

tobacconomics

Economic Research Informing Tobacco Control Policy

Tobacco Taxes are Good For Health and Good for Public Finance: Global and Regional Evidence


Frank J. Chaloupka, University of Illinois at Chicago
Latin American Network on Tobacco Tax Policy for Tobacco Control
5 February 2018, Washington, DC

TOBACCO CONTROL

DEVELOPMENT IN PRACTICE


Curbing the Epidemic

Governments and the
Economies of Tobacco Control



A WORLD BANK PUBLICATION

The International Tobacco Control Policy Evaluation Project
Tobacco Price and Taxation
ITC Cross-Country Comparison Report



MARCH 2012

UNIVERSITY OF WATERLOO

itc
International Tobacco Control Policy Evaluation Project



International Agency for Research on Cancer
World Health Organization

IARC HANDBOOKS OF CANCER PREVENTION
Tobacco Control


Volume 14

Effectiveness of Tax and Price
Policies for Tobacco Control

2011



The Economics of Tobacco Control: Evidence from the International Tobacco Control (ITC) Policy Evaluation Project

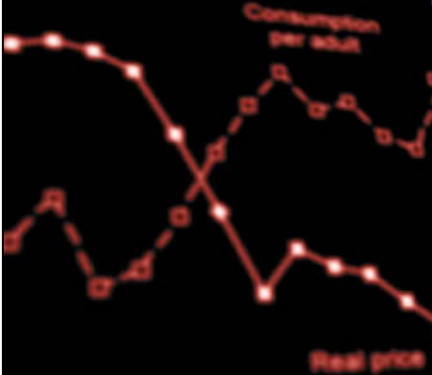


Guest Editor: John Taurus

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International Tobacco Control Policy Evaluation Project

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Consumption per capita

Real price

Tobacco control in developing countries |

editors | Prabhat Jha | Frank Chaloupka

WHO Technical Manual on
Tobacco Tax Administration



World Health Organization

World Health Organization

WHO REPORT ON THE GLOBAL TOBACCO EPIDEMIC, 2015
Raising taxes on tobacco

fresh and alive
mpower

NIH NATIONAL CANCER INSTITUTE

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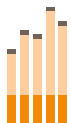
NCI TOBACCO CONTROL MONOGRAPH SERIES

The Economics of Tobacco and Tobacco Control

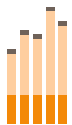
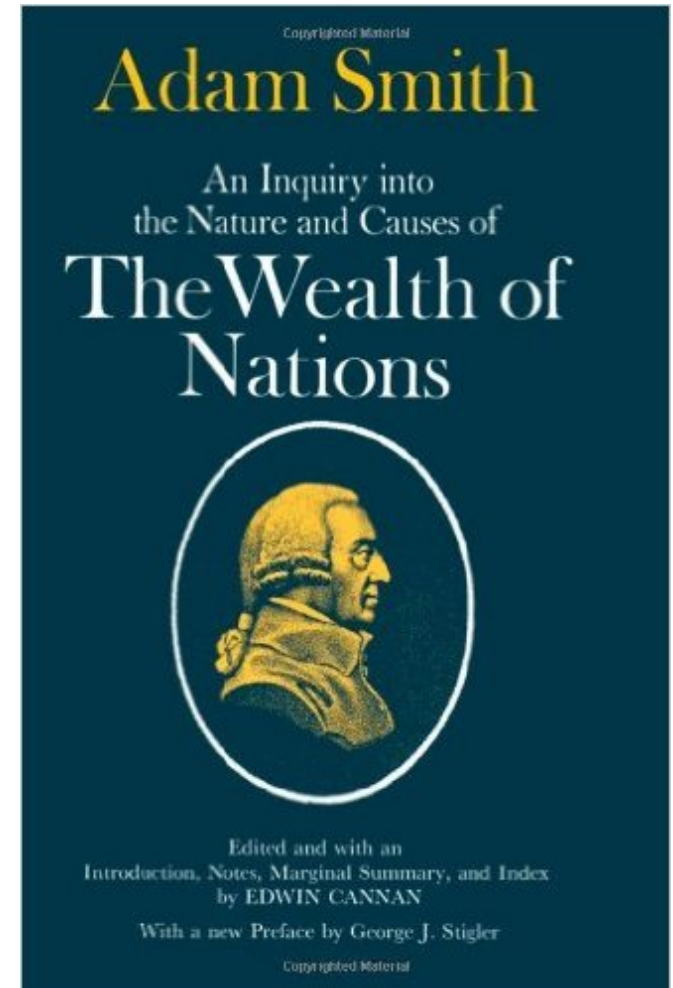
IN COLLABORATION WITH WORLD HEALTH ORGANIZATION

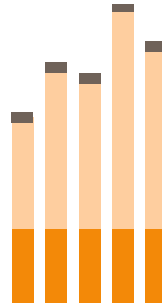
Executive Summary

U.S. Department of Health & Human Services | National Institutes of Health



" Sugar, rum, and tobacco, are commodities which are no where necessaries of life, which are become objects of almost universal consumption, and which are therefore **extremely proper subjects of taxation.**

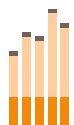




Tobacco Taxes & Tobacco Use

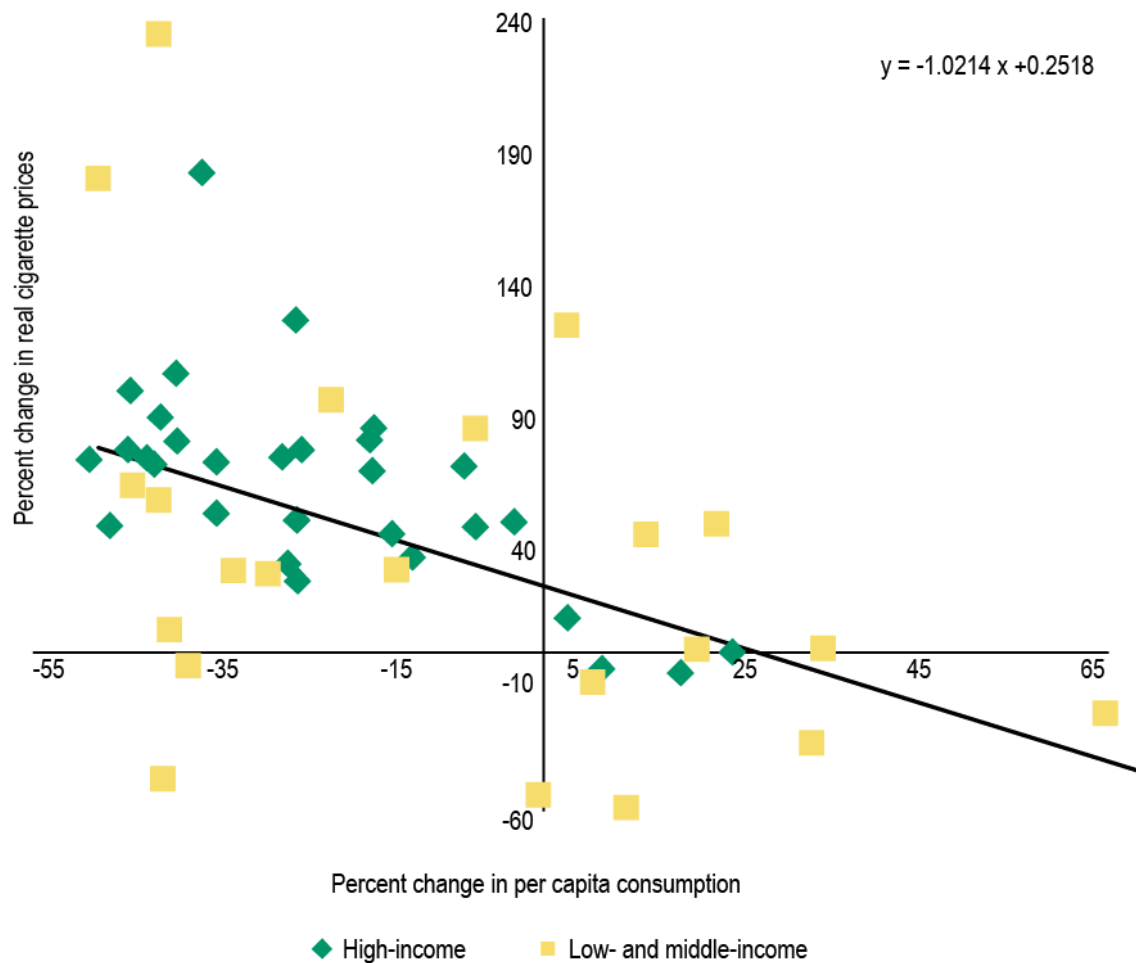
Cigarette Price & Consumption

Mexico, 2001-2014, Inflation Adjusted



Sources: EIU, Euromonitor, and World Bank

Figure 4.2 Percentage Change in Real Cigarette Prices Versus Percentage Change in Per Capita Consumption of Cigarettes, 1996–2011

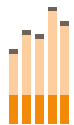
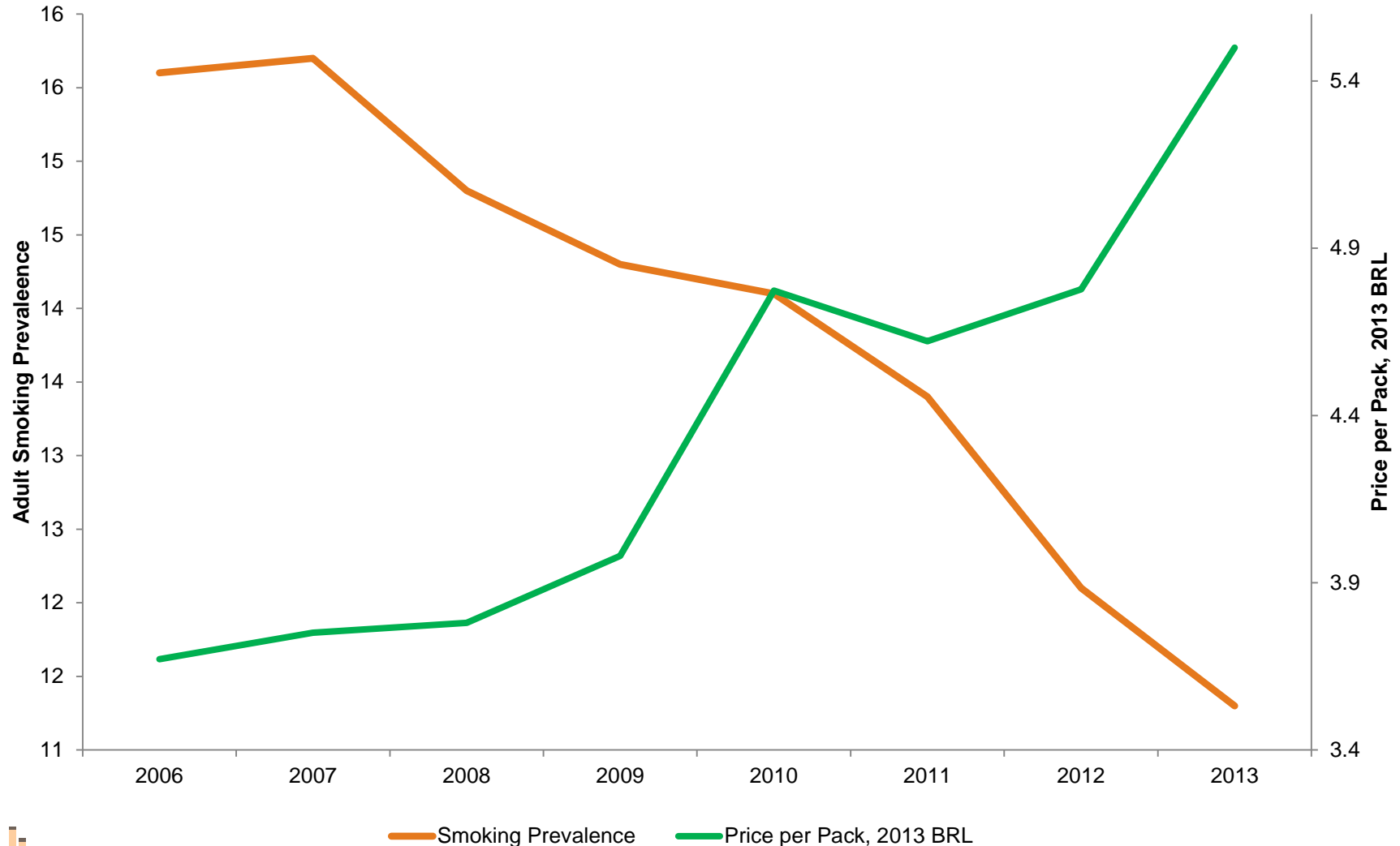


Note: Country income group classification based on World Bank Analytical Classifications for 2011.

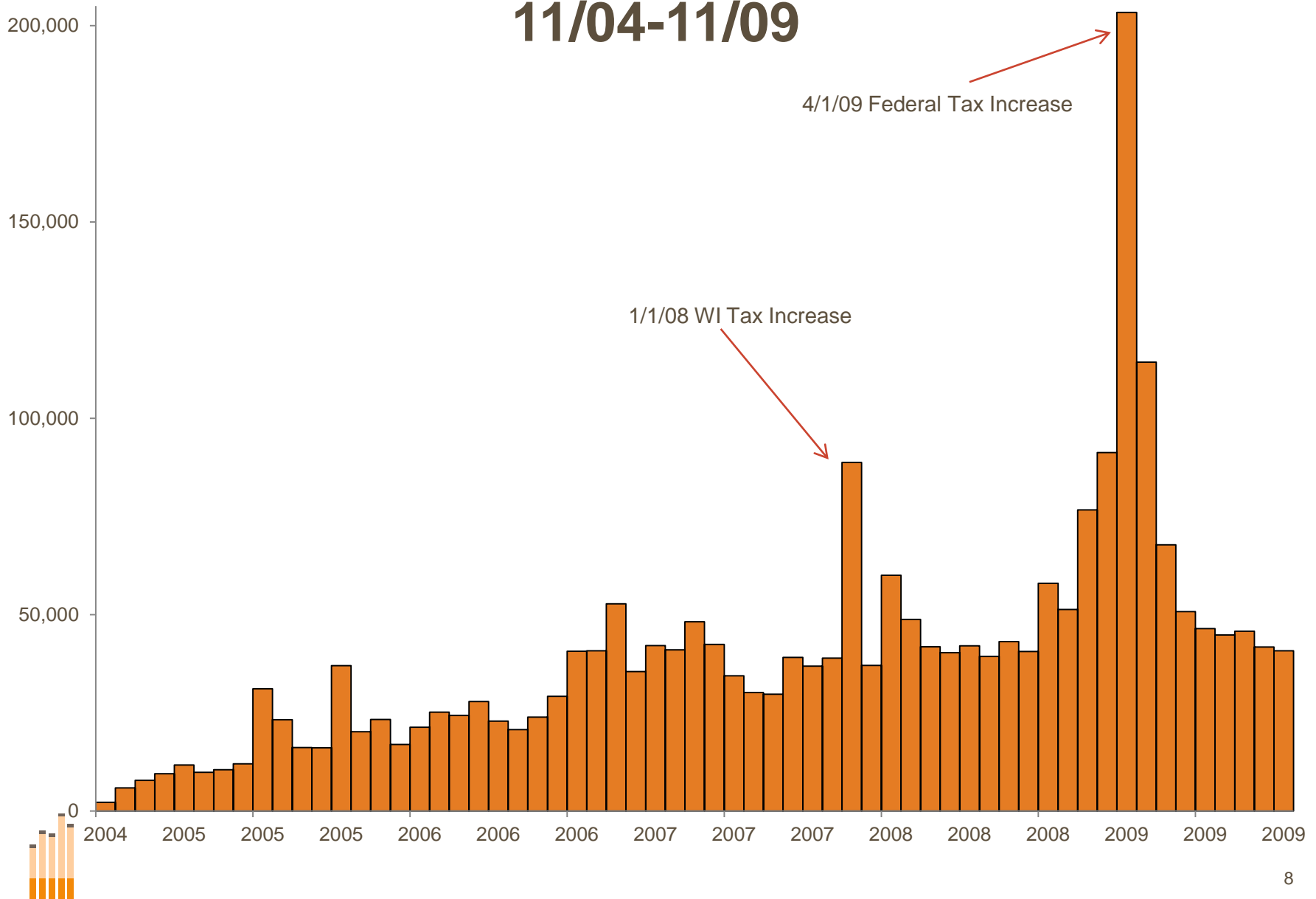
Sources: Economist Intelligence Unit 2012.³¹ ERC Group 2011

Adult Smoking Prevalence & Price

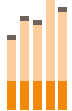
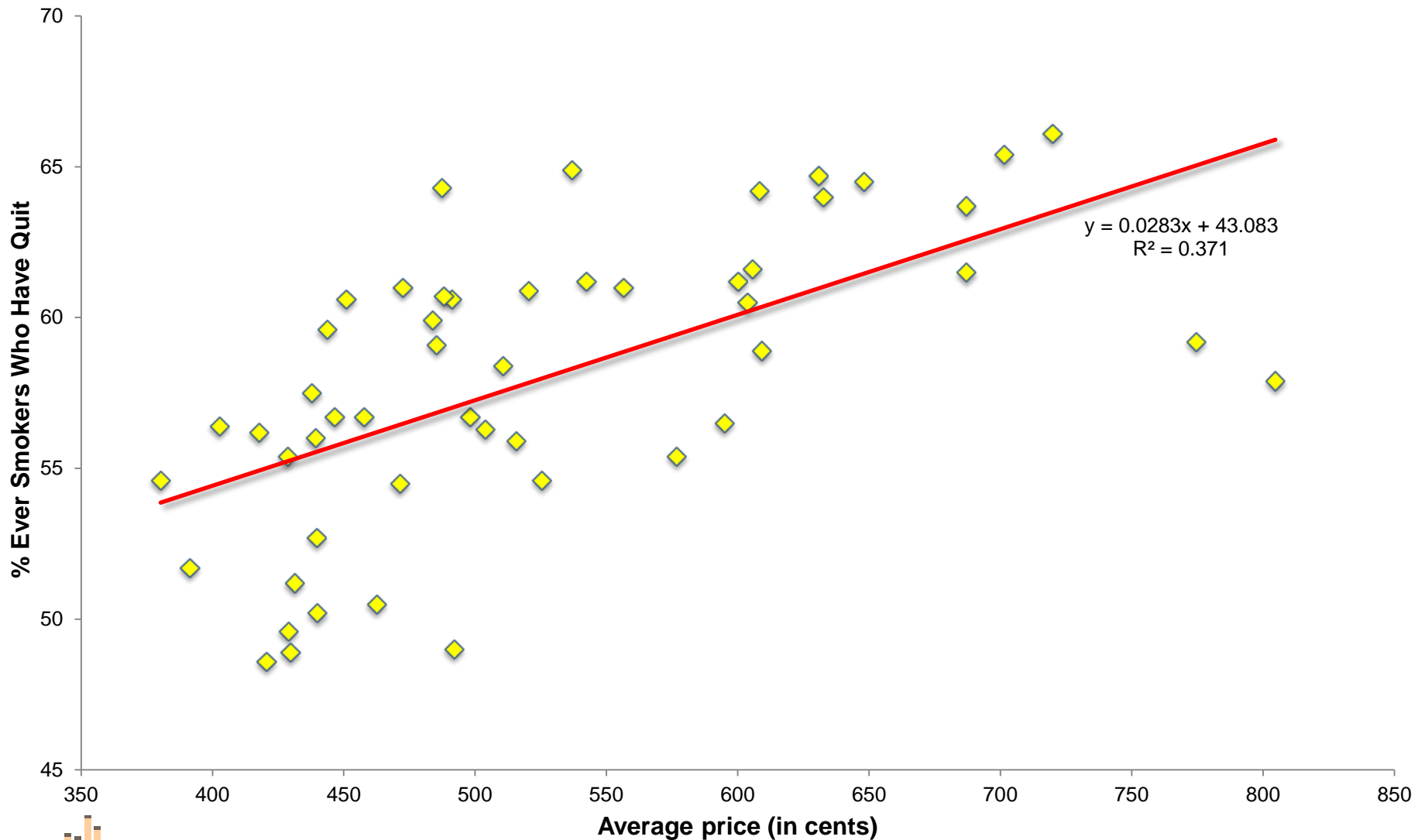
Brazil, Inflation Adjusted, 2006-2013



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

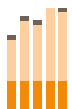
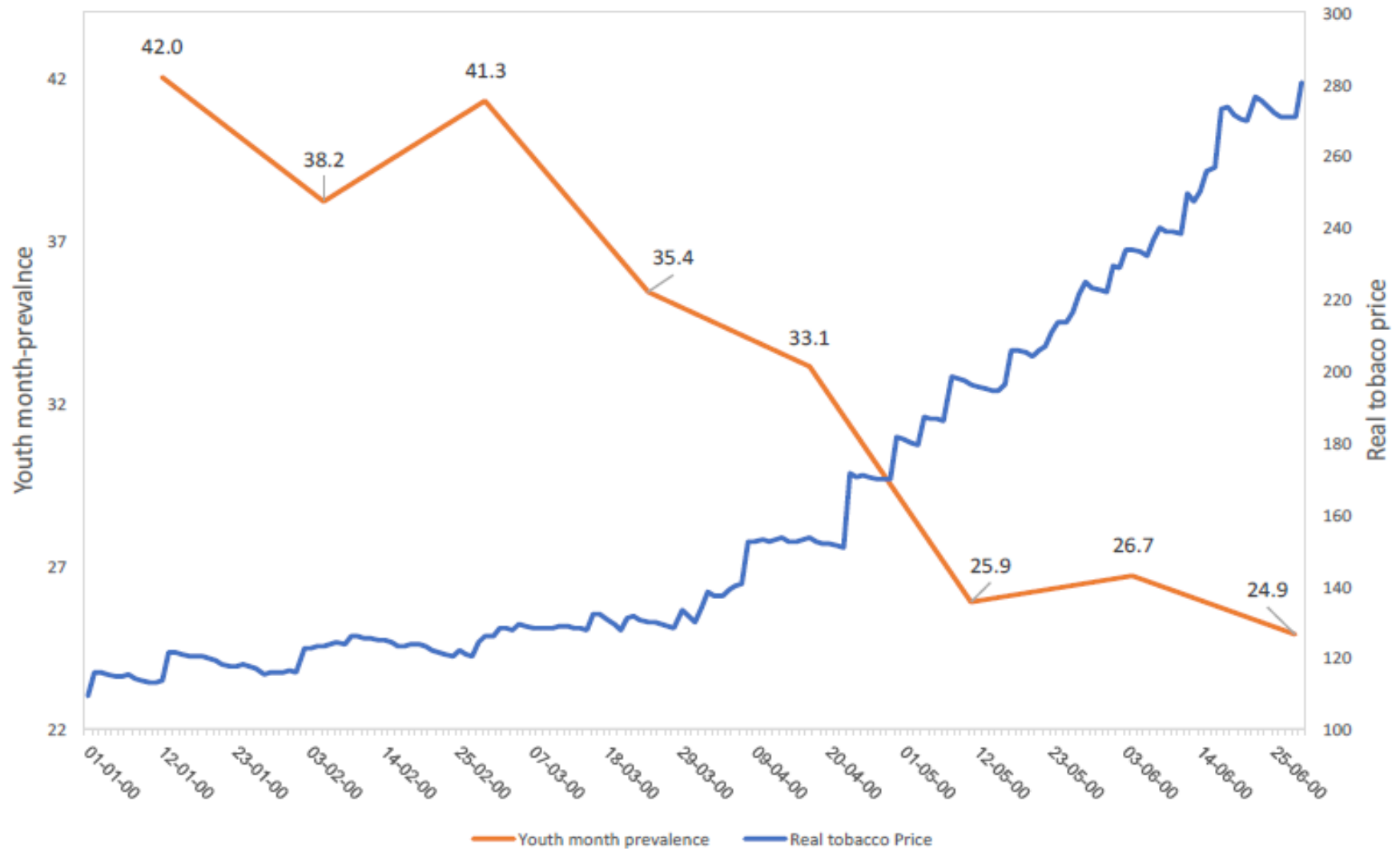


Cigarette Prices and Cessation US States & DC, 2009

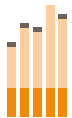
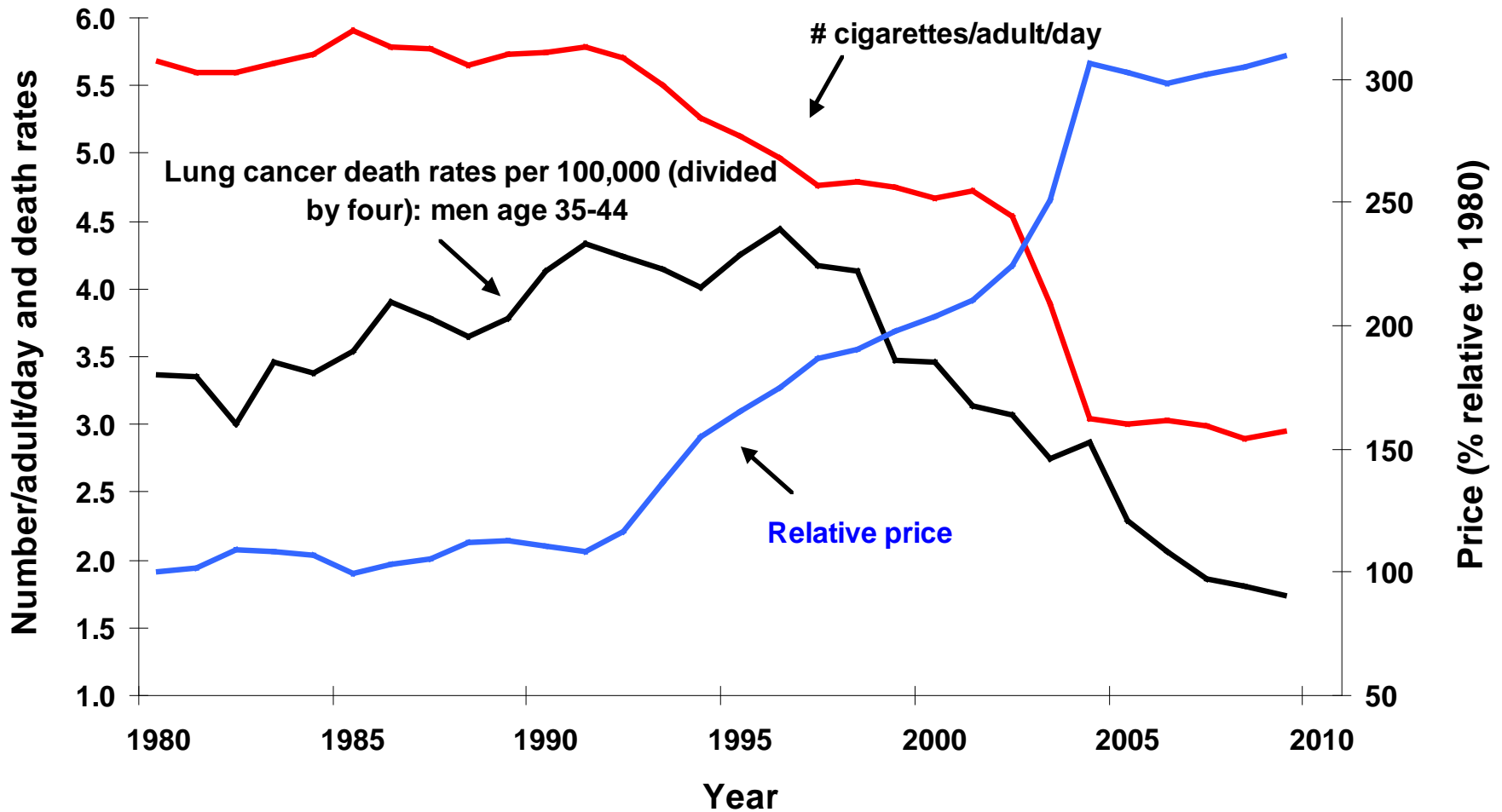


Source: BRFSS, *Tax Burden on Tobacco*, 2010, and author's calculations

Cigarette Price & Youth Smoking Prevalence Chile, 2000-2015



Price, Consumption & Lung Cancer, France



The Impact of Prices and Taxes on the Use of Tobacco Products in Latin America and the Caribbean

G. Emmanuel Guindon, PhD, Guillermo R. Paraje, PhD, and Frank J. Chaloupka, PhD

We examined the impact of tobacco prices or taxes on tobacco use in Latin America and Caribbean countries. We searched MEDLINE, EconLit, LILACS, unpublished literature, 6 specialty journals, and reviewed references. We calculated pooled price elasticities using random-effects models.

The 32 studies we examined found that cigarette prices have a negative and statistically significant effect on cigarette consumption. A change in price is associated with a less than proportional change in the quantity of cigarettes demanded. In

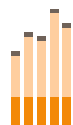
AMONG THE MANY CHALLENGES facing health systems in low- and middle-income countries (LMICs) is the increasing burden of noncommunicable diseases. In 2010, more than one third of the 34.5 million deaths attributed to noncommunicable diseases occurred in LMICs.¹ Tobacco use—a major risk factor of noncommunicable diseases—is worryingly high in many Latin American countries. Chile, for example, has one of the highest smoking prev-

prices or taxes on tobacco use in countries of Latin America and the Caribbean. We paid particular attention to the data and statistical approaches used.

METHODS

In the development and operation of the review, we used as a methodological guide the Assessment of Multiple Systematic Reviews (AMSTAR) assessment measurement tools developed by

quality of the data and methods used in each study. We did not use quality scales for assessing quality or risk of bias, as empirical evidence does not support them (different scales often result in different conclusions, scales may include criteria that are not related to risk of bias, weighting may be ill justified, and the interpretation of numerical scores can be difficult); the Cochrane Collaboration explicitly discourages quality scales.²⁰



Household-Level Data: 2-Part Models

MEX - Jimenez-Ruiz et al, 2008¹⁰; participation
 MEX - Jimenez-Ruiz et al, 2008¹⁰; consumption

MEX - Sáenz de Miera Juárez et al, 2013¹⁰; participation
 MEX - Sáenz de Miera Juárez et al, 2013¹⁰; consumption

Aggregate Data, Time-Series Analyses, Short-Run

ARG - González-Rozada, 2006¹⁰; OLS, static
 ARG - Martínez et al, 2008¹⁰; VECM
 ARG - González-Rozada et al, 2013¹⁰; ECM
 ARG - Martínez et al, 2015¹⁰; VECM

BOL - Alcaraz, 2006¹⁰; OLS, static
 BOL - Alcaraz, 2006¹⁰; 2SLS, static
 BOL - Alcaraz, 2006¹⁰; 2SLS, myopic

BRA - Carvalho, Lobão, 1998¹⁰; OLS, myopic
 BRA - Iglesias, Nicolau, 2006¹⁰; OLS, myopic
 BRA - Iglesias, Nicolau, 2006¹⁰; 2SLS, myopic
 BRA - Iglesias et al, 2007¹⁰; OLS, myopic

CHL - Debrott Sanchez, 2006¹⁰; GARCH, static
 CHL - Debrott Sanchez, 2006¹⁰; GARCH, myopic

GTM - Gutiérrez, Lic, unpublished data, 2010; OLS, static
 GTM - Gutiérrez, Lic, unpublished data, 2010; OLS, myopic

JAM - van Walbeek et al, 2005¹⁰; OLS
 JAM - van Walbeek et al, 2005¹⁰; OLS, myopic

MEX - Olivera-Chavez et al, 2010¹⁰; OLS, static

PAN - Herrera Ballesteros, 2013¹⁰; ECM
 PAN - Herrera Ballesteros, 2013¹⁰; OLS, myopic
 PAN - Herrera Ballesteros, 2013¹⁰; 2SLS, static

URY - Ramos, Curti, 2006¹⁰; 2SLS, myopic
 URY - Ramos, Curti, 2006¹⁰; IV, myopic

Overall, short-run^a (-0.31; 95% CI -0.39 to -0.24)

Heterogeneity: $I^2 = 88\%$

Aggregate Data, Time-Series Analyses, Long-Run

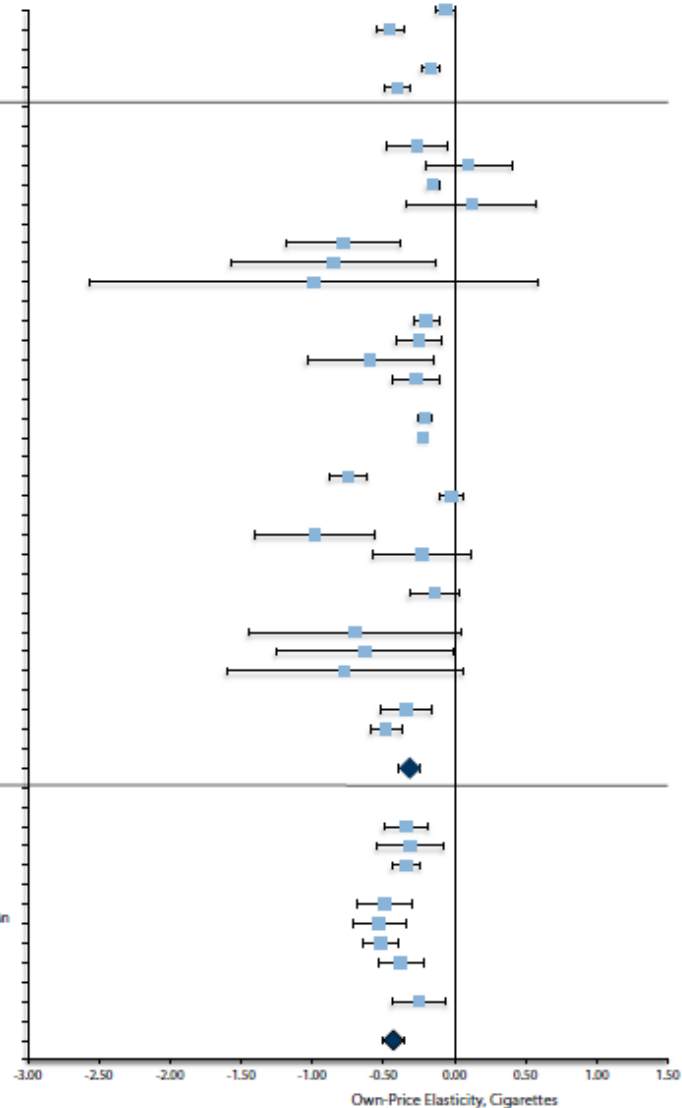
ARG - Martínez et al, 2008¹⁰; VECM
 ARG - Martínez et al, 2015¹⁰; VECM
 ARG - González-Rozada et al, 2013¹⁰; ECM

COL - Ariza M, MSc, et al, unpublished data, 2010; ECM
 COL - Ariza M, MSc, et al, unpublished data, 2010; OLS-Phillip, Loretán
 COL - Ariza M, MSc, et al, unpublished data, 2010; 2SLS
 COL - Ariza M, MSc, et al, unpublished data, 2010; GMM

MEX - Olivera-Chavez et al, 2010¹⁰; dynamic OLS

Overall, long-run^b (-0.43; 95% CI -0.51 to -0.35)

Heterogeneity: $I^2 = 41\%$



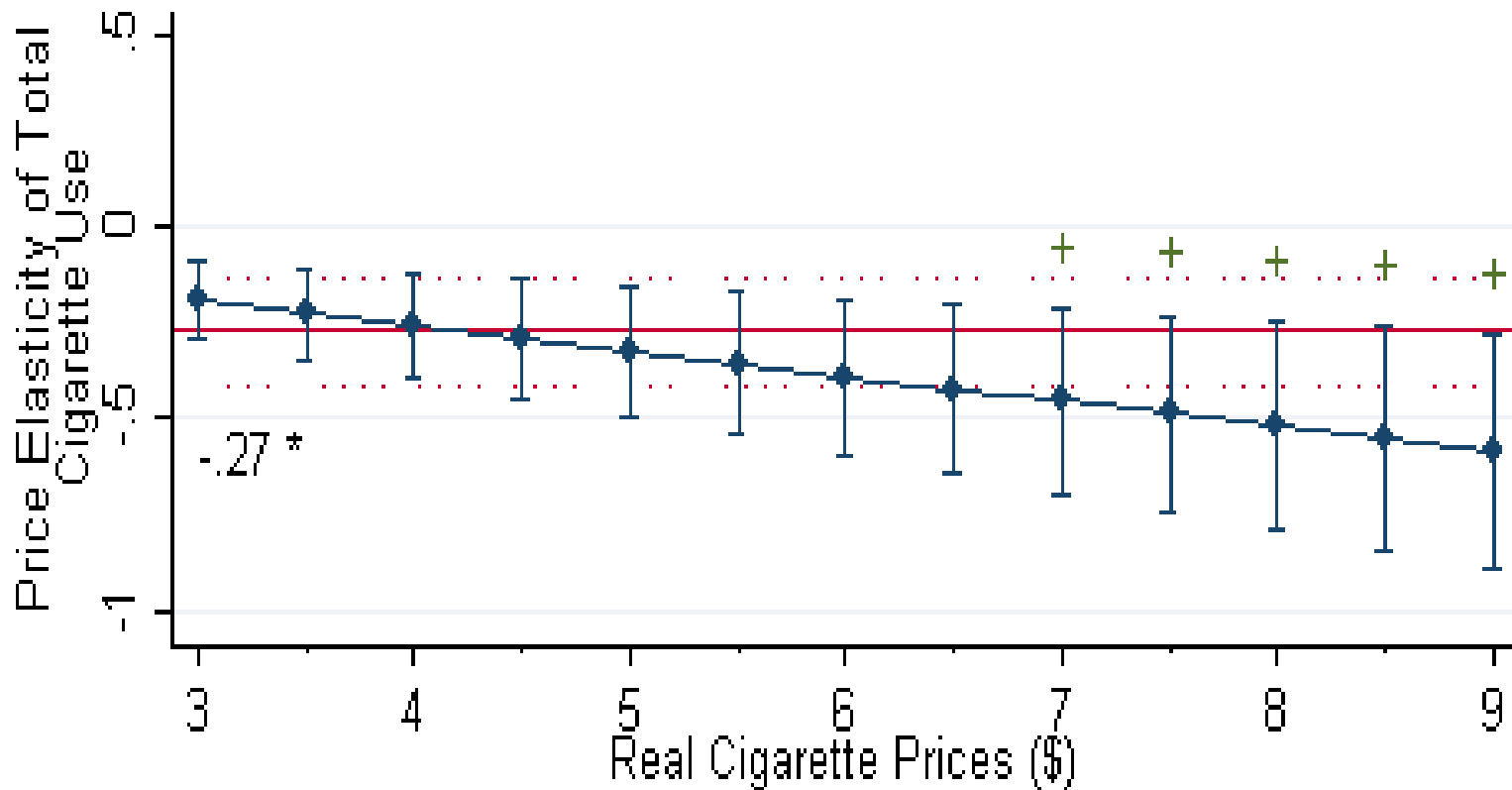
Note. 2SLS = two-stage least-squares; 3SLS = three-stage least-squares; ECM = error correction model; GARCH = generalized autoregressive conditional heteroskedasticity; GMM = generalized method of moment; IV = instrumental variables; OLS = ordinary least squares; VECM = vector error correction model.

^aOverall short-run estimate excludes González-Rozada (2006), Martínez et al (2008) and Iglesias, Nicolau (2006), OLS myopic.

^bOverall long-run estimate excludes Martínez et al (2008).

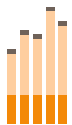
FIGURE 2—Estimates of own-price elasticity for cigarettes: Latin America and the Caribbean, 2013.

Increasing Elasticity with Increasing Price – U.S. TUS-CPS Data

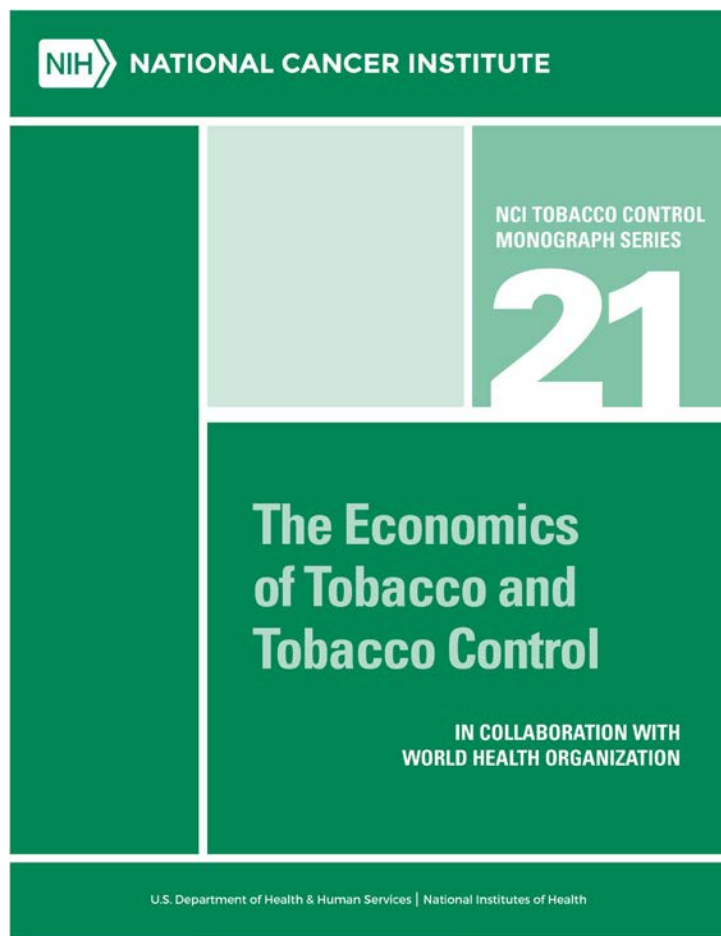


Price & Other Tobacco Product Use

- Consistent evidence on own-price effects
 - Generally find demand for OTP and vaping products more responsive to price than cigarette demand
- Mixed evidence on substitution among various products
 - Greater substitution among more similar products (e.g. cigarettes and other combustibles)
 - Some evidence of substitution between cigarettes and vaping products
 - Weak evidence of complementarity between combustibles and other non-combustibles

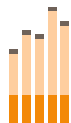


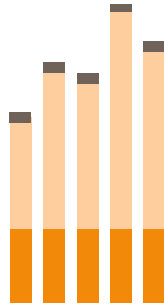
Effectiveness of Tobacco Taxes



Chapter 4, Conclusion 1:

A substantial body of research, which has accumulated over many decades and from many countries, shows that **significantly increasing the excise tax and price of tobacco products is the single most consistently effective tool for reducing tobacco use.**

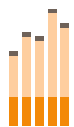
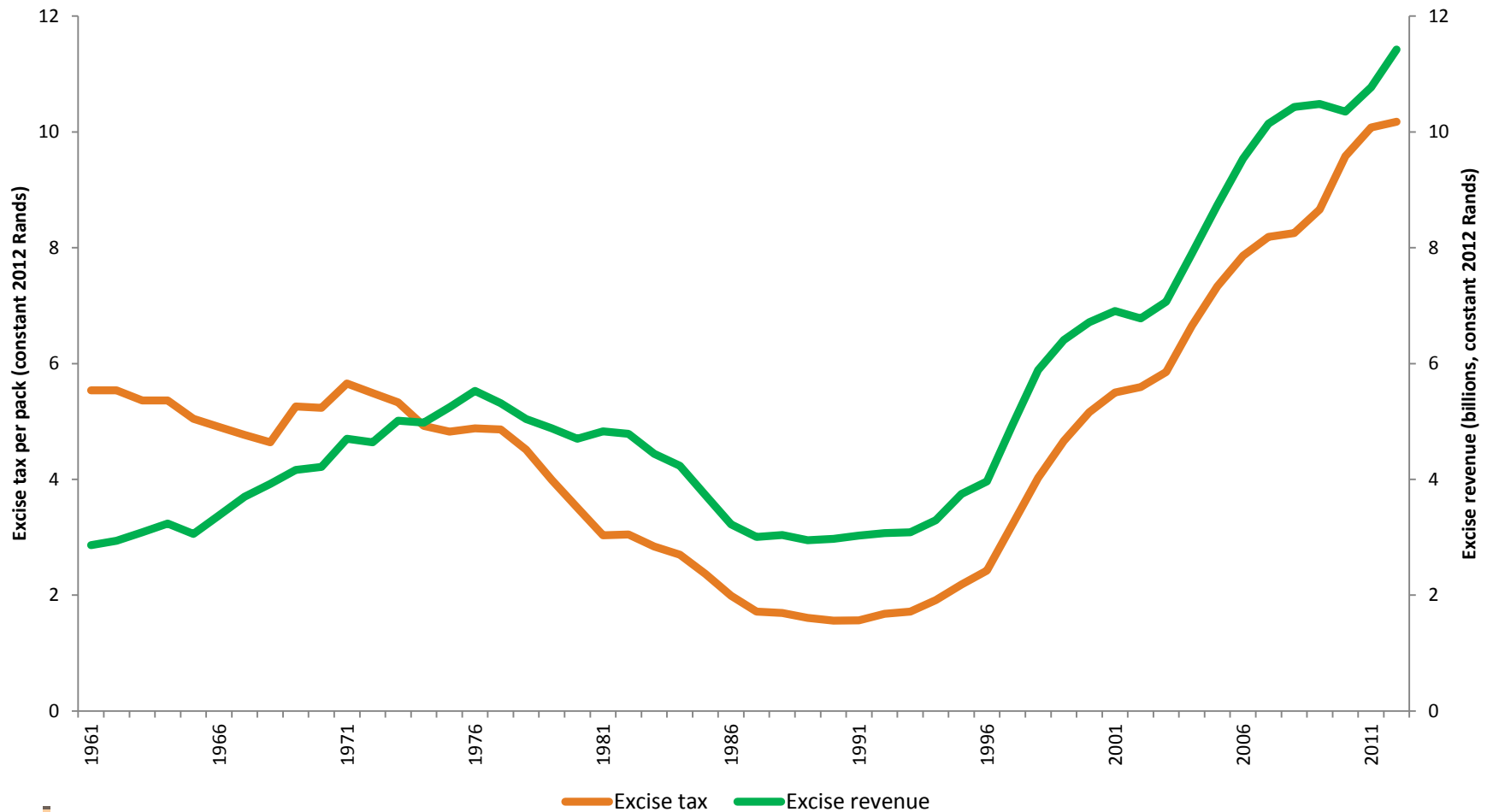




Tobacco Taxes & Tobacco Tax Revenues

Taxes & Tax Revenues, South Africa

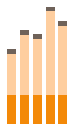
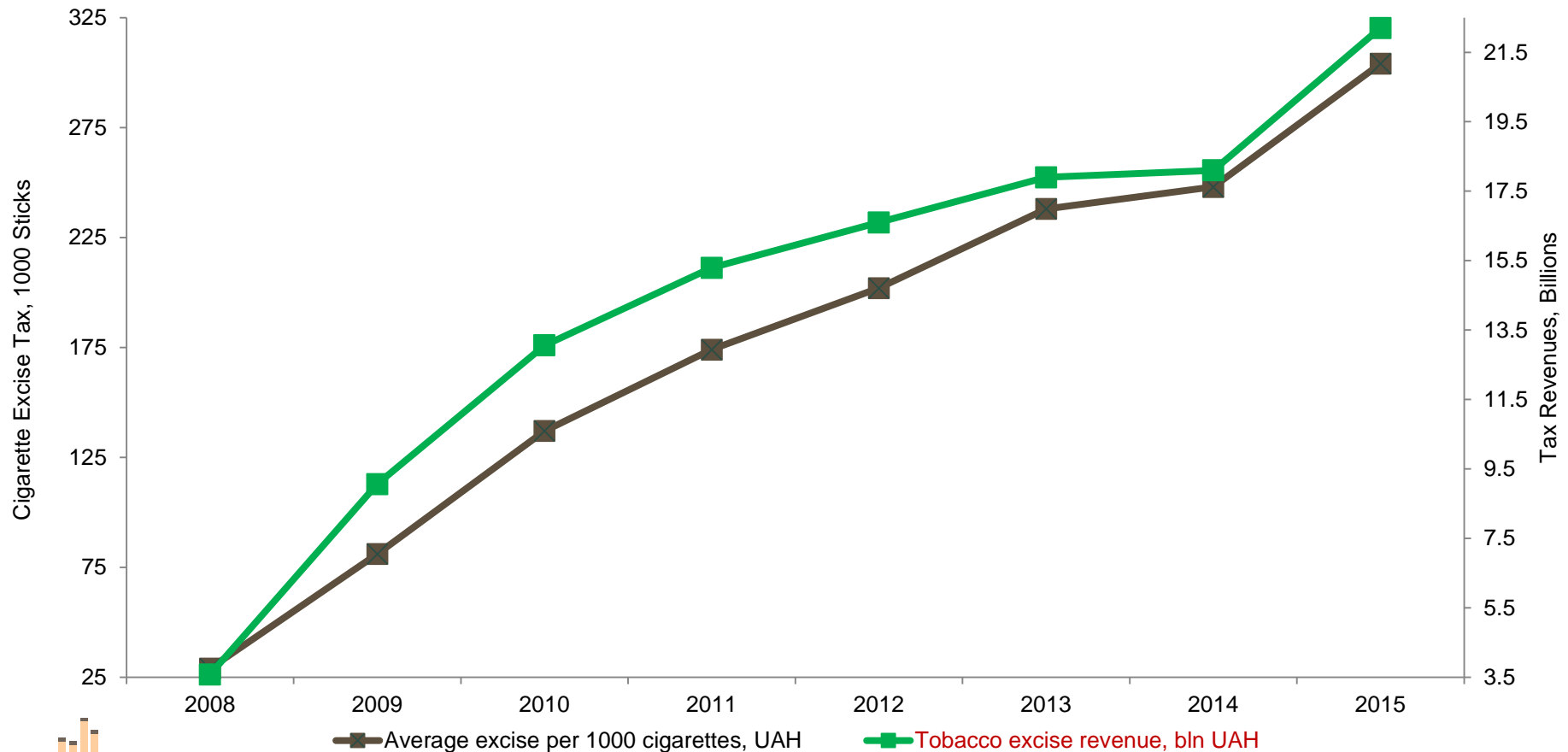
Excise Tax per Pack and Excise Tax Revenue
South Africa, Inflation Adjusted, 1961-2012



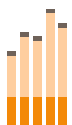
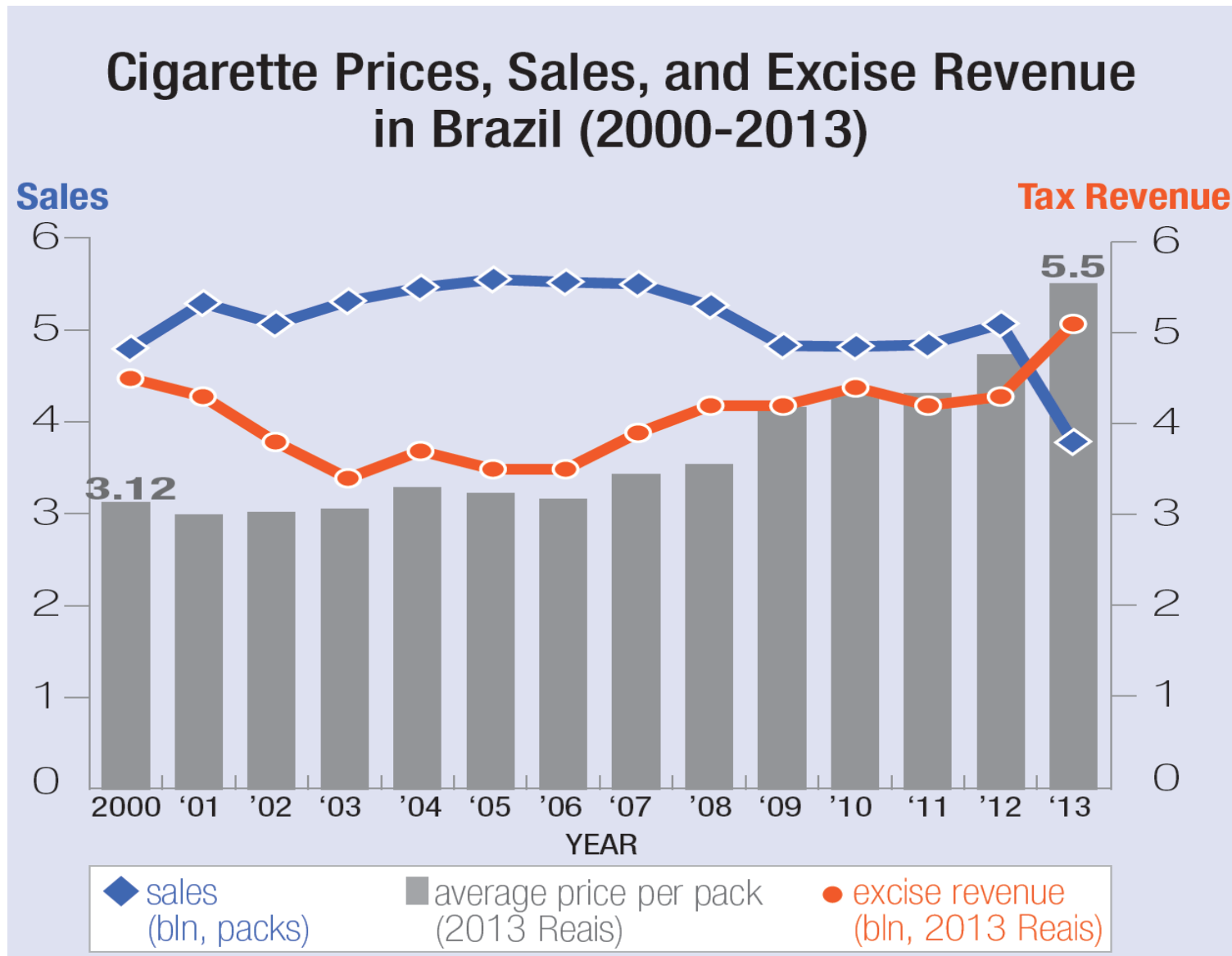
Sources: Blecher & Van Walbeek, 2014

Cigarette Tax and Tax Revenues Ukraine: 2008-2015

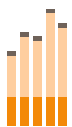
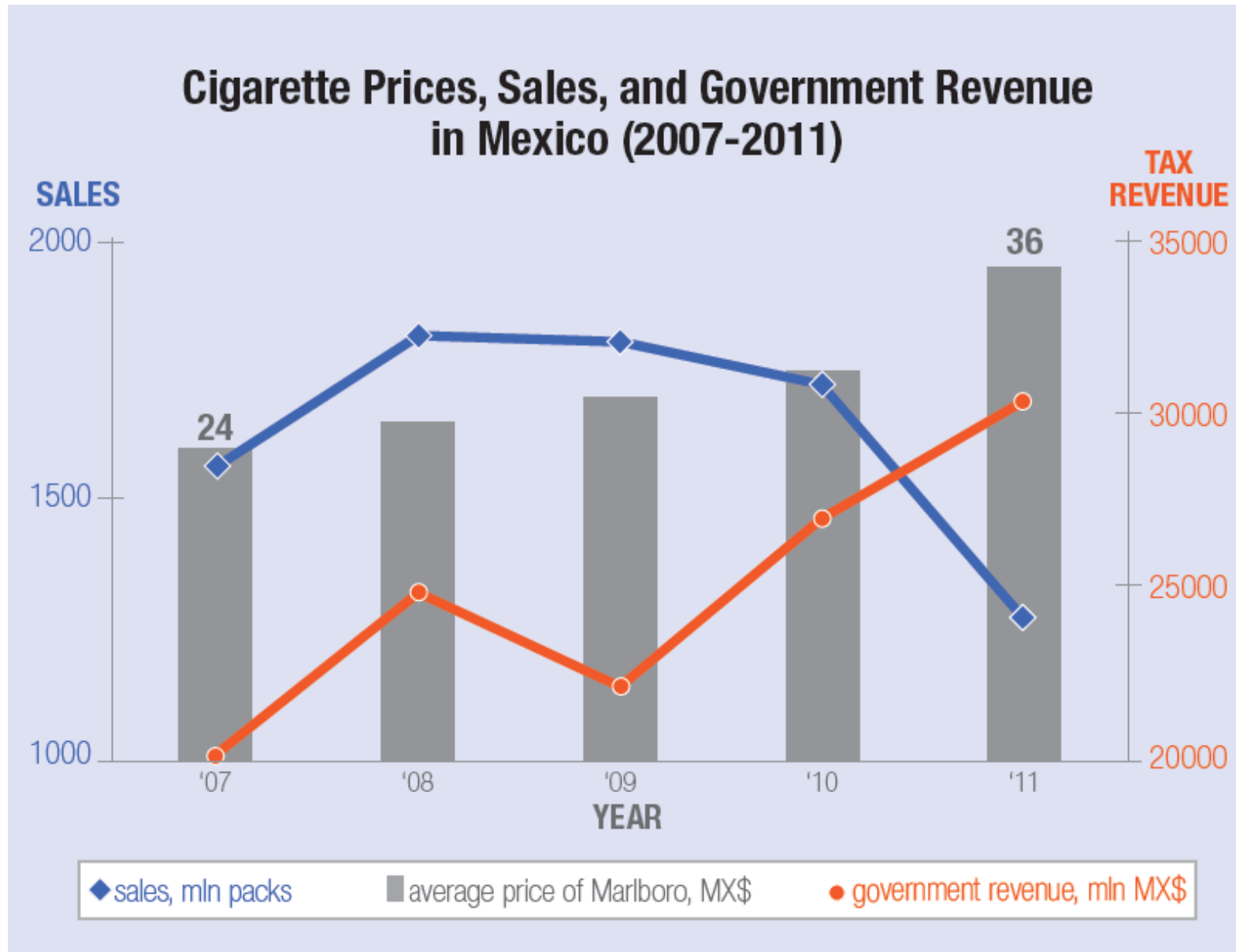
Average excise rate for cigarettes – increased 10-fold
Cigarette Tax Revenue – increased 6-fold



Prices, Consumption & Revenues, Brazil



Prices, Consumption & Revenues, Mexico



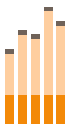
Positive Effect of Tax Increases on Revenues Results from:

Low share of tax in price:

- Globally, excise taxes account for less than half of price, on average
- If 50%, doubling of tax implies a 50% rise in price, if fully passed on to consumers

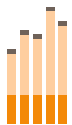
Less than proportionate decline in consumption:

- 10% price increase reduces consumption by 5% on average, in LMICs
- 25% drop in consumption
- 75% of original consumption at twice the tax
- 50% increase in revenues



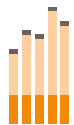
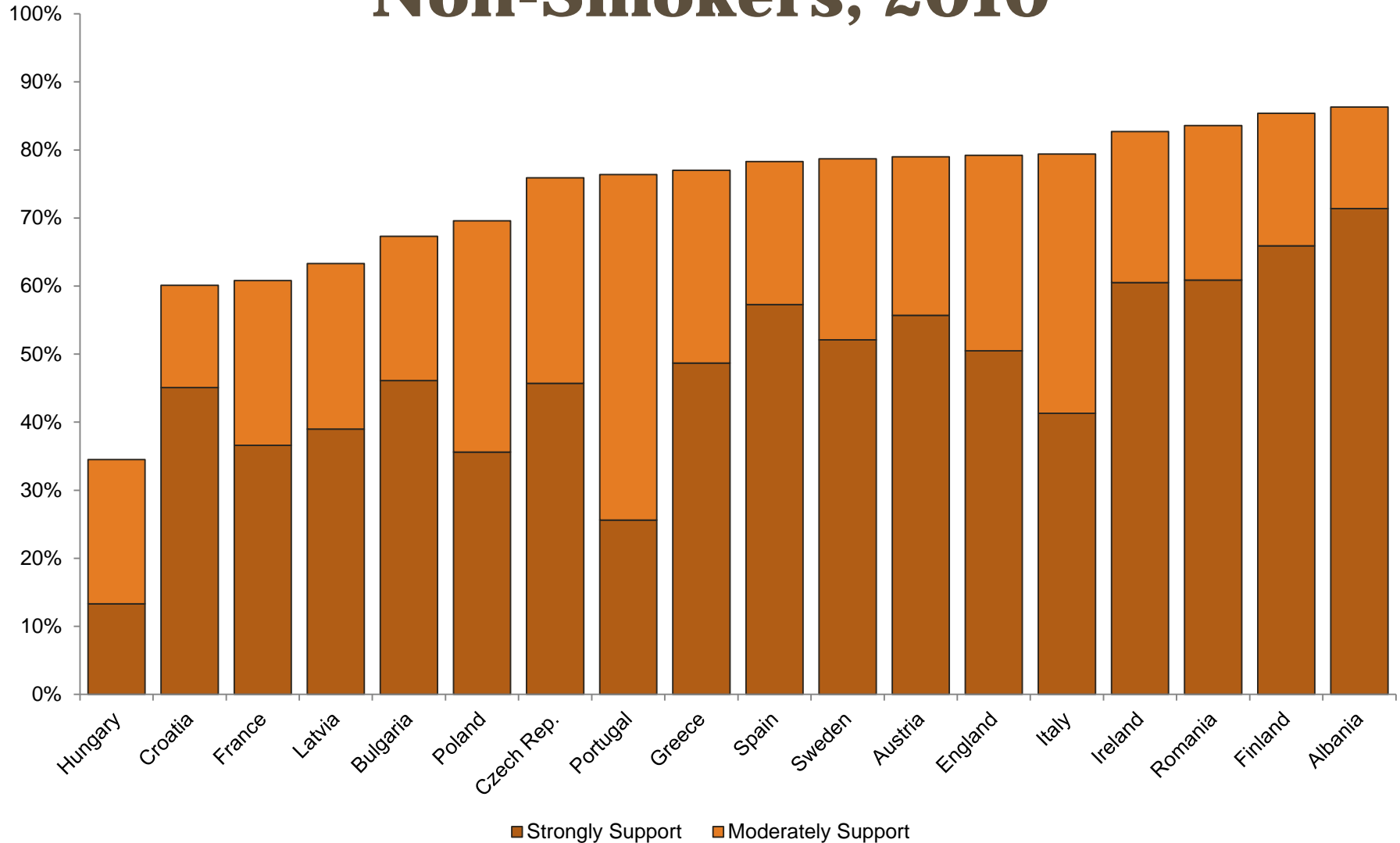
Tobacco Taxes Popular Way to Generate Revenue

- Tobacco Excise Tax Increases:
 - Generally supported by the public
 - Including significant number of smokers
 - More support when some of new revenues are used to support tobacco control and/or other health-related activities
 - Greater support than for other revenue sources



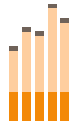
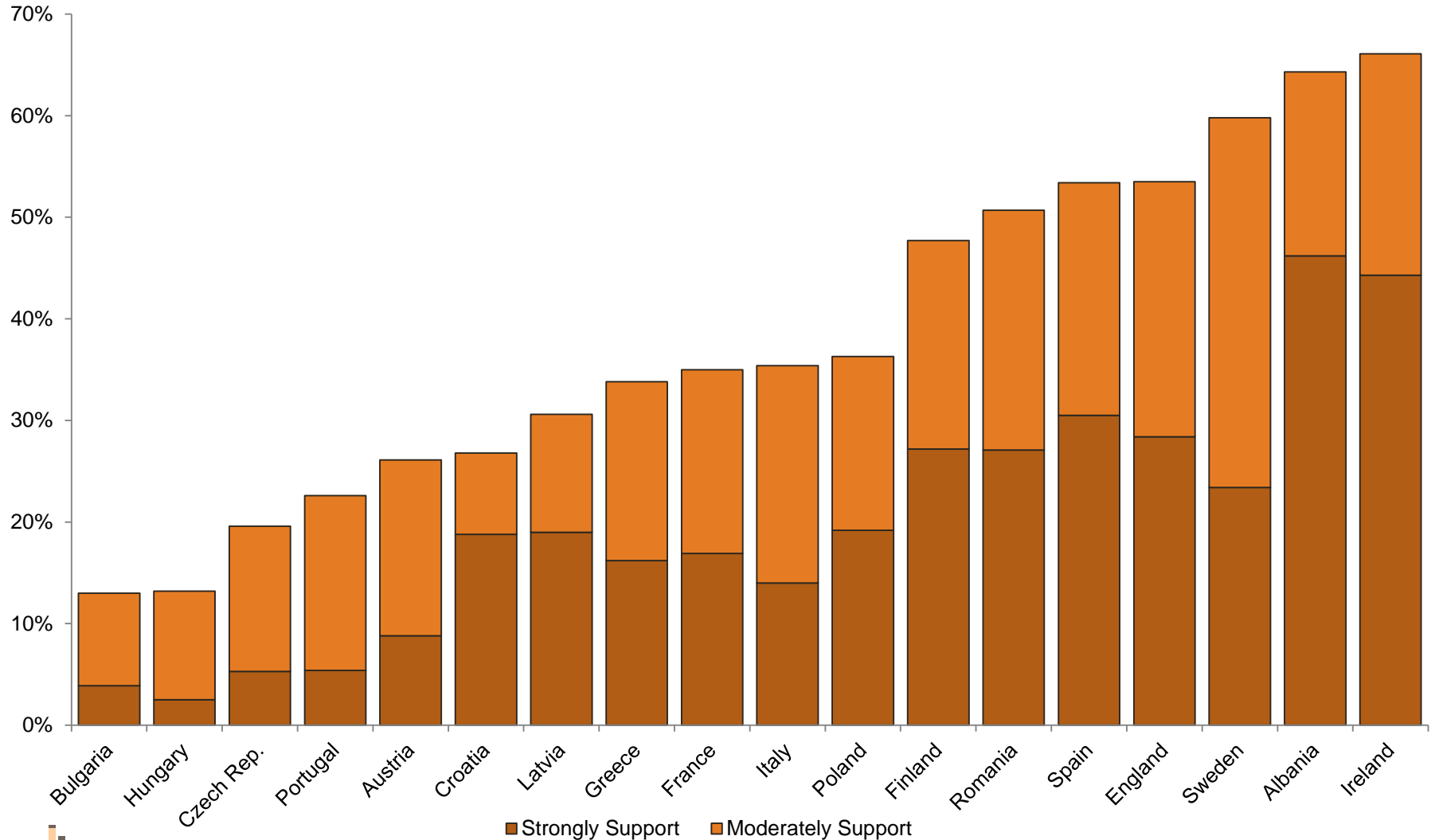
Support for 20% Price Increase

Non-Smokers, 2010



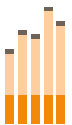
Support for 20% Price Increase

Current Smokers, 2010



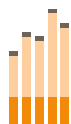
Earmarking Tobacco Tax Revenues

- Using a portion of tobacco tax revenues to support other tobacco control and/or health promotion efforts
 - Increases public support for tax increases
 - Including among many smokers
 - Increases the health benefits of tobacco tax increases



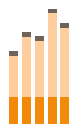
Earmarked Tobacco Taxes

COUNTRY	REPORTED USE OF EARMARKED TOBACCO TAXES
Algeria	6 dinars per pack of cigarettes go to the emergency fund and medical care activities, 2 dinars per pack go to cancer control
Argentina	Additional emergency tax of 7% of retail price to finance social and/or health programmes of the Rural Change Program and the Social-Agricultural Programmes
Bangladesh	Additional excise of 1% of the retail price goes to the Ministry of Health
Cabo Verde	All excise tax revenues are used for sports and health
Colombia	16% of the specific excise tax on tobacco products is used for sports while all revenues from ad valorem excise go to health
Comoros	Part of the 5% of tax on tobacco goes to Ministry of Sports and the hospital emergencies section
Congo	Specific excise tax per pack (40 XOF): half goes to health insurance and half to sports
Costa Rica	All revenues from the specific excise tax are used to fund programmes for the prevention and treatment of diseases related to tobacco use, cancer treatment, harmful use of alcohol, and sports
Côte d'Ivoire	An extra tax of 5% goes to the AIDS solidarity fund and another 2% extra tax goes to sports
Egypt	An extra tax of 10 piasters per pack is used to fund student health insurance
El Salvador	35% of revenues from taxes on tobacco, alcohol and firearms, ammunition and explosives (or a minimum of US\$ 20 million per year) fund the FOSALUD (solidarity fund for health)
Guatemala	All revenues from the ad valorem excise tax on tobacco are used for health programmes
Iceland	At least 0.9% of gross tobacco sales is allocated to tobacco control
India	Specific amount for all tobacco products (varies by product), except bids, goes to the Health Cessation Fund and an amount levied on bids goes to the Bid Workers' Welfare Fund, which also includes medical care to workers involved in the bidi industry
Indonesia	10% surcharge imposed on tobacco excise; at least 50% of its proceeds are allocated for health programmes and law enforcement at the regional level. 2% of tobacco tax revenues are allocated to regional governments of which a proportion should be used for health
Iran (Islamic Republic of)	Up to 2% of taxes collected on tobacco products are used to support tobacco control activities

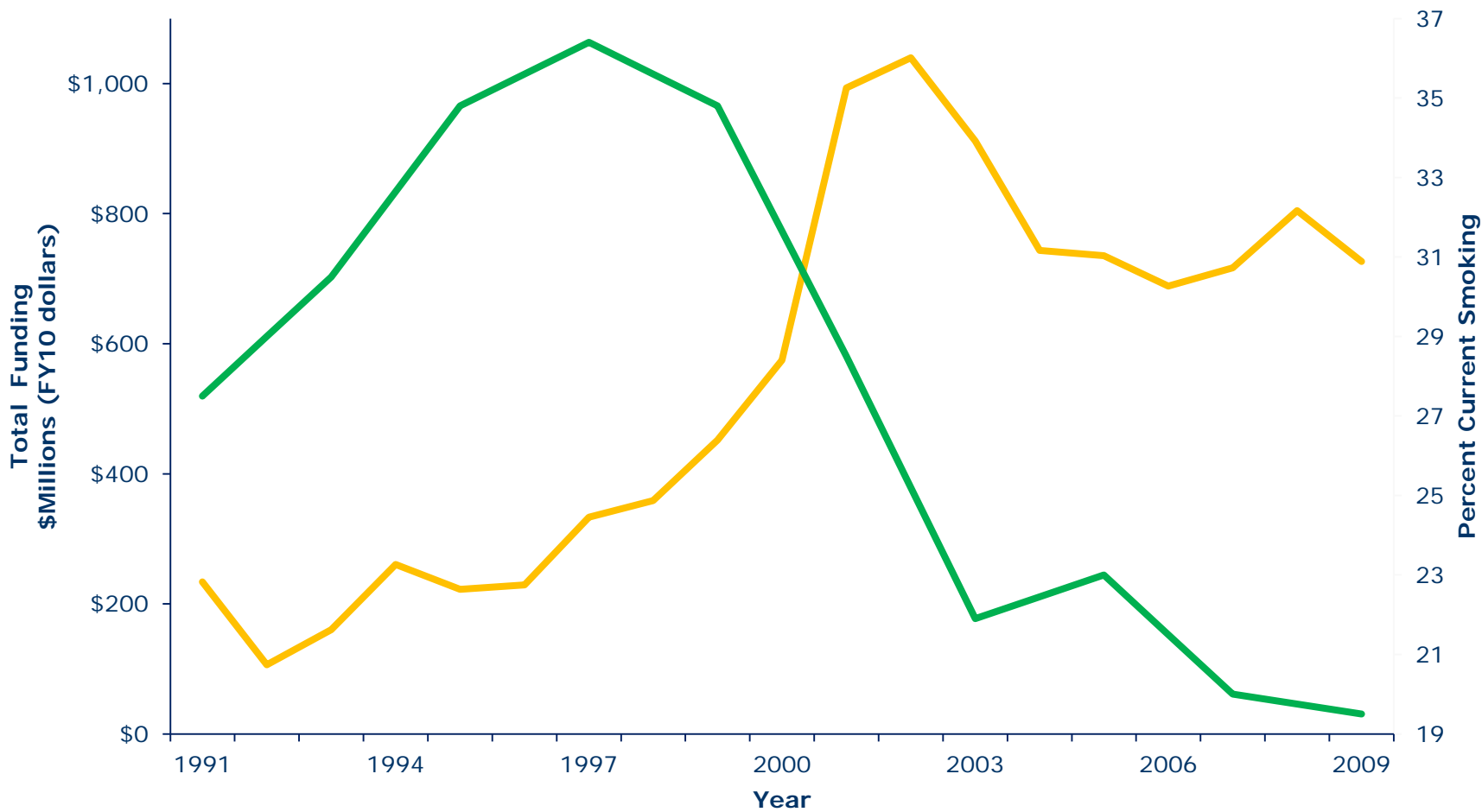


Earmarked Tobacco Taxes

Jamaica	20% of the Special Consumption Tax (SCT) on tobacco and another 5% of the SCT on all products including tobacco go to the National Health Fund
Madagascar	6 ariary per pack to fund the National Fund for the Promotion and Development of Youth, Sports and Recreation
Mongolia	A proportion of tobacco (2%) and alcohol (1%) excise tax revenues is allocated to the Health Promotion Foundation
Nepal	All tobacco tax revenues go to the Health Tax Fund, financing mainly prevention and treatment of noncommunicable diseases
Panama	50% of tobacco tax revenues collected go to National Institute of Oncology, the Ministry of Health for cessation services and Customs to fight illicit trade in tobacco products. The Ministry of Health also funds regional activities on tobacco control through the money received
Philippines	Following the tax increase in 2012, about 80% of incremental revenues will be allocated for universal health care while 20% will be allocated nationwide for medical assistance and health facility enhancement programmes
Poland	0.5% of the excise duty levied funds a programme to reduce tobacco product consumption
Republic of Korea	An amount of 354 won per pack goes to the Health Promotion Fund which finances health promotion research and projects
Romania	10 euros per 1,000 cigarettes and 13 euros per kilogram of loose tobacco are dedicated for health. Additionally, 1% of the budget from the excise on cigarettes is used to finance sports
Switzerland	0.26 francs per pack of cigarettes goes to the Tobacco Prevention Fund
Thailand	Surcharge of 2% on tobacco and alcohol excise goes to ThaiHealth Fund
The former Yugoslav Republic of Macedonia	Amount of 0.053 denars per piece (cigarette) allocated to fund drugs for rare diseases
United States of America	Varies by state. Amount per pack funds different types of activities, mainly health activities



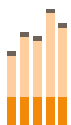
State Tobacco Control Program Funding and Youth Smoking Prevalence, United States, 1991-2009

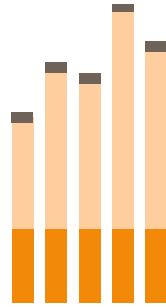


— total state program funding — high school prevalence

Source: ImpacTeen Project, UIC; YRBS

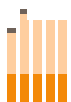
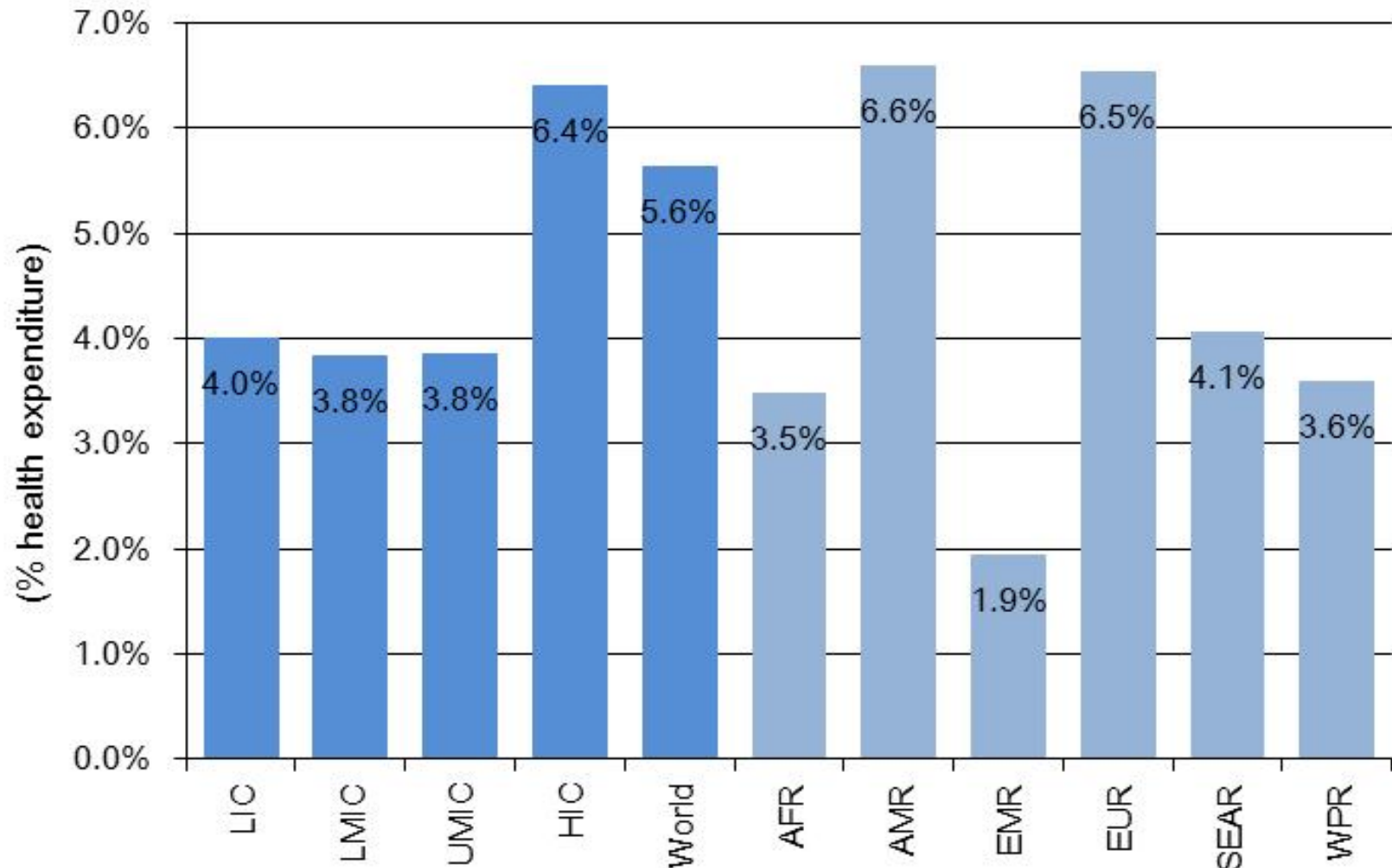
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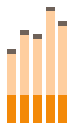
Economic Impact of Higher Tobacco Taxes

Smoking-Attributable Spending as Share of Total Health Expenditures, 2012, by Income Group and WHO Region

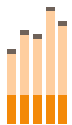
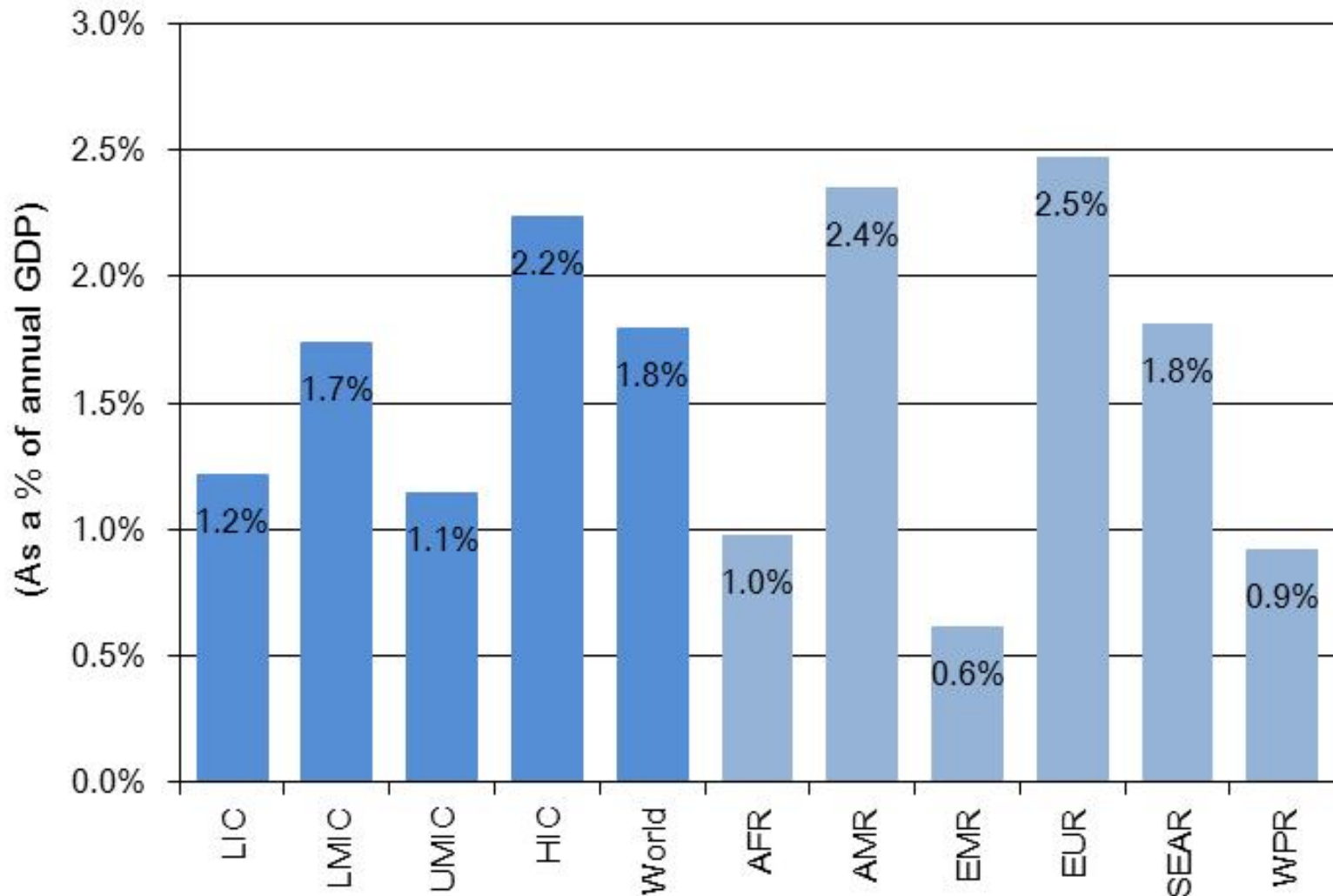


Source: Goodchild, et al., 2017

Smoking-Attributable Health Care Expenditures Region of the Americas



Economic Costs of Smoking-Attributable Diseases as Share of GDP, 2012, by Income Group and WHO Region

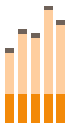


Source: Goodchild, et al., 2017

Tobacco Taxes and Jobs

Tobacco industry argues that production and consumption of their products makes a significant economic contribution

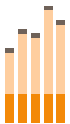
- employment in farming, manufacturing, distribution, retailing, and related sectors
- multiplier effects as income earned in these jobs is spent on other goods & services



Tobacco Taxes and Jobs

Industry-sponsored studies tell only part of story:

- Focus on the gross impact:
 - New tax or tax increase will lead to decreased consumption of taxed products
 - Results in loss of some jobs dependent on production of tobacco products
- Ignore the net impact:
 - Money not spent on tobacco products will be spent on other goods and services
 - New/increased tax revenues spent by government
 - ***Offsetting job gains in other sectors***



Tobacco Control and Overall Economic Activity

- Chaloupka & Peck (2009)
 - Adaptation of Murphy & Topel (2003) assessment of the broader economic impact of medical research
 - Accounts for increased life expectancy, improved productivity resulting from improvements in health
 - We estimated impact of reductions in cigarette smoking in the U.S. in the 40 years following the 1964 Surgeon General's report
 - Estimate that by 2004, increased economic activity by \$300-\$700 billion; (equivalent to 2.4% - 5.7% of GDP)

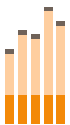
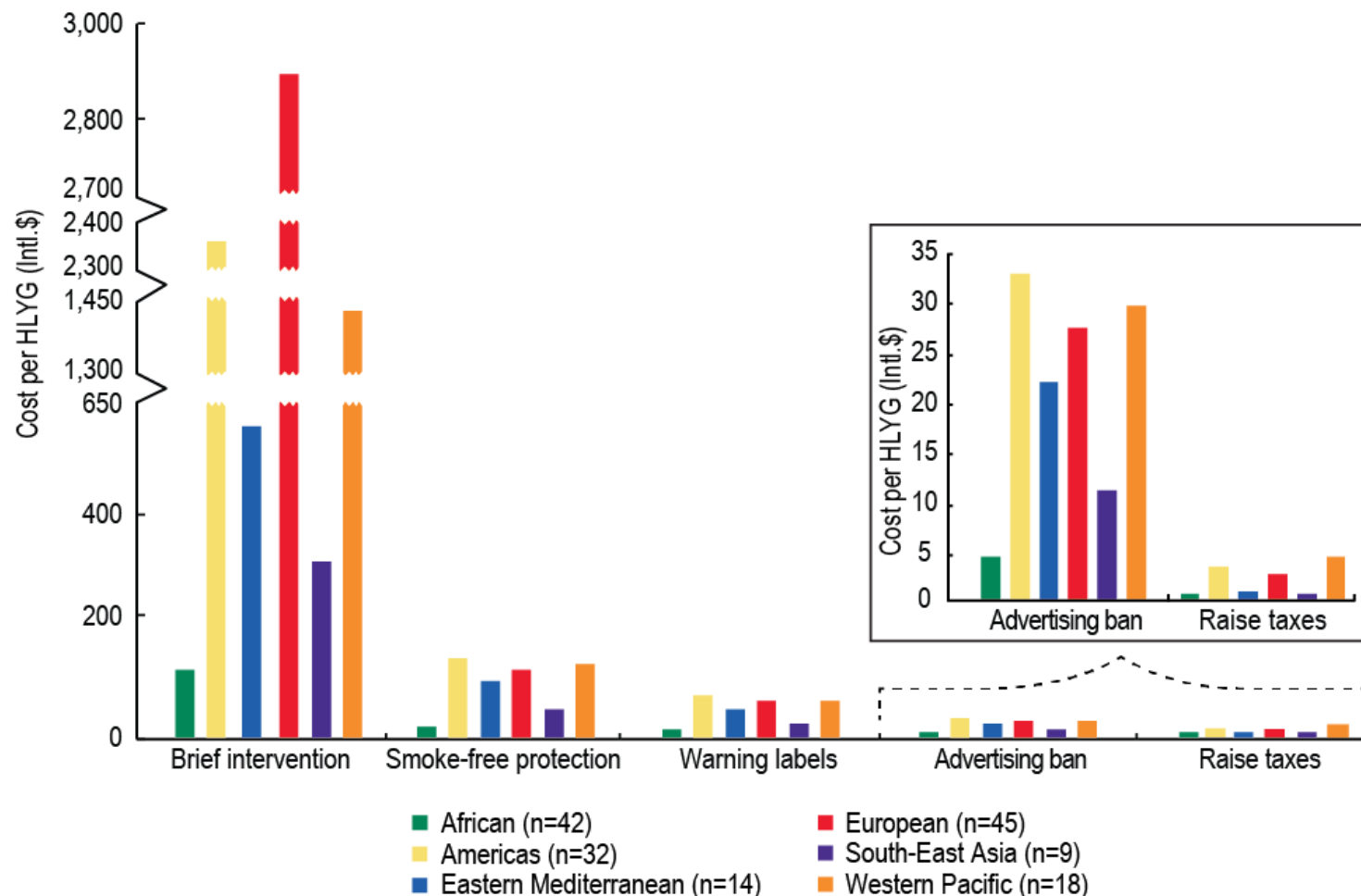


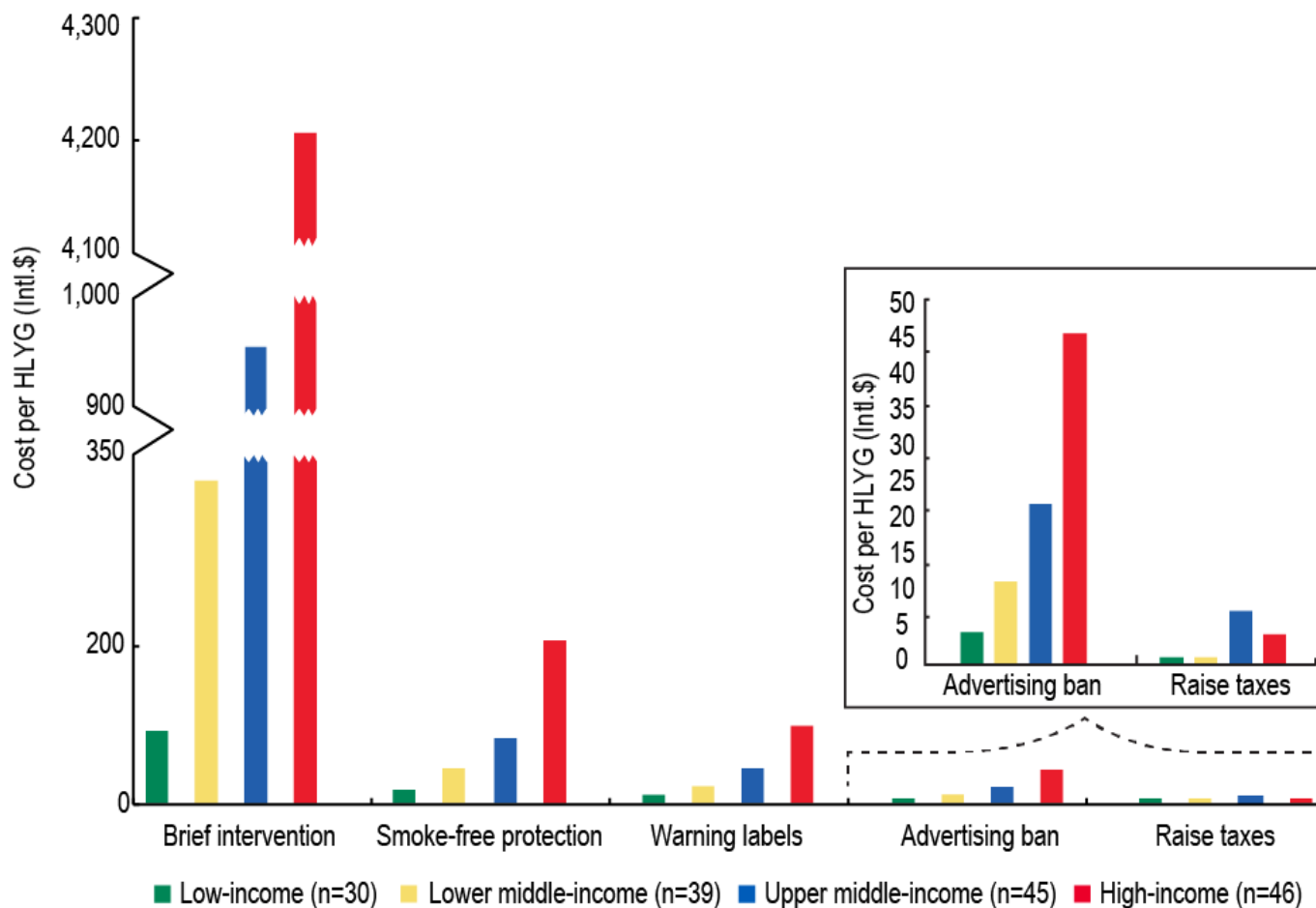
Figure 17.3 Tobacco Control Policies and Cost Per Healthy Life-Year Gained, by WHO Region



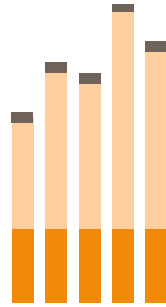
Note: HLYG = healthy life-year gained.

Source: Based on calculations from World Health Organization CHOICE model, 2016.

Figure 17.2 Tobacco Control Policies and Cost Per Healthy Life-Year Gained, by Country Income Group



Notes: HLYG = healthy life-year gained. Country income group classification based on World Bank Analytical Classifications for 2014. Source: Based on calculations from World Health Organization CHOICE model, 2016.

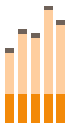


Summary

Summary

Significant tobacco tax increases single most effective way to reduce tobacco use

- Generate significant new tax revenues in short to medium term
- Reduce health care spending
- Improve health and productivity
- Tobacco tax increases (and other tobacco control measures) are good for economies



For more information:

fjc@uic.edu

www.tobacconomics.org

[@tobacconomics](#)

