

**tobaccconomics**

Economic Research Informing Tobacco Control Policy

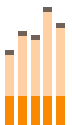
# The Economics of Tobacco and Tobacco Control: Global Evidence and Implications for the Republic of Korea

Frank J. Chaloupka, University of Illinois at Chicago

International Symposium on Tobacco Control: An Evaluation and the Way Forward. 28 March 2017, Seoul, Republic of Korea

# Overview

- Economic costs of tobacco use
- Impact of tobacco taxes on tobacco use
- Myths & Facts on economic “costs” of tobacco control
- Cost-effectiveness of tobacco control




# 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

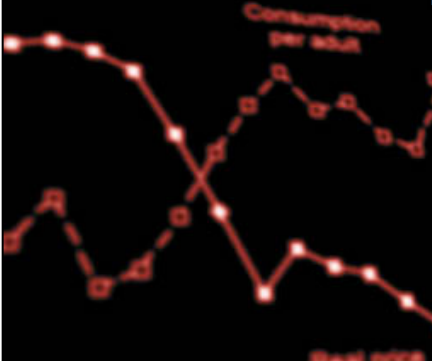
The Economics of Tobacco Control: Evidence from the International Tobacco Control (ITC) Policy Evaluation Project



Guest Editor: John Taurus

itc  
International Tobacco Control Policy Evaluation Project


tobaccocontrol.bmj.com **BMJ**



**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

21

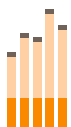
NCI TOBACCO CONTROL MONOGRAPH SERIES

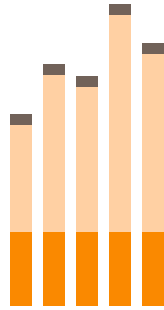
## The Economics of Tobacco and Tobacco Control

IN COLLABORATION WITH WORLD HEALTH ORGANIZATION

Executive Summary

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



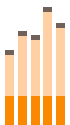
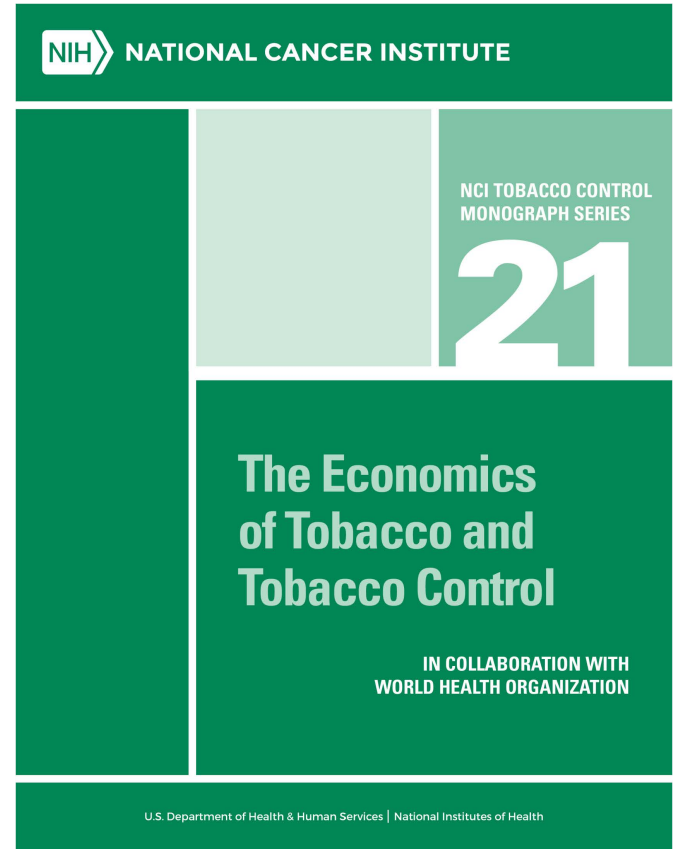


# Economic Costs of Tobacco Use

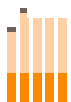
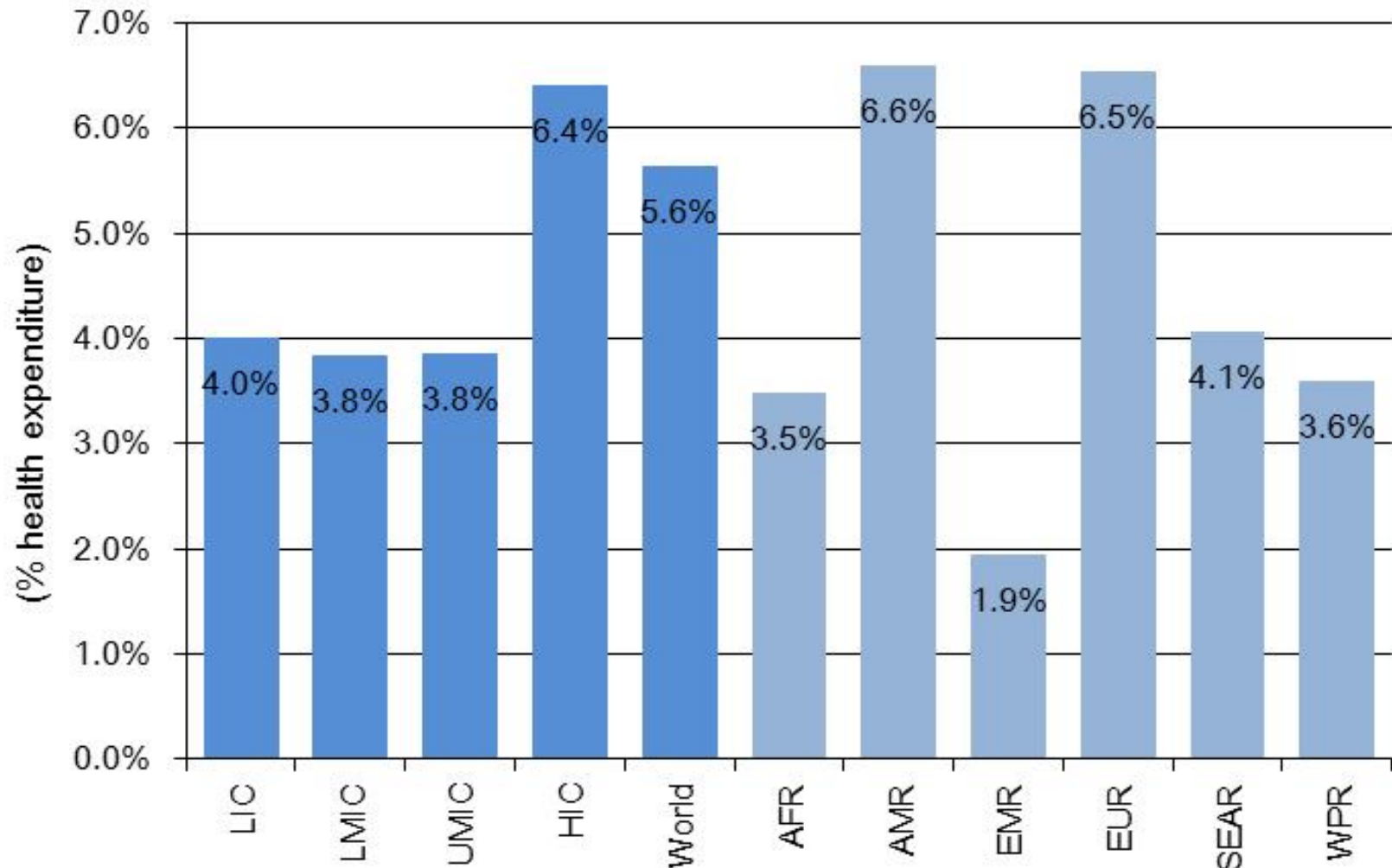
# Economic Rationale for Tobacco Control

Major Conclusion 2:

Failures in the markets for tobacco products provide an economic rationale for governments to intervene in these markets.

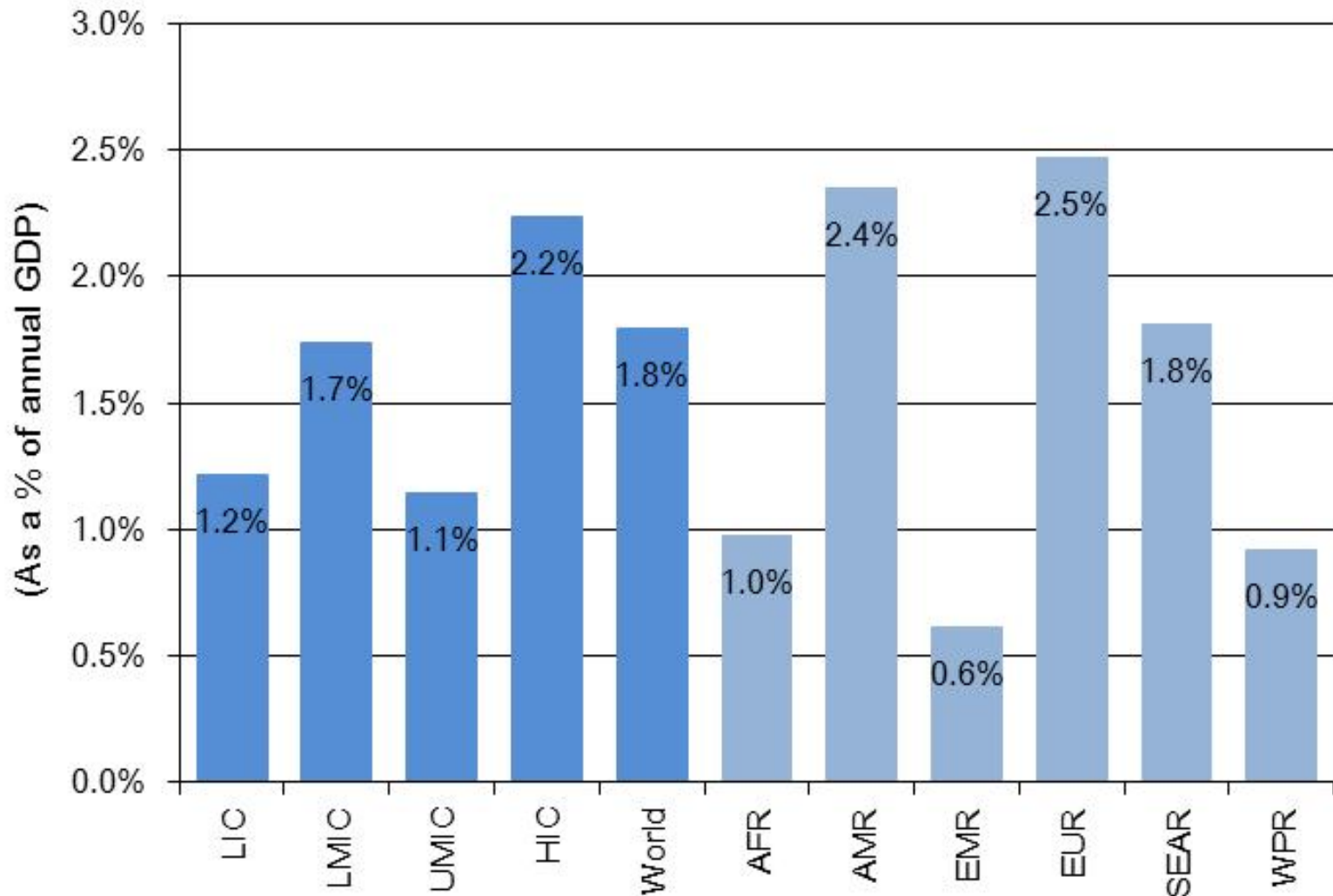


# Smoking-Attributable Spending as Share of Total Health Expenditures, 2012, by Income Group and WHO Region

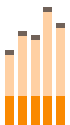


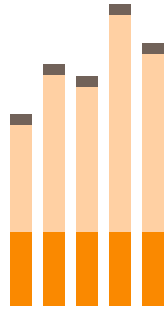
Source: Goodchild, et al., forthcoming

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



Source: Goodchild, et al., forthcoming

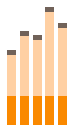
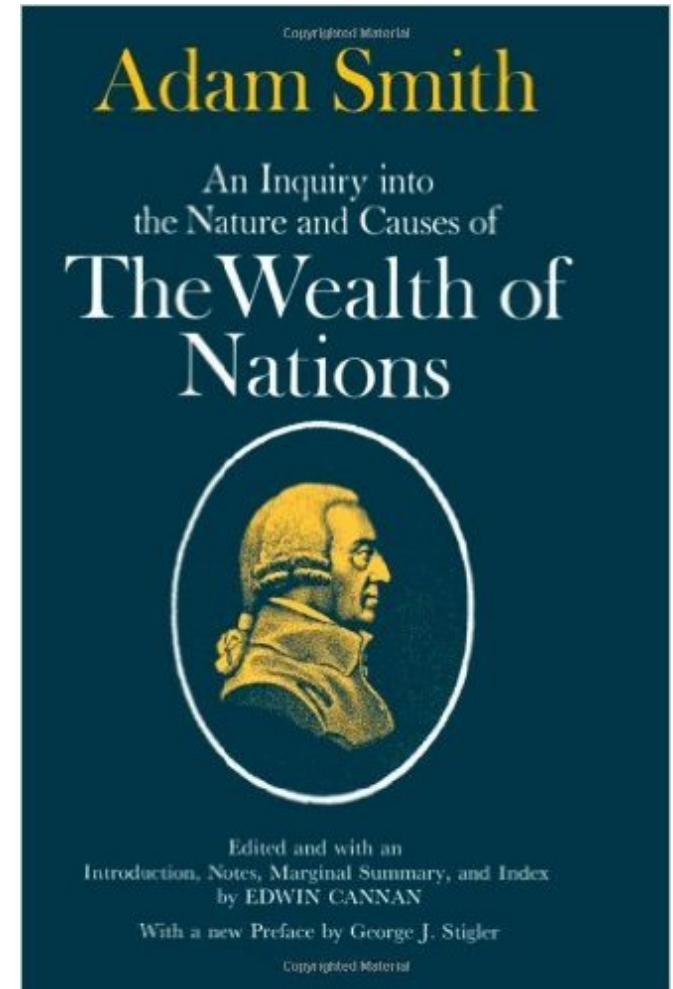




# Impact of Tobacco Tax Increases

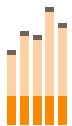


**"Sugar, rum, and tobacco, are commodities which are no where necessaries of life, which are become objects of almost universal consumption, and which are therefore **extremely proper subjects of taxation.****



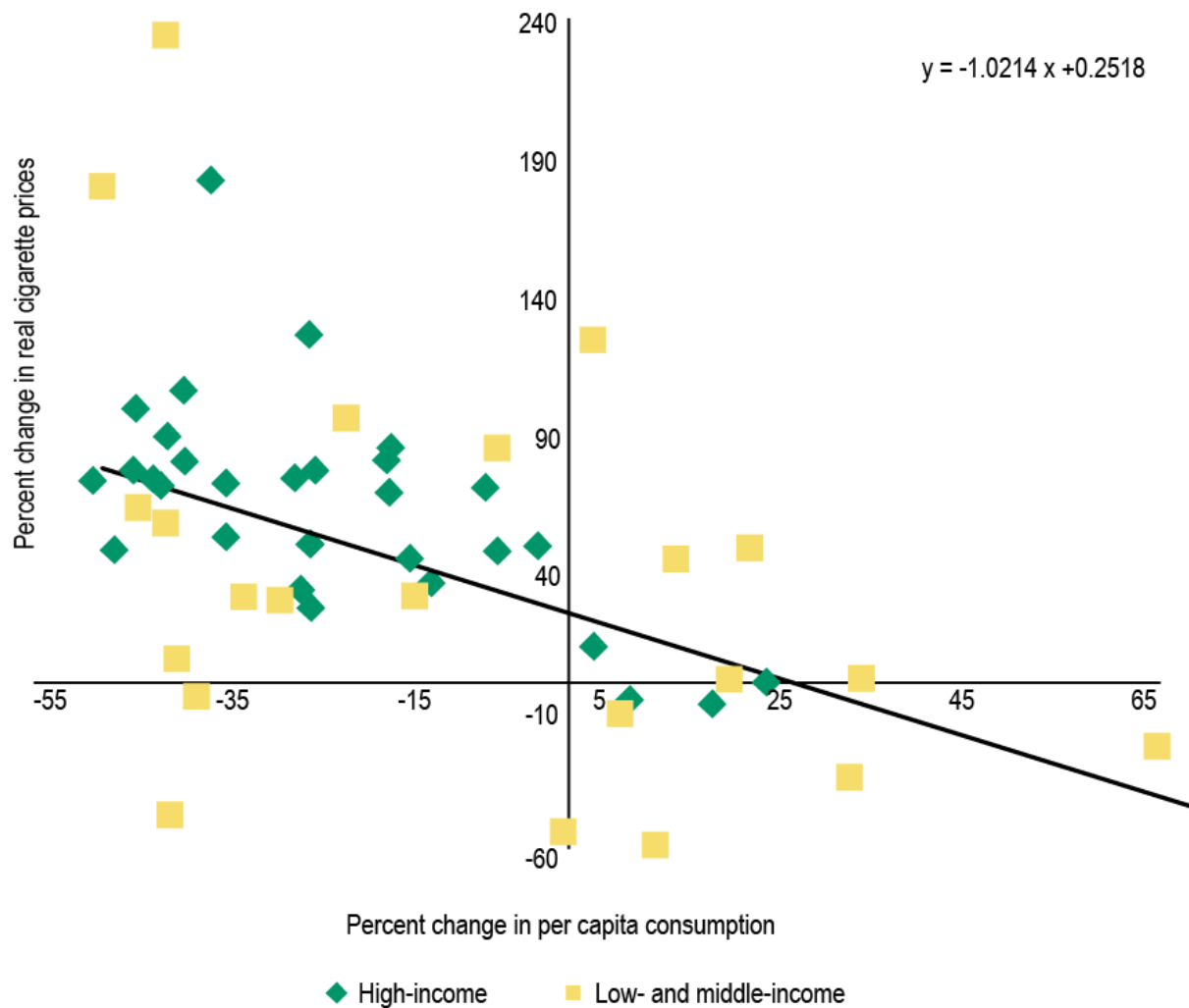
# Cigarette Price & Consumption

## Mexico, 2001-2014, Inflation Adjusted

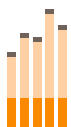


Sources: EIU, Euromonitor, and World Bank

# Percentage Change in Real Cigarette Prices vs. Percentage Change in Per Capita Consumption of Cigarettes, 1996–2011

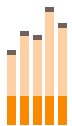
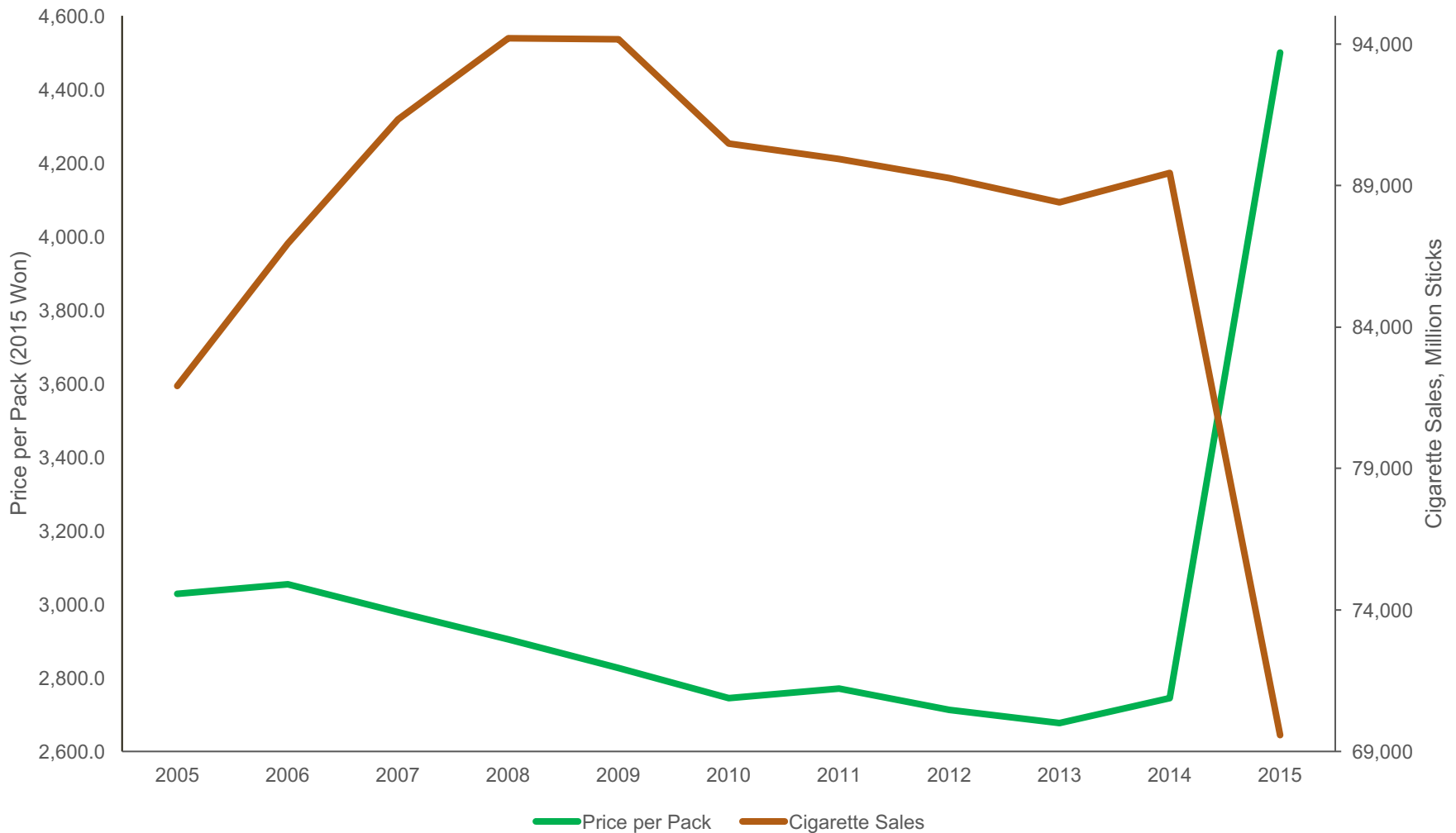


Note: Country income group classification based on World Bank Analytical Classifications for 2011.  
Sources: Economist Intelligence Unit 2012.<sup>31</sup> ERC Group 2011; NCI & WHO Monograph, 2016



# Cigarette Price & Consumption

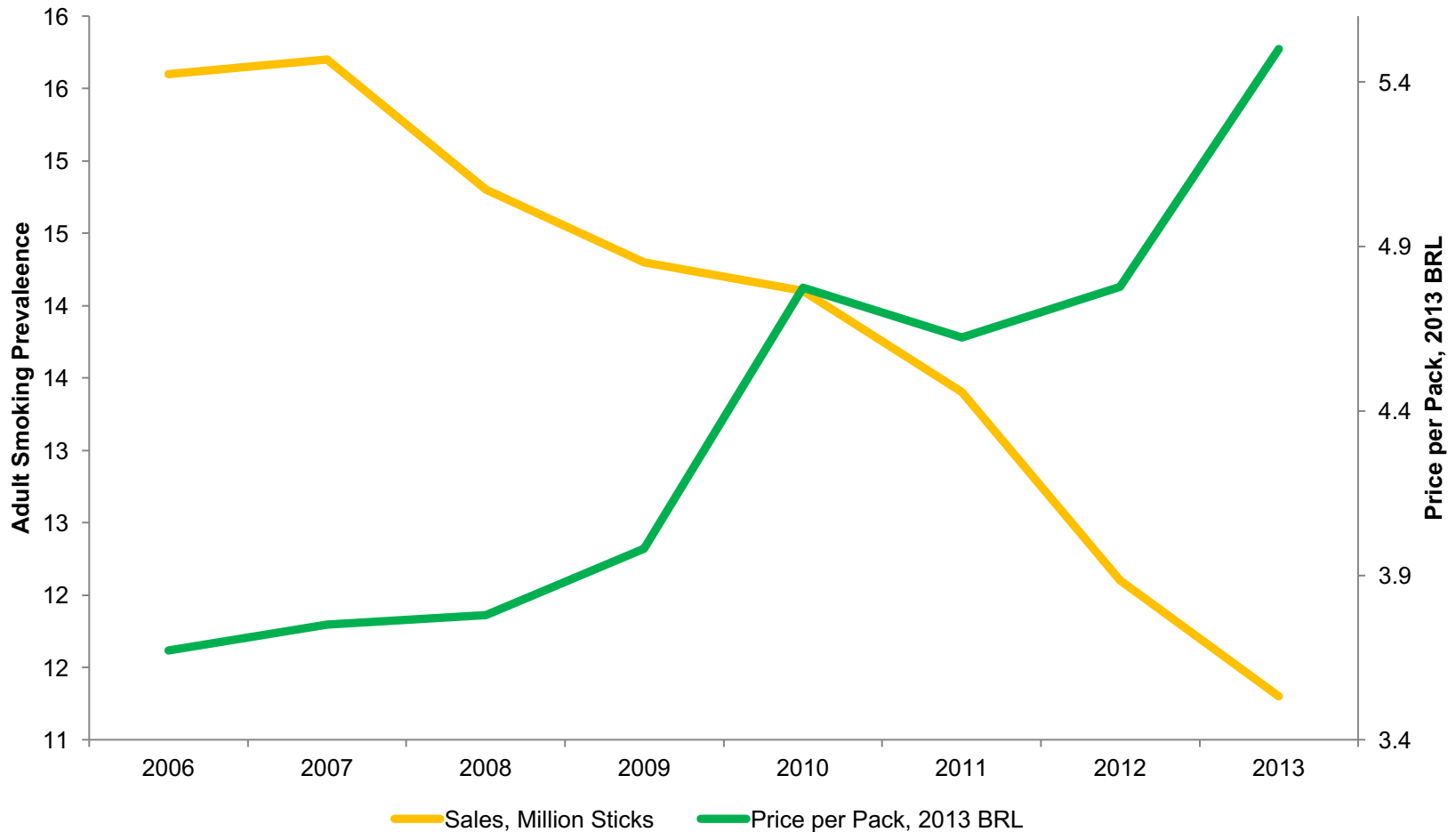
## Republic of Korea, 2005-2015, Inflation Adjusted



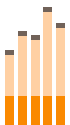
Sources: EIU, Euromonitor, and World Bank

# Adult Smoking Prevalence & Price

## Brazil, Inflation Adjusted, 2006-2013

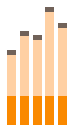
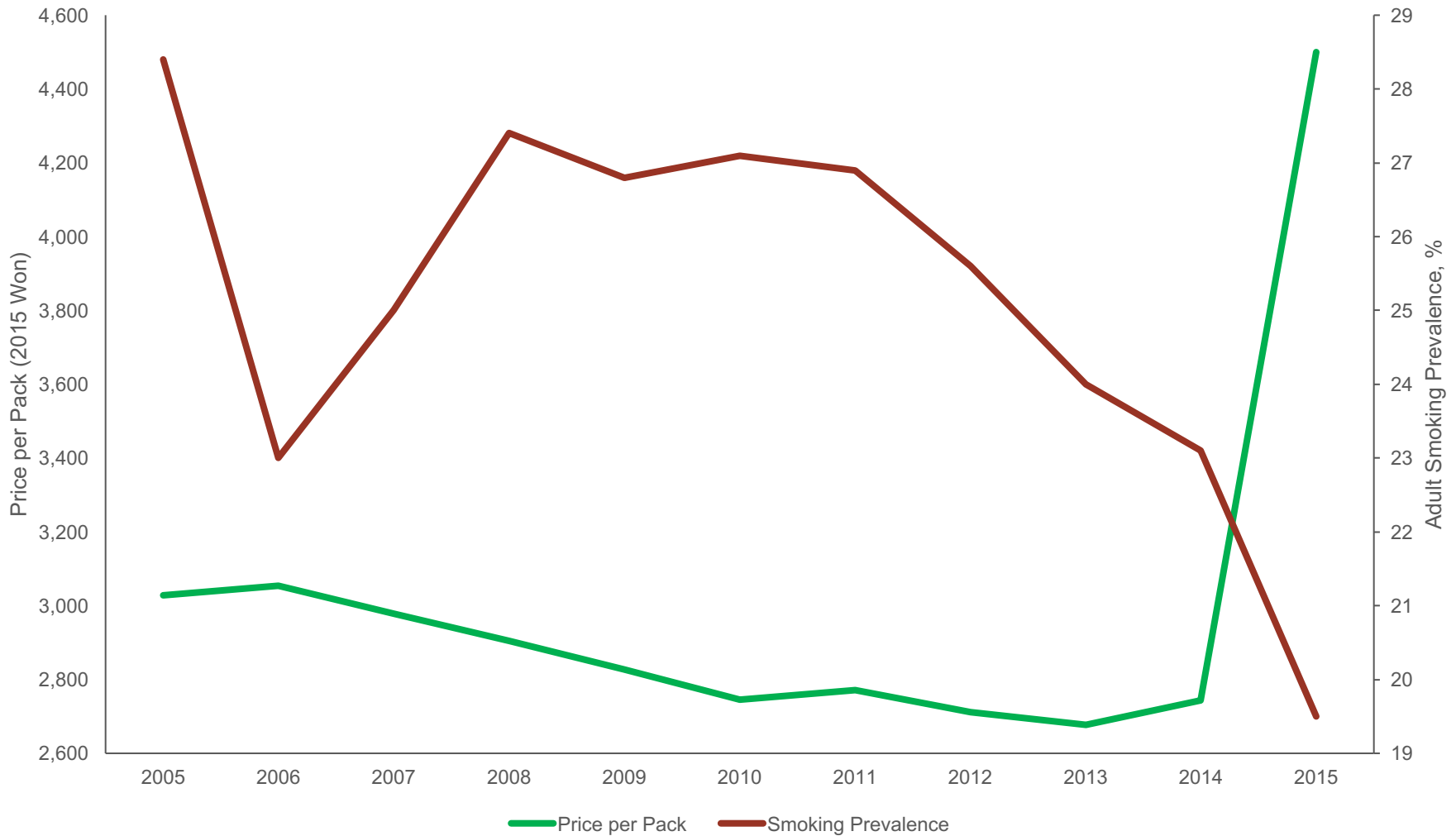


Sources: Ministry of Health, Brazil; EIU; World Bank



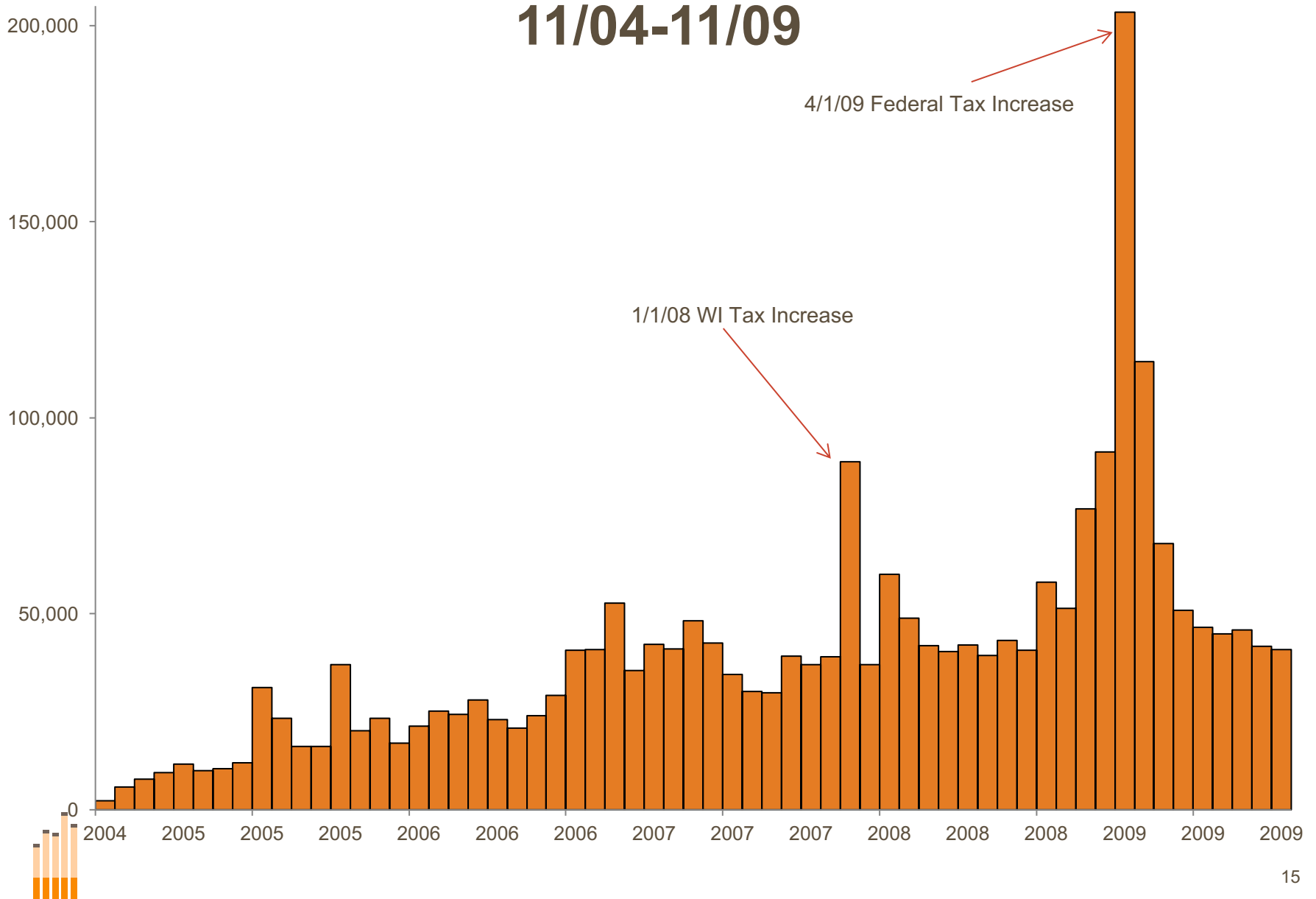
# Cigarette Price & Adult Prevalence

## Republic of Korea, 2005-2015, Inflation Adjusted

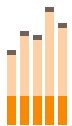
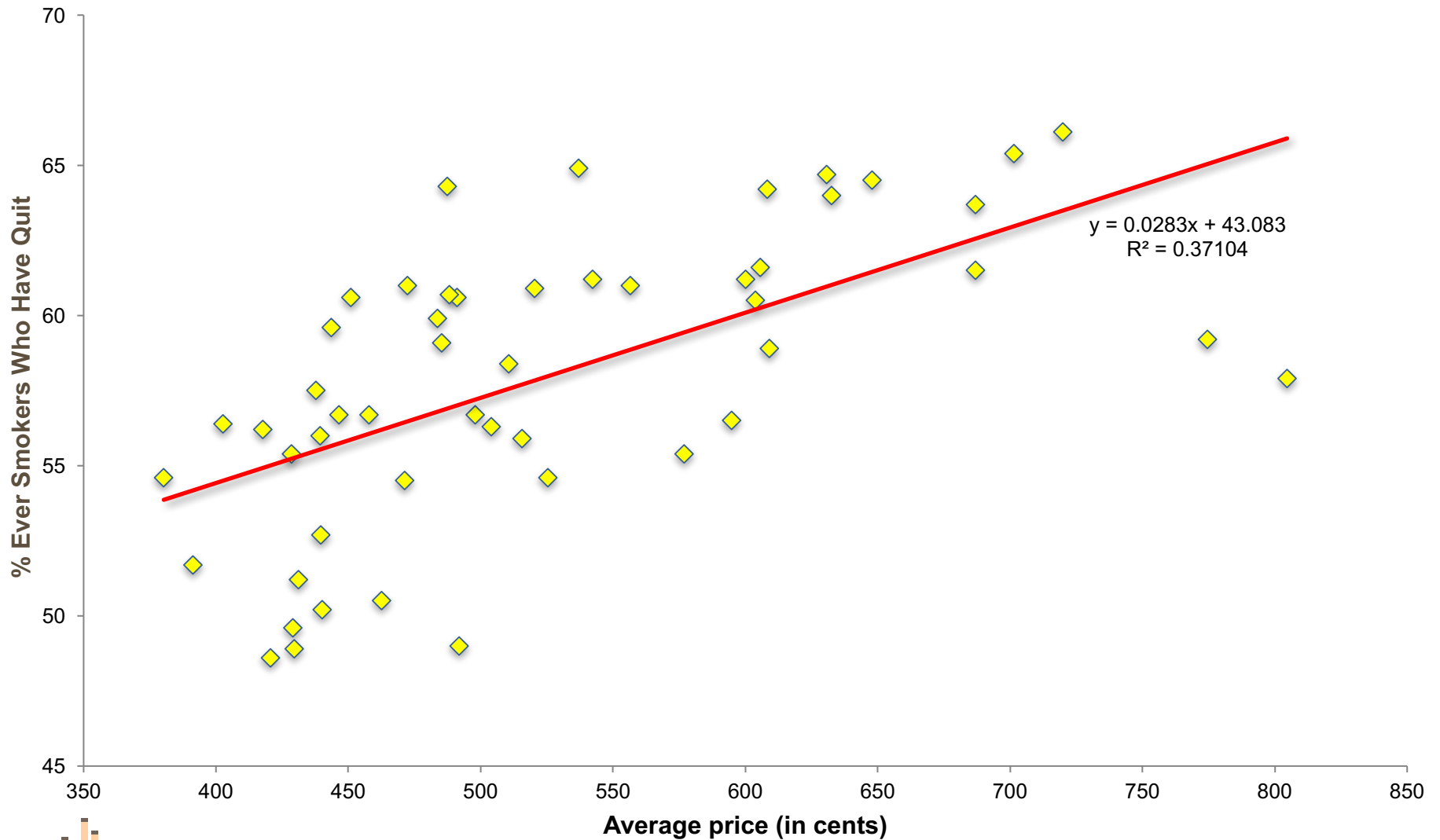


Sources: EIU, Euromonitor, and World Bank

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



# Cigarette Prices and Cessation US States & DC, 2009

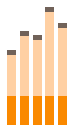
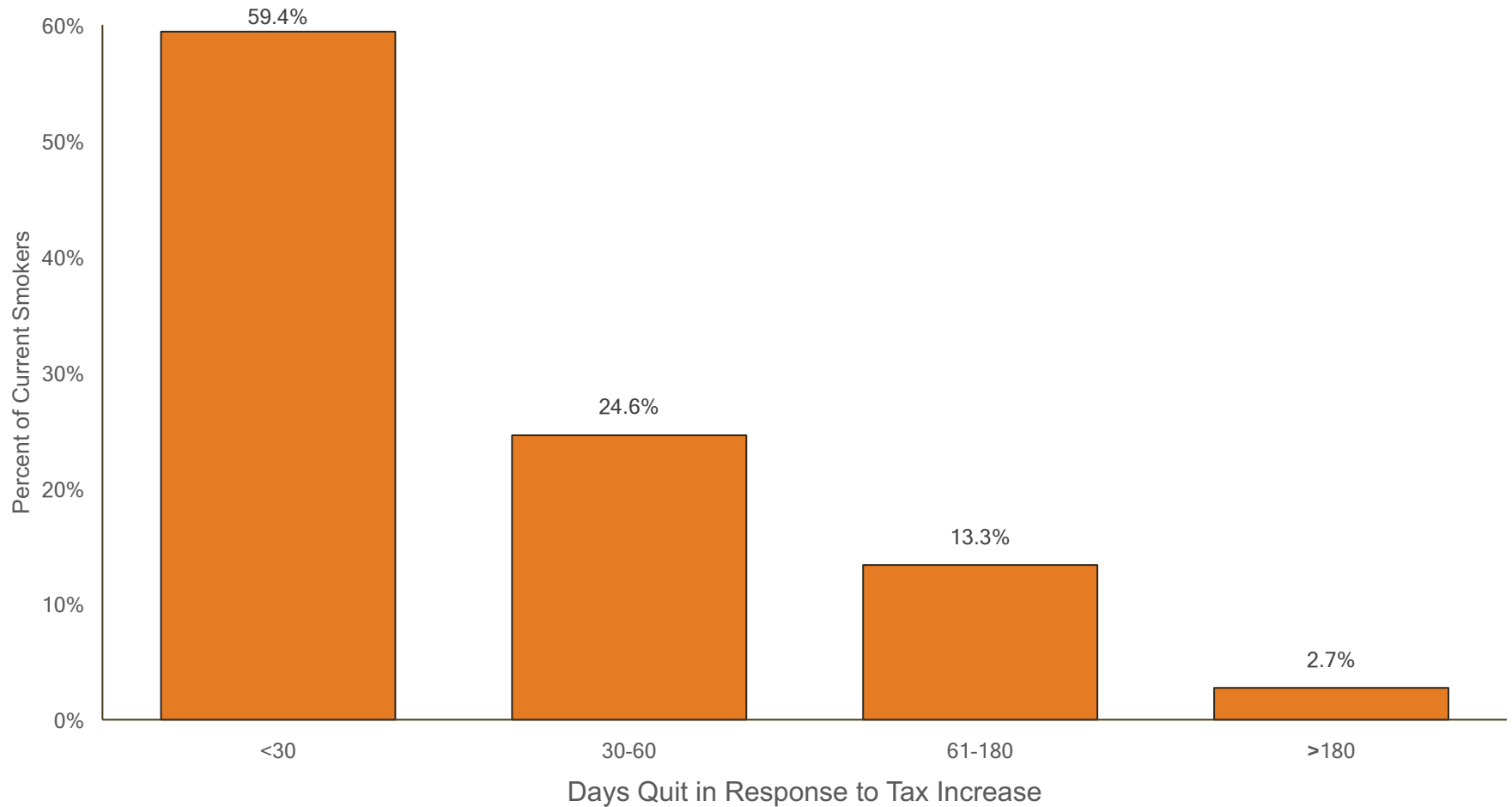


Source: BRFSS, *Tax Burden on Tobacco*, 2010, and author's calculations



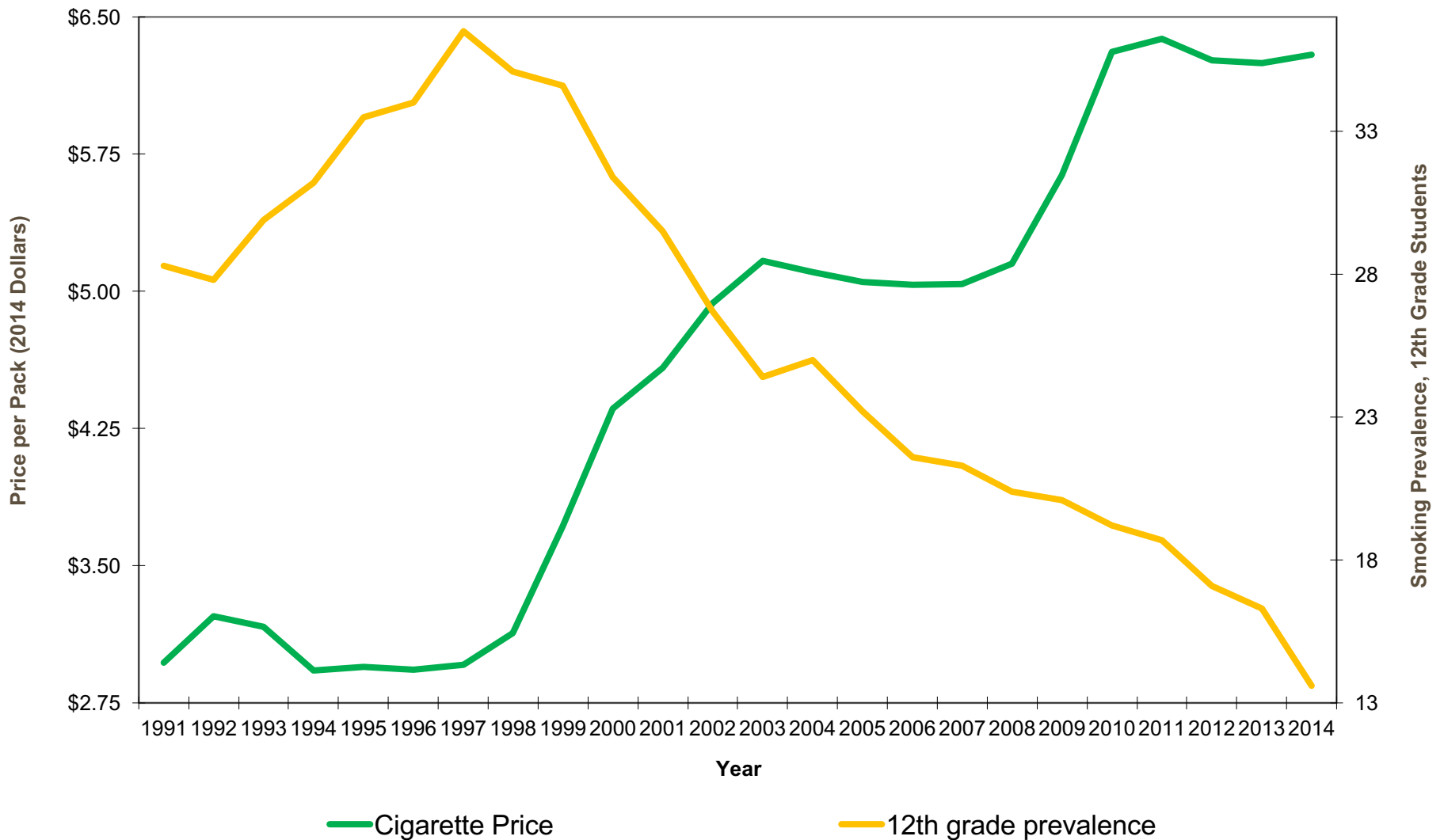
# Cigarette Prices & Cessation

## Republic of Korea, 2016, ITC Survey



Source: ITC-RoK 2016 Survey

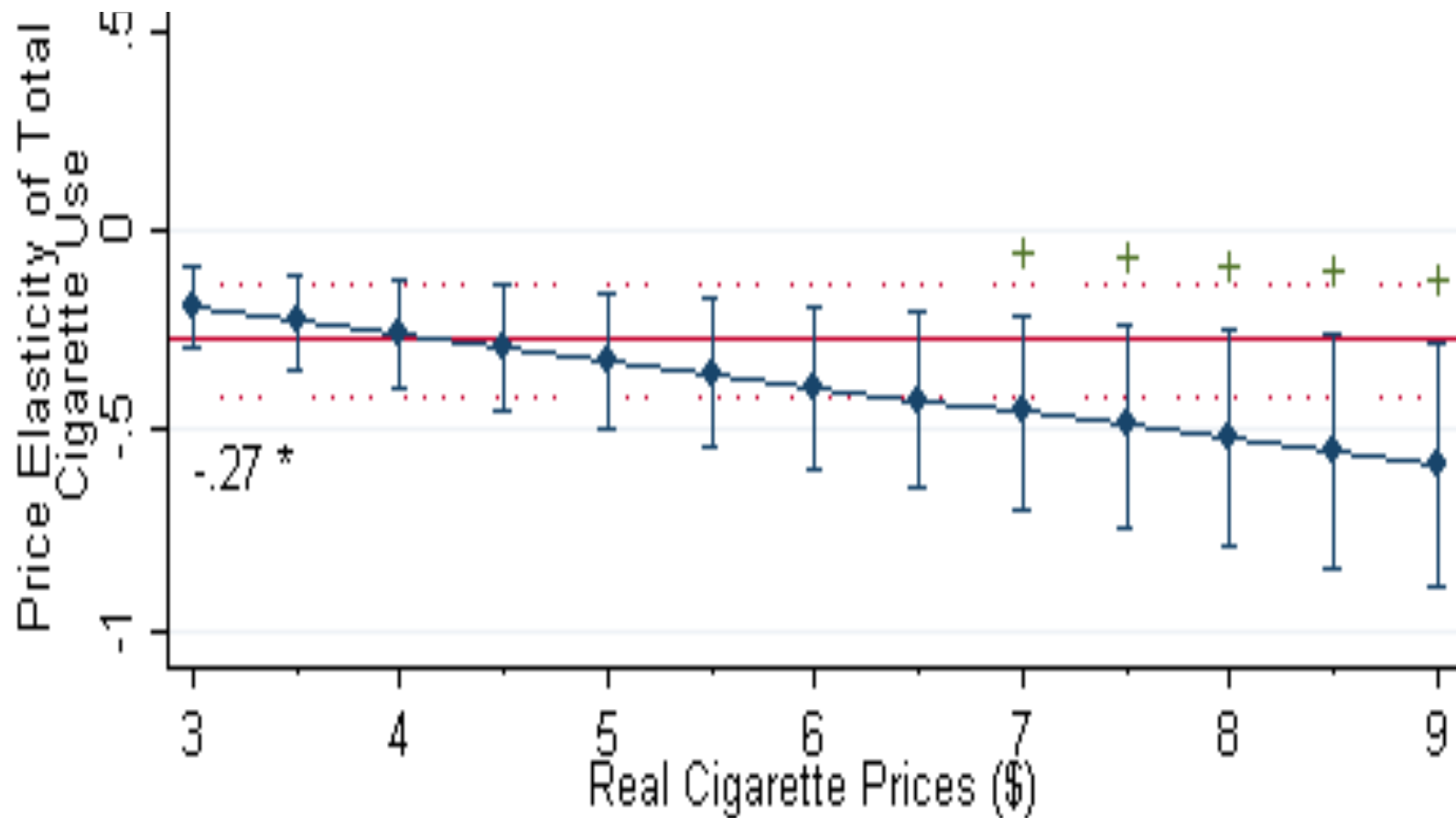
# Cigarette Price and Youth Smoking Prevalence Seniors, United States, 1991-2014



Source: MTF, *Tax Burden on Tobacco*, 2015, and author's calculations

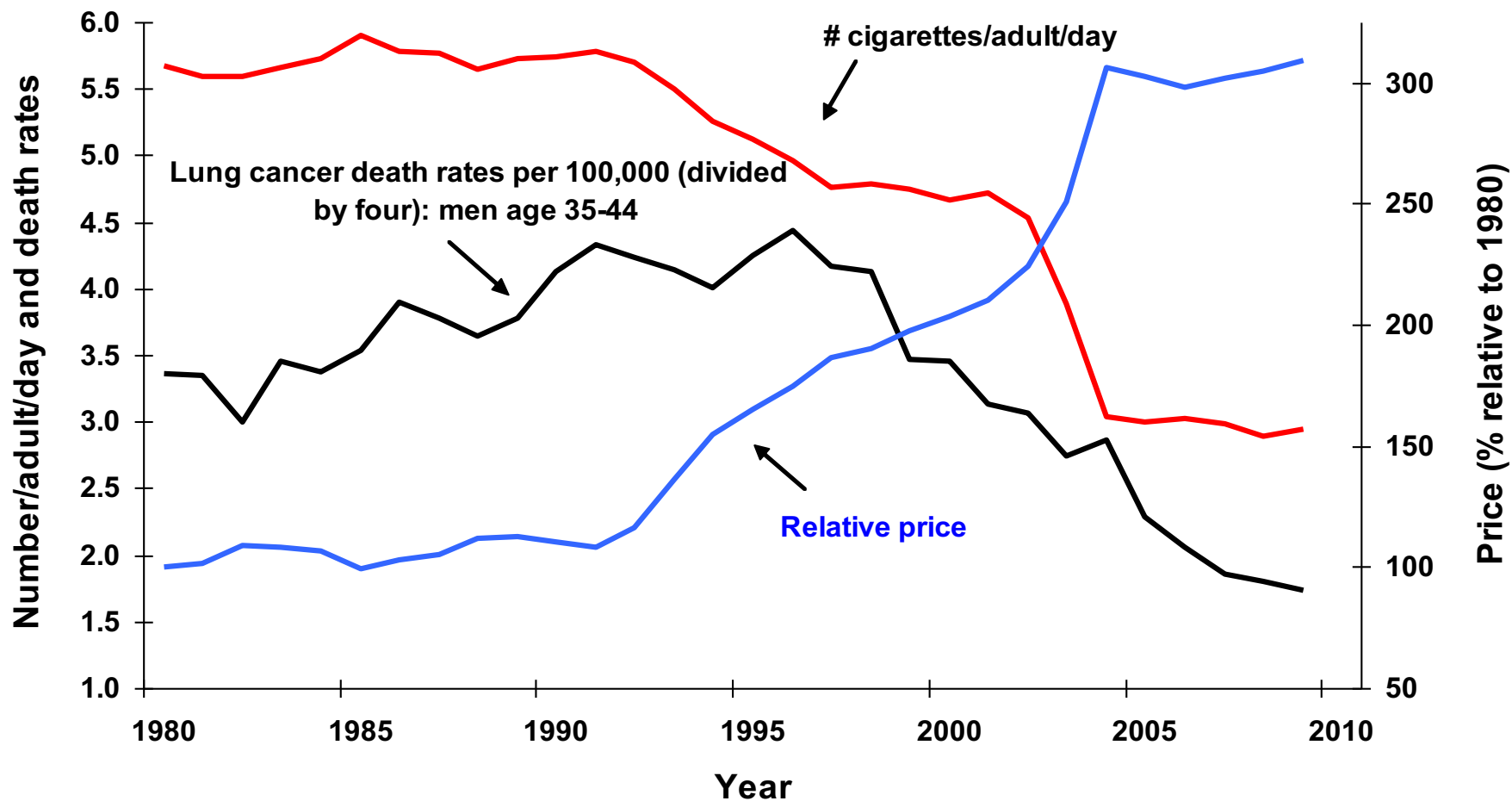
# Elasticity Increasing with Price

## U.S. TUS-CPS Data



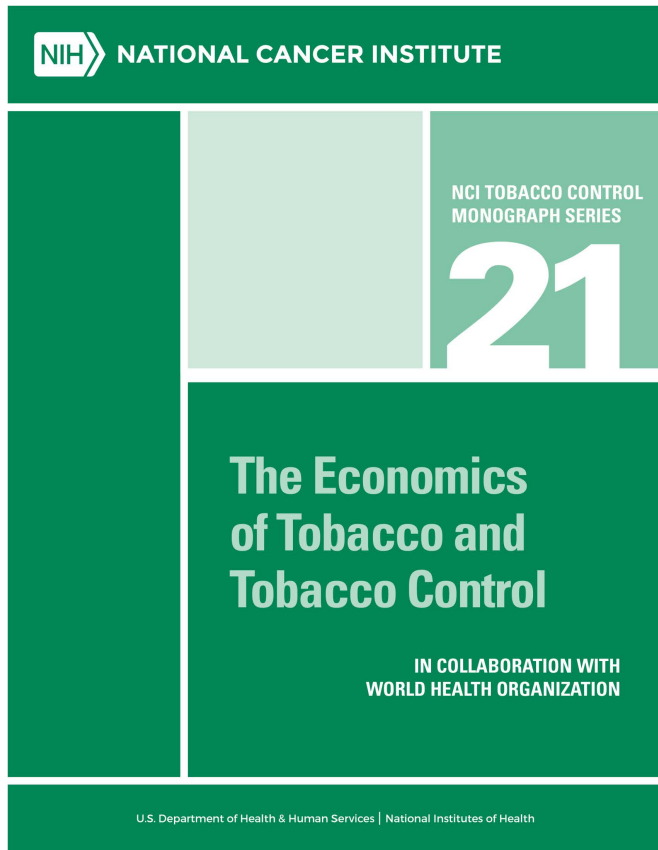
# Price, Consumption & Lung Cancer

## France, 1980-2010



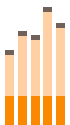
Sources: Jha & Hill, 2012

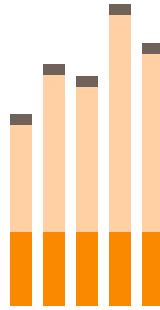
# Effectiveness of Tobacco Taxes



## 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.**





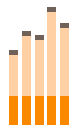
# Best Practices in Tobacco Taxation

NCI TOBACCO CONTROL  
MONOGRAPH SERIES

21

# The Economics of Tobacco and T

U.S. Department of Health and Human Services



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

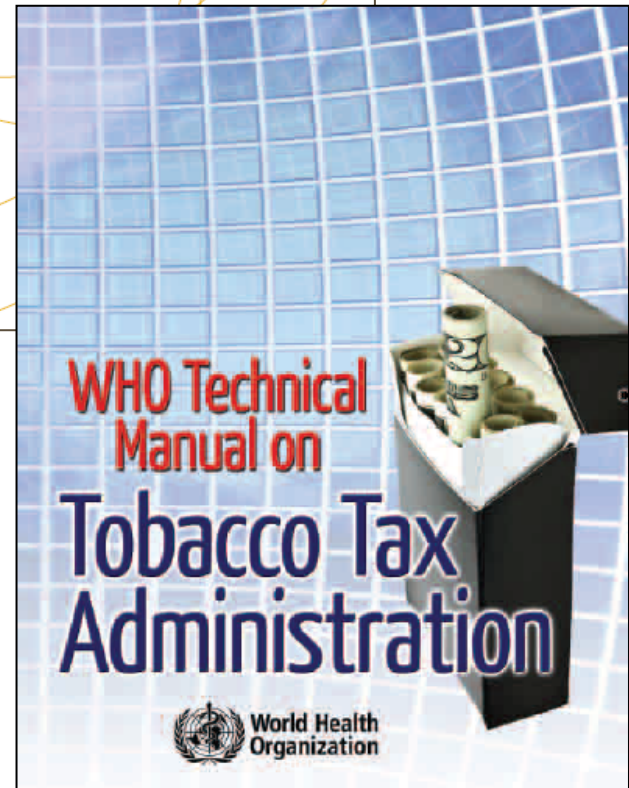


### Guidelines for implementation of Article 6

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))

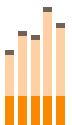
Online version available at [http://www.who.int/fctc/treaty\\_instruments/Guidelines\\_article\\_6.pdf](http://www.who.int/fctc/treaty_instruments/Guidelines_article_6.pdf)



# Recommendations

## Section 3 – Tobacco taxation systems

**“Parties should implement the simplest and most efficient system that meets their public health and fiscal needs,** and taking into account their national circumstances. **Parties should consider implementing specific or mixed excise systems with a minimum specific tax floor,** as these systems have considerable advantages over purely ad valorem systems.”

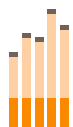




# Excise systems for cigarettes

## 2014

	Number of countries (global)	Number of countries (Americas)
Total covered	186	33
Specific excise only	61	15
Ad valorem excise only	46	9
Mixture of both excises	61	7
No Excise	18	2



Source: WHO 2015

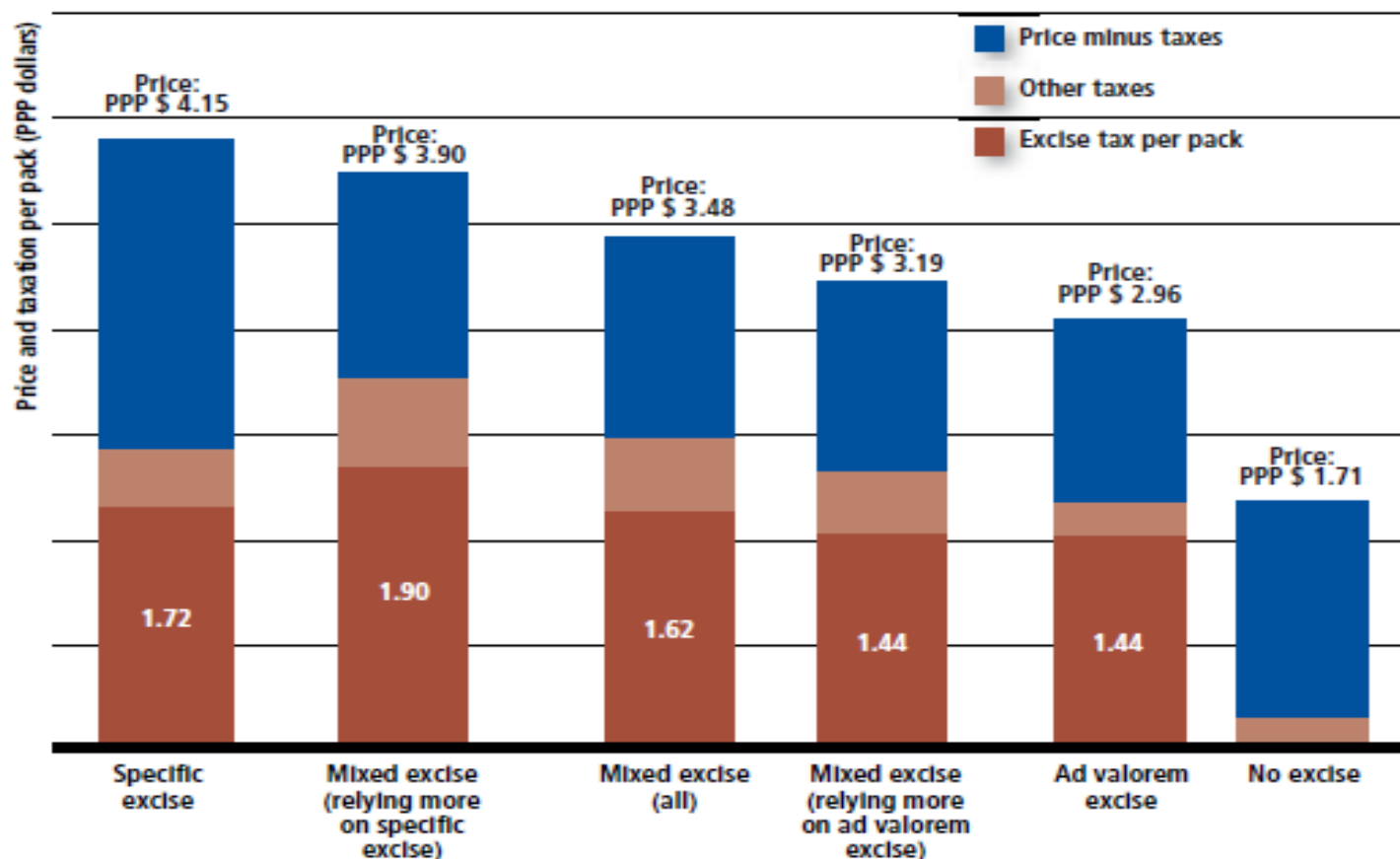
# Excise systems on cigarettes

Base of tiers		Country	# of countries
Retail price		Bangladesh, Mozambique, Philippines, Belarus, Indonesia, Pakistan	6
High, standard and low end cigarettes		Burkina Faso, Senegal	2
Producer price		China	1
Production volume		Indonesia	1
Type	filter/non filter	Armenia, Belarus, India, Nepal, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Papua New Guinea, Tajikistan, Ukraine	11
	hand/machine made	Indonesia, India, Philippines	3
	kretek/white cigarette, cheerot/cigarette	Indonesia, Myanmar	2
	Tobacco content (dark/blonde or dark/light)	Andorra, Algeria	2
Packaging	soft/hard	Brazil, Mozambique, Uganda	3
Cigarette length		India, Nepal, Hong Kong, Sri Lanka	4
Trade (domestic/imported)		Andorra, Uzbekistan	2
Weight (tobacco content in cigarette)		Belize, New Zealand	2
Leaf content (domestic/imported)		Fiji	1



# Excise tax structure: Specific and mixed relying more on the specific component tend to lead to higher prices

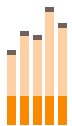
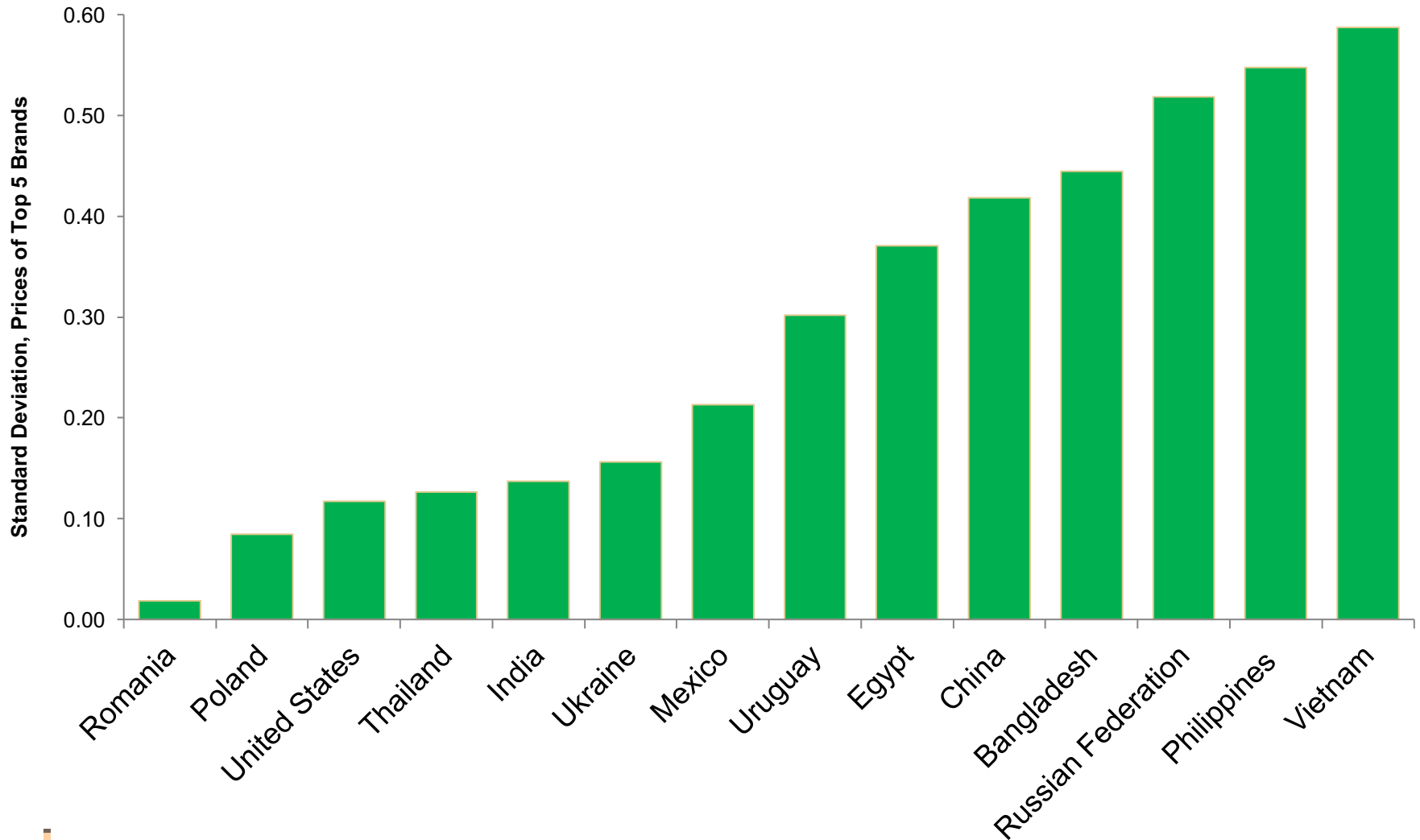
WEIGHTED AVERAGE PRICES AND TAXES PER PACK BY TAX STRUCTURE



Note: Averages are weighted by WHO estimates of number of current cigarette smokers in each country. Prices are expressed in Purchasing Power Parity (PPP) adjusted dollars or international dollars to account for differences in the purchasing power across countries. Based on 53 high-income, 98 middle-income and 29 low-income countries with data on price of most sold brand, excise and other taxes, and PPP conversion factors.

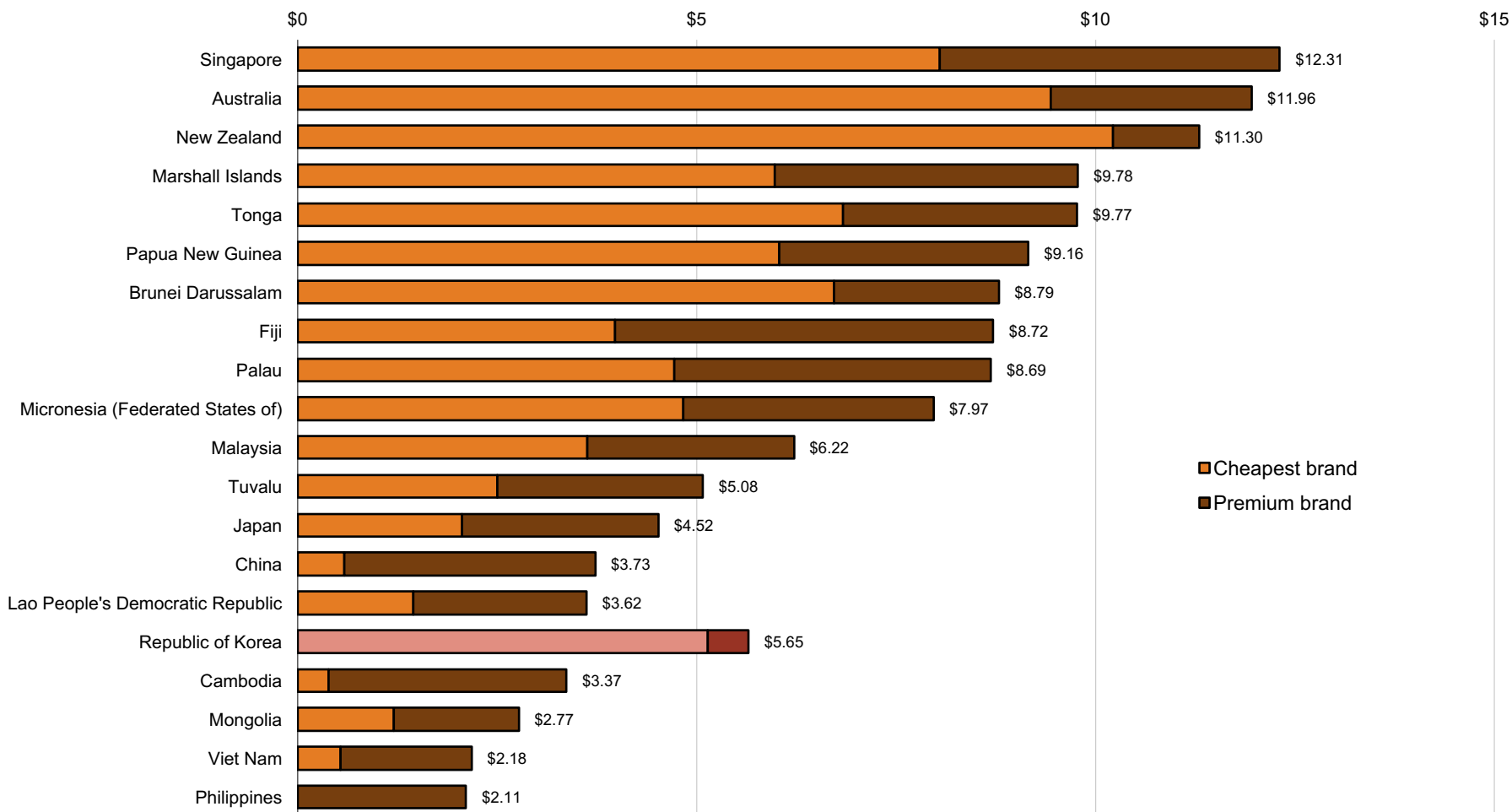


# Excise tax structure: Simple specific and mixed relying more on specific tax to lead to less variable prices



# Excise tax structure: Specific and mixed relying more on the specific component tend to reduce price gaps

**WESTERN PACIFIC: Prices of pack\* of premium brand and cheapest brand of cigarettes in international dollars, 2014; Republic of Korea 2015**



Source: WHO 2015; Euromonitor

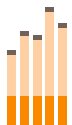
Notes: Data not reported/not available for: Nauru, Niue, Samoa and Solomon Islands. PPP not available for: Cook Islands.



# Recommendations

## Section 2 – Relationship between tobacco taxes, price and public health:

“When establishing or increasing their national levels of taxation Parties should take into account – among other things – both price elasticity and income elasticity of demand, as well as inflation and changes in household income, to **make tobacco products less affordable over time in order to reduce consumption and prevalence**. Therefore, Parties should consider having regular adjustment processes or procedures for periodic revaluation of tobacco tax levels.”

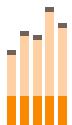


# Recommendations

## Section 3 – Tobacco taxation systems

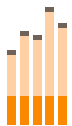
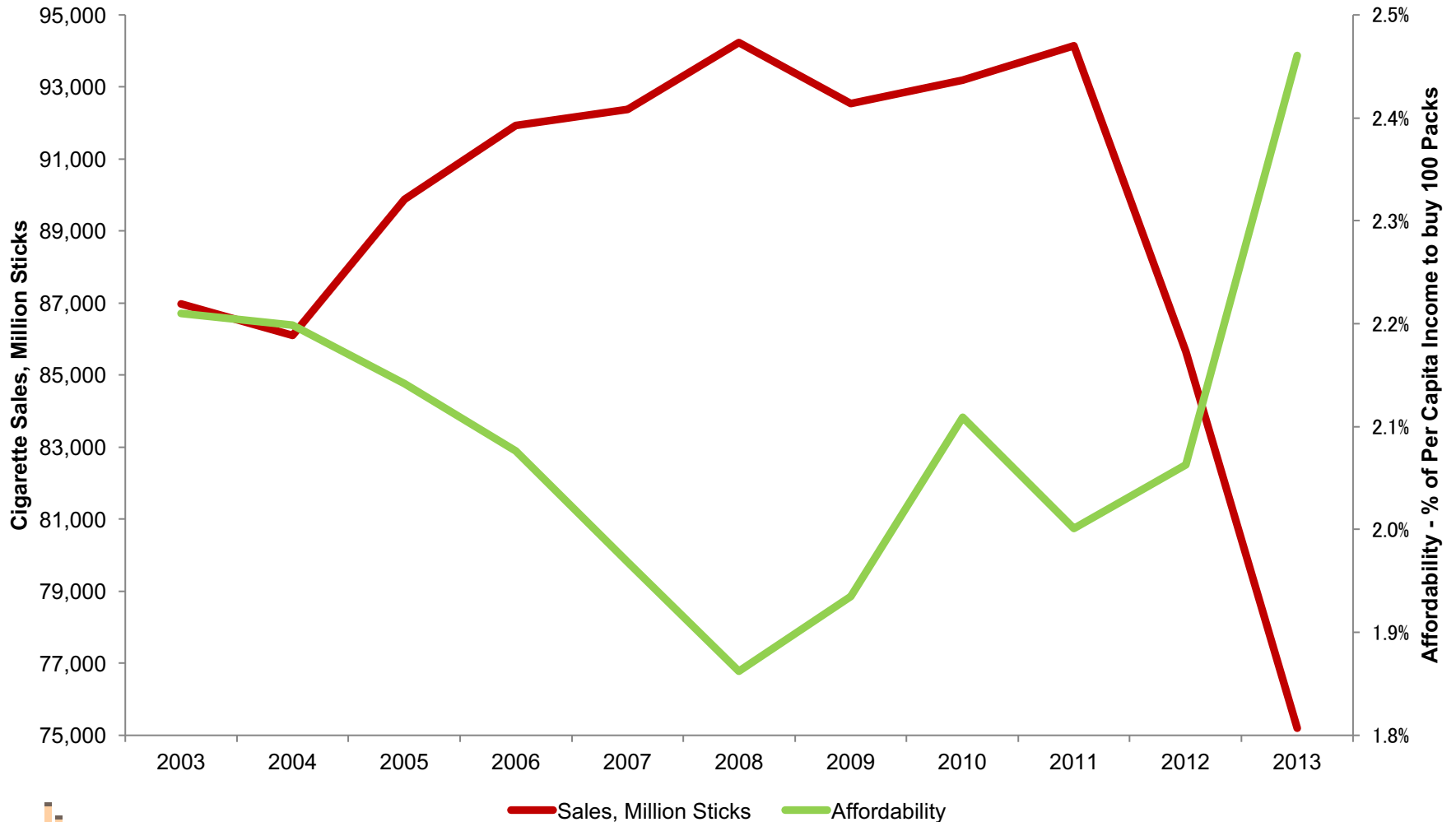
“Parties should establish coherent long-term policies on their tobacco taxation structure and monitor on a regular basis including targets for their tax rates, in order to achieve their public health and fiscal objectives within a certain period of time.”

**“Tax rates should be monitored, increased or adjusted on a regular basis, potentially annually, taking into account inflation and income growth developments in order to reduce consumption of tobacco products.”**



# Affordability & Cigarette Sales

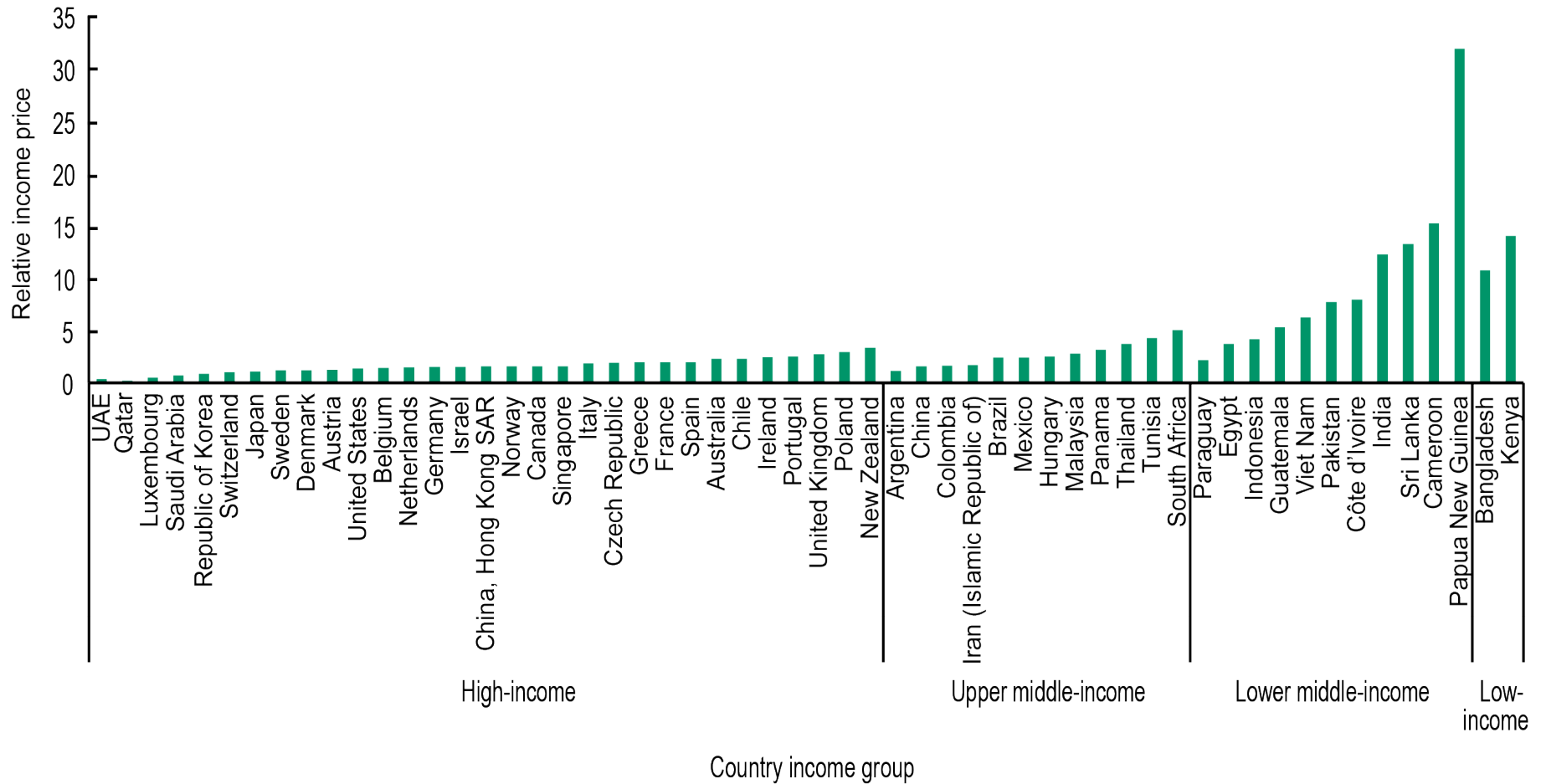
## Cigarette Affordability and Sales, Brazil, 2003-2013





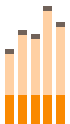
# Cigarette Affordability

## Selected Countries, by Country Income Group, 2013



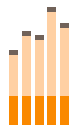
Notes: Relative income price is the percentage of annual per capita GDP required to buy 100 packs of cigarettes. Country income group classification based on World Bank Analytical Classifications for 2013.

Source: NCI & WHO 2016



# Cigarette Affordability & Sales

Republic of Korea, 2005-2015

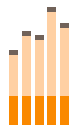


Sources: Euromonitor, EIU, World Bank

# Text of Guidelines

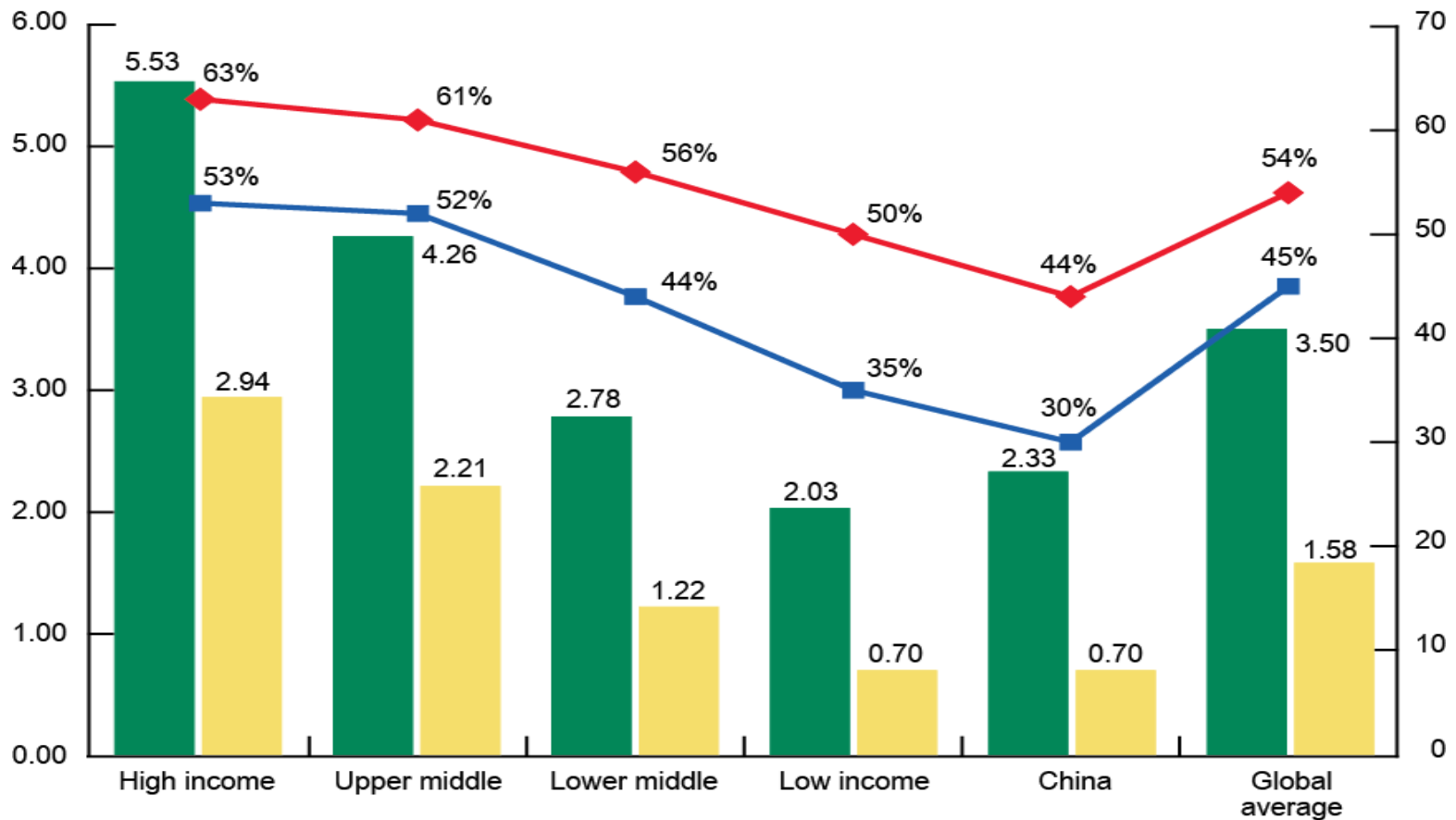
“As recognized in Guiding Principle 1.1, **Parties have the sovereign right to determine and establish their taxation policies, including the level of tax rates to apply.** There is no single optimal level of tobacco taxes that applies to all countries because of differences in tax systems, in geographical and economic circumstances, and in national public health and fiscal objectives. In setting tobacco tax levels, consideration could be given to final retail prices rather than individual tax rates. **In this regard, WHO had made recommendations on the share of excise taxes in the retail prices of tobacco products<sup>1</sup>.**”

**<sup>1</sup> WHO technical manual on tobacco tax administration. Geneva, World Health Organization, 2010. (Recommends that tobacco excise taxes account for at least 70% of the retail prices for tobacco products).**

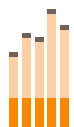


# Average Price of the Most Sold Brand & Excise Tax per pack, and Excise Tax Share

By Income Group 2014

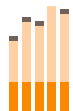
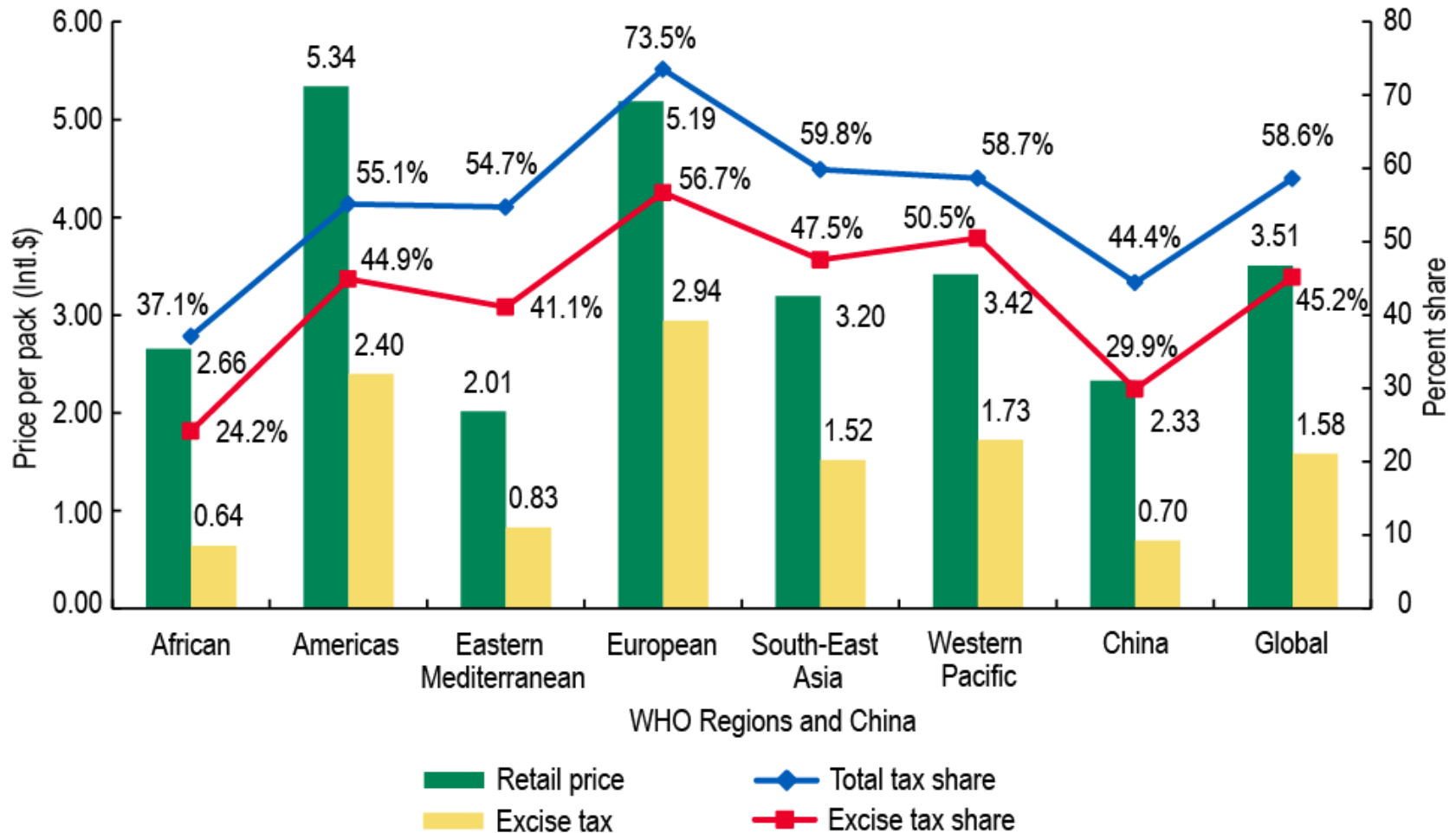


■ Retail price, PPP   
 ■ Excise tax, PPP   
 ■ Excise tax share   
 ◆ Total tax share



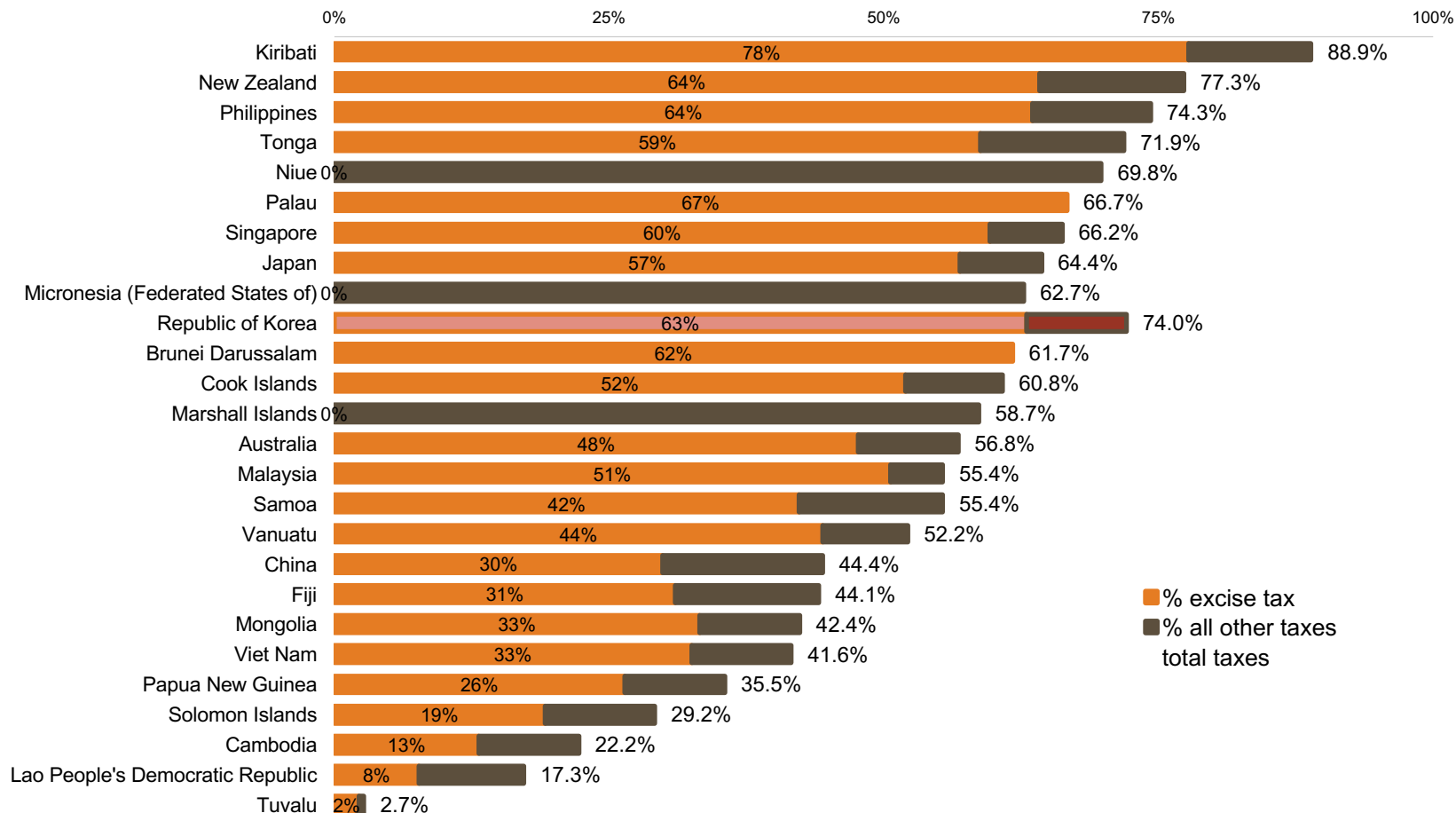
# Average Price of the Most Sold Brand & Excise Tax per pack, and Excise Tax Share

By WHO Region 2014

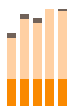


# Average Price of the Most Sold Brand & Excise Tax per pack, and Excise Tax Share

**WESTERN PACIFIC: Share of total and excise taxes in the price of a pack\* of the most sold brand of cigarettes, 2014; Republic of Korea, 2015**



Source: WHO 2015; Euromonitor  
Note: Data not available for Nauru



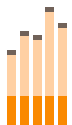
# Recommendations

## Section 3 – Tobacco taxation systems

“All tobacco products should be taxed in a comparable way as appropriate, in particular where the risk of substitution exists.”

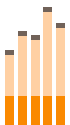
“Parties should ensure that tax systems are designed in a way that minimises the incentive for users to shift to cheaper products in the same product category or to cheaper tobacco product categories as a response to tax or retail price increases or other related market effects.”

“In particular, the tax burden on all tobacco products should be regularly reviewed and, if necessary, increased and, where appropriate, be similar.”



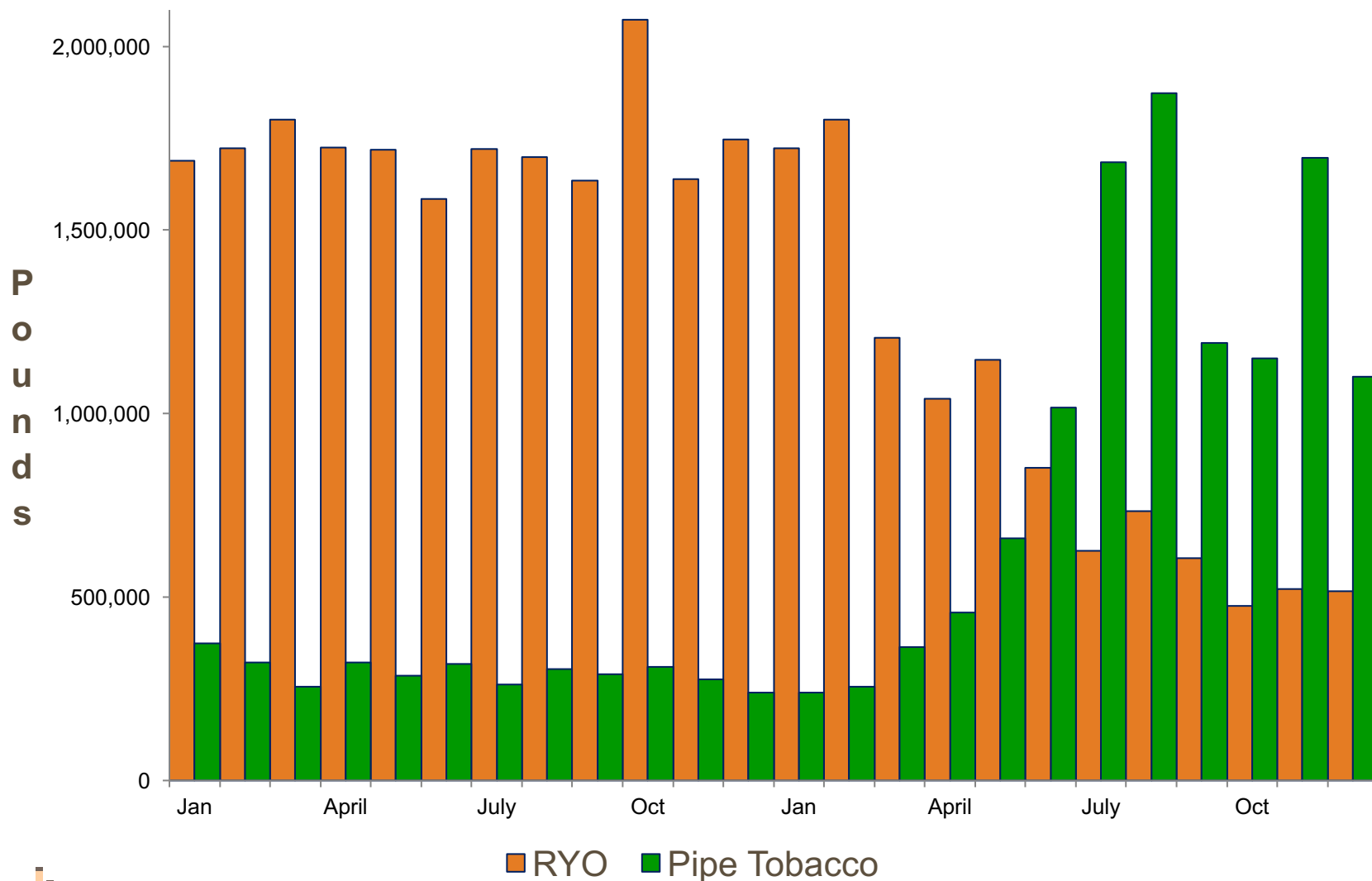
# Price & Other Tobacco Product Use

- 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

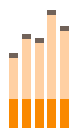




# Taxable RYO and Pipe Tobacco US, 2008-2009



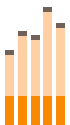
Source: US Treasury Department, Alcohol and Tobacco Tax and Trade Bureau



# Tobacco and ENDS Taxes

Governments starting to tax electronic cigarettes and other vaping products face multiple options:

1. Tax all tobacco and vaping products at the same rate
  - Minimizes uptake of vaping products by young people
  - Reduces incentives for current tobacco users to substitute to vaping products
  - Generates some new tax revenues



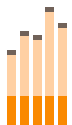
Source: Chaloupka, Warner & Swenor, 2015

# Tobacco and ENDS Taxes

Governments starting to tax electronic cigarettes and other vaping products face multiple options:

## 2. No or very low tax on vaping products

- Little impact on uptake of vaping products by young people
- Maximizes incentives for current tobacco users to substitute to vaping products
- Likely loss of tobacco tax revenues

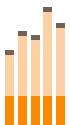


Source: Chaloupka, Warner & Swenor, 2015

# Tobacco and ENDS Taxes

Governments starting to tax electronic cigarettes and other vaping products face multiple options:

3. Significant tax on vaping products combined with significant tax increases on tobacco products, particularly combustible products
  - Reduced initiation of tobacco use and use of vaping products by young people
  - Greater cessation among current tobacco users
  - Incentives for current tobacco users who can't quit to substitute to vaping products
  - Significantly higher tax revenues

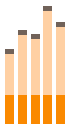


Source: Chaloupka, Warner & Swenor, 2015

# Recommendations

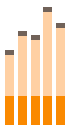
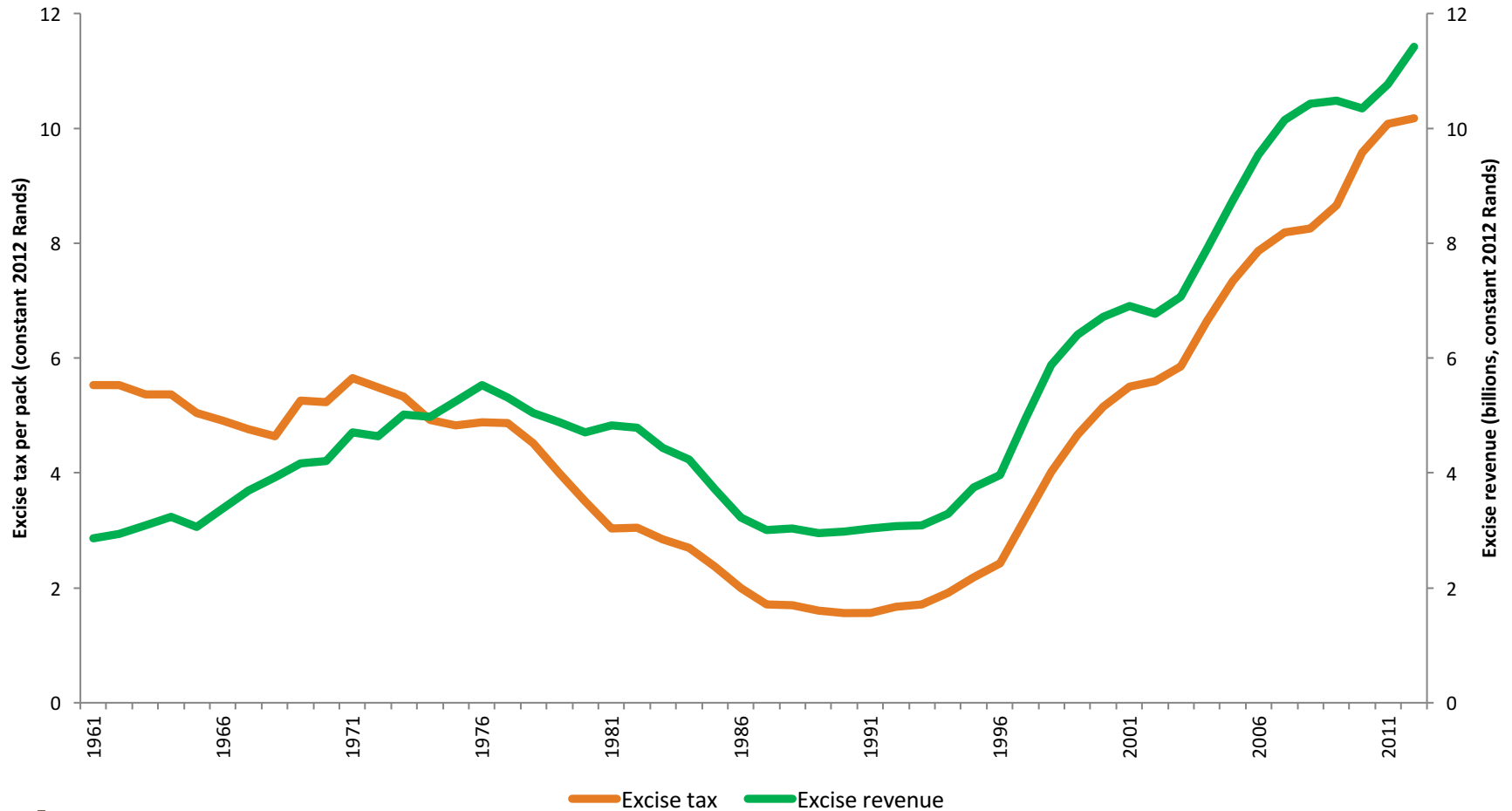
## Section 5 – Use of Revenues – Financing of Tobacco Control

**“Parties could consider**, while bearing in mind Article 26.2 of the WHO FCTC, and in accordance with national law, **dedicating revenue to tobacco-control programmes, such as those covering awareness raising, health promotion and disease prevention, cessation services, economically viable alternative activities, and financing of appropriate structures for tobacco control.**”



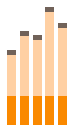
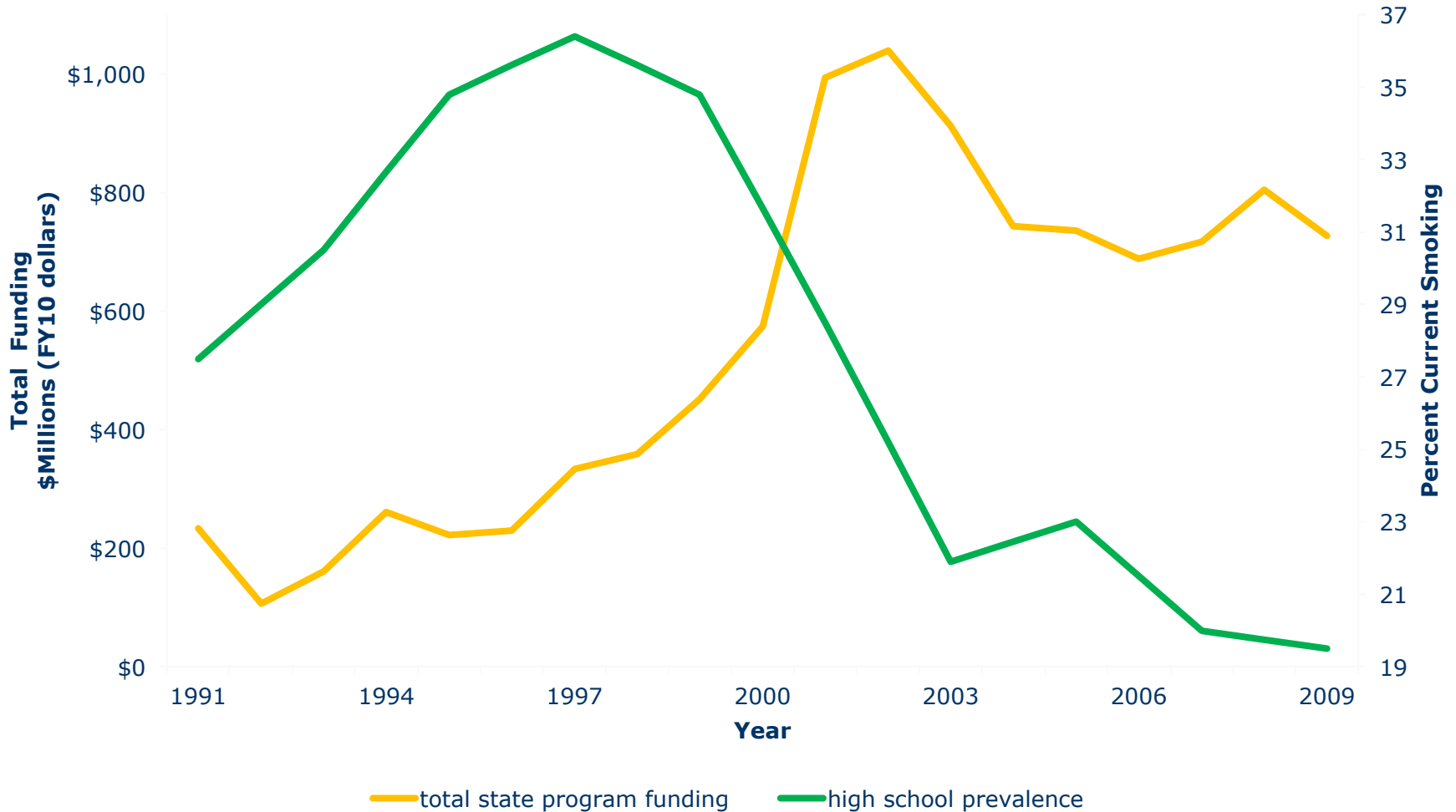
# Taxes & Tax Revenues, South Africa

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



Sources: Blecher & Van Walbeek, 2014

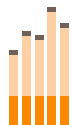
# State Tobacco Control Program Funding and Youth Smoking Prevalence, United States, 1991-2009



Source: ImpacTeen Project, UIC; YRBS

# Tobacco Taxes Popular

- Tobacco Excise Tax Increases:
  - Generally supported by the public
    - Including significant number of smokers
  - More support when framed in terms of impact on youth tobacco use
  - 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

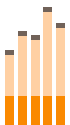


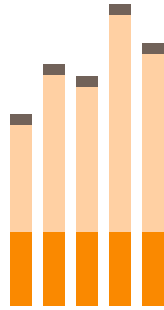


# Recommendations

## Section 6 – Tax-Free/Duty-Free Sales

**“Parties should consider prohibiting or restricting the sale to and/or importation by international travellers, of tax-free or duty-free tobacco products.”**





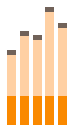
# **Economic Impact of Tobacco Control**

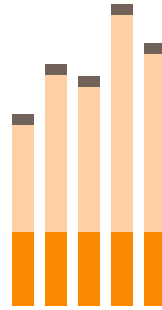
-

## **Dispelling the Myths**

# Oppositional Arguments

- Massive job losses as tobacco use falls in response to tobacco control policies
- Poor adversely affected by higher tobacco taxes
- Increased illicit trade in response to higher taxes and other tobacco control policies





# Oppositional Arguments

-

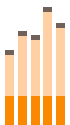
# Impact on Jobs, Business

# Impact on Jobs

March 9, 2009 – Vanguard, AllAfrica.com

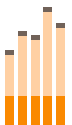
## **Nigeria Anti-Tobacco Bill – 400,000 Jobs on the Line**

- **“if passed into law, The National Tobacco Bill which is currently on the floor of the National Assembly will lead to at least 400,000 Nigerians being thrown into the unemployment market.”**
- “This was the view expressed by the Chairman, Senate Committee on Industries, Senator Kamorudeen Adedbu, while speaking with reporters recently in Iselyn, Oyo State, while speaking at the 2008 Farmers Productivity Day Award Ceremony.”



# Tobacco Control & Employment

- Tobacco control 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 tobacco tax revenues will be spent by government
  - Additional job gains in other sectors
- Net increase in jobs in most countries



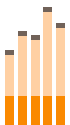
# Tobacco Control & Business

## Impact of smoke-free policies on hospitality sector

- No or small positive impact of smoke-free policies on bar and restaurant business (IARC Handbook 13)

## Impact of tobacco control policies on convenience stores (Huang and Chaloupka 2012)

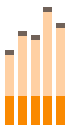
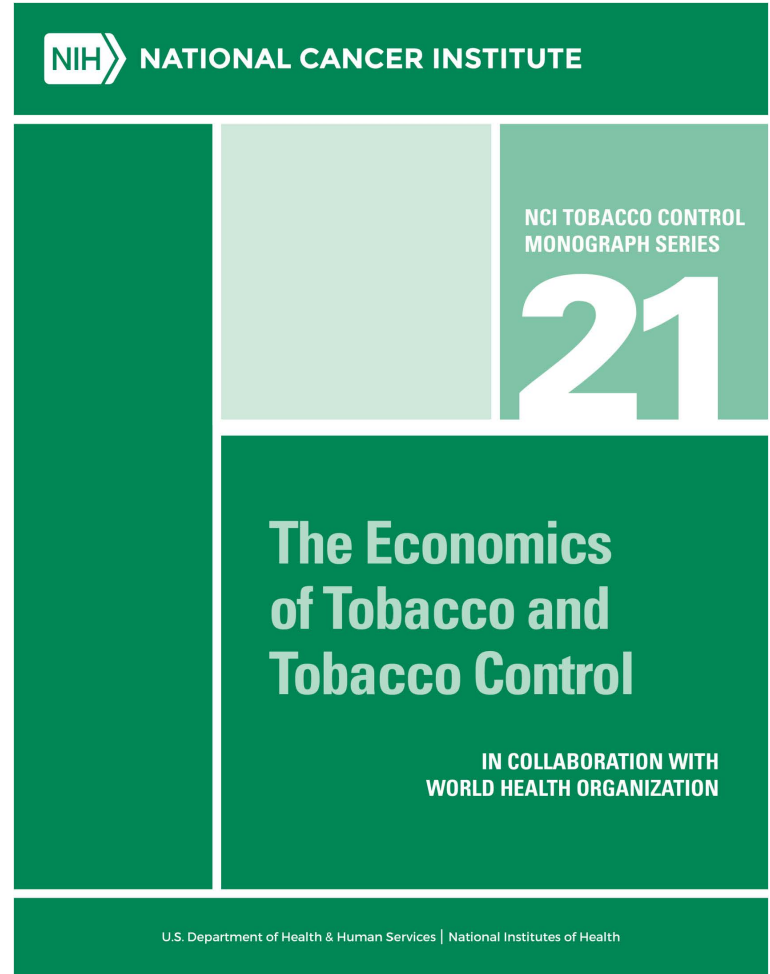
- More business activity where cigarette taxes are higher
- No impact of smoke-free policies
- Overshifting and replacement purchase



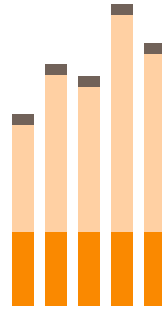
# Economic Impact of Tobacco Control

Major Conclusion  
#7:

Tobacco control  
does not harm  
economies.







# Oppositional Arguments

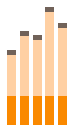
-

## Impact on the Poor

# Impact on the Poor

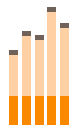
July 23, 2010 – San Francisco Examiner

- “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.

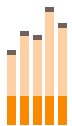
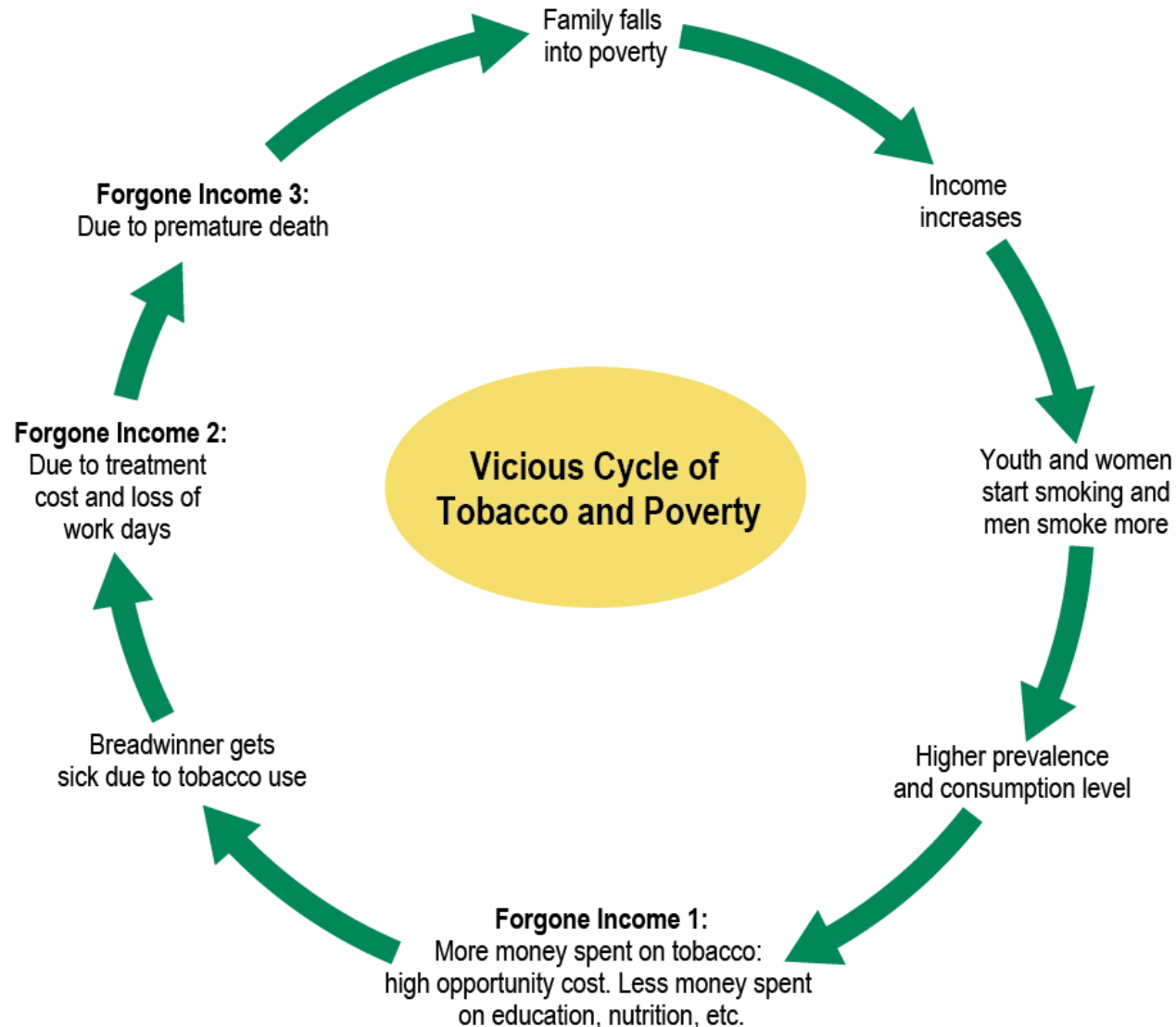


# Impact on the Poor

- Concerns about the regressivity of higher tobacco taxes
  - Tobacco taxes are regressive, but tax increases can be progressive
    - Greater price sensitivity of poor – relatively large reductions in tobacco use among lowest income populations, small reductions among higher income populations
    - Health benefits that result from tax increase are progressive

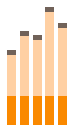
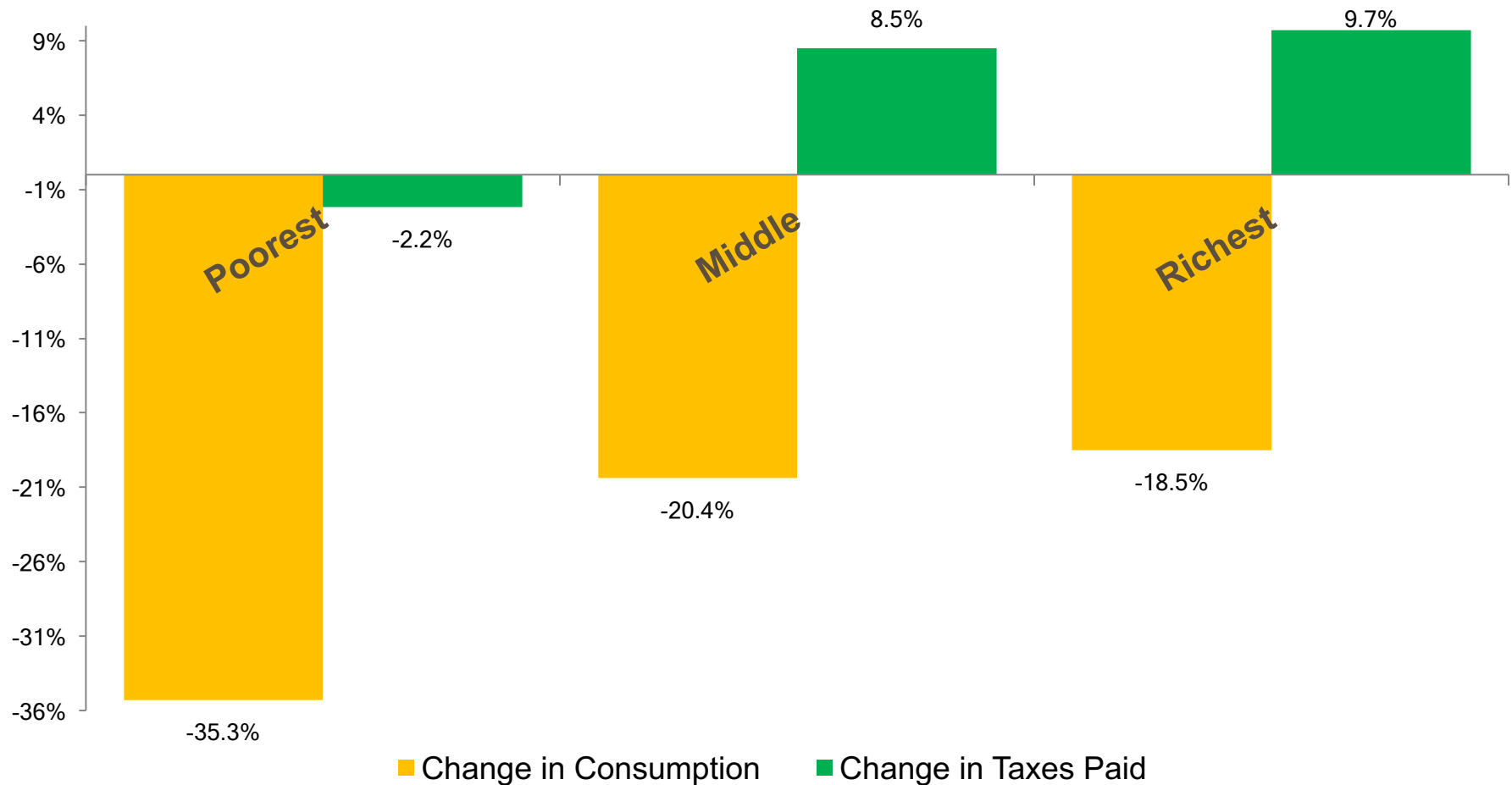


# Tobacco & Poverty



Source: NCI & WHO 2016

# Who Pays & Who Benefits Turkey - 25% Tax Increase

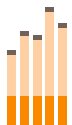


Source: Adapted from Önder & Yürekli, 2014

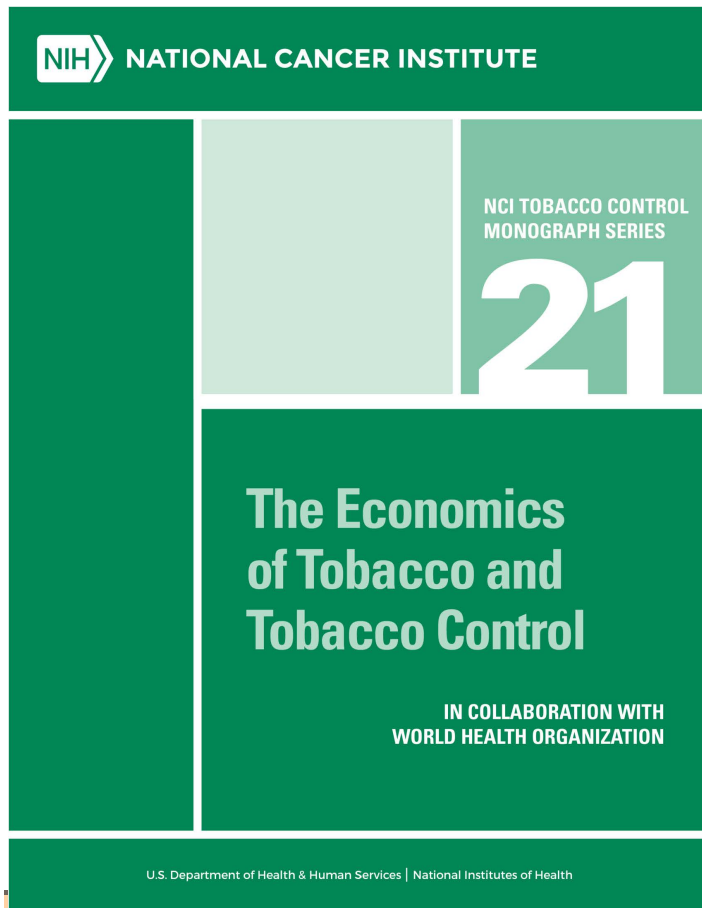
# Impact of Tobacco Taxes on the Poor

Also depends on use of new tax revenues:

- 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

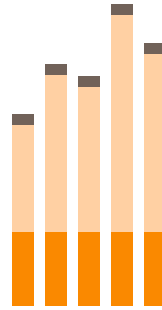


# Impact of Tobacco Control on the Poor



Major Conclusion  
#8:

Tobacco control reduces the disproportionate burden that tobacco use imposes on the poor.



# Oppositional Arguments

-

# Illicit Trade



# Impact on Illicit Trade

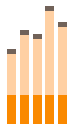
July 30, 2014 – PanAm Post

## Costa Rica's Cigarette-Tax Regime a Gift to Black Markets

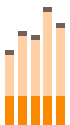
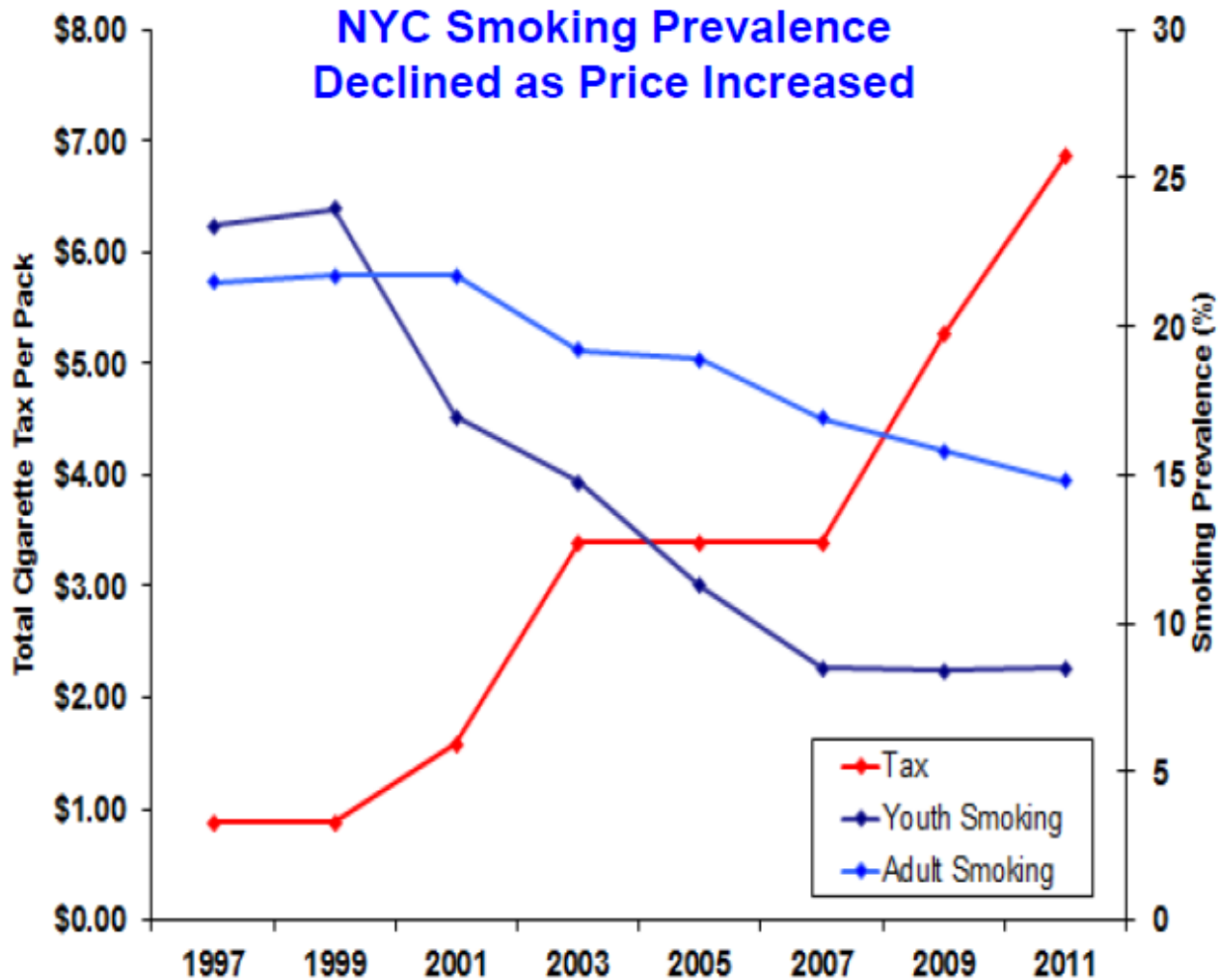
Franklin Murillo, the manager of British American Tobacco in Costa Rica, told *La Nación* on March 31 that **“In the face of higher taxes on a legal product ... an illicit market will arise that does not compete under equal conditions and provides products at lower prices and lower quality.”**

This is a phenomenon that merits our attention. Since the enactment of the [Anti-Tobacco Law](#) in Costa Rica on March 2012, we've been under the impression that cigarette use has gone down. However, in reality, we've seen a dramatic increase in illegal smuggling, and all because of a lack of understanding of how the market works.

In Costa Rica, **it was thought that if taxes on cigarettes were increased, no one would buy them anymore because of higher prices. People failed to realize that doing this would only lead to tobacco users turning to the black market.**



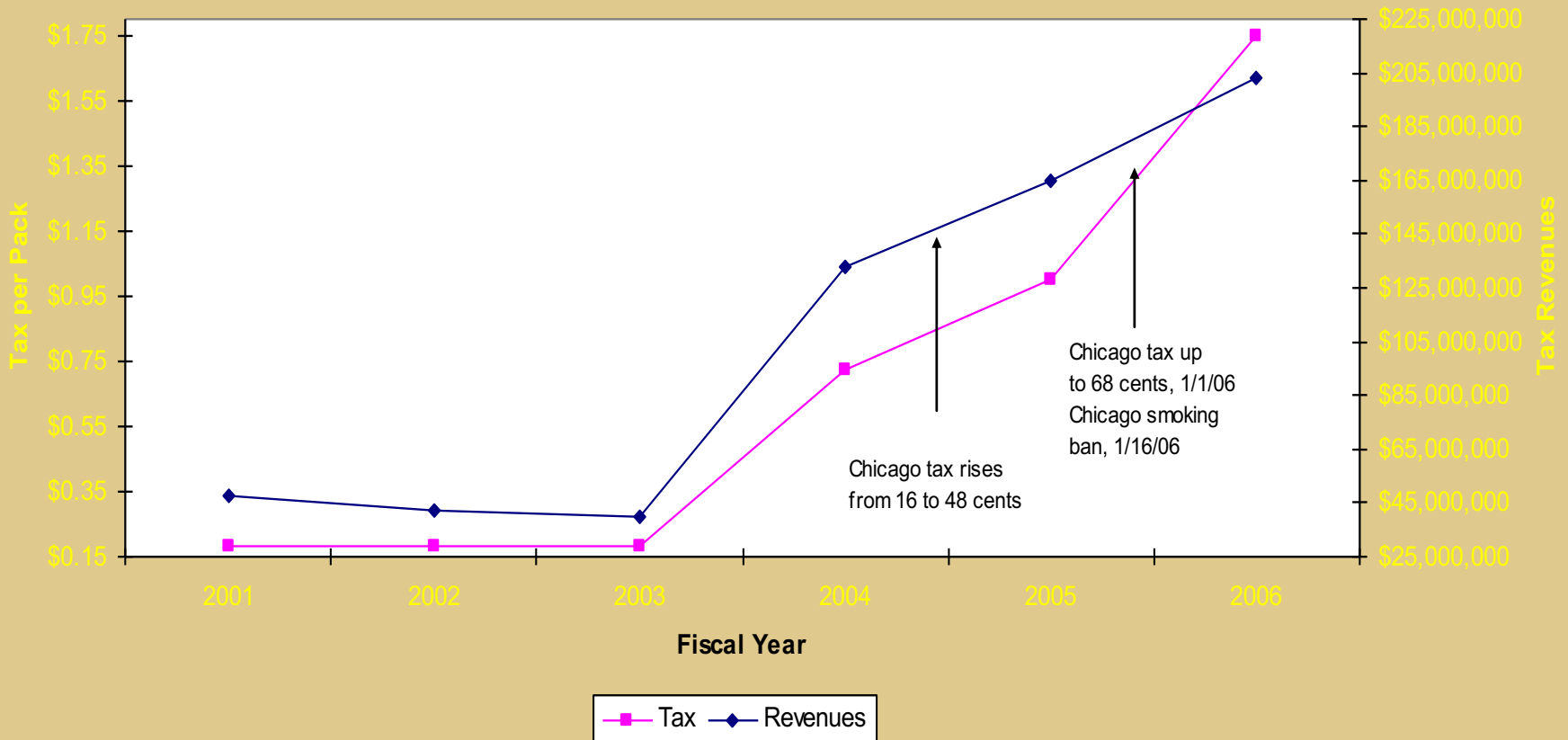
# Tax Avoidance & Evasion Do NOT Eliminate Health Impact of Higher Taxes



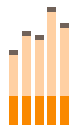
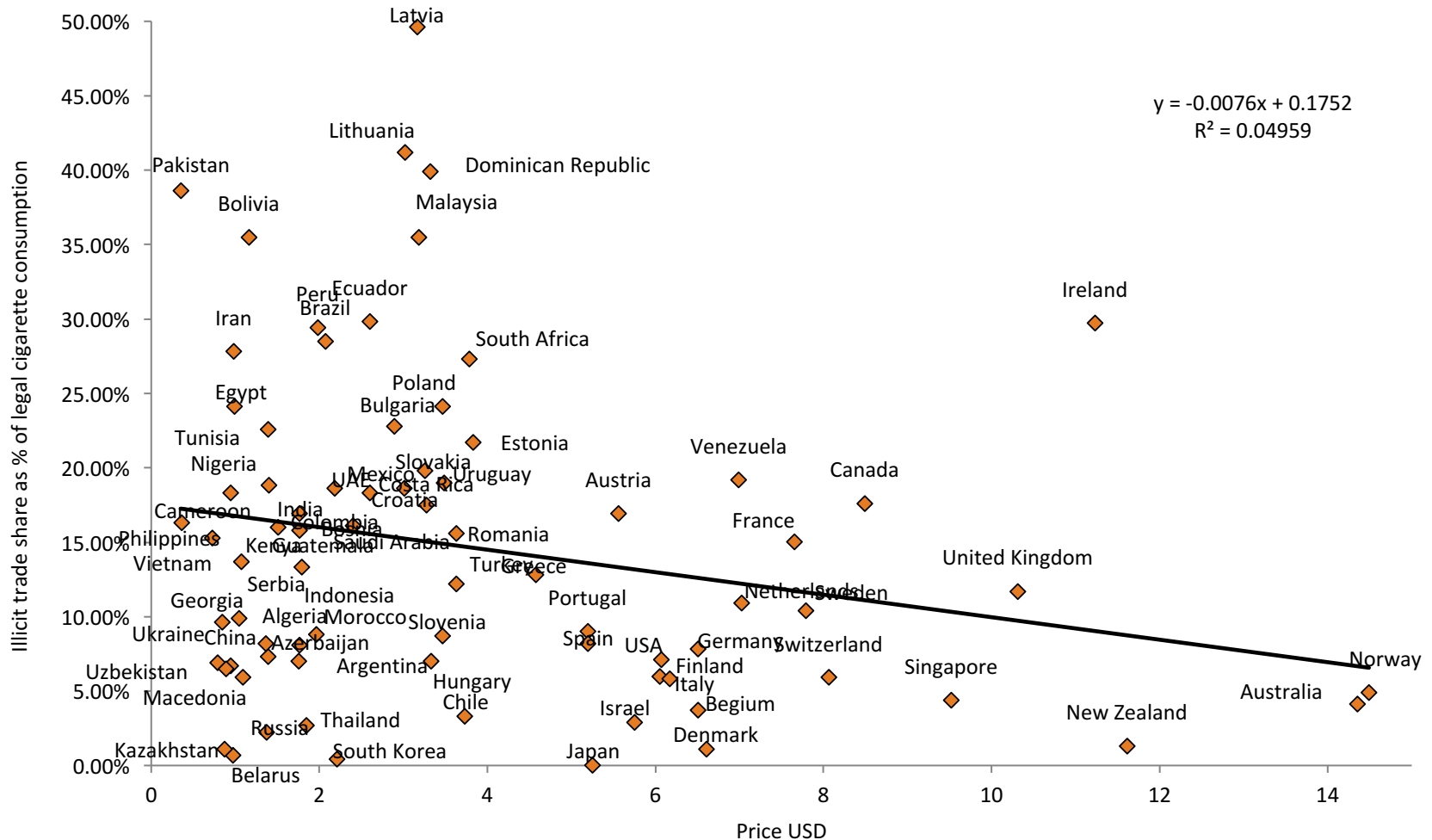
# Tax Avoidance & Evasion

## Do NOT Eliminate Revenue Impact of Higher Taxes

### Cook County Cigarette Tax and Tax Revenues - FY01-FY06

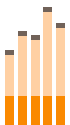


# Illicit Cigarette Market Share & Cigarette Prices, 2012

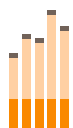
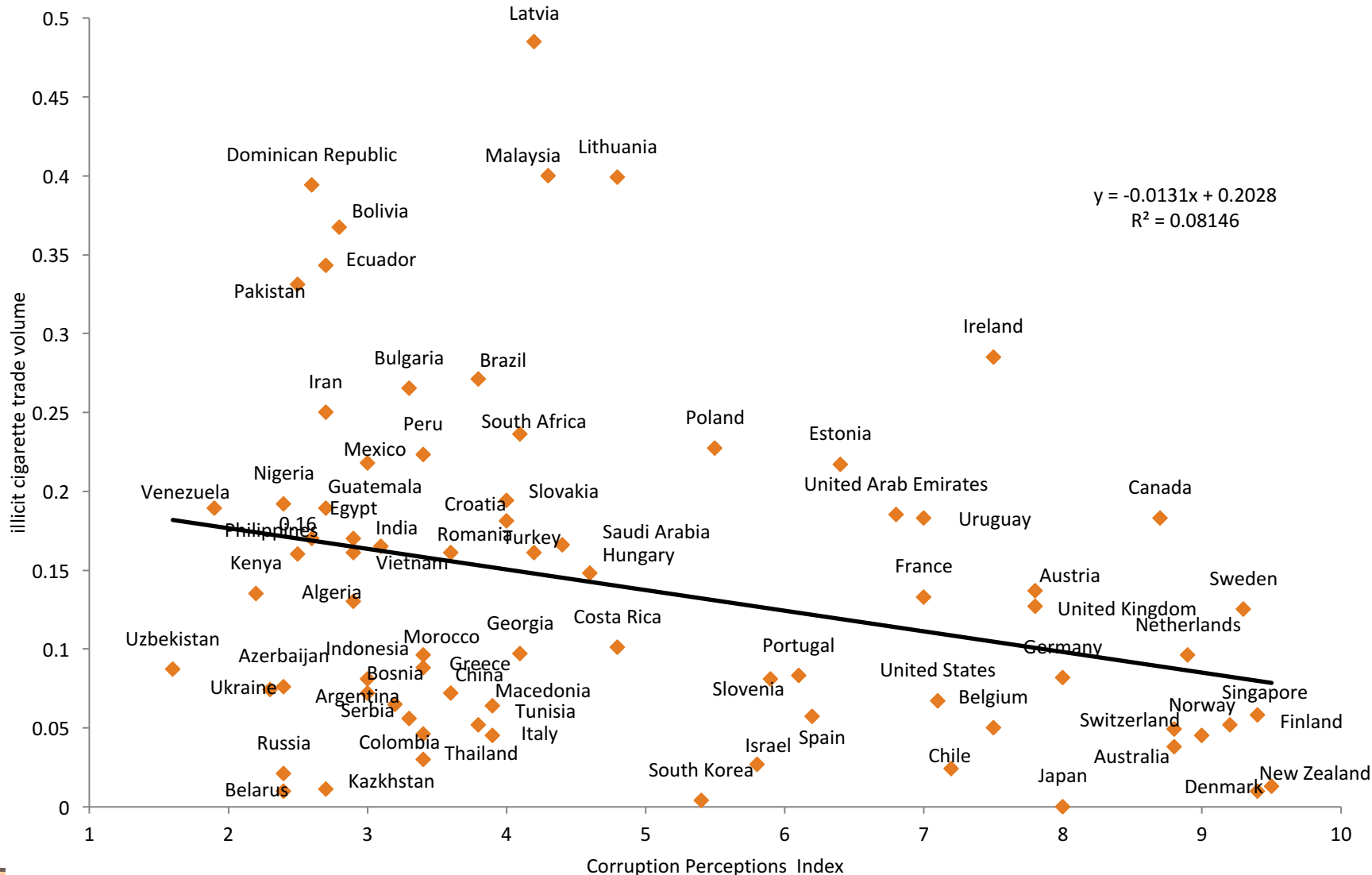


# Determinants of Illicit Tobacco

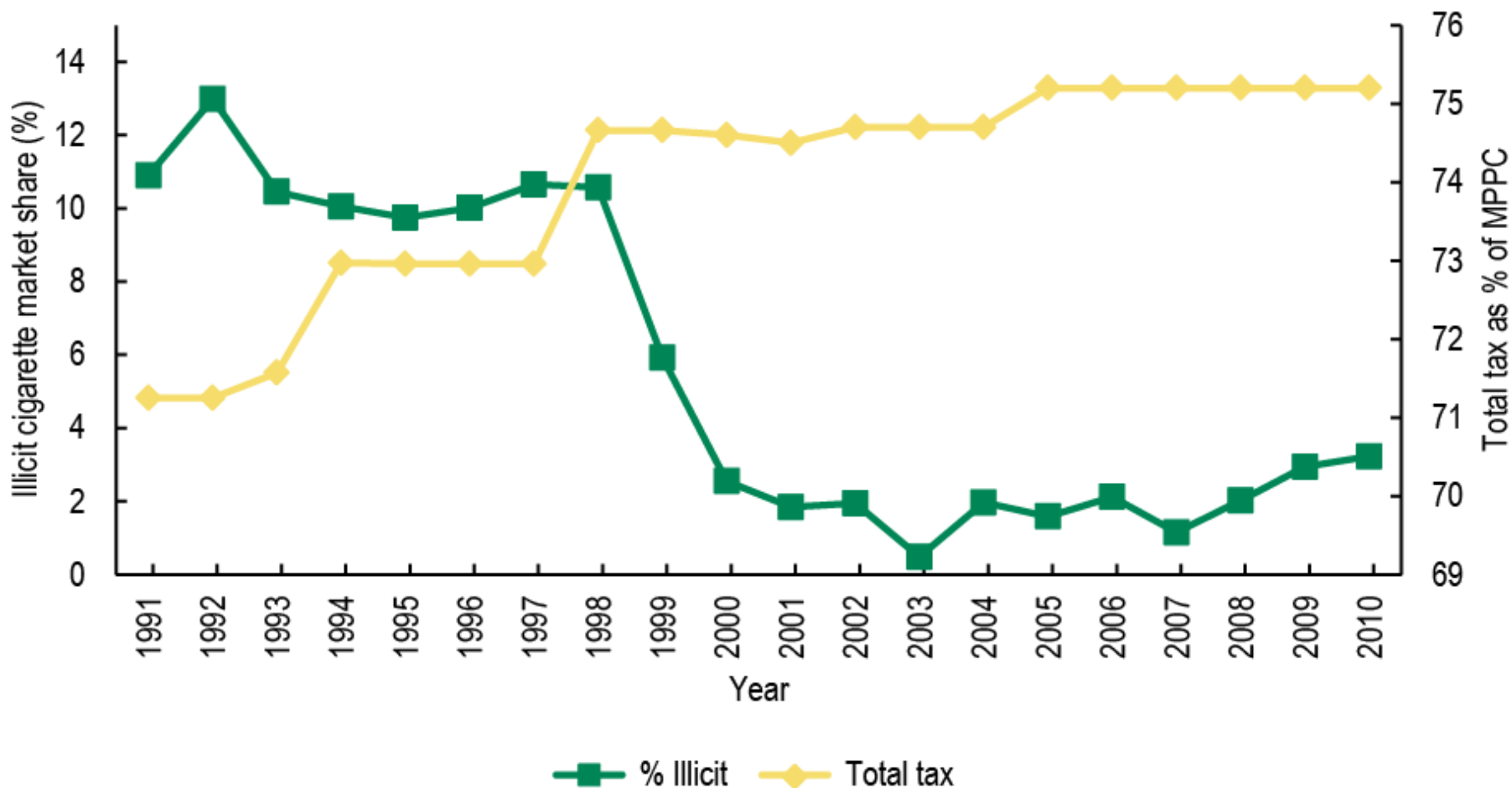
- Corruption
- Weak tax administration
- Poor enforcement
- Presence of informal distribution networks
- Presence of criminal networks
- Access to cheaper sources



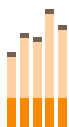
# Smuggling and Corruption, 2011



# Illicit Cigarette Market Share and Percentage of Most Popular Price Category Accounted for by Taxes Italy, 1991–2010

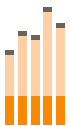


Source: NCI & WHO 2016



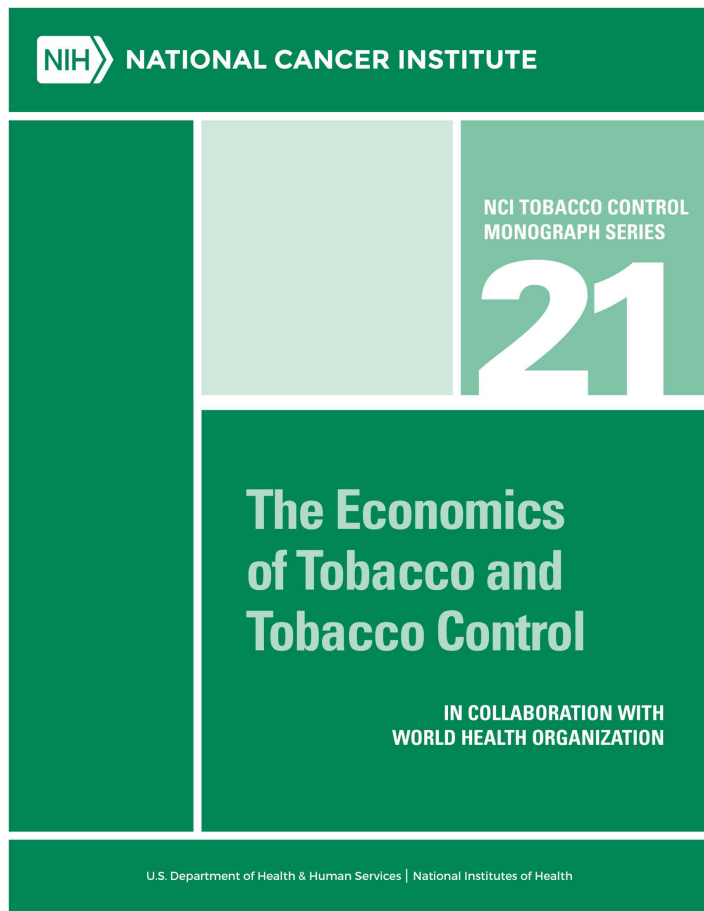
# Combating Illicit Tobacco Trade

- 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

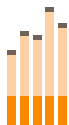


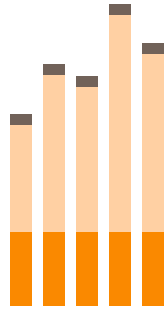


# Control of Illicit Tobacco Trade



Major Conclusion #5:  
Control of illicit trade in tobacco products, now the subject of its own international treaty, is the key supply-side policy to reduce tobacco use and its health and economic consequences.



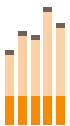


# Summary

# Economic Impact of Tobacco Control

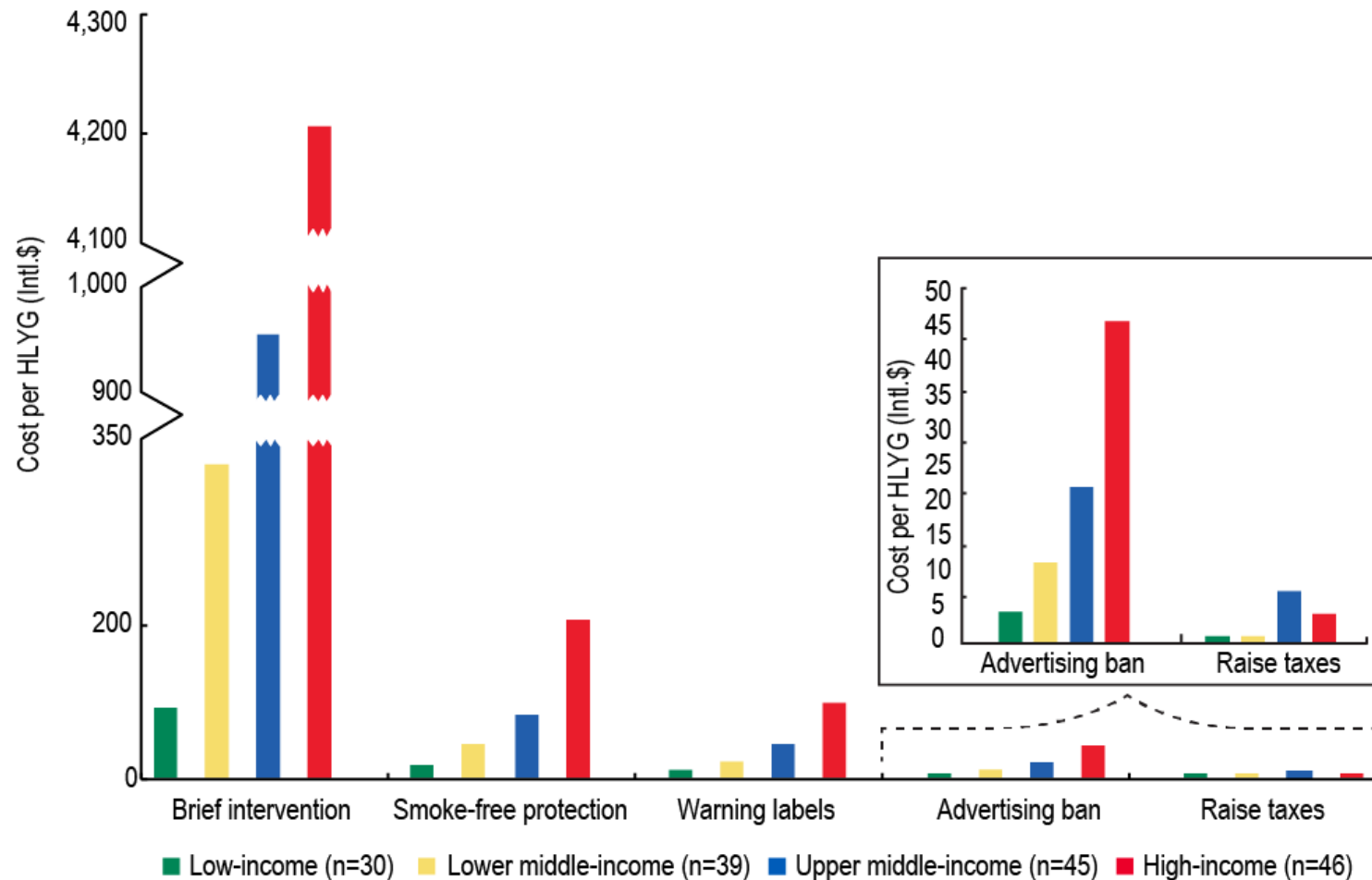
Tobacco tax increases and other effective tobacco control measures make good economic sense:

- 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.

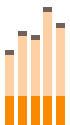


# Key Tobacco Control Policies

## Cost-Effectiveness

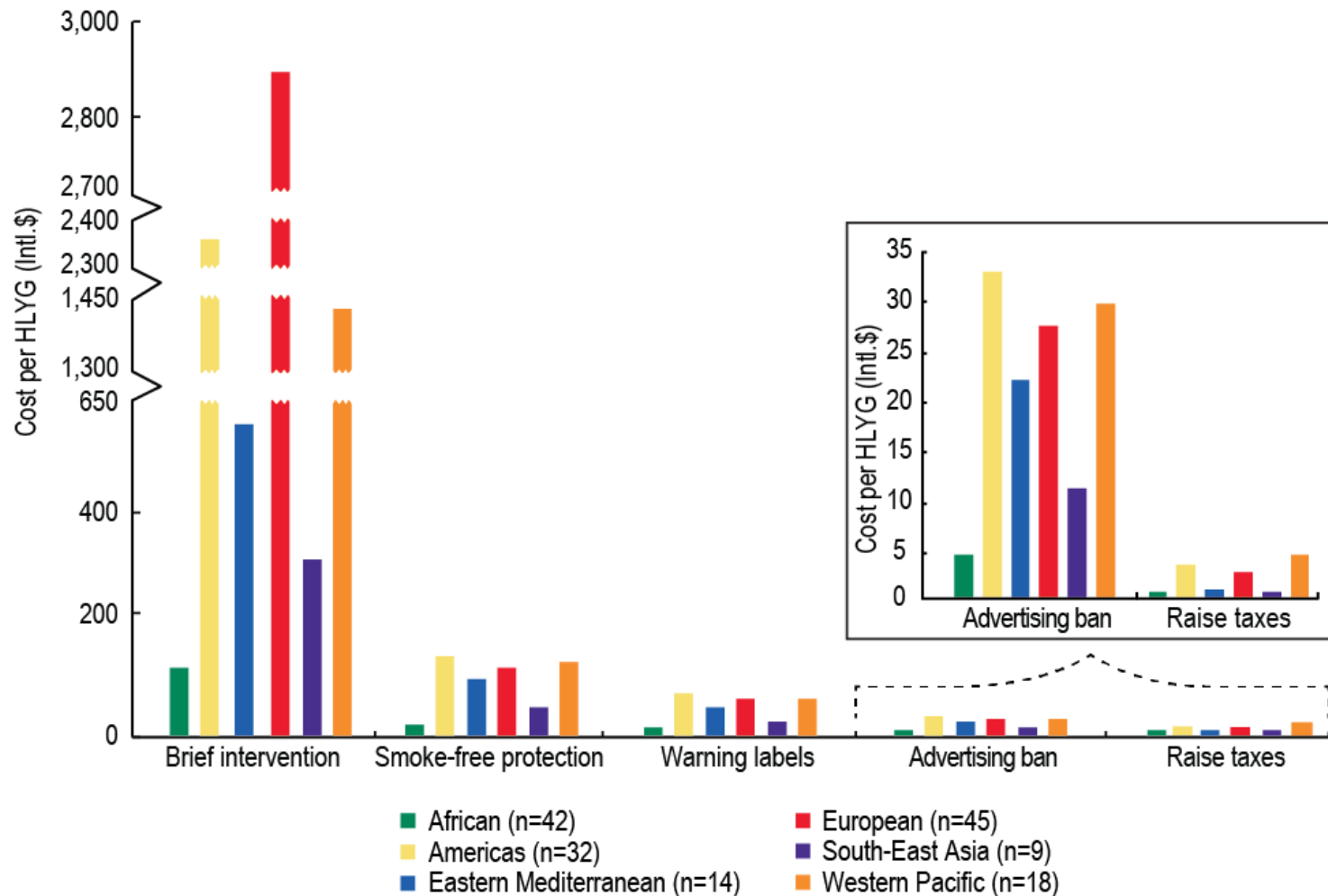


Notes: HLYG = healthy life-year gained. Country income group classification based on World Bank Analytical Classifications for 2014. Source: NCI & WHO, 2016

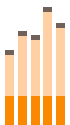


# Key Tobacco Control Policies

## Cost-Effectiveness

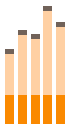


Notes: HLYG = healthy life-year gained. Country income group classification based on World Bank Analytical Classifications for 2014.  
Source: NCI & WHO, 2016



# Implications for Republic of Korea

- Room for additional large tax increases on cigarettes
- Need to regular adjust tax for inflation and income growth
- Increase taxes on other combustible tobacco products to be equivalent to cigarette tax
- Dedicate revenues to tobacco control programs, support for cessation, and other health promotion efforts
- Strengthened tax administration for continued effectiveness in countering illicit trade



**For more information:**

**<http://www.tobacconomics.org>**

**@tobacconomics**

**Sign up for newsletter: [bit.ly/tbxemail](http://bit.ly/tbxemail)**

**fjc@uic.edu**

