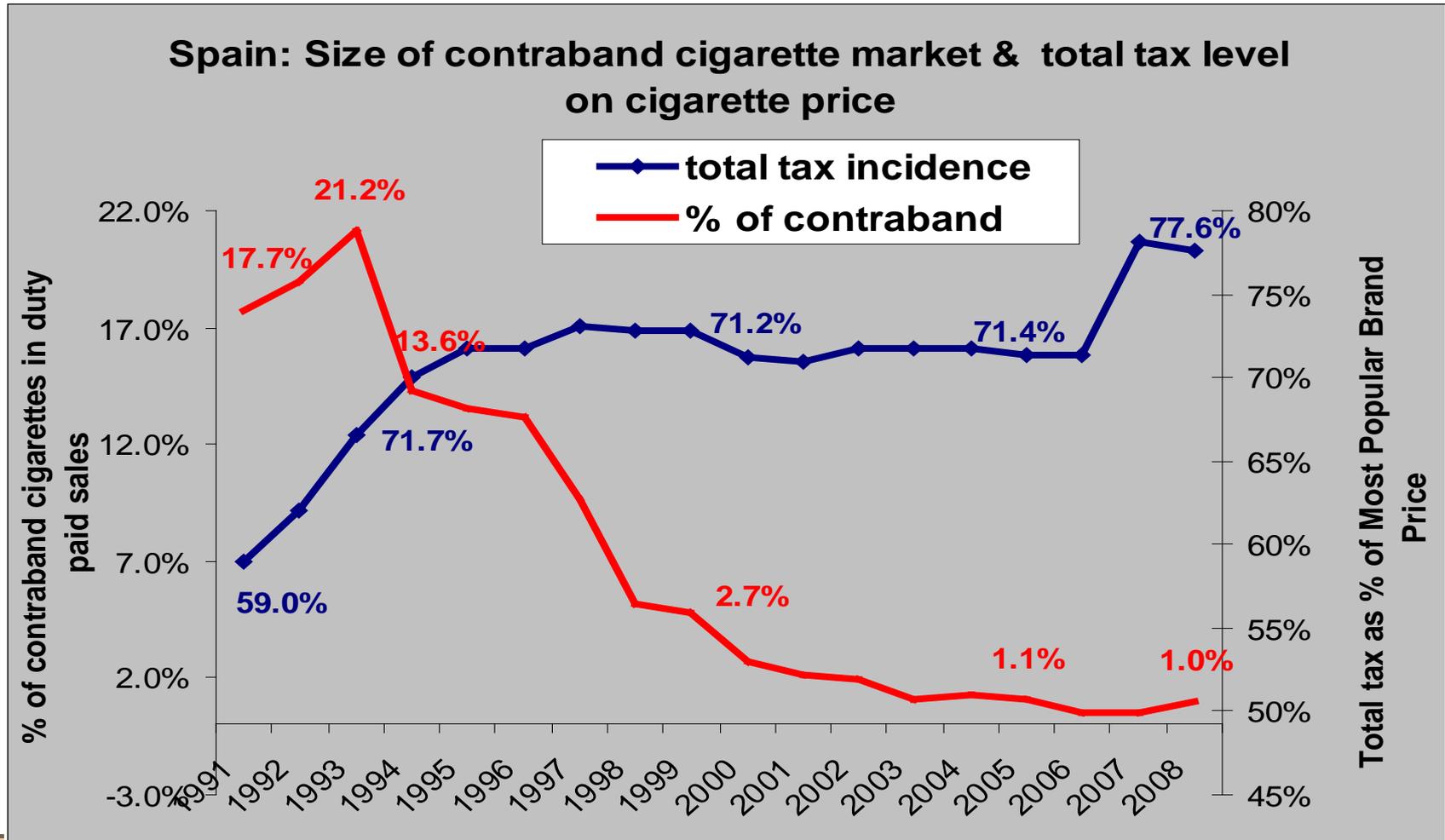


Combating Illicit Trade

- Spain
 - Reduced share of smuggled cigarettes from estimated 15% in 1995 to 5% in 1999
 - Focus on large scale, container smuggling
 - Strengthened tax administration with new technology and better enforcement
 - Collaboration with France, Andorra, Ireland, UK and the EU Anti-Fraud Office
 - Did NOT focus on individual tax avoidance, street sellers

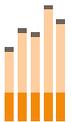


Cigarette tax and illegal cigarette market, Spain 1991-2008



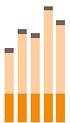
Combating Illicit Trade

- World Bank Policy Report:
 - Rather than forego tax increases, appropriate response is to crack down on illicit trade
- IARC Handbook 14:
 - Strong evidence that a coordinated set of interventions that includes international collaborations, strengthened tax administration, increased enforcement, and swift, severe penalties reduces illicit trade in tobacco products



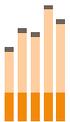
WHO's Best Practices in Tobacco Taxation

- Eliminate tax or duty free sales of tobacco products
 - As called for in Article 6 of FCTC
 - Reduces opportunities for individual tax avoidance
 - Maximizes public health and revenue impact of taxes/tax increases



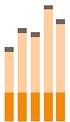
WHO's Best Practices in Tobacco Taxation

- Adopt new technologies to strengthen tobacco tax administration and minimize tax avoidance and evasion
 - Sophisticated tax stamps
 - Tracking and tracing technologies
 - Production monitoring technologies



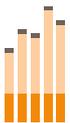
WHO's Best Practices in Tobacco Taxation

- Strengthen tobacco tax administrators' capacity by licensing all involved in tobacco product manufacturing and distribution
 - Facilitates identification of those engaged in illegal trade
 - Enhances ability to penalize those engaged in illegal trade
 - License suspension, revocation



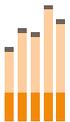
WHO's Best Practices in Tobacco Taxation

- Ensure certain, swift and severe penalties for those caught engaging in illicit trade in tobacco products
 - Increased the expected costs of engaging in illicit trade
 - Administrative sanctions coupled with licensing



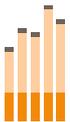
WHO's Best Practices in Tobacco Taxation

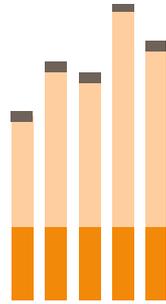
- Strengthen tobacco tax administrators' capacity to monitor tobacco product markets and evaluate the impact of tobacco tax increases
 - “Trust but verify”
 - Monitoring of tobacco production and distribution
 - Physical control over tobacco products
 - Periodic audits
 - Capacity to estimate impact of tax changes on consumption, revenues
 - Regional and international collaborations for monitoring, administration, enforcement



Combating Illicit Trade

- **Illicit trade protocol to the WHO FCTC**
 - Adopted November 2012; currently in process of being signed/ratified; provisions calling for:
 - Strong tax administration
 - Prominent, high-tech tax stamps and other pack markings
 - Licensing of manufacturers, exporters, distributors, retailers
 - Export bonds
 - Unique identification codes on packages
 - Better enforcement
 - Increased resources
 - Focus on large scale smuggling
 - Swift, severe penalties
 - Multilateral/intersectoral cooperation



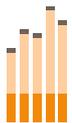


Summary

Cost Effectiveness of Tobacco Taxes

Significant tobacco tax increases make good economic sense:

- Not just long-term public health, but near-term health and economic benefits
- Tobacco control will not harm economies
- Substantial impact in reducing health care costs, improving productivity, and fostering economic development.



For more information:

Tobacconomics

<http://www.tobacconomics.org>

Jidong Huang

@tobacconomics

@jidonghuang

jhuang12@uic.edu

