

tobacconomics

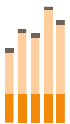
Economic Research Informing Tobacco Control Policy

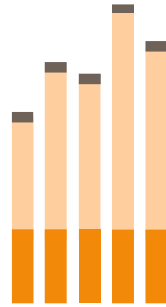
Generating Revenue & Cutting Costs – The Health & Economic Benefits of “Sin” Taxes

Frank J. Chaloupka, University of Illinois at Chicago
Harvard Ministerial Leadership Program
Cambridge, MA, 24 April 2018

Overview

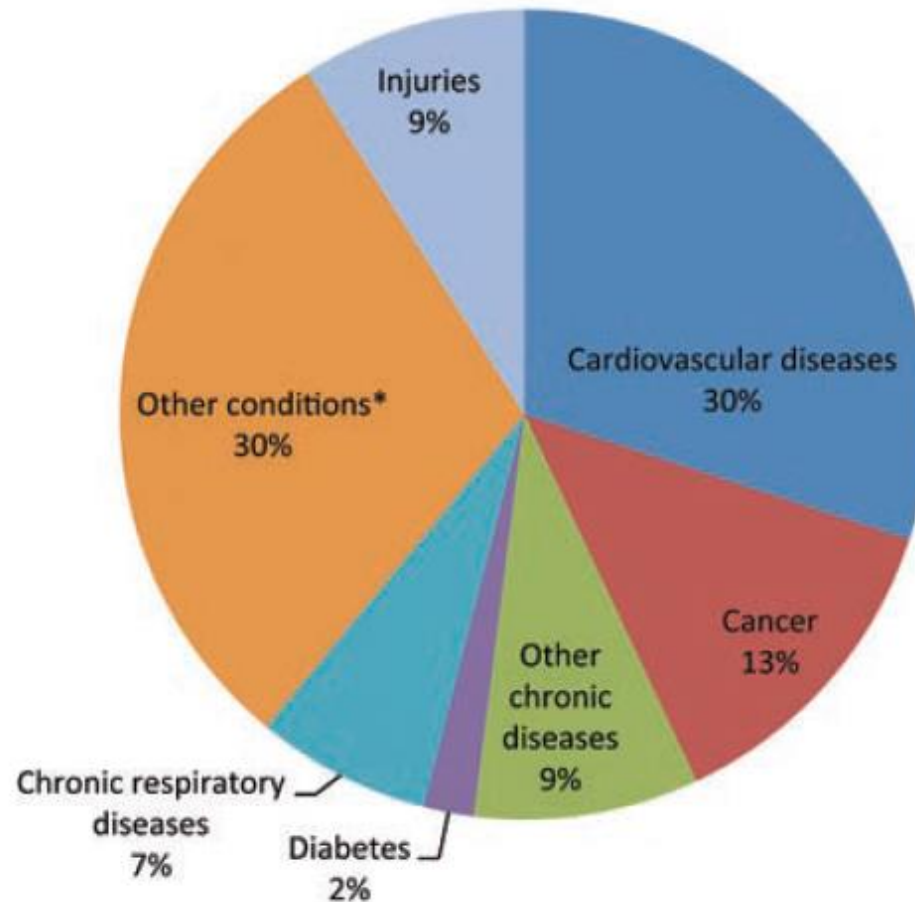
- Health & Economic Impact of Non-Communicable Diseases
- Impact of Tobacco, Alcohol, and Sugary Drink Taxes on Use and Consequences of Use
- Tax Revenues, Structure & Earmarking
- Myths and Facts About Economic Impact of Taxes





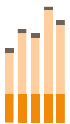
Health & Economic Impact of NCDs

Leading Causes of Death Globally



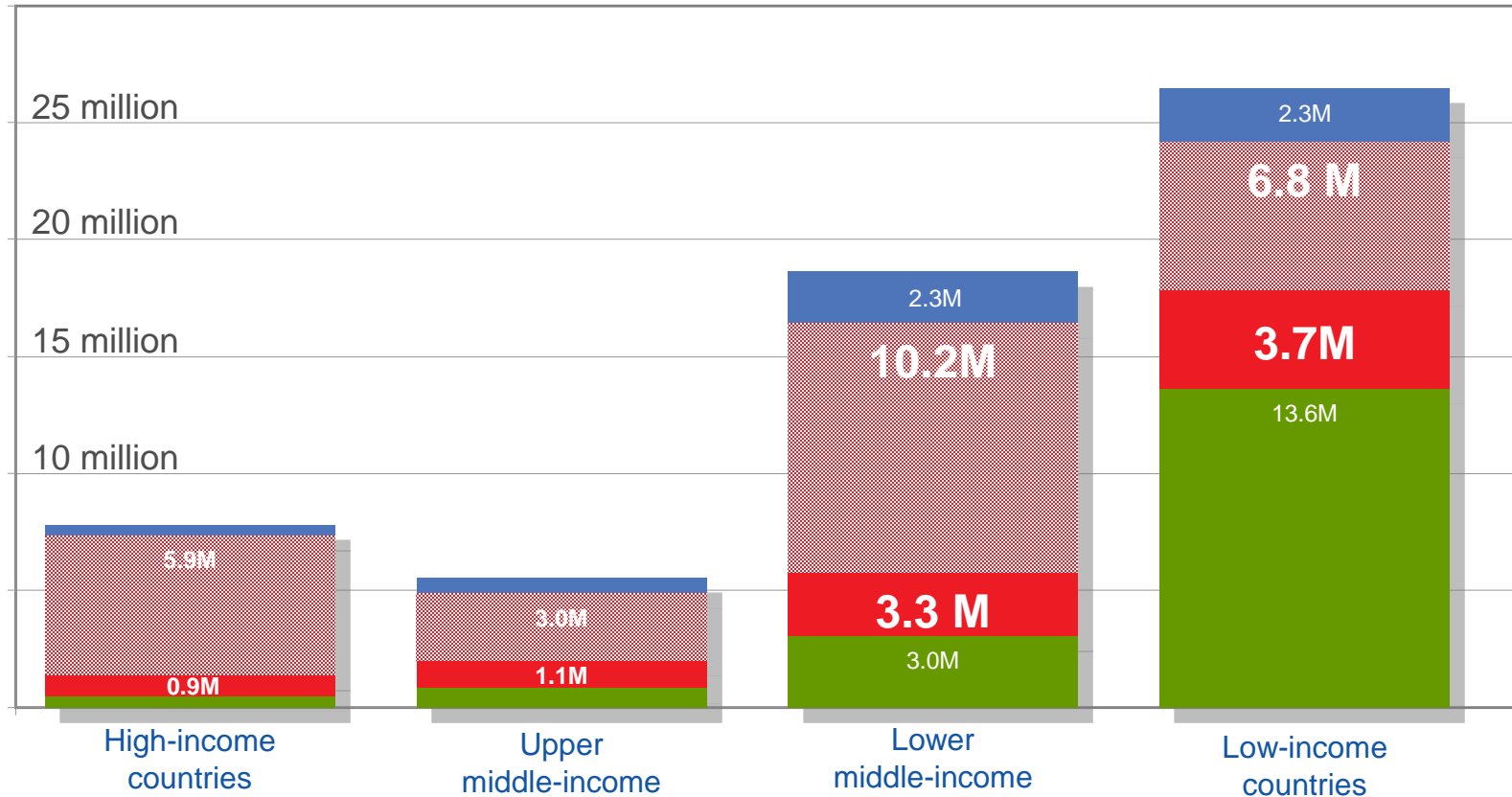
Source: World Economic Forum & Harvard School of Public Health, 2011

Other Conditions include communicable diseases, maternal/perinatal conditions, and nutritional deficiencies

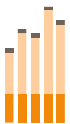


Total Deaths by Income

Source:



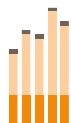
- Group III - Injuries
- Group II - Other deaths from noncommunicable diseases
- Group II - Premature deaths from noncommunicable diseases (below the age of 60), which are preventable
- Group I - Communicable diseases, maternal, perinatal and nutritional conditions



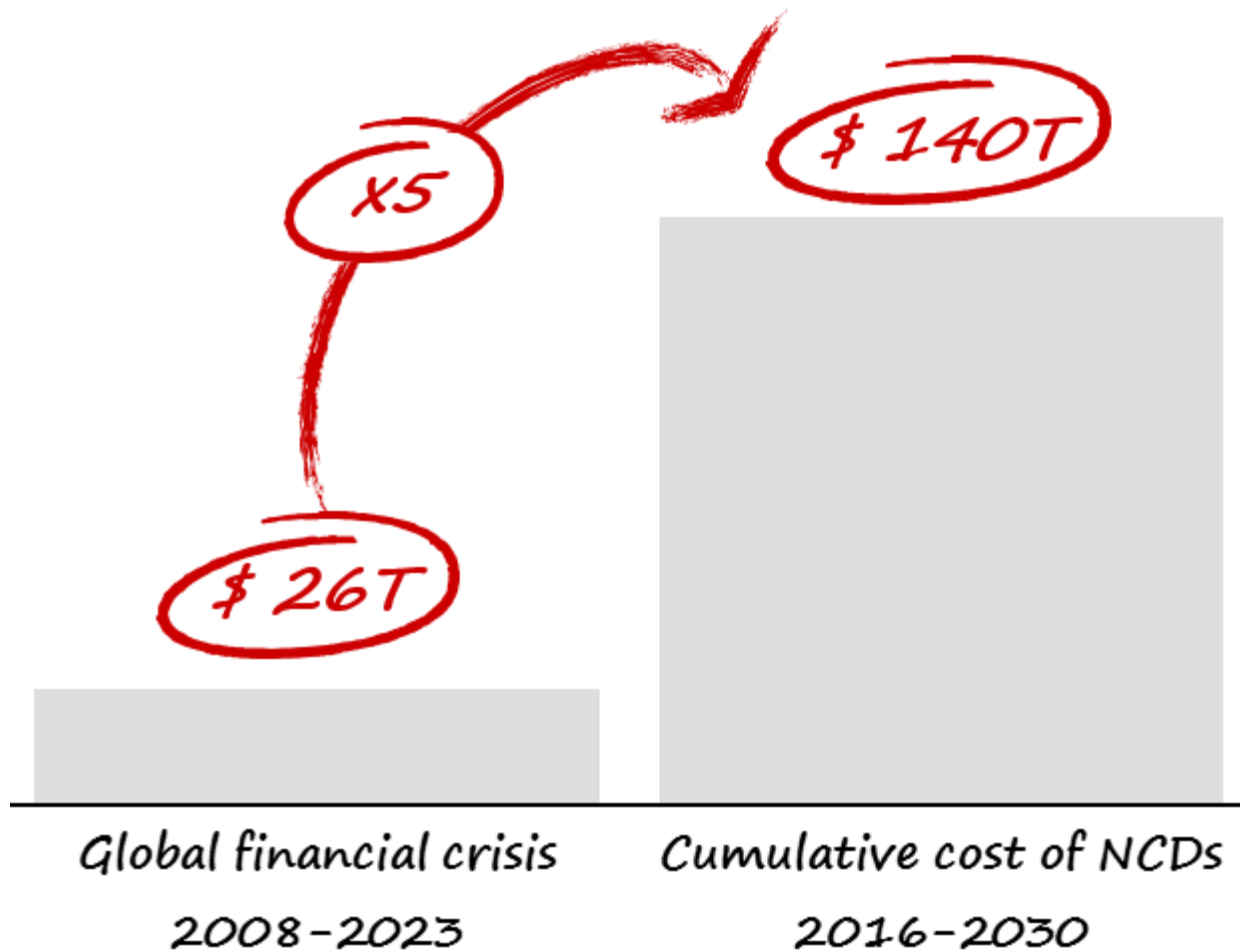
Source: WHO 2010

Economic Consequences of NCDs

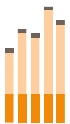
- Large economic burden from NCDs:
 - Large, growing health care costs from treating NCDs
 - Significant lost productivity
 - Cause of poverty
 - Account for much of inequalities in health



Significant Economic Costs



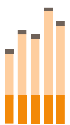
Source: World Economic Forum & Harvard School of Public Health



NCDs: Major Risk Factors

| Major NCD | Major modifiable causative Risk Factors | | | |
|------------------------|---|----------------|---------------------|------------------------|
| | Tobacco Use | Unhealthy Diet | Physical Inactivity | Harmful Use of Alcohol |
| Heart Disease & Stroke | √ | √ | √ | √ |
| Diabetes | √ | √ | √ | √ |
| Cancer | √ | √ | √ | √ |
| Chronic Lung Disease | √ | | | |

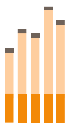
Source: WHO, 2010; Mackay, 2012

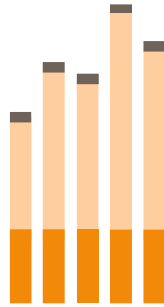


Economic Costs of Unhealthy Behaviors

- Significant direct and indirect costs
 - Tobacco use: > \$1.4 trillion in 2012
 - Equivalent to 1.8% of global GDP
 - Alcohol use: 2.1% - 2.5% of GDP
 - Obesity: ~\$2 trillion in 2014
 - Equivalent to 2.5% of global GDP

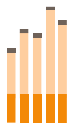
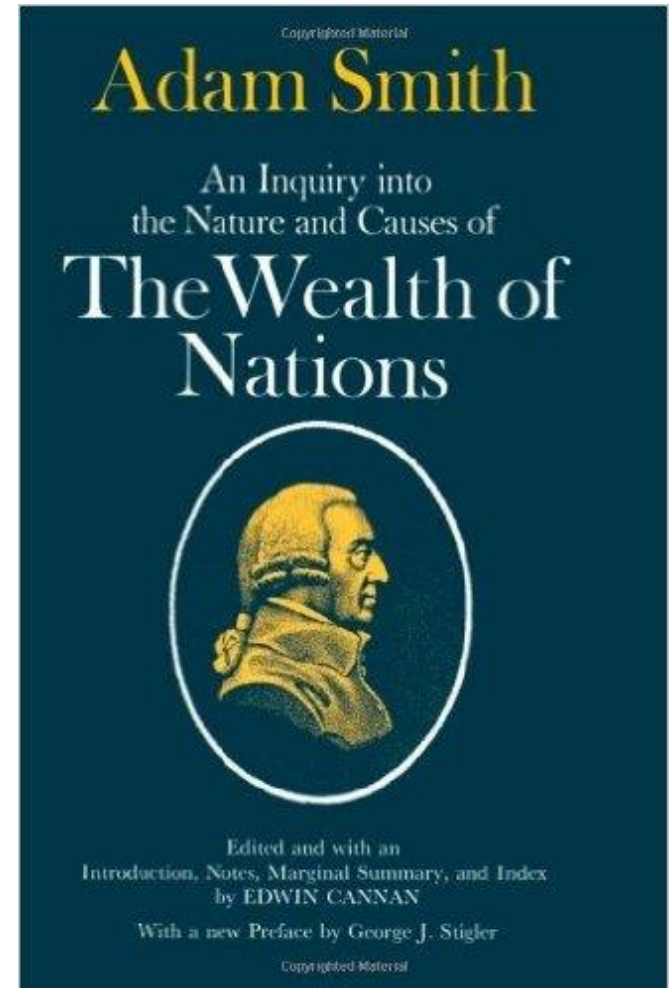
Sources: Goodchild, et al., 2017; WHO, 2017; McKinsey, 2014

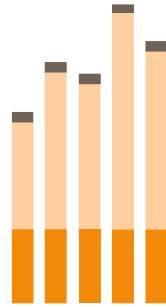




Impact of Taxes & Prices on Risky Behaviors

" 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.**

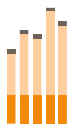
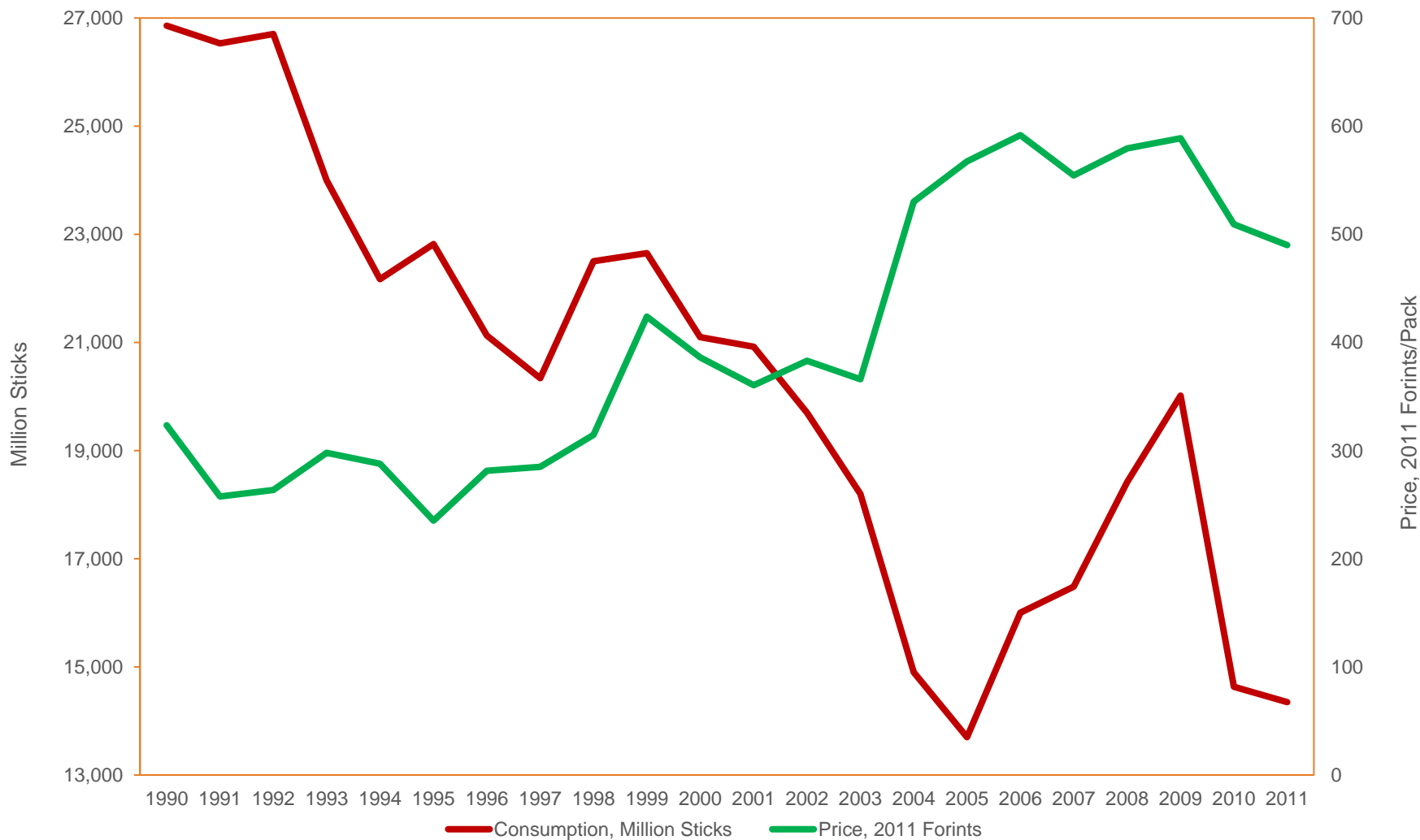




Taxes, Prices & Tobacco Use

Cigarette Price & Consumption

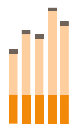
Hungary, 1990-2011, Inflation Adjusted



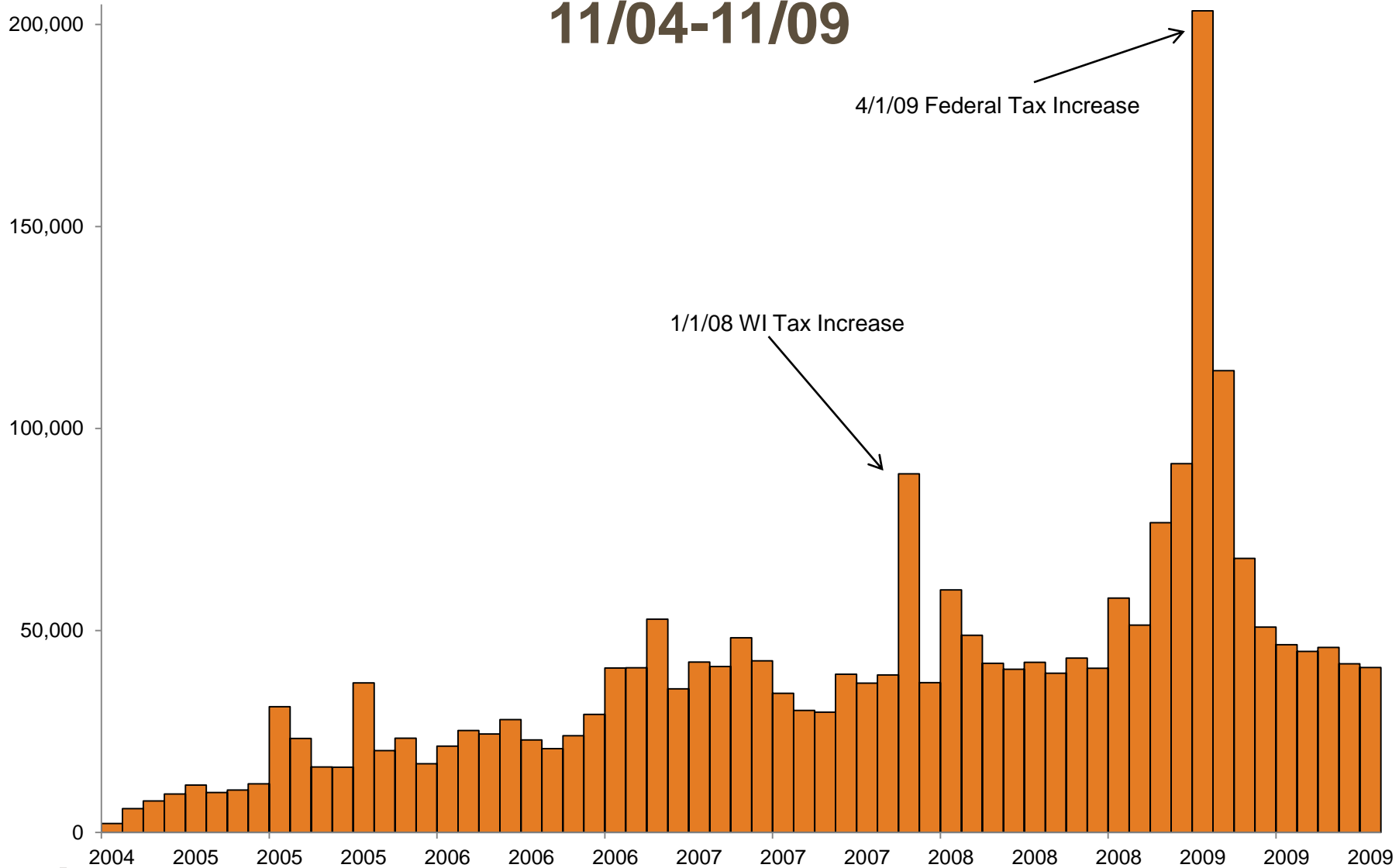
Sources: EIU, ERC, and World Bank

Adult Smoking Prevalence & Price

Brazil, Inflation Adjusted, 2006-2013

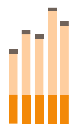
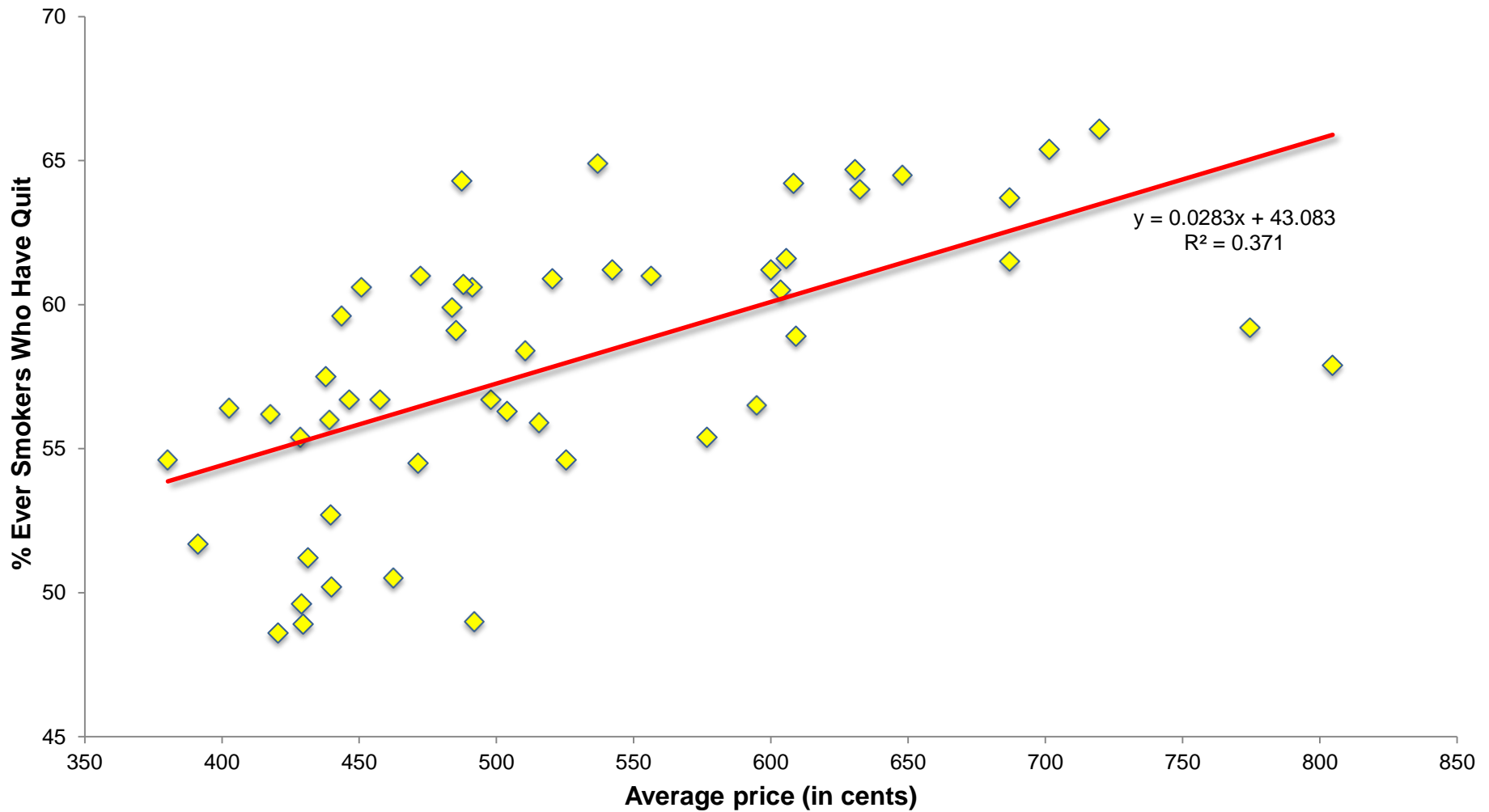


Monthly Quit Line Calls, United States 11/04-11/09



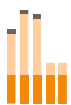
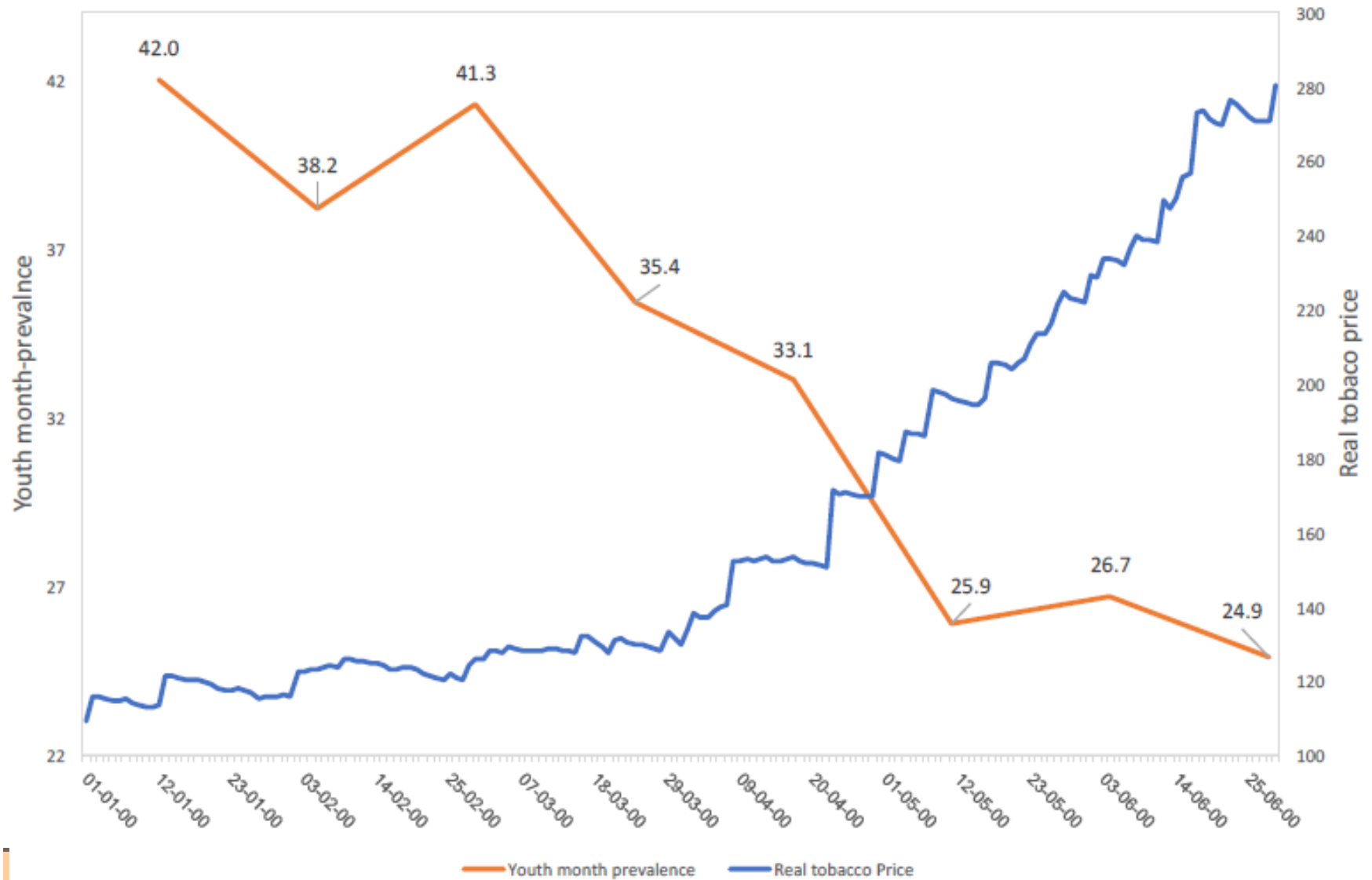
Cigarette Prices and Cessation

US States, 2009



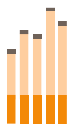
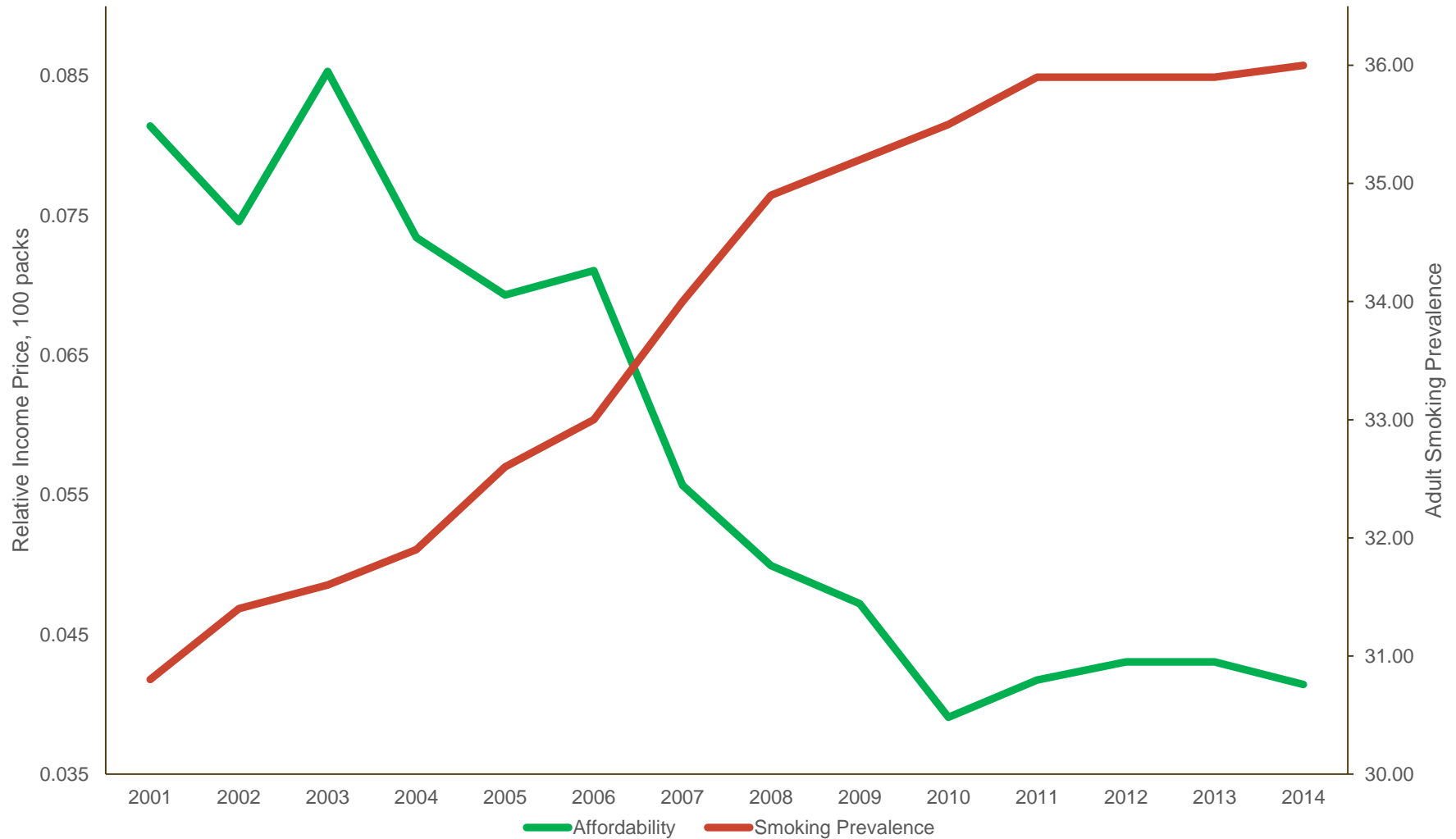
Source: BRFSS, *Tax Burden on Tobacco*, 2010, and author's calculations

Cigarette Price & Youth Smoking Prevalence Chile, 2000-2015



Affordability & Tobacco Use

Adult Smoking Prevalence, Indonesia, 2001-2014



France: smoking, tax and male lung cancer, 1980-2010

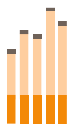
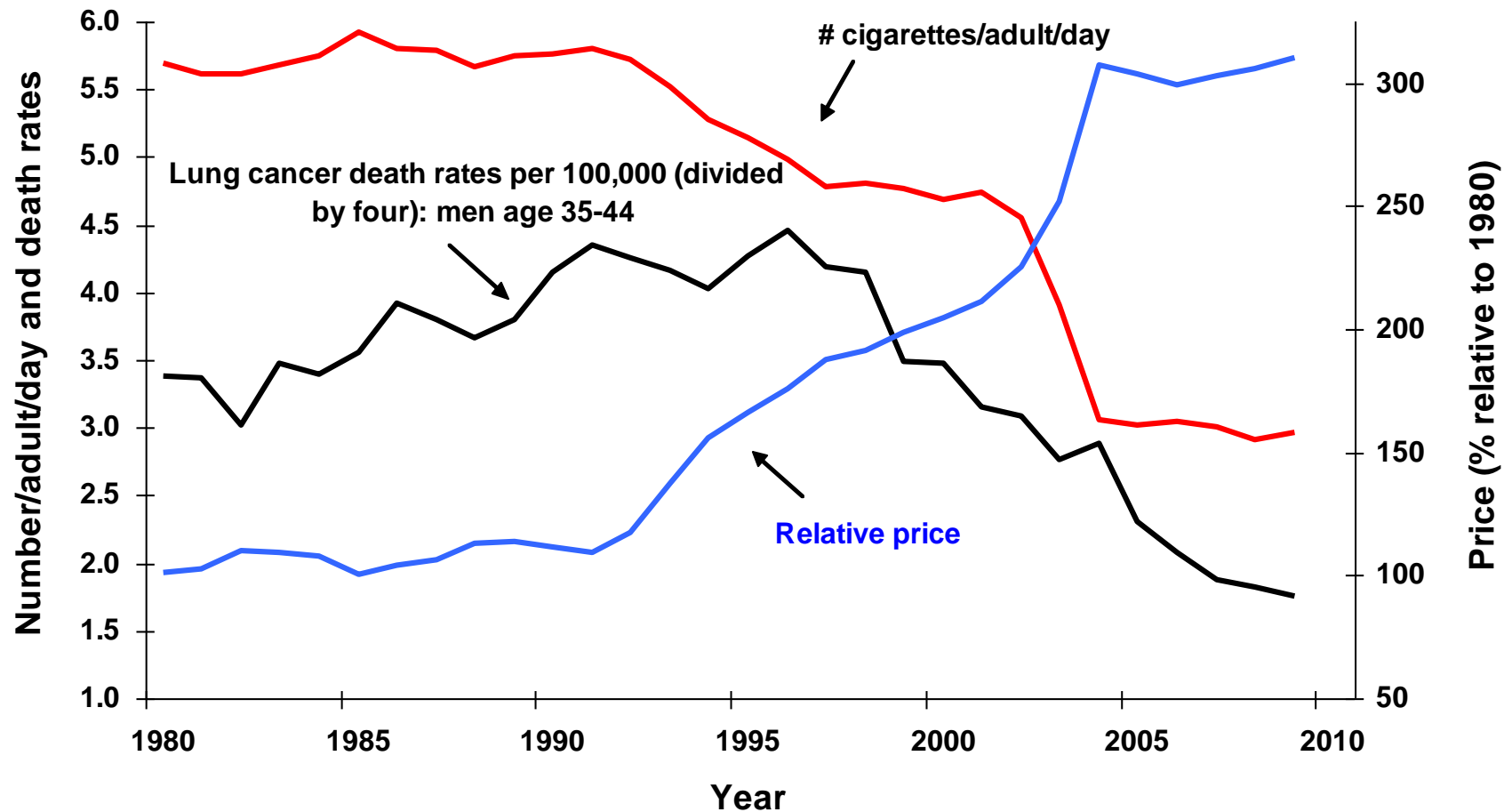
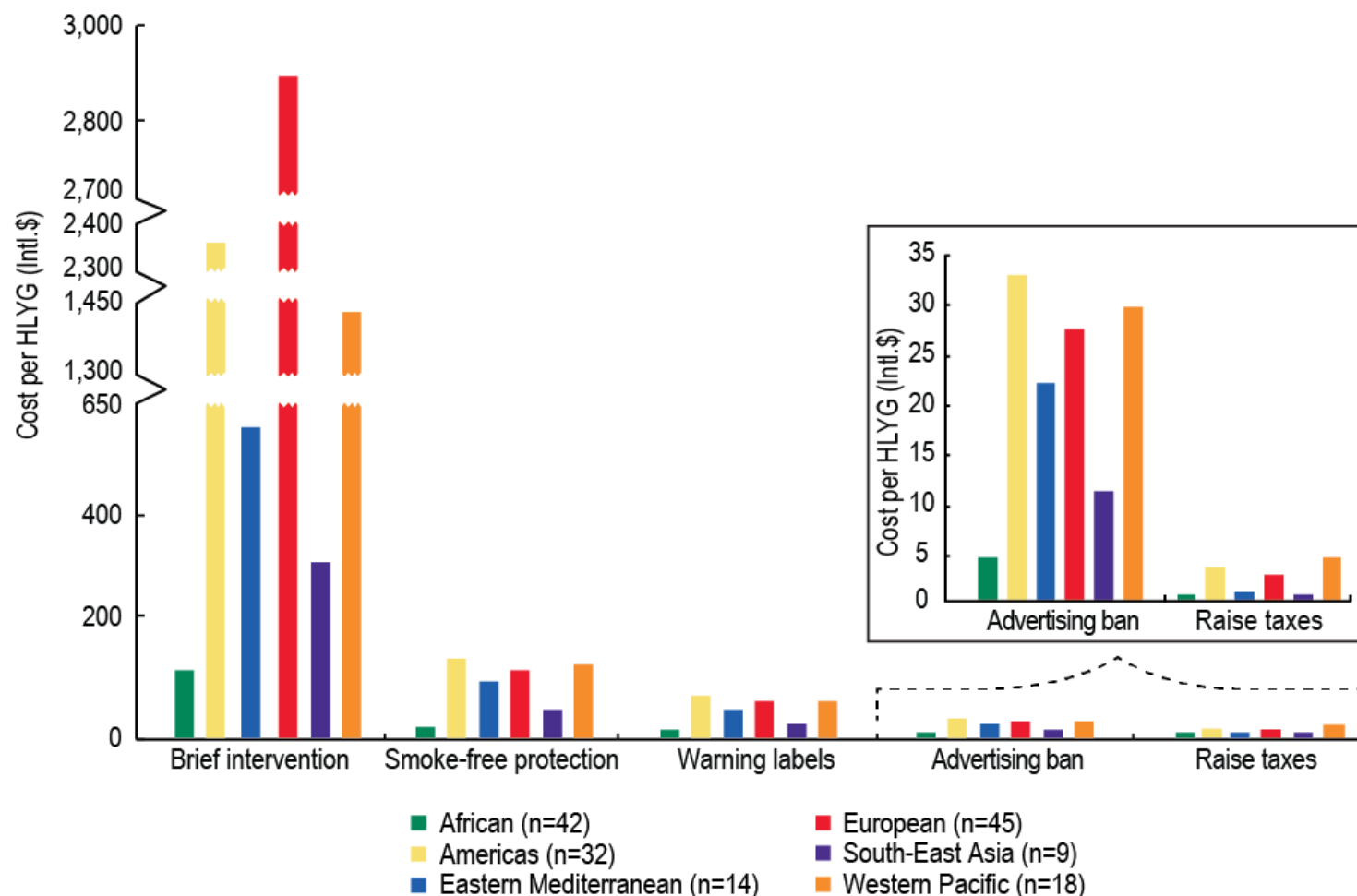
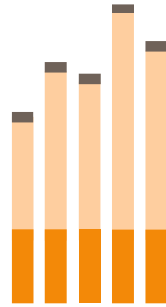


Figure 17.3 Tobacco Control Policies and Cost Per Healthy Life-Year Gained, by WHO Region



Note: HLYG = healthy life-year gained.

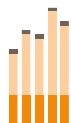
Source: Based on calculations from World Health Organization CHOICE model, 2016.



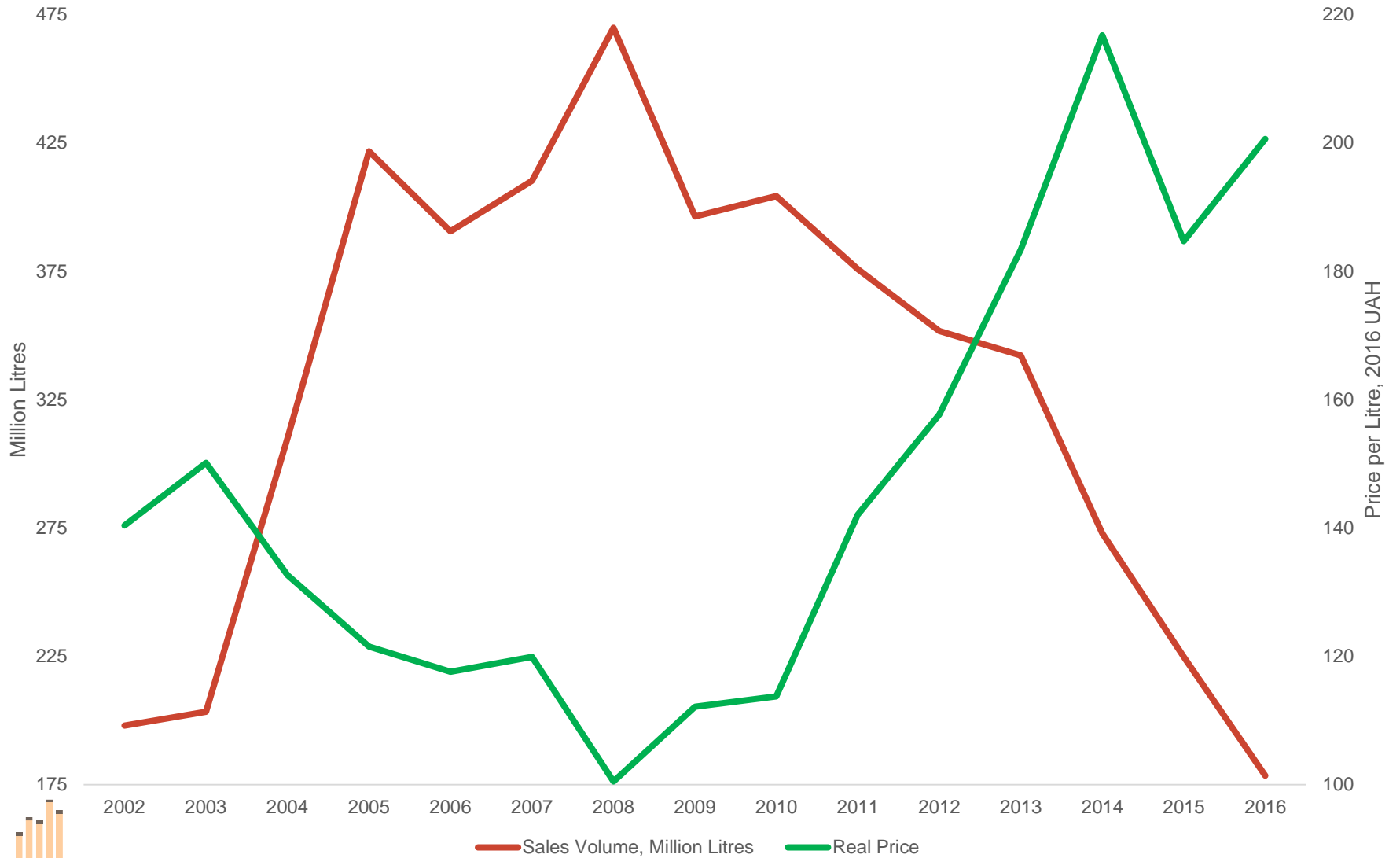
Taxes, Prices & Excessive Drinking

Alcohol Prices & Drinking

- Extensive econometric and other research shows that higher alcohol prices significantly reduce drinking:
 - 10 percent price increase would reduce:
 - Beer consumption by 1.7-4.6%
 - Wine consumption by 3.0-6.9%
 - Spirits consumption by 2.9-8.0%
 - Overall consumption by 4.4%
 - Heavy drinking by 2.8%
 - Generally larger effects on youth and young adults
 - Limited research from LMICs produces similar estimates

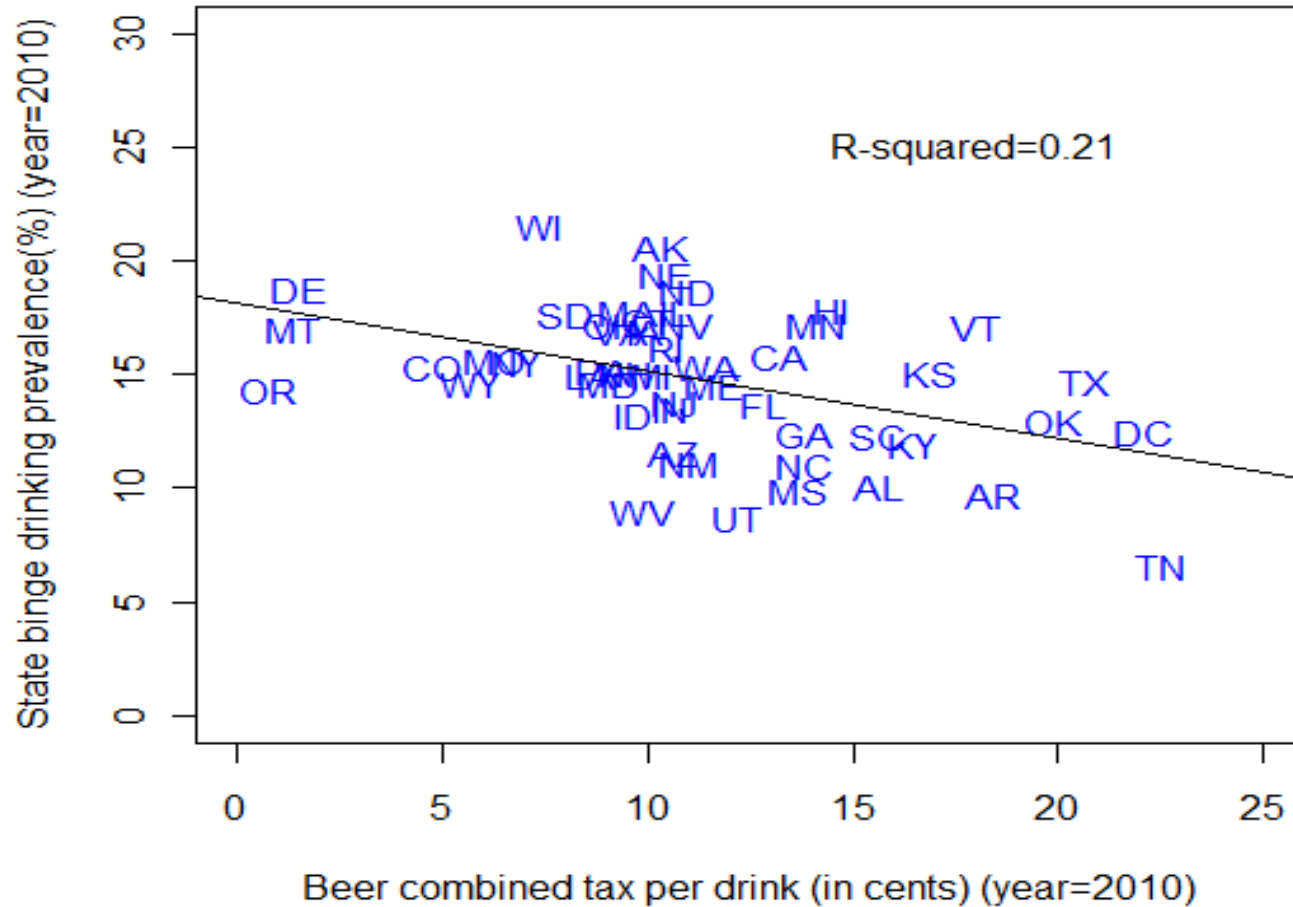


Distilled Spirits Sales and Prices Ukraine, 2002-2016, Inflation Adjusted

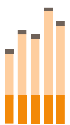


Sources: Euromonitor; World Bank; and author's calculations

Beer Tax and Binge Drinking Prevalence US States, 2010

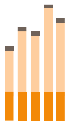


Source: Xuan et al., 2013



Alcohol Prices & Consequences

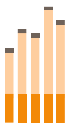
- Econometric and other research shows that higher prices for alcoholic beverages significantly reduce:
 - Drinking and driving, traffic crashes, and motor-vehicle accident fatalities
 - Deaths from liver cirrhosis, acute alcohol poisoning, alcohol-related cancers, cardiovascular diseases, and other health consequences of excessive drinking
 - Violence (including spouse abuse, child abuse, and suicide) and other crime
 - Other consequences of drinking, including work-place accidents, teenage pregnancy, and incidence of sexually transmitted diseases

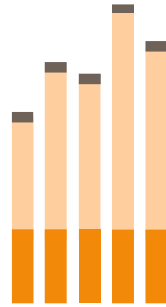


Alcohol Prices & Consequences

- One systematic review concluded:
 - Doubling of alcohol taxes would reduce:
 - Alcohol-related mortality by 35%
 - Traffic crash deaths by 11%
 - Sexually transmitted disease by 6%
 - Violence by 2%
 - Crime by 1.4%

Source: Wagenaar et al., 2010



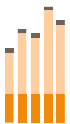


Taxes, Prices & Diet

Prices and Food & Beverage Consumption

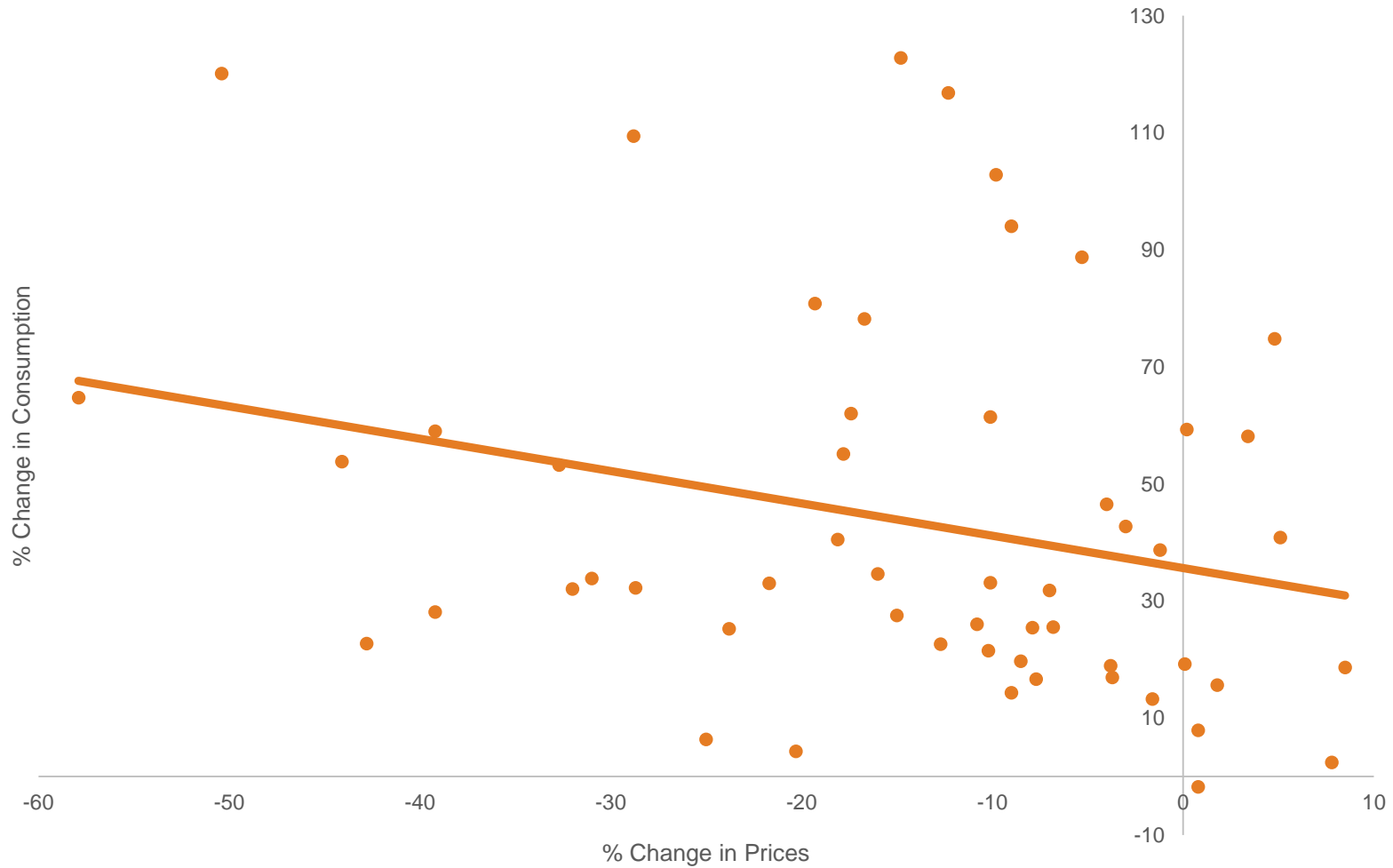
Extensive economic research on the impact of food and beverage prices on consumption of various products; 10% price increase reduces: :

- Soft drink consumption by 7.8%
- Sugary drinking consumption by 12%
- Sweets consumption by 3.5%
- Fast food consumption by 5.2%
- Fruit consumption by 4.9%
- Vegetable consumption by 4.8%

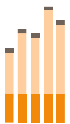


Sweet & Savory Snack Prices & Consumption

Percentage Change, 2000-2014, Selected Countries

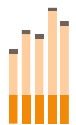
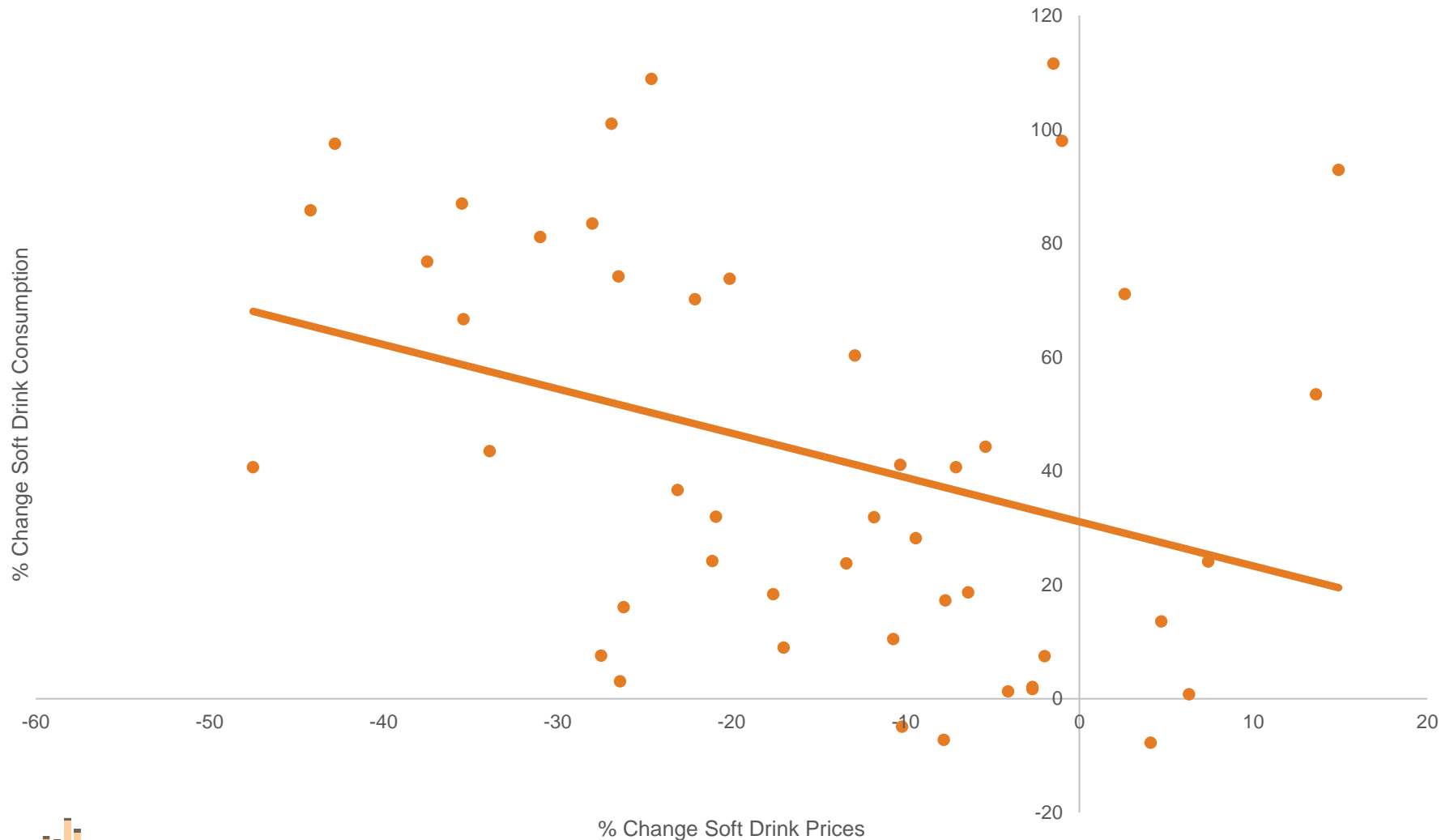


Source: Euromonitor, 2015, and author's calculations

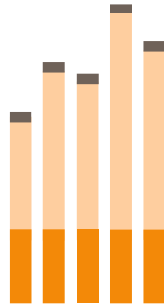


Soft Drink Prices & Consumption

Percentage Change, 2000-2014, Selected Countries



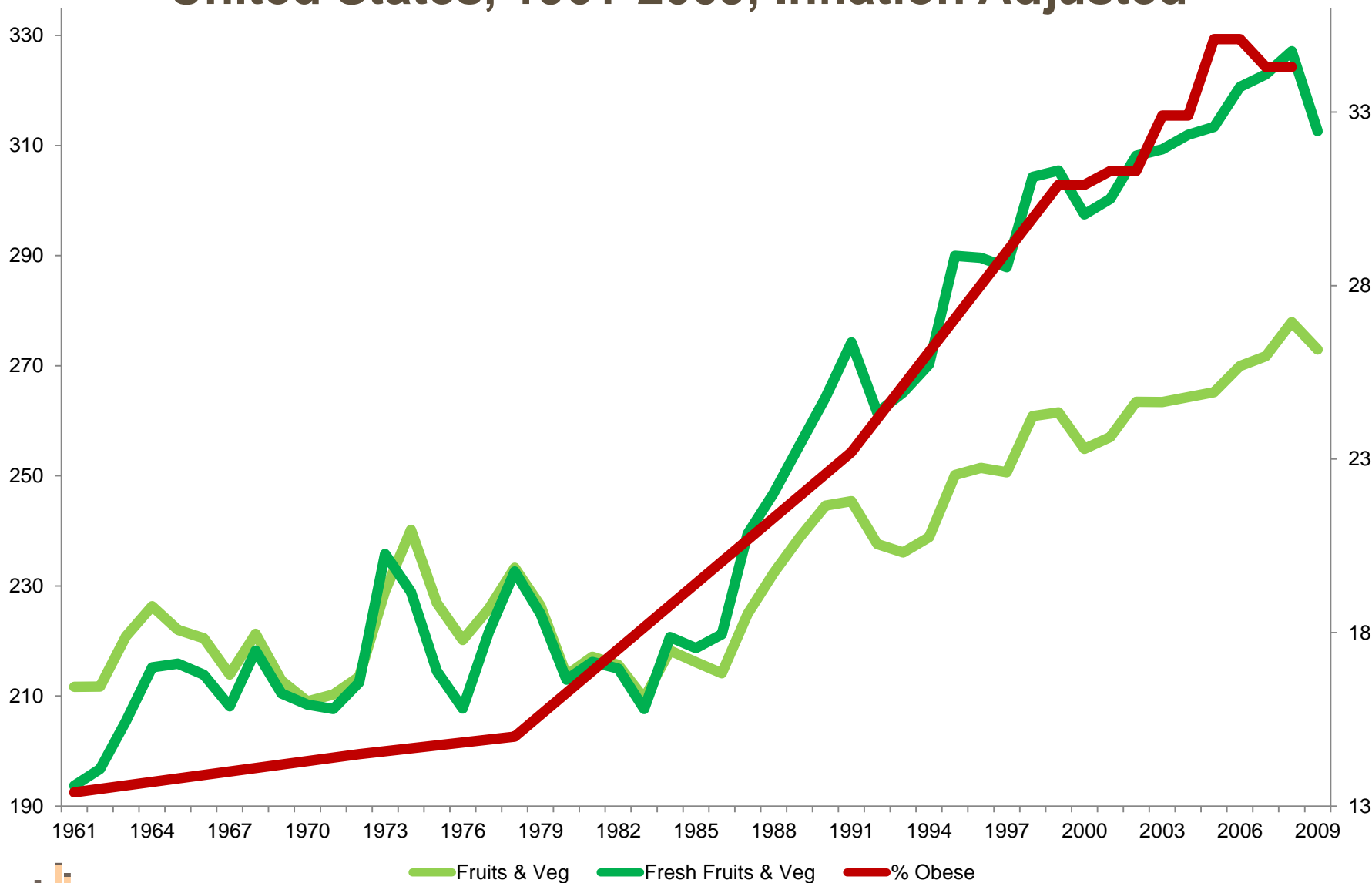
Source: Euromonitor, 2015, and author's calculations



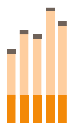
Taxes, Prices & Obesity

Selected Food Price & Adult Weight Trends

United States, 1961-2009, Inflation Adjusted

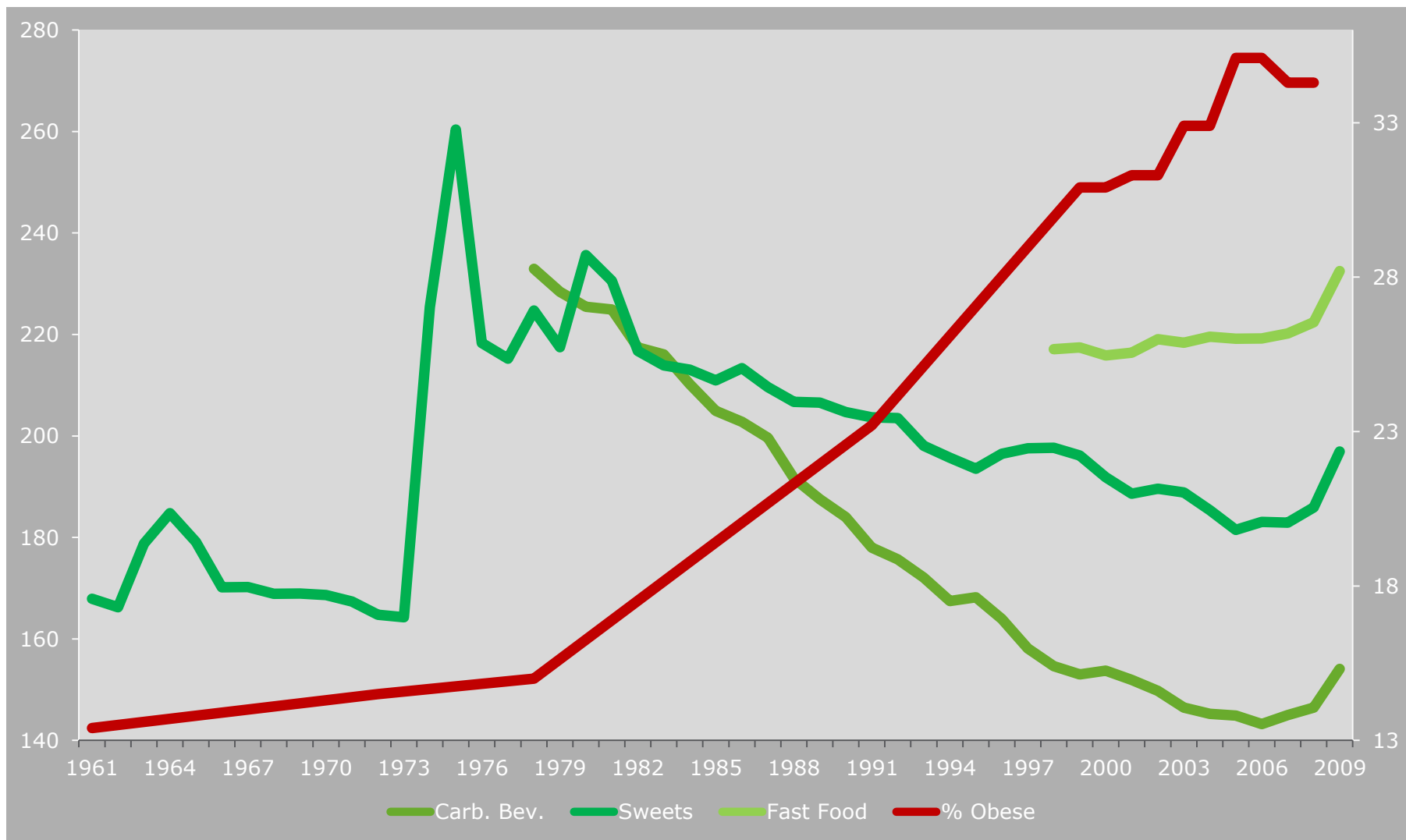


Source: BLS; NHES-I 1960-62; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06, 2007-08

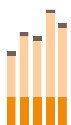


Selected Food Price & Adult Weight Trends

United States, 1961-2009, Inflation Adjusted



Source: BLS; NHES-I 1960-62; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06, 2007-08

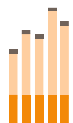


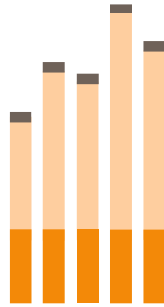
Prices and Weight Outcomes

The weight of the evidence increasingly indicates that changes in relative prices for healthier and less healthy foods will affect weight outcomes, with greater impact on:

- Lower income, less educated populations
- Younger populations
- Populations at greater risk for obesity

Source: Powell, et al., 2013

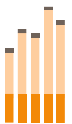




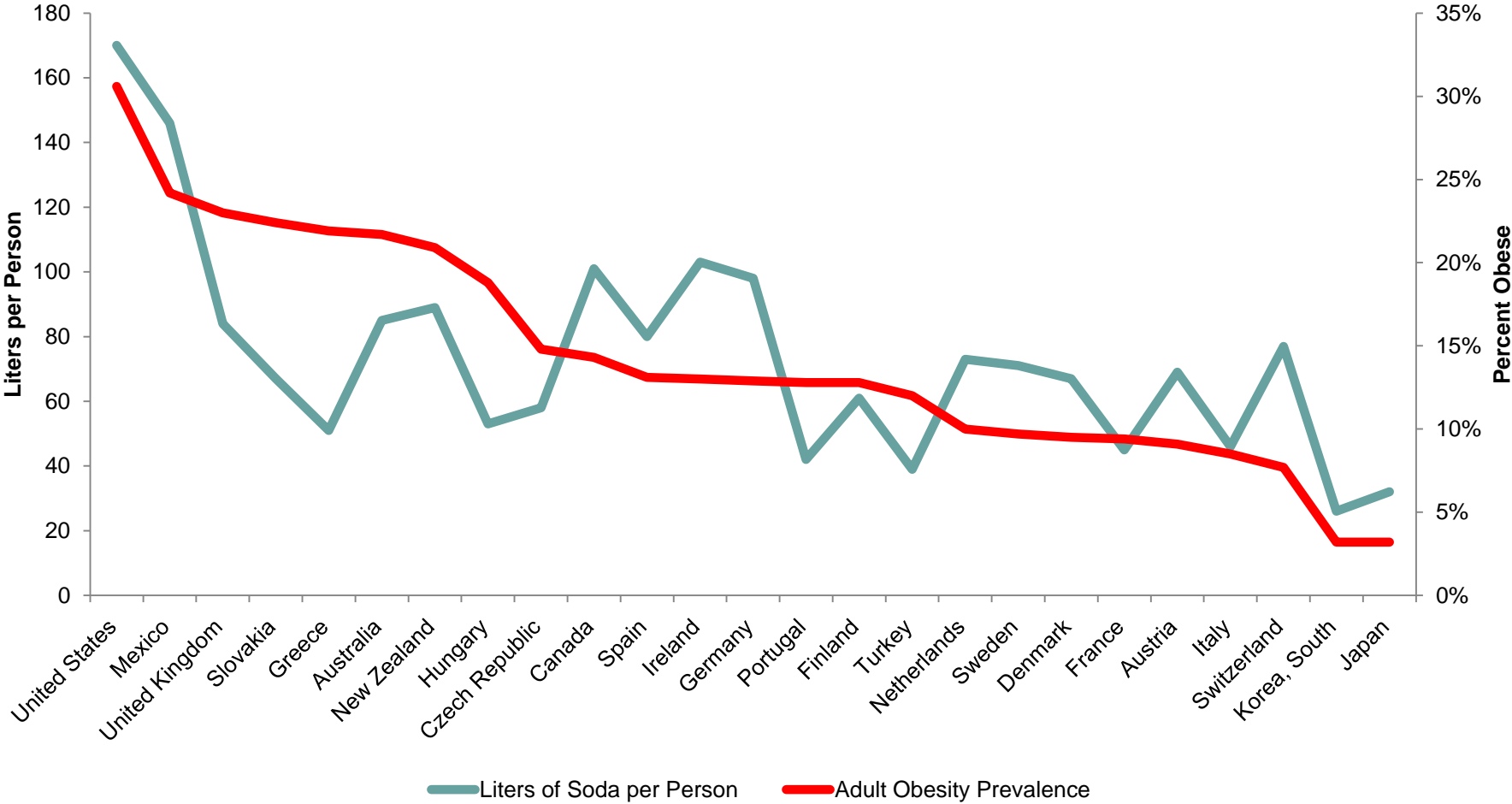
Sugary Drink Taxes

Rationale for Sugary Drink Taxes

- Link to obesity
 - Several meta-analyses conclude that increased SSB consumption causes increased weight, obesity
 - Increased calories from SSBs not offset by reductions in calories from other sources
- Other health consequences
 - Type 2 diabetes, lower bone density, dental problems, headaches, anxiety and sleep disorders



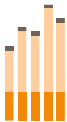
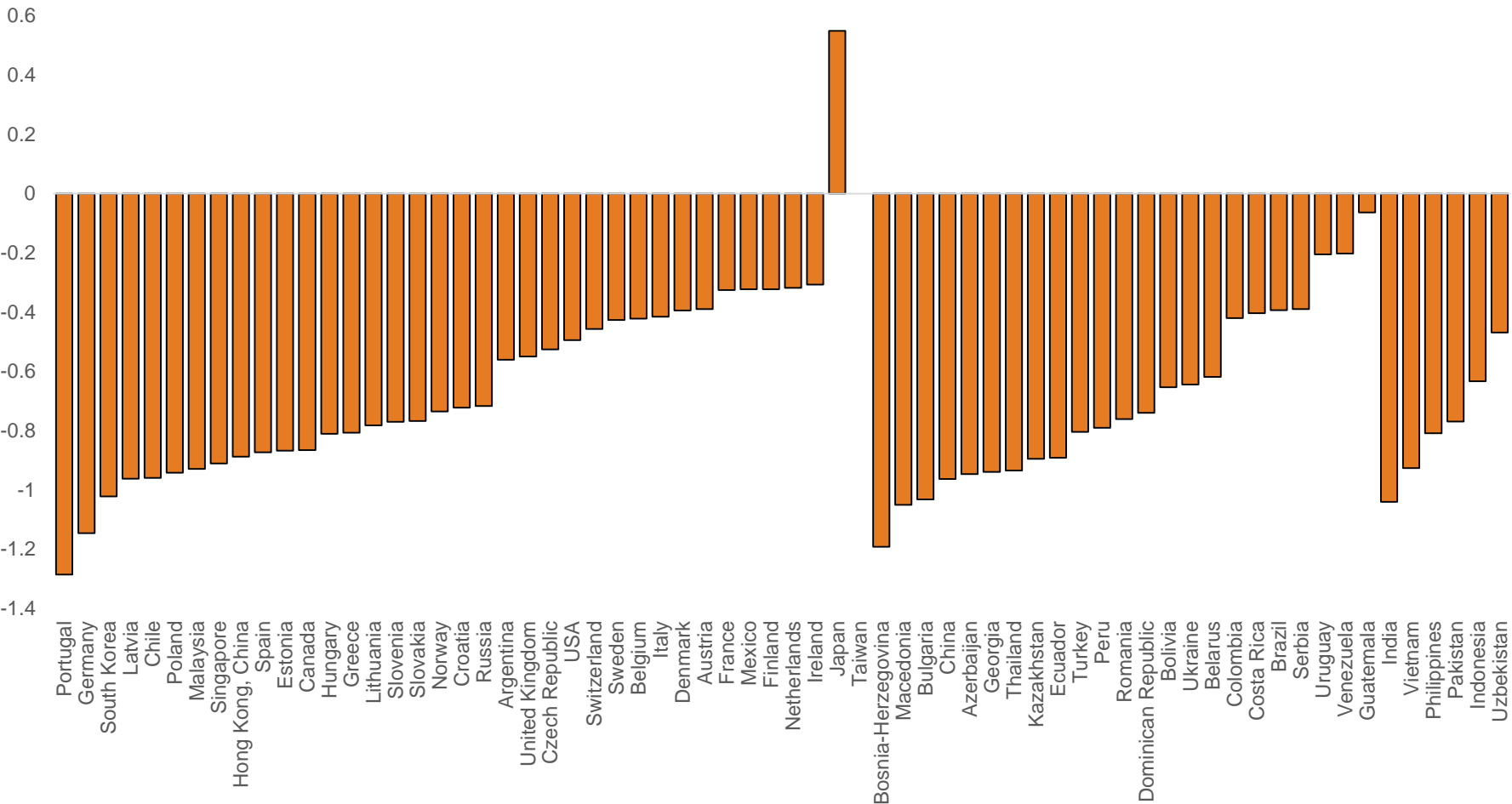
Soda Consumption & Obesity Selected Countries



Source: Soda consumption from Euromonitor, 2011; Obesity prevalence from OECD Health Data, 2005

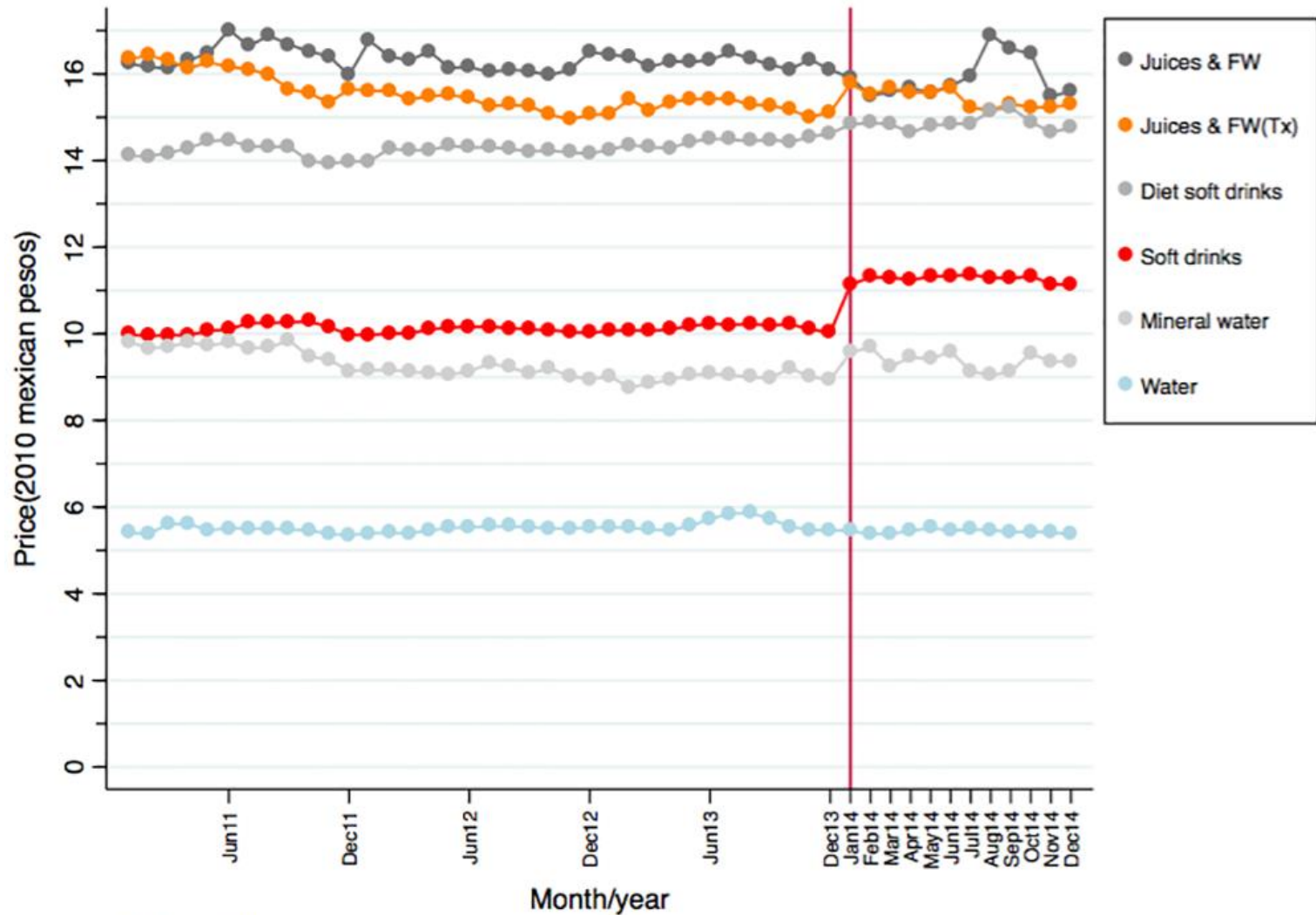


Change in Soft Drink Affordability 2000-2013, Selected Countries

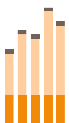


Source: Euromonitor, 2015, and author's calculations

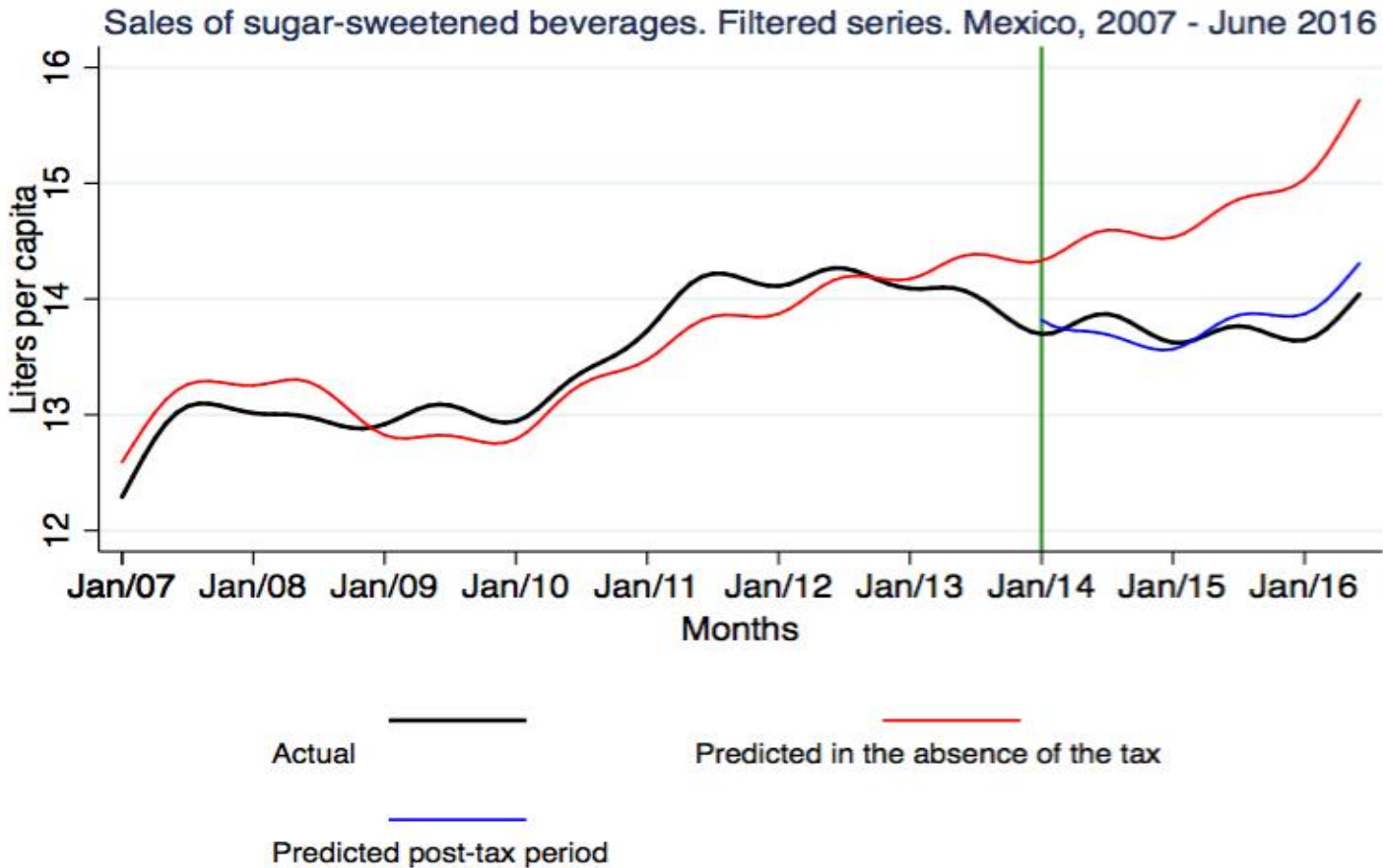
Sugary Drink Tax and Soft Drink Prices, Mexico, 2011-2014



FW: Flavored Water

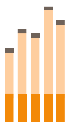


Impact of Sugary Drink Tax on Sales Mexico, 2007-2016

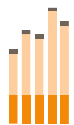
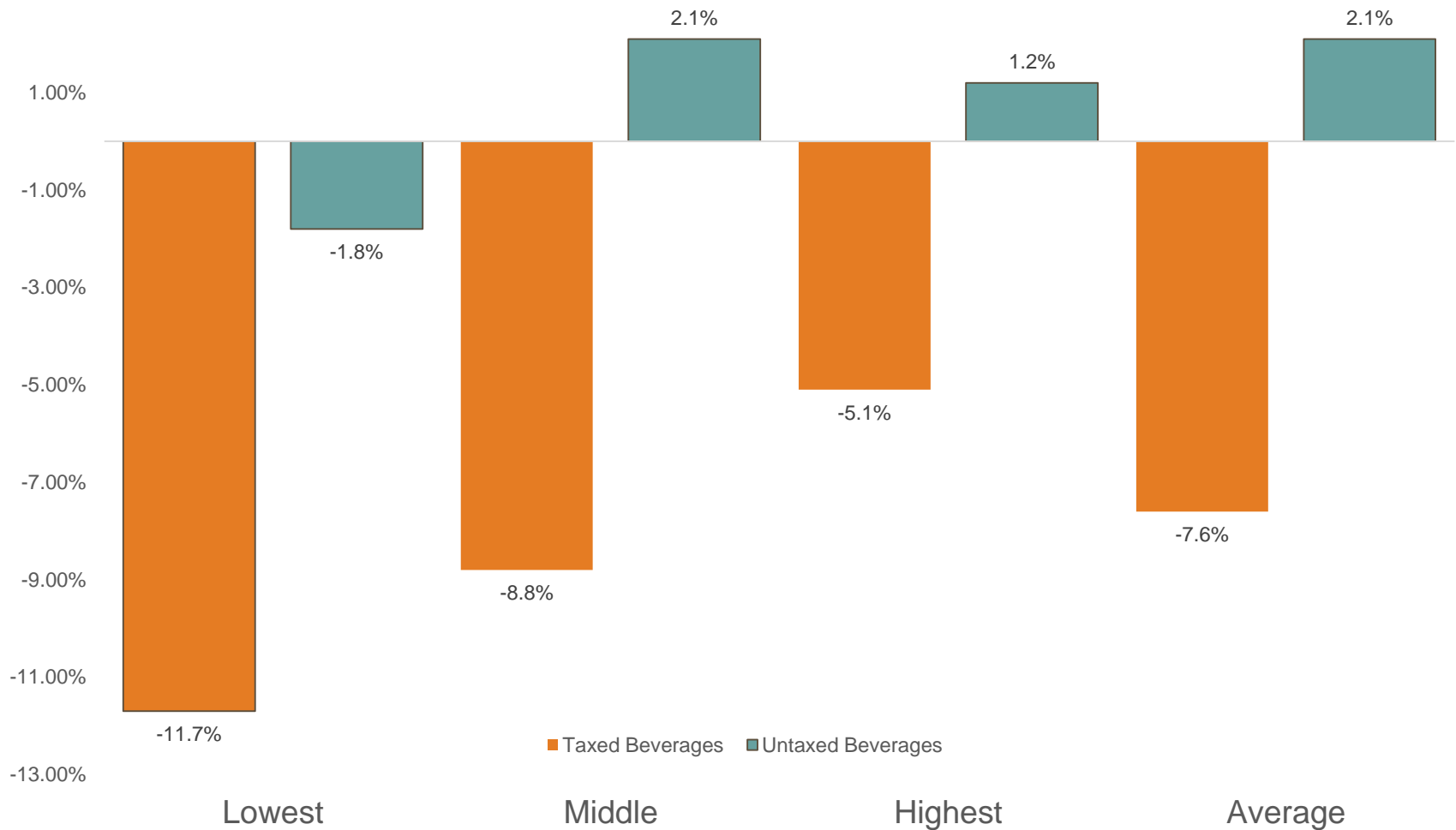


Colchero MA, Guerrero Lopez C, Molina M, Rivera J . Beverage sales in Mexico before and after implementation of a sugar sweetened beverages tax. 2016. PLoS ONE. 11(9).

Changes in sales of sugar-sweetened beverages in Mexico before (2007-2013) and after the tax (2014-2016): <https://www.insp.mx/eppo/blog/4278-changes-sales-beverages.html>

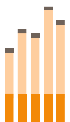


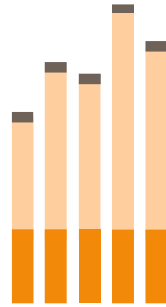
Changes in Household Purchases of Taxed and Untaxed Beverages By Socioeconomic Level, Mexico, 2014-15



Impact of Tax on Purchases Year One (2014)

- **Greatest impact on heaviest consumers**
 - **Highest purchasers:**
 - 31% of households, purchased average of 157 liters of SSB/capita/yr
 - *10% reduction in purchases following tax*
 - **Middle purchasers:**
 - 40% of households, purchased average of 60 liters of SSB/capita/yr
 - *8% reduction of taxed beverages post-tax*
 - **Light and non purchasers:**
 - Remaining households; small impact on light purchasers

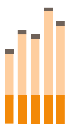
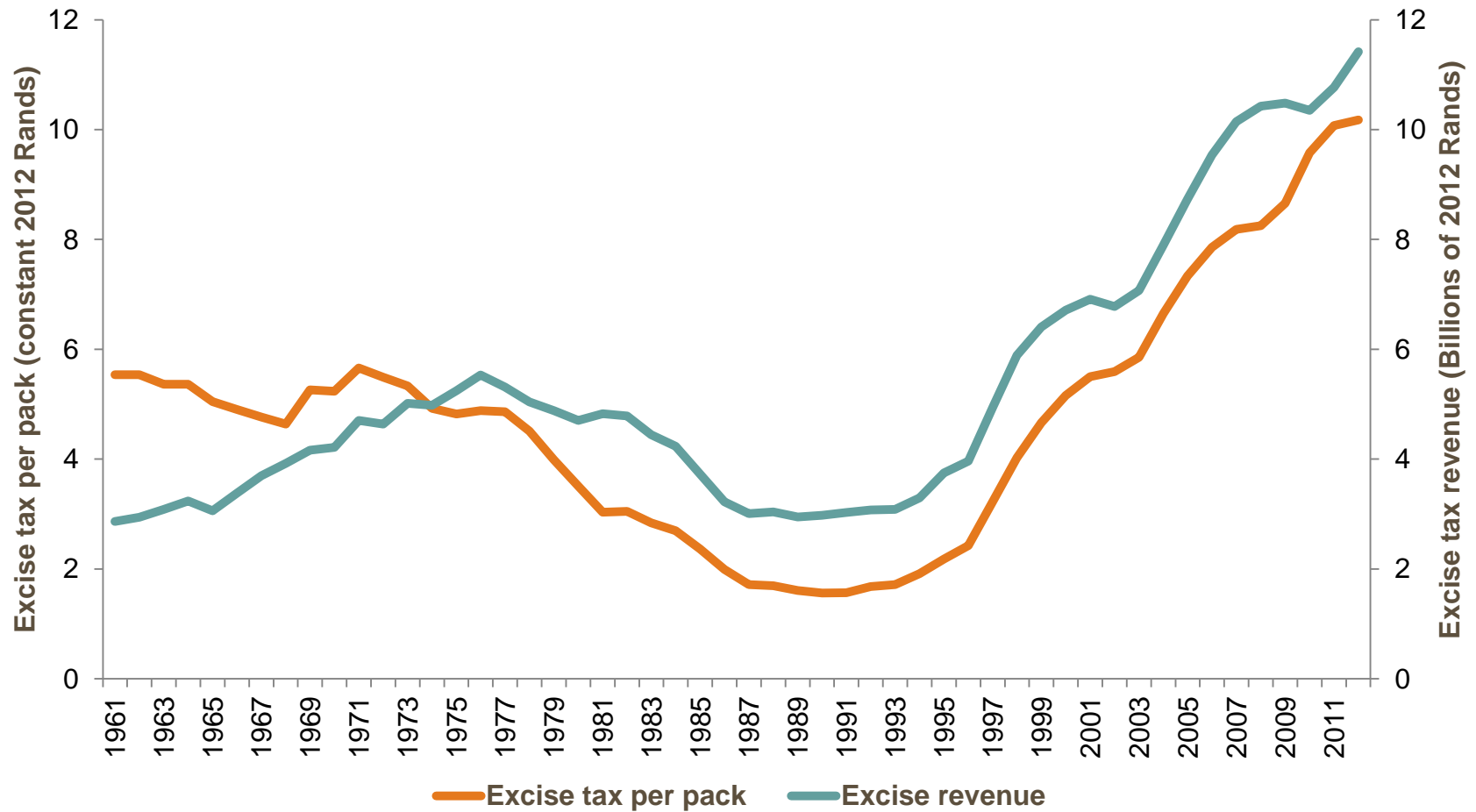




Taxes, Tax Revenues, Tax Structure, & Earmarking Tax Revenues

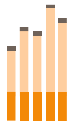
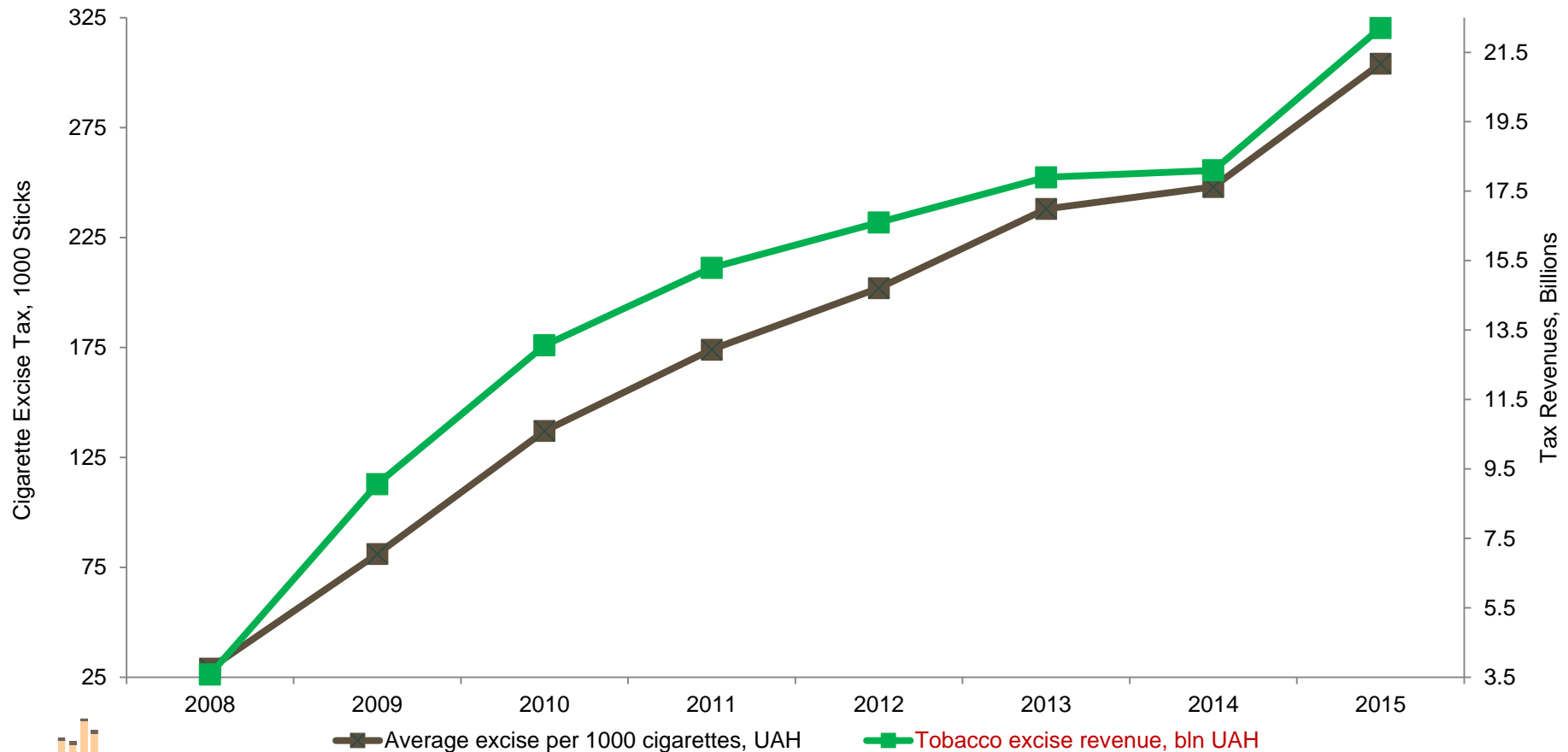
Tobacco Taxes and Revenues

South Africa, 1961-2012



Cigarette Tax and Tax Revenues Ukraine: 2008-2015

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



The Laffer Curve – Argentina

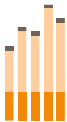
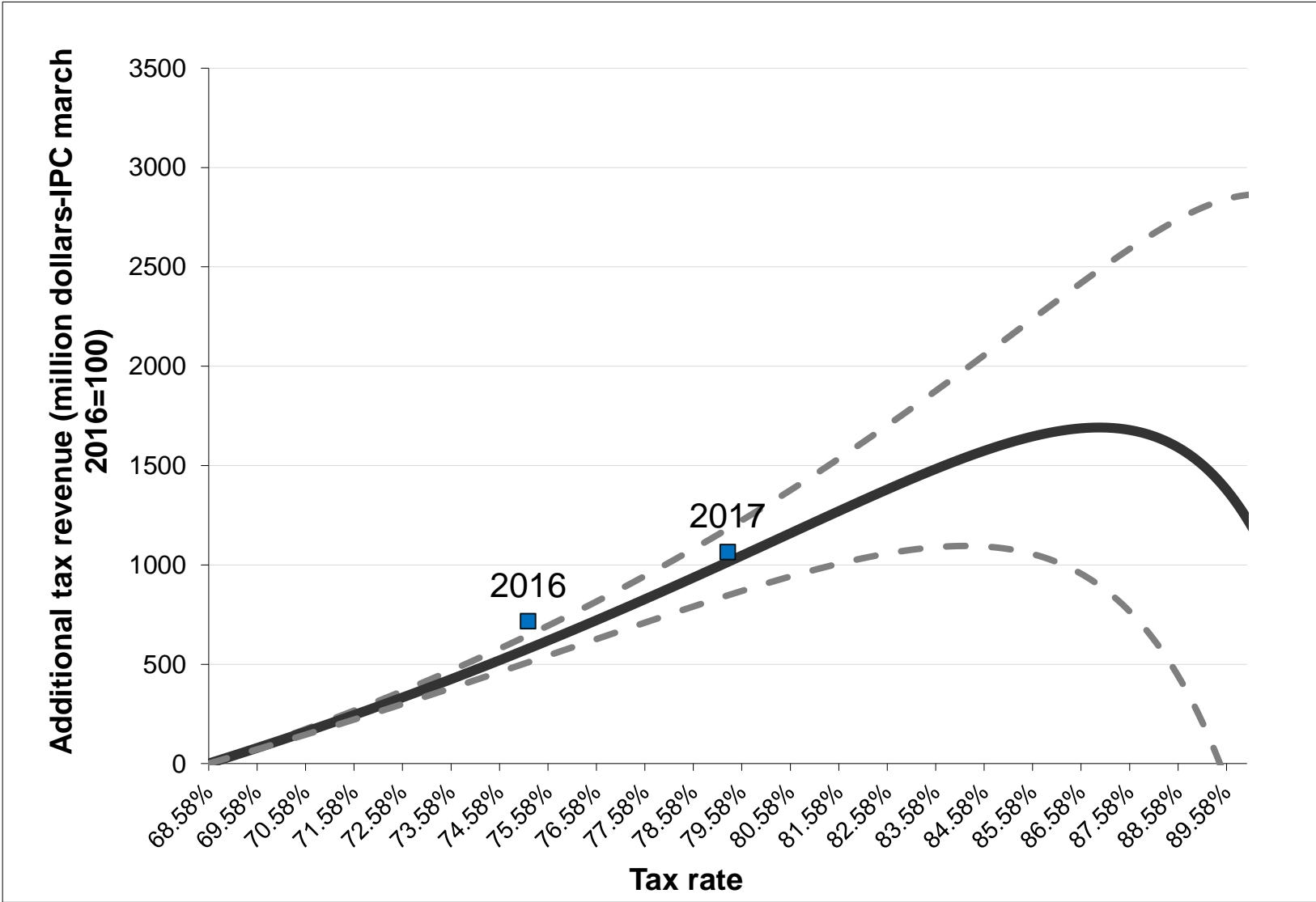
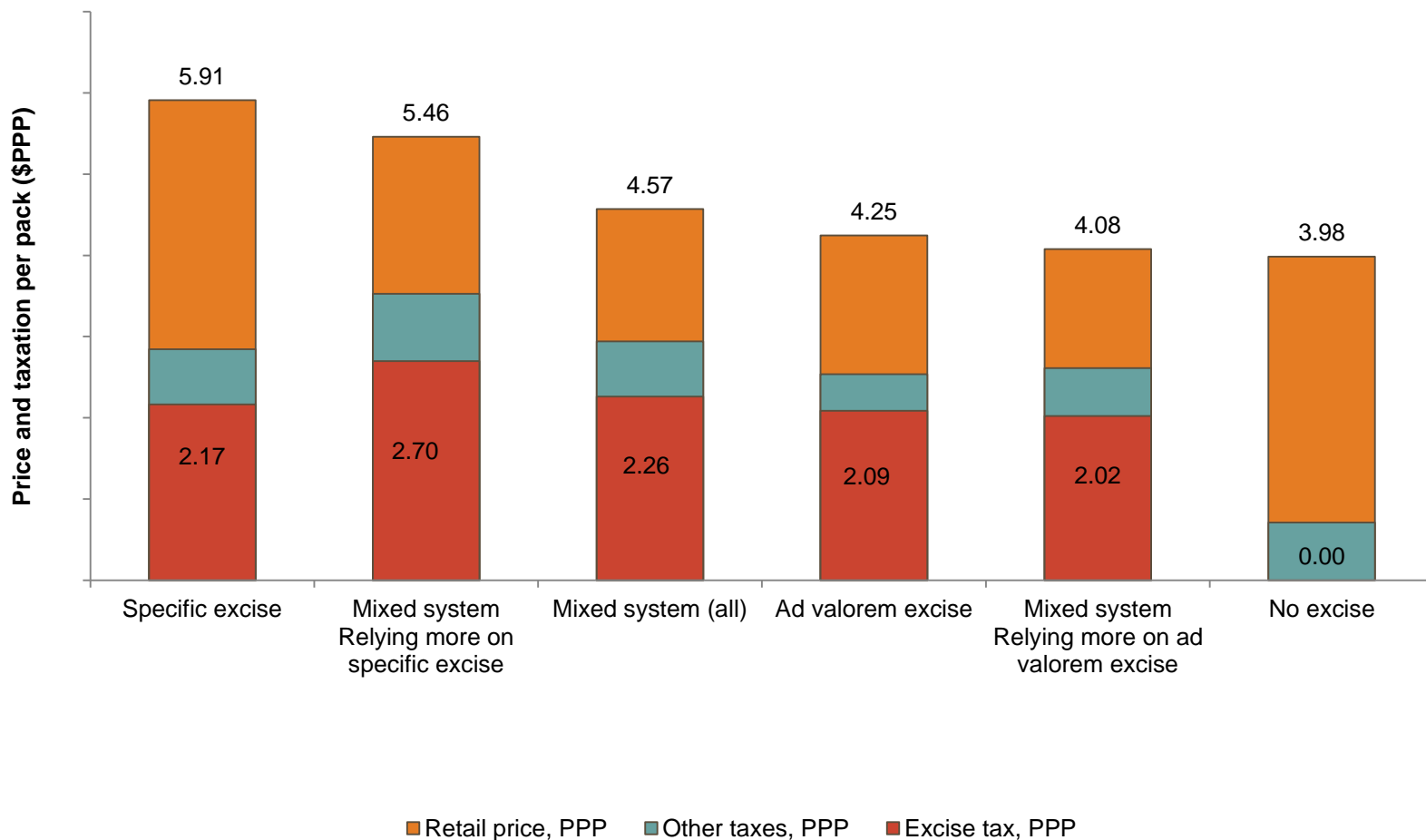
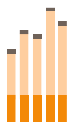


Figure 5: Excise tax structure: Specific and mixed relying more on the specific component tend to lead to higher prices



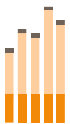
Source: WHO 2017 GTCR data; unpublished figure.

Notes: Averages are weighted by WHO estimates of number of current cigarette smokers ages 15+ in each country in 2015; 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 prices as of July 2016 for 53 high-income, 100 middle-income and 27 low-income countries with data on prices of most sold brand, excise and other taxes, and PPP conversion factors.



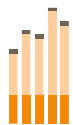
Beverage Tax Structure

- Volume-based specific taxes have same advantages for alcoholic beverage and sugary drink taxes
- Ingredient-based specific taxes more difficult to administer, but have greater health benefits
 - Ethanol-based alcohol taxes
 - Sugar-based beverage taxes
 - UK and Ireland two-tiered tax based on sugar content:
 - No tax on drinks with 5 or fewer grams/100 ml
 - 18p per liter for drinks with more than 5g/100 ml
 - 24p per liter for drinks with 8g/100ml or more
 - Projected revenue half of what was originally estimated

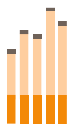
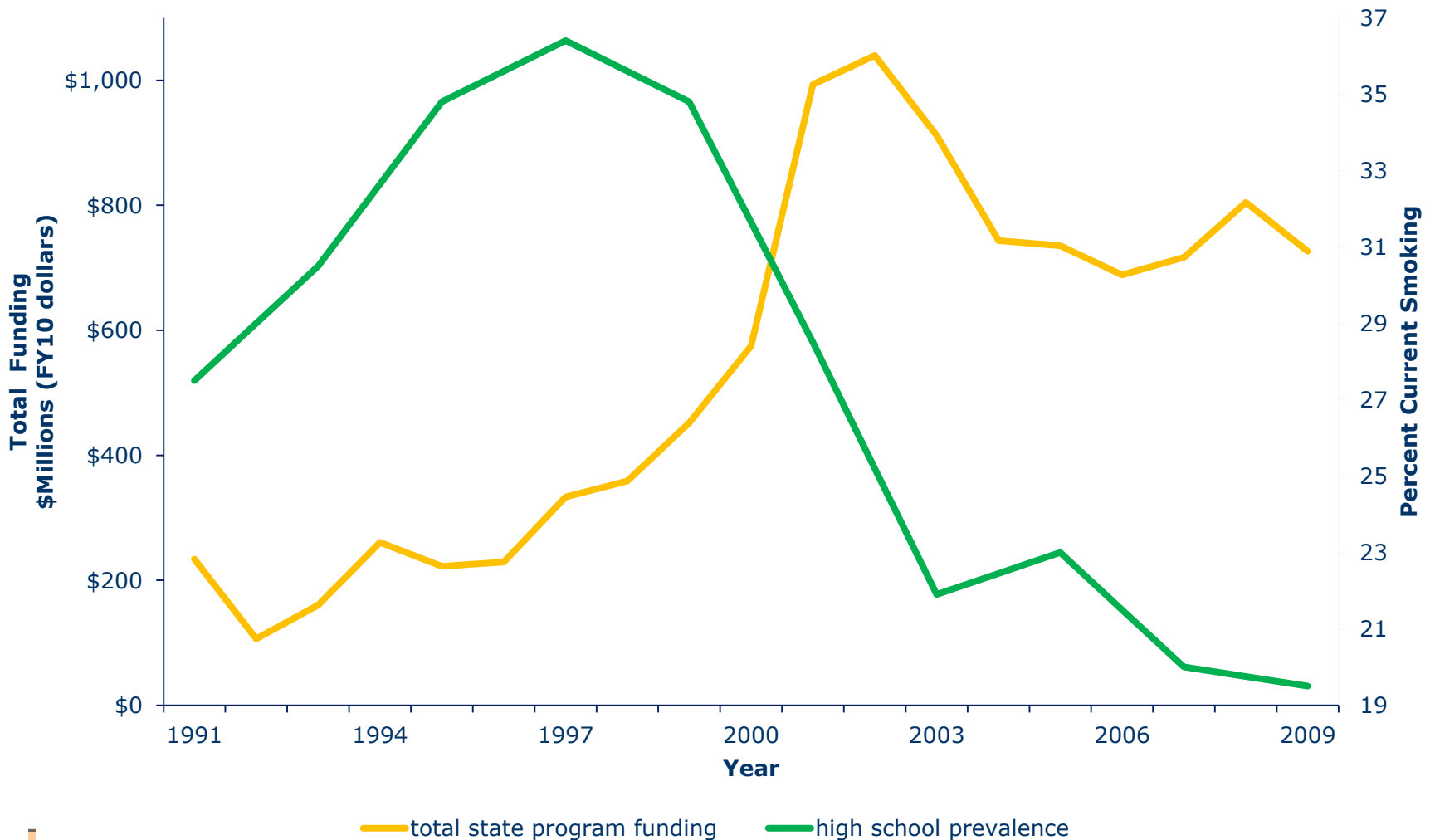


Earmarking Tax Revenues

- Using a portion of revenues to support other health promotion efforts
 - Increases the health impact of tax increases
 - Increases public support for tax increases
- Increasing interest in ‘soft’ earmarking of tobacco, alcohol, and/or sugary drink tax revenues



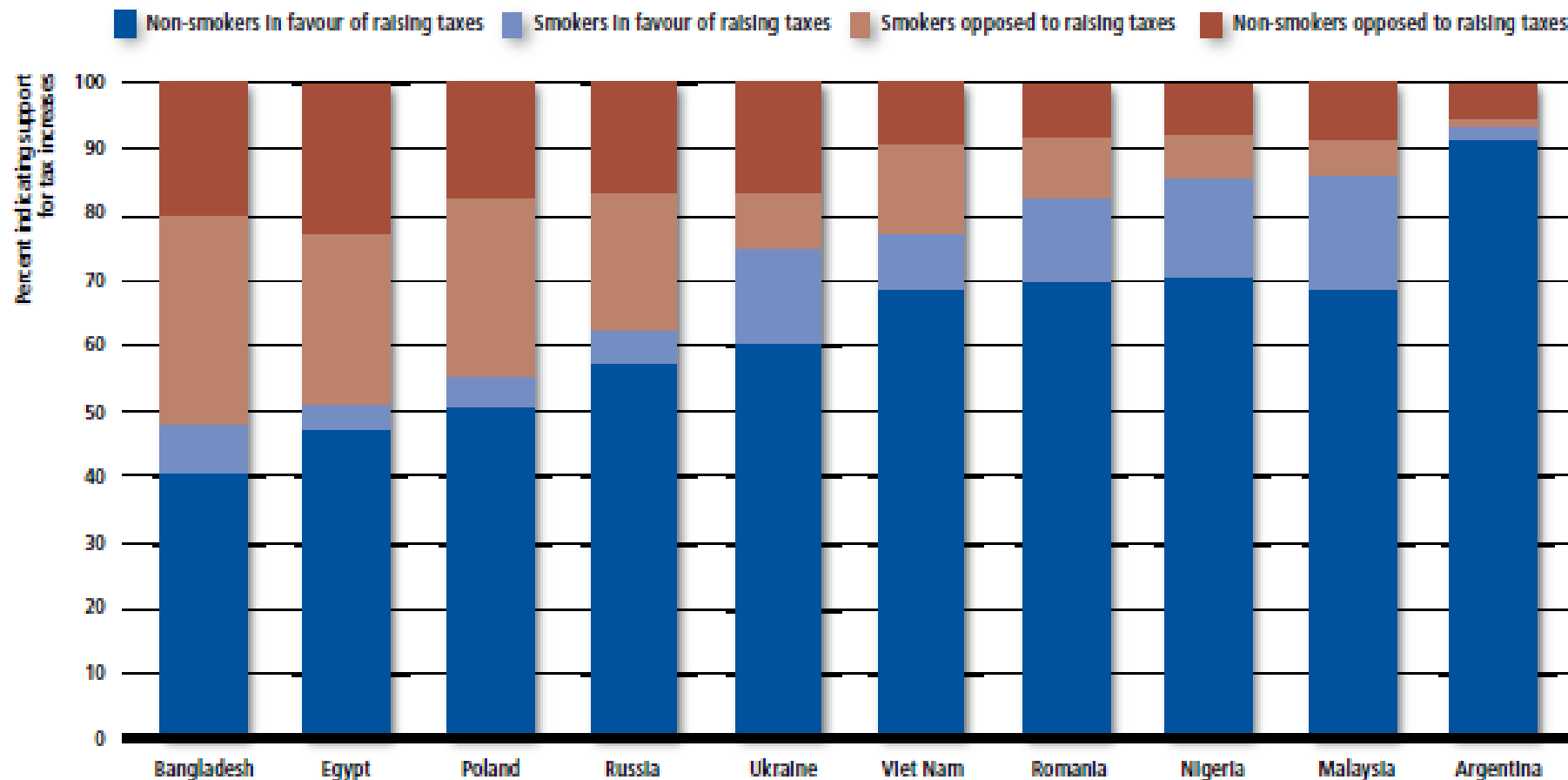
State Tobacco Control Program Funding and Youth Smoking Prevalence, United States, 1991-2009



Source: ImpacTeen Project, UIC; YRBS

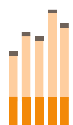
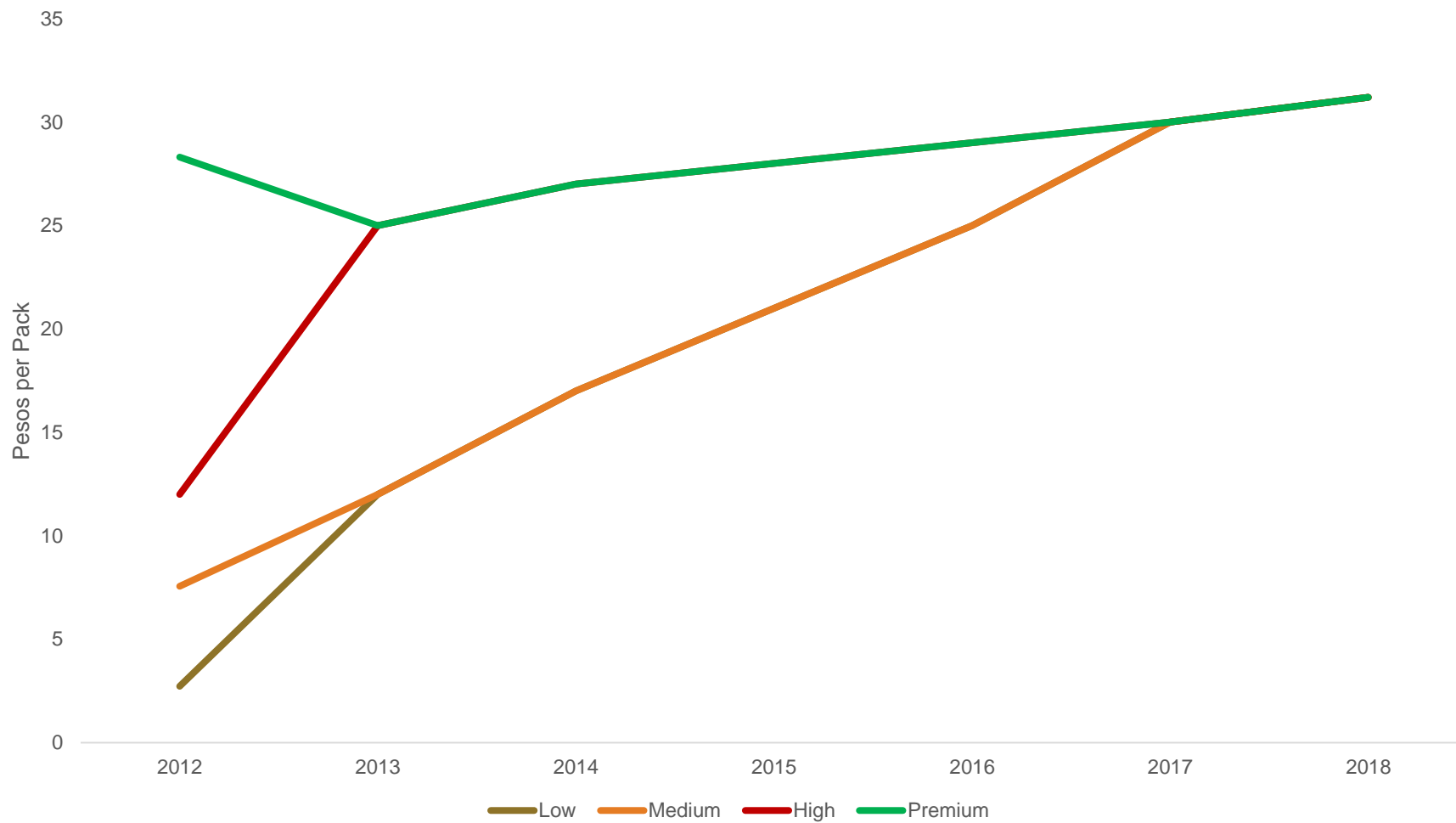
Support for Earmarked Taxes

BROAD SUPPORT FOR CIGARETTE TAXES THAT IMPROVE HEALTH PROGRAMMES



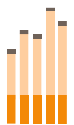
Source: WHO 2015

Cigarette Excise Tax per Pack Philippines, 2012-2018



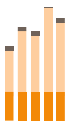
Cigarette Sales and Prices

Philippines, 2002-2016, Inflation Adjusted

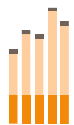
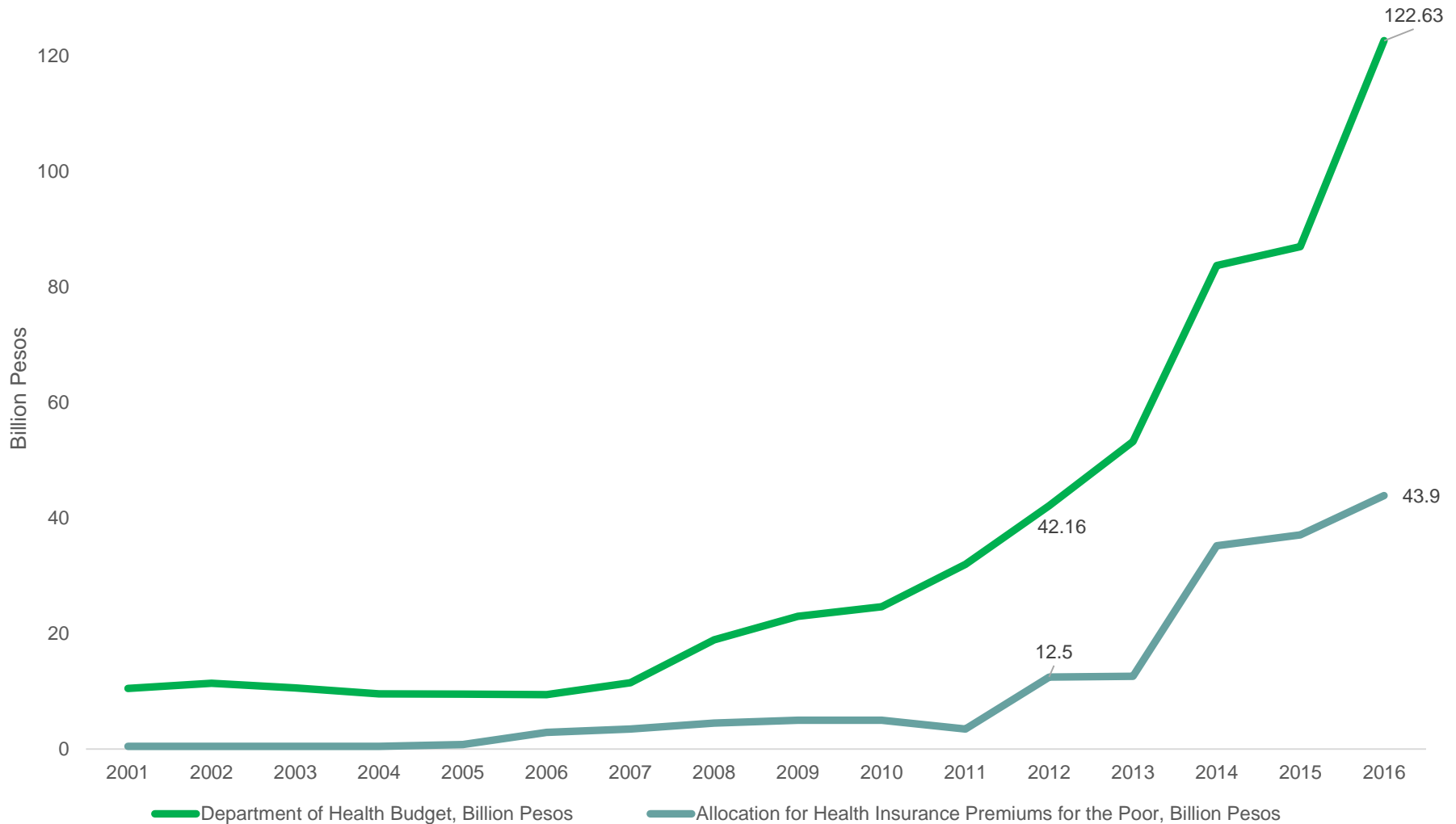


Sources: Euromonitor, World Bank, and Authors' Calculations

Tobacco Taxes & Tax Revenues



Incremental Revenues for Health and the Poor, Philippines, 2001-2016



Tobacco Taxes and Revenues

- The Addis Ababa Action Agenda states:

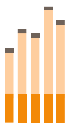
“... price and tax measures on tobacco can be an effective and important means to reduce tobacco consumption and health-care costs, and represent a revenue stream for financing development in many countries”

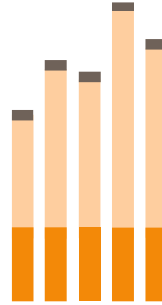


**FINANCING FOR
DEVELOPMENT**

13-16 JULY 2015 • ADDIS ABABA • ETHIOPIA

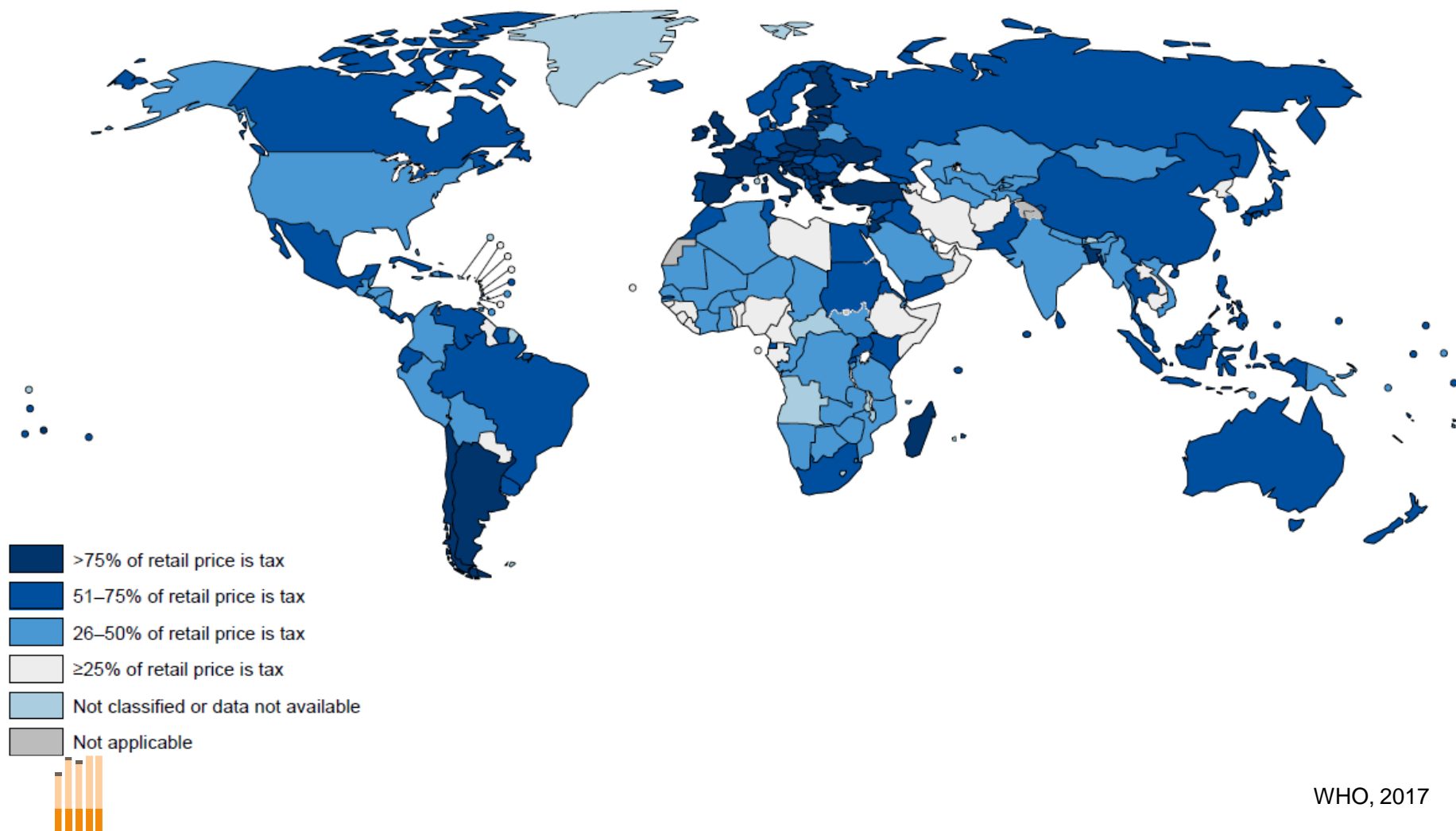
TIME FOR GLOBAL ACTION



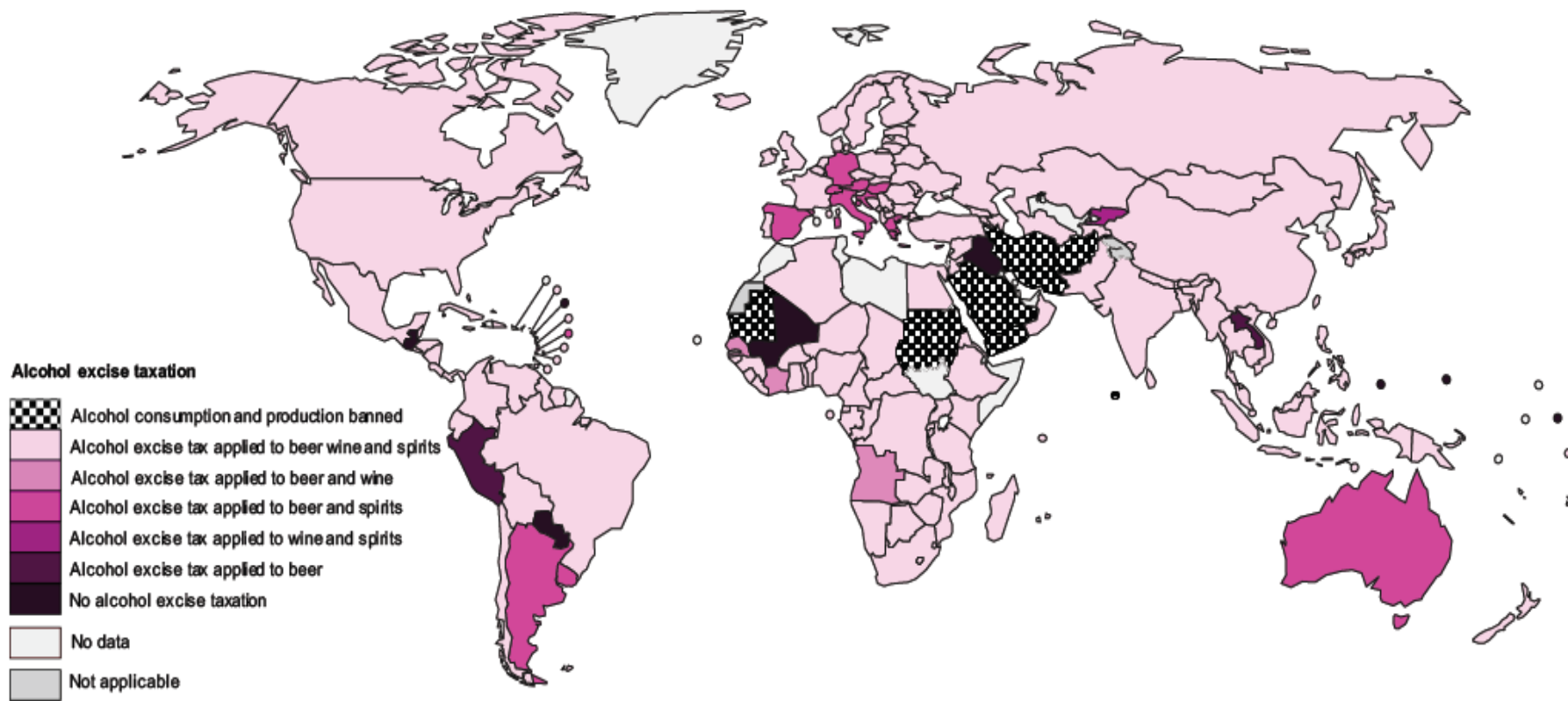


Oppositional Arguments

Cigarette Taxes as Percent of Retail Price July 2016



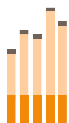
Alcoholic Beverage Excise Taxes by Beverage Type



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Sugary Drink Taxes, January 2018

1. COOK ISLANDS
2. KIRIBATI
3. FRENCH POLYNESIA
4. MEXICO
5. CHILE
6. DOMINICA
7. BARBADOS
8. PORTUGAL
9. SPAIN (CATELONIA)
10. IRELAND
11. UNITED KINGDOM
12. FRANCE
13. BELGIUM
14. NORWAY
15. FINLAND
16. ESTONIA
17. HUNGARY
18. ST HELENA
19. SOUTH AFRICA
20. SAUDIA ARABIA
21. UNITED ARAB EMIRATES
22. MAURITIUS
23. SEYCHELLES
24. BRUNEI
25. NAURU
26. FIJI
27. SAMOA
28. TONGA

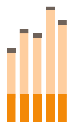


28 COUNTRIES &

7 US CITIES (so far...)*

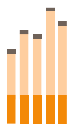


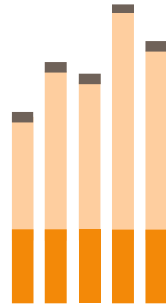
1. SAN FRANCISCO, CA
2. BERKELEY, CA
3. ALBANY, CA
4. OAKLAND, CA
5. SEATTLE, WA
6. BOULDER, CO
7. PHILADELPHIA, PA



Common Oppositional Arguments

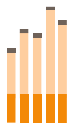
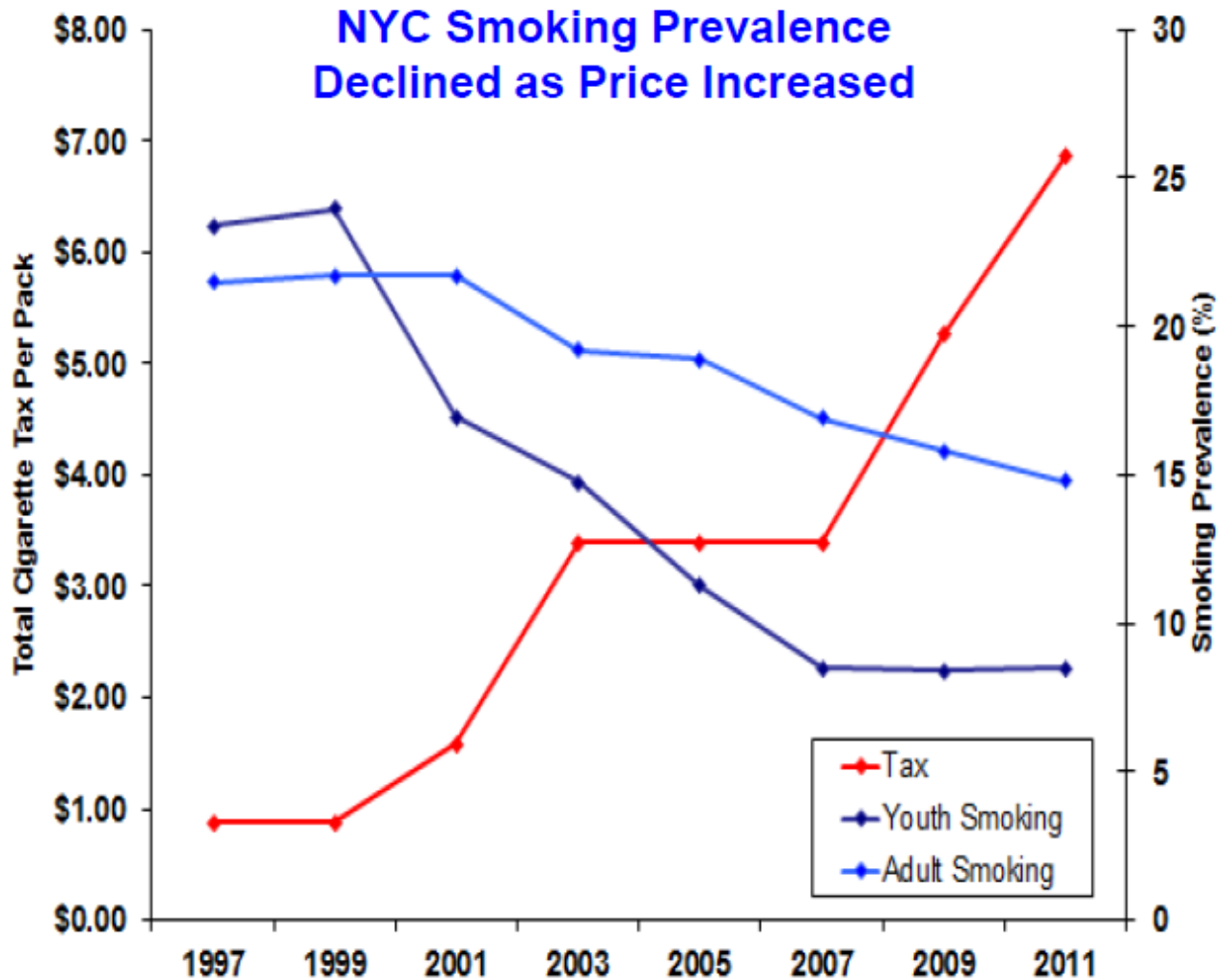
- Industries and allies use several common arguments in opposition to tax increases:
 - Will lead to extensive tax avoidance and tax evasion
 - Will harm poor and working class consumers
 - Will lead to massive job losses





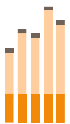
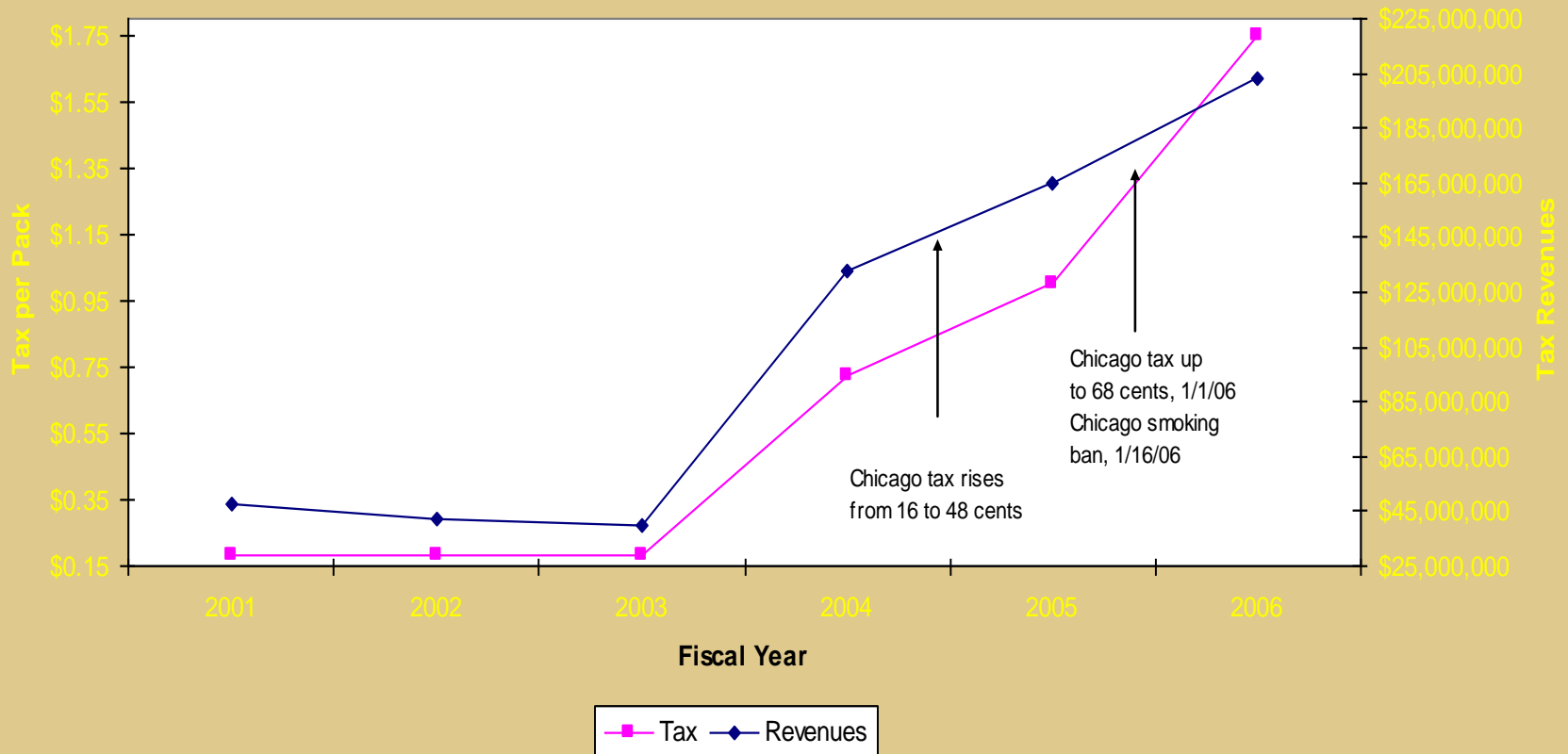
Tax Avoidance & Evasion

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



Tax Avoidance & Evasion Do NOT Eliminate Revenue Impact of Higher Taxes

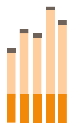
Cook County Cigarette Tax and Tax Revenues - FY01-FY06



Drivers of Illicit Tobacco

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

Sources: NRC/IOM 2015; NCI/WHO 2016



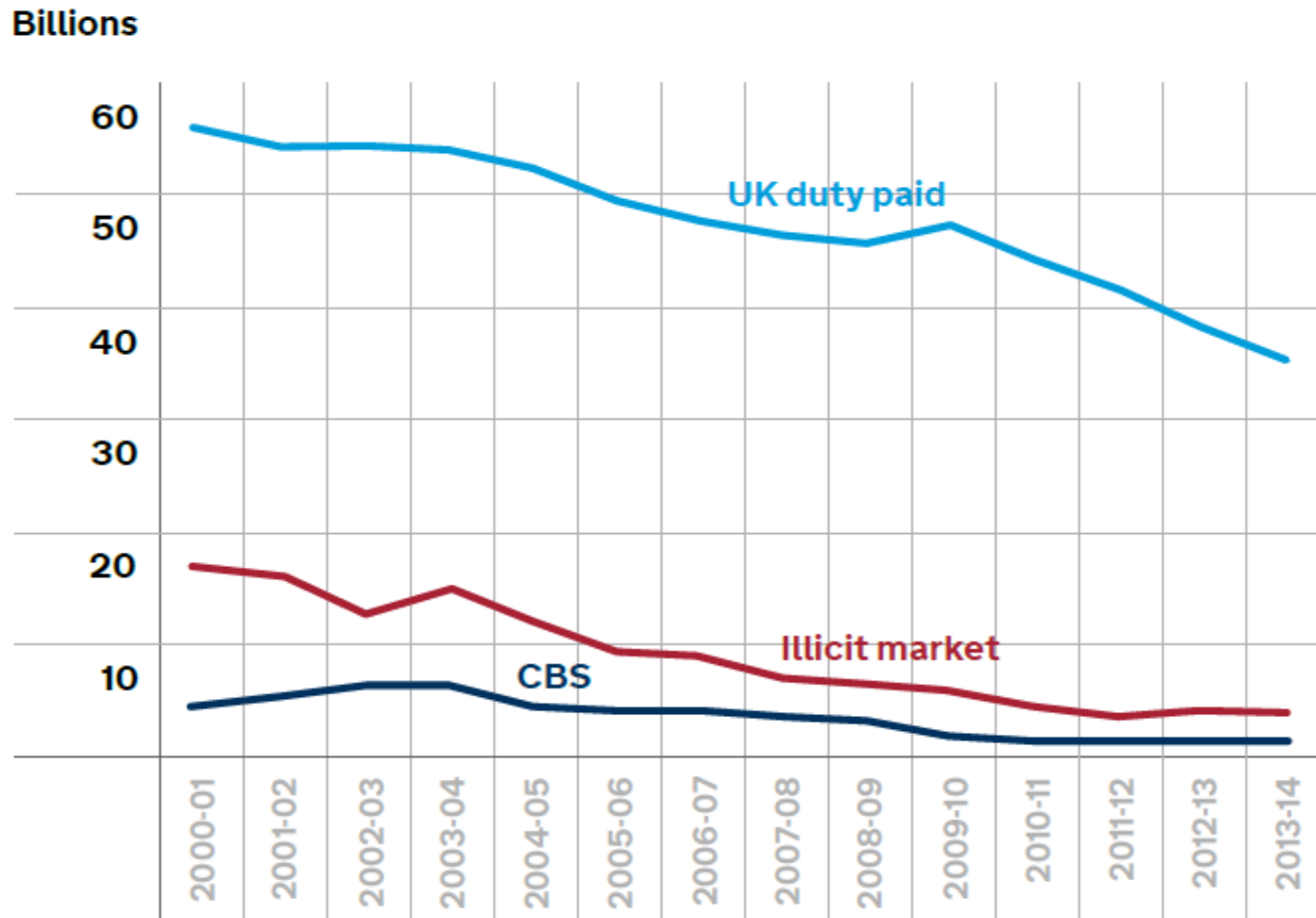
Smuggling and Corruption, 2011



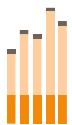
Sources: Euromonitor, Transparency International



Figure 12 – Estimated Volumes of Cigarettes Consumed in the U.K. – Duty paid, illicit, and cross-border shopping, 2000-01 – 2013-14

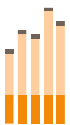


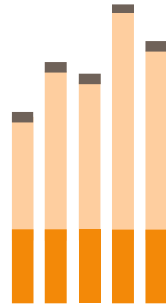
Source: HM Revenue & Customs, 2014



Combating Illicit Tobacco Trade

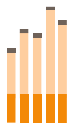
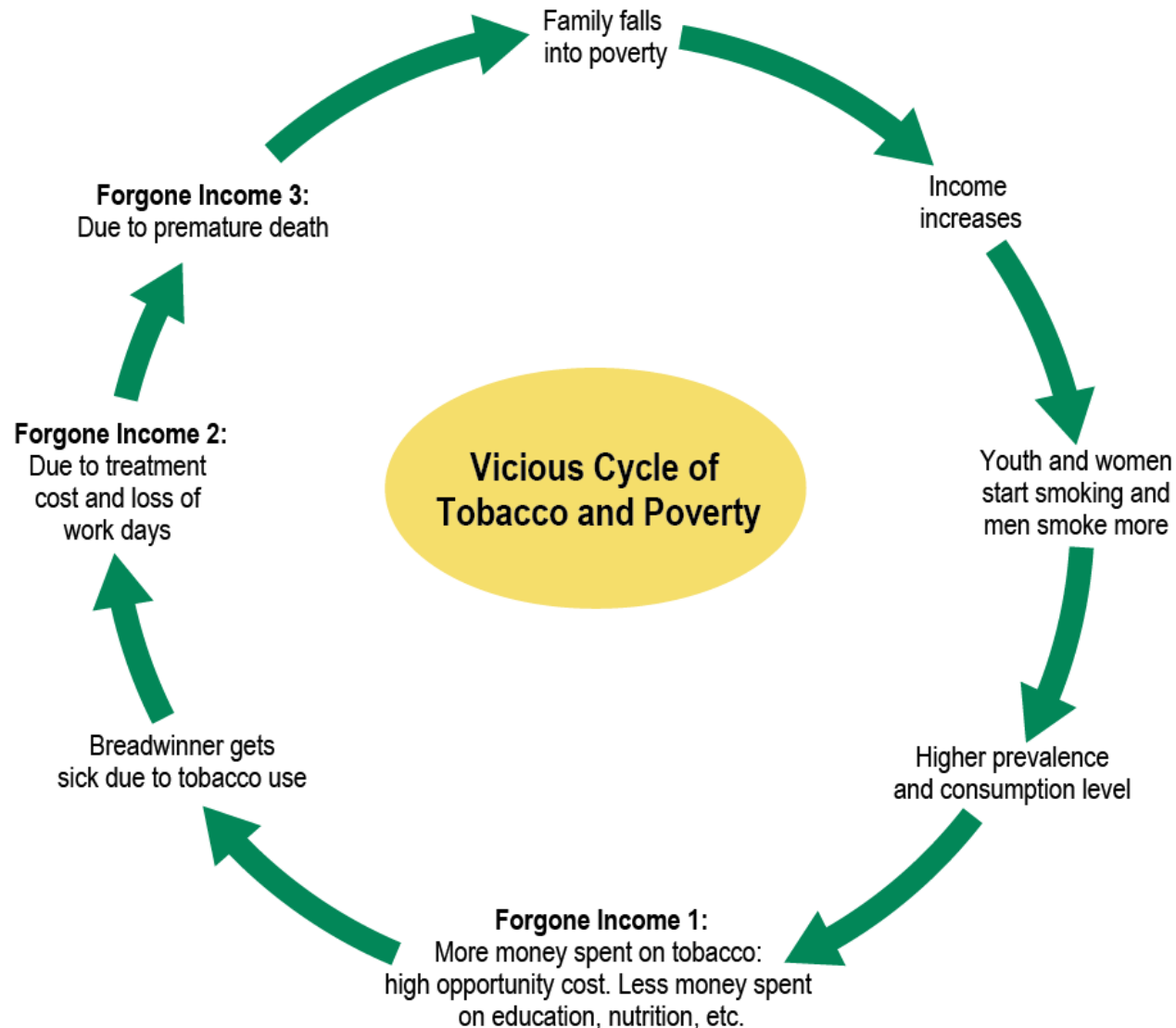
- Illicit trade protocol to the WHO FCTC
 - Adopted November 2012; currently in process of being signed/ratified; provisions calling for:
 - Strong tax administration
 - Prominent, high-tech tax stamps and other pack markings
 - Licensing of manufacturers, exporters, distributors, retailers
 - Export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





Impact on the Poor

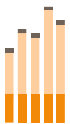
Tobacco & Poverty



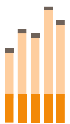
Source: NCI & WHO 2016

Impact on the Poor

- **Concerns about the regressivity of higher alcohol & tobacco taxes, food/beverage taxes**
 - Most excise taxes are regressive, but tax increases can be progressive
 - Greater price sensitivity of poor – relatively large reductions in use among lowest income populations, small reductions among higher income populations
 - Health benefits that result from tax increase are progressive
 - Reduced health care spending, increased productivity, higher incomes

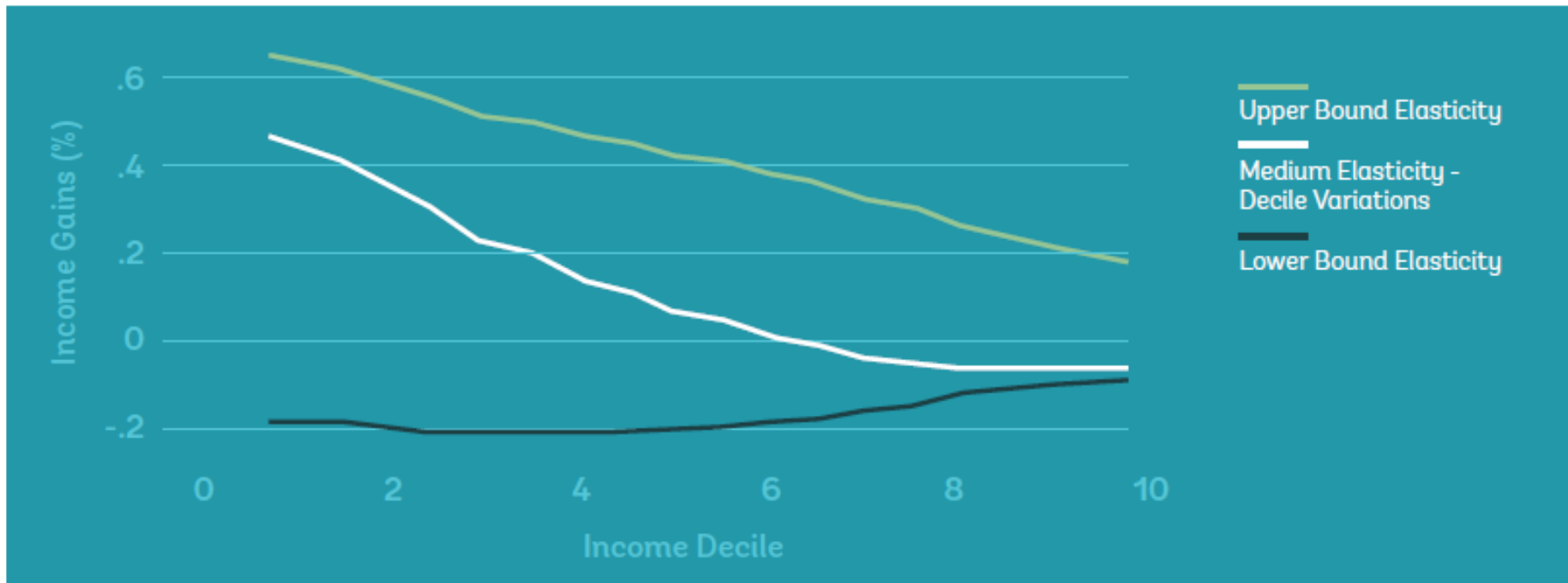


Who Pays & Who Benefits Turkey, 25% Tax Increase

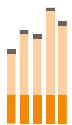


Who Pays & Who Benefits Chile, 25% Tax Increase

Figure 6: Total Income Effect: Direct and Indirect Effect of Taxes
(tobacco price increase, medical expenditure and working years gained)



Source: Author's estimation using a price shock of 25%

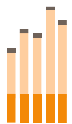


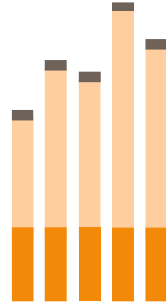
Source: Fuchs, et al., 2017

Impact on the Poor

Need to consider overall fiscal system

- Key issue with taxes is what's done with the revenues generated by the tax
- 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



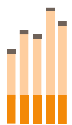


Impact on the Economy

Excise Taxes and Jobs

Industries argue that production and consumption of their products makes a significant economic contribution

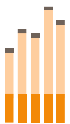
- employment in farming, manufacturing, distribution, retailing, and related sectors
- multiplier effects as income earned in these jobs is spent on other goods & services



Excise Taxes and Jobs

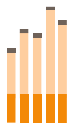
Industry-sponsored studies tell only part of story:

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



Tobacco Taxes and Jobs

- Many published studies assess impact of reductions in tobacco use from tax increases and/or other tobacco control measures:
 - Variety of high, middle, and low income countries
 - Use alternative methodologies
- Generally find that employment losses in tobacco sector more than offset by gains in other sectors



Tobacco Taxes and Jobs

Concerns about job losses in tobacco sector have been addressed using new tax revenues:

- Turkey, Philippines among countries that have allocated tobacco tax revenues to helping tobacco farmers and/or those employed in tobacco manufacturing make transition to other livelihoods
 - Crop substitution programs, retraining programs

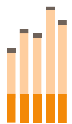


Figure 2. Employees and hours worked in commercial establishments. Mexico,

EMEC, 2011-2015

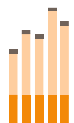
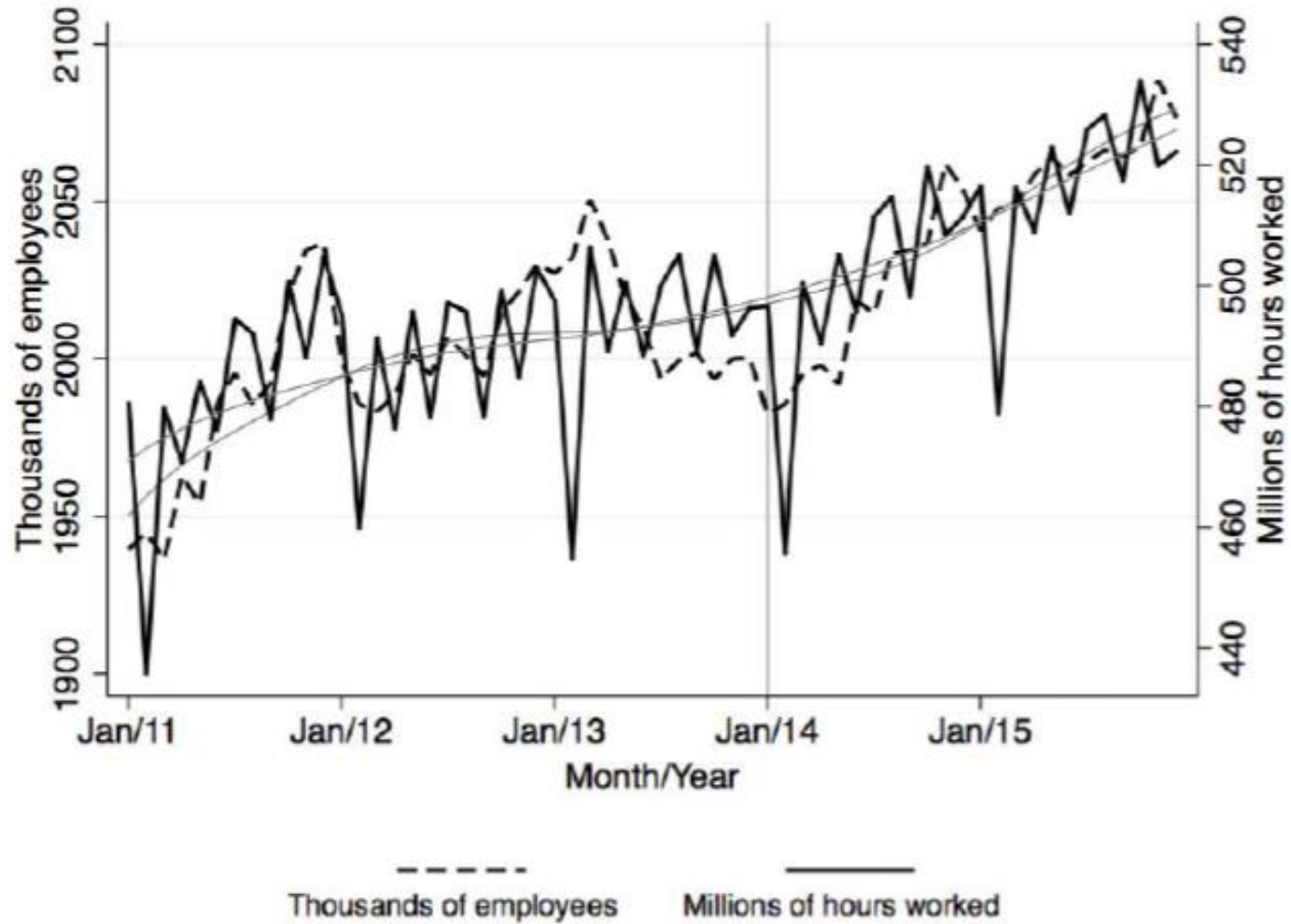
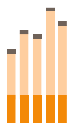
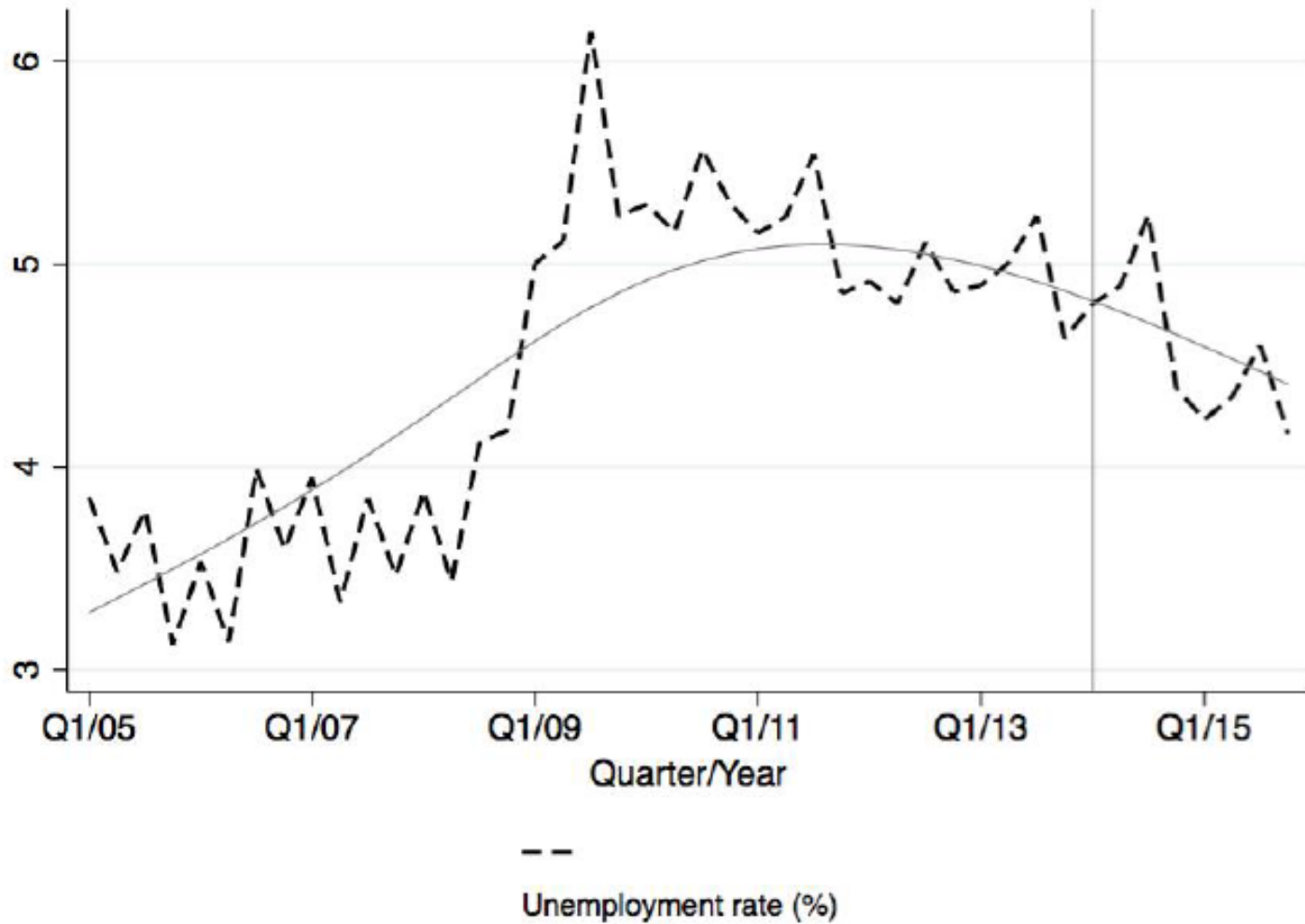
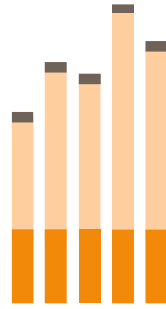


Figure 3. Unemployment rate. Mexico, ENOE 2005-2015.

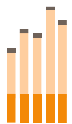




Summary

Conclusions

- Higher tobacco and alcohol taxes, and new sugary drink taxes significantly reduce consumption and raise revenues
- Reduced consumption leads to fewer cases of cancer, cardiovascular disease, diabetes, and other diseases, reducing health care and other economic costs of NCDs
- Counterarguments about negative economic impact false or greatly overstated
- Taxes generally considered one of the “best buys” in NCD prevention



Secure | <https://www.bloomberg.org/program/public-health/task-force-fiscal-policy-health/#overview>

Apps ★ Bookmarks Mail UIC UIC Voicemail STC Library GlobalData Google NM-CO Golf Assn Saint Charles GD Handicap Hoedspruit Airport Sergei Eisenstein's 12 Tribune SF Thems Other

Bloomberg Philanthropies OUR WORK ABOUT US BLOG PRESS & MEDIA

PUBLIC HEALTH **TASK FORCE ON FISCAL POLICY FOR HEALTH**

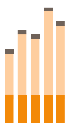
OVERVIEW SHARE

“Noncommunicable diseases are a growing global crisis, especially in low-and-middle income countries. There’s substantial evidence that taxes and fiscal policies are essential to confronting this health threat. This Task Force will explore which policies can make the biggest difference and help them spread, saving millions of lives.”
MIKE BLOOMBERG

The Task Force on Fiscal Policy for Health – announced by Mike Bloomberg and economist Larry Summers, former Secretary of the U.S. Treasury and former Director of the National Economic Council – brings together esteemed fiscal policy, development and health leaders from around the globe to address the enormous and growing health and economic burden of noncommunicable diseases – including cardiovascular disease, cancer, chronic respiratory diseases and diabetes – with fiscal policy tools that are currently underutilized by governments and their leaders.

“We have strong evidence from around the world that raising taxes on products like tobacco, sugar sweetened beverages and alcohol is highly effective at reducing harmful consumption and saving lives. I’m grateful for the commitment of this impressive group of leaders, whose expertise and experience will help the Task Force bring attention to the enormous potential of fiscal policies for health.”

LARRY SUMMERS



For more information:

Bridging the Gap

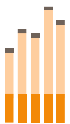
<http://www.bridgingthegapresearch.org>

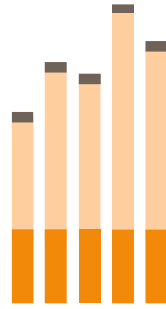
Tobacconomics

<http://www.tobacconomics.org>

@tobacconomics

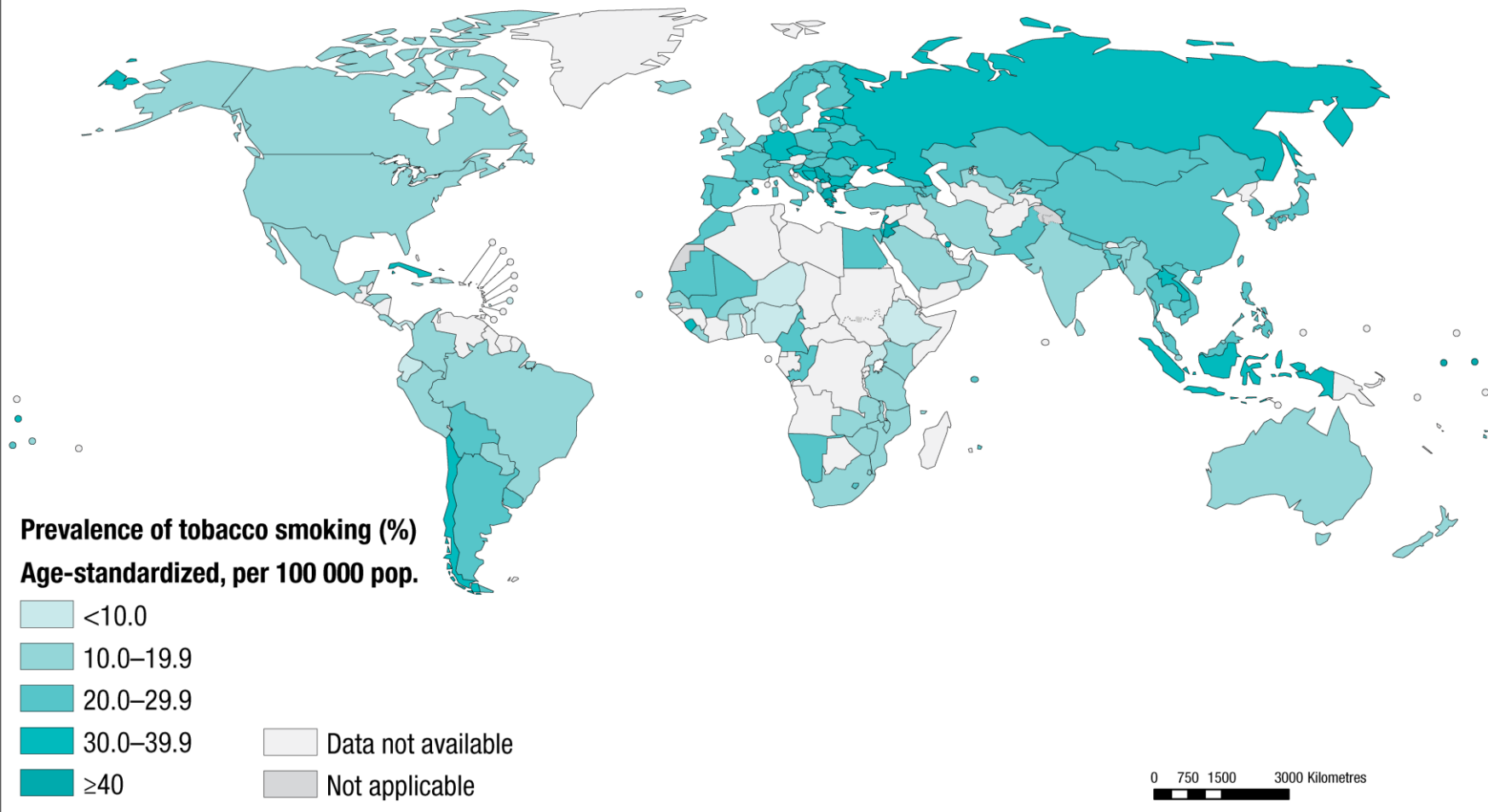
fjc@uic.edu





Extra Slides

Age-standardized prevalence of tobacco smoking among persons aged 15 years and older, 2015

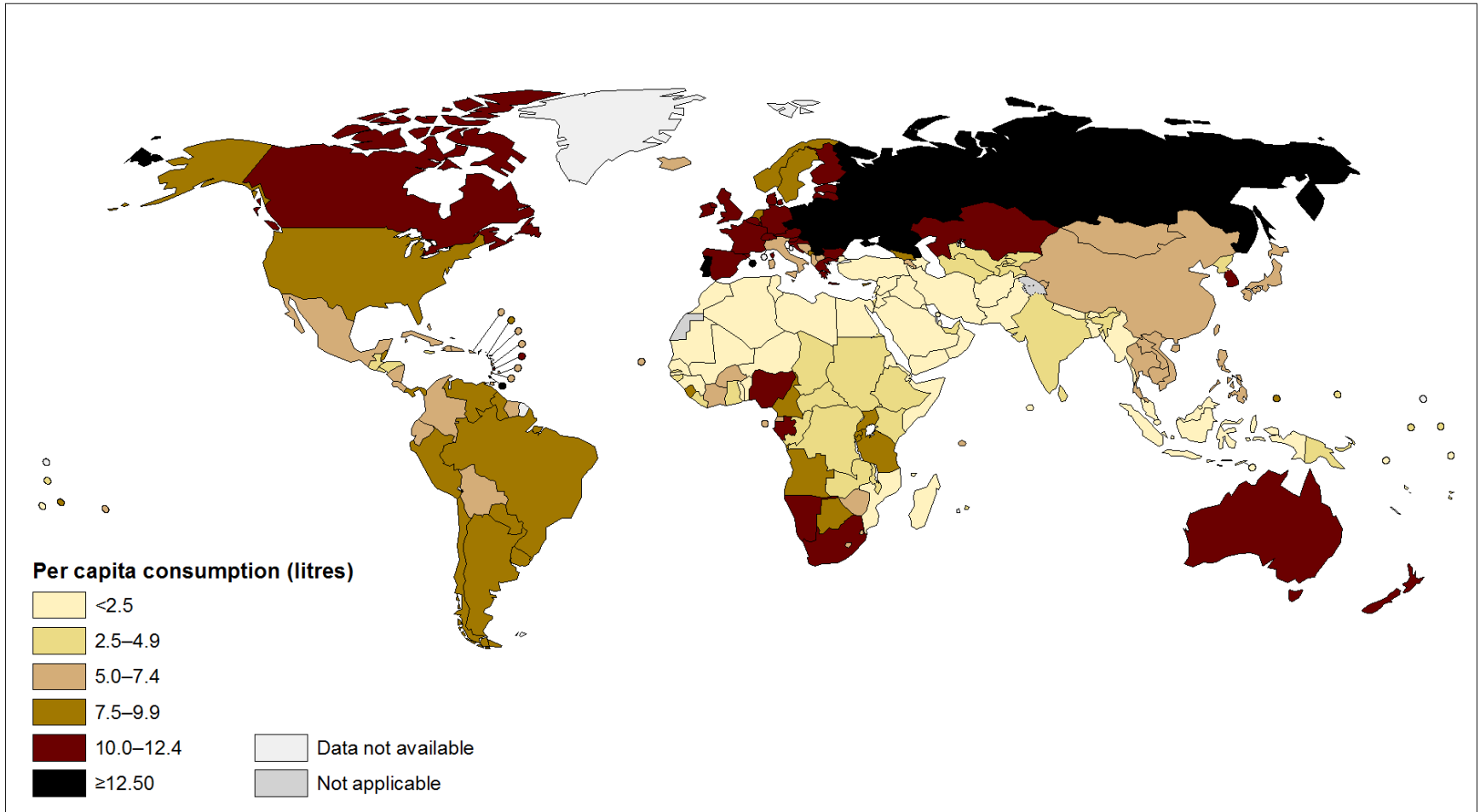


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Data Source: World Health Organization
Map production: Information Evidence and Research (IER)
World Health Organization



Total alcohol per capita (15+ years) consumption, in litres of pure alcohol, 2010

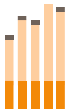


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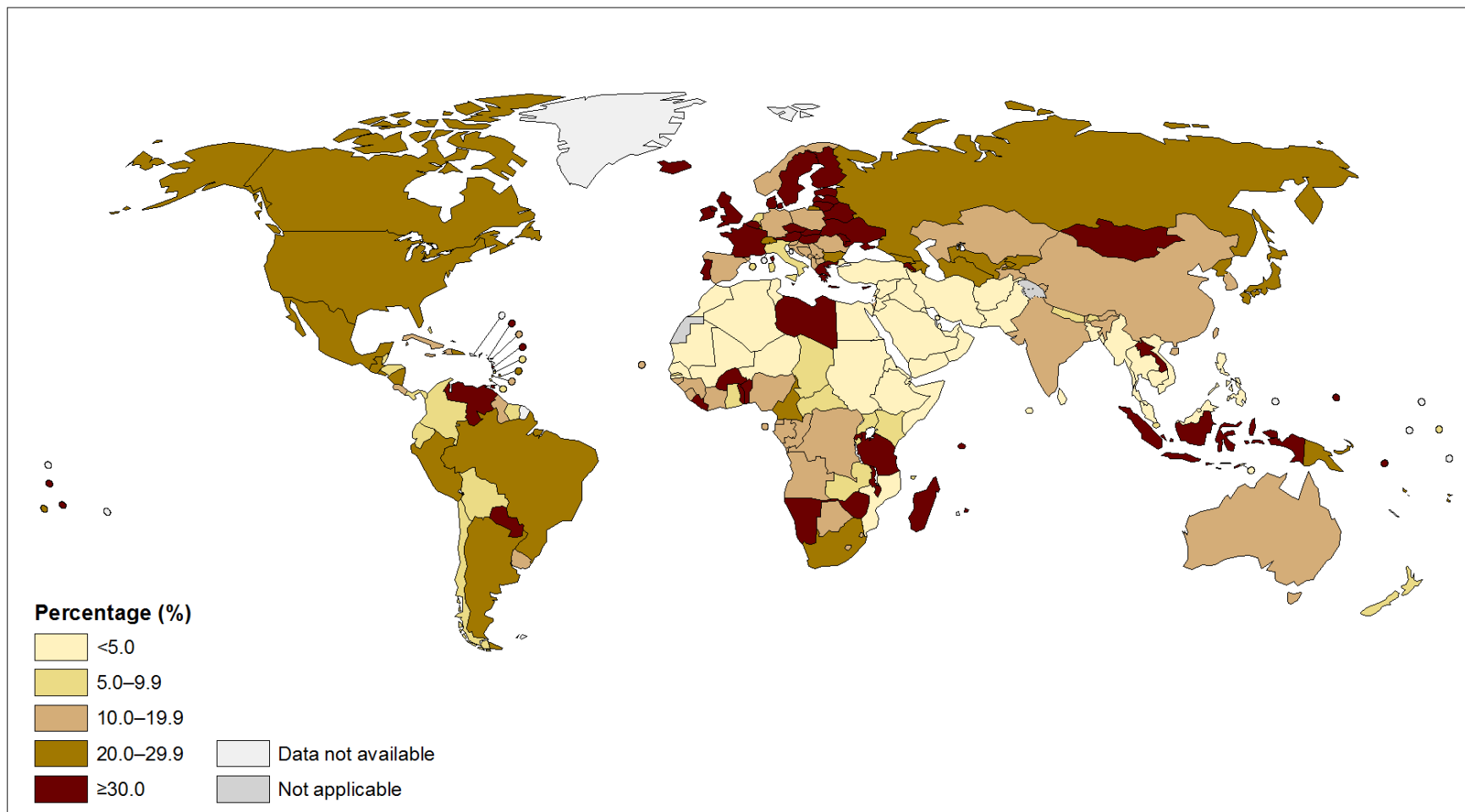
Data Source: World Health Organization
 Map Production: Health Statistics and Information Systems (HSI)
 World Health Organization



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Prevalence of heavy episodic drinking among current drinkers (%; 15+ years), 2010



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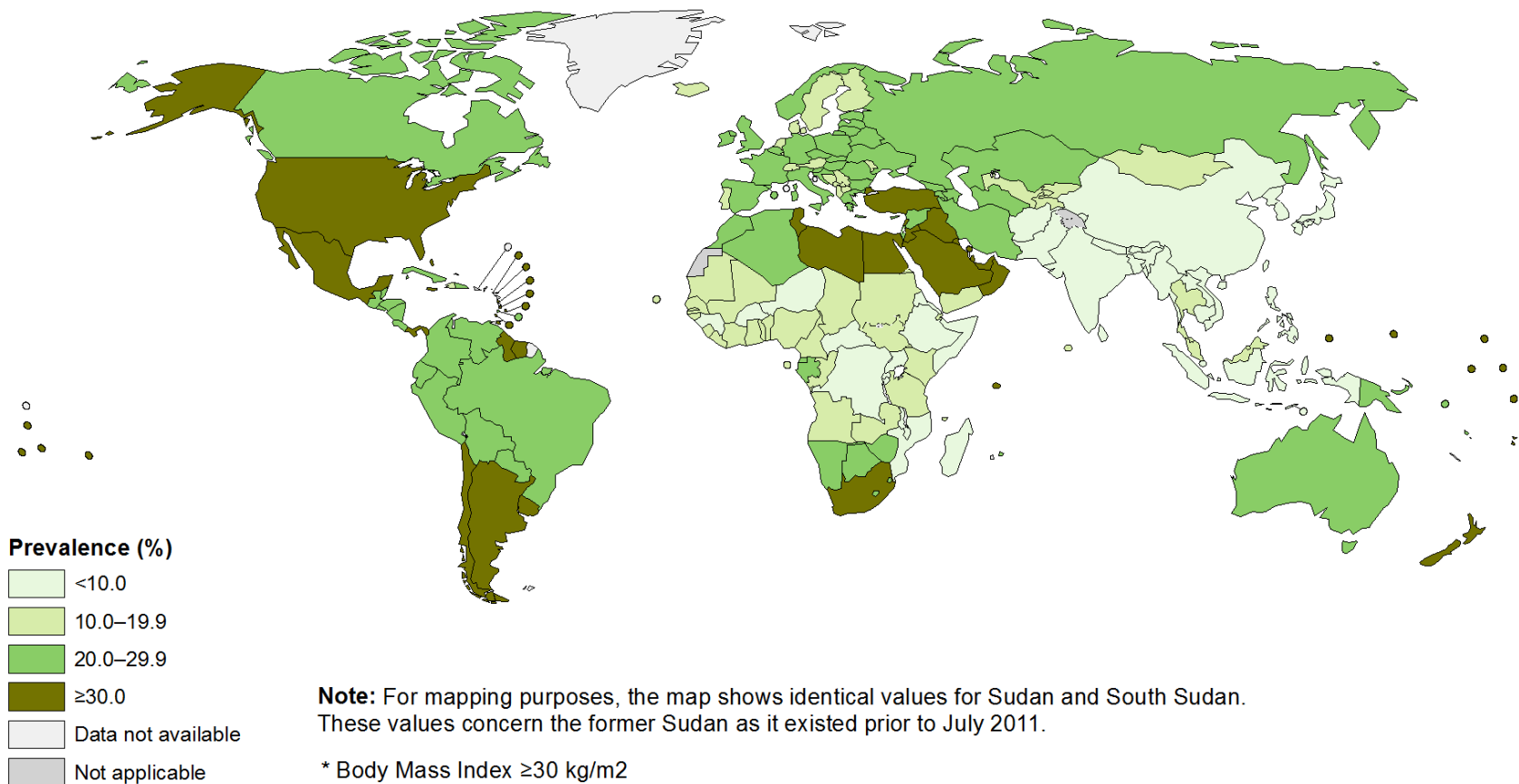
Data Source: World Health Organization
 Map Production: Health Statistics and
 Information Systems (HSI)
 World Health Organization



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Prevalence of obesity*, ages 18+, 2014 (age standardized estimate) Female

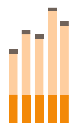


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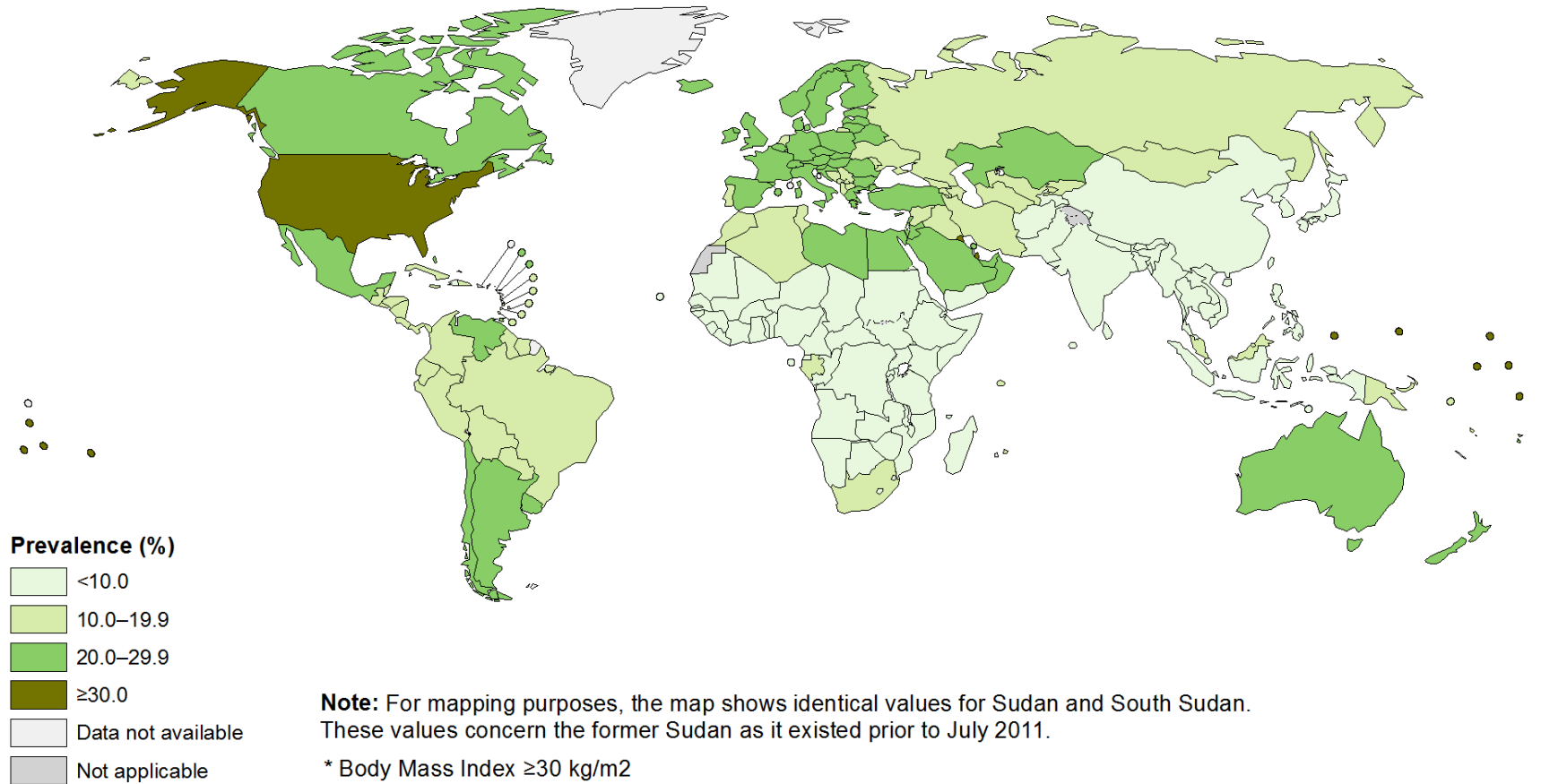
Data Source: World Health Organization
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Prevalence of obesity*, ages 18+, 2014 (age standardized estimate) Male

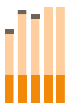


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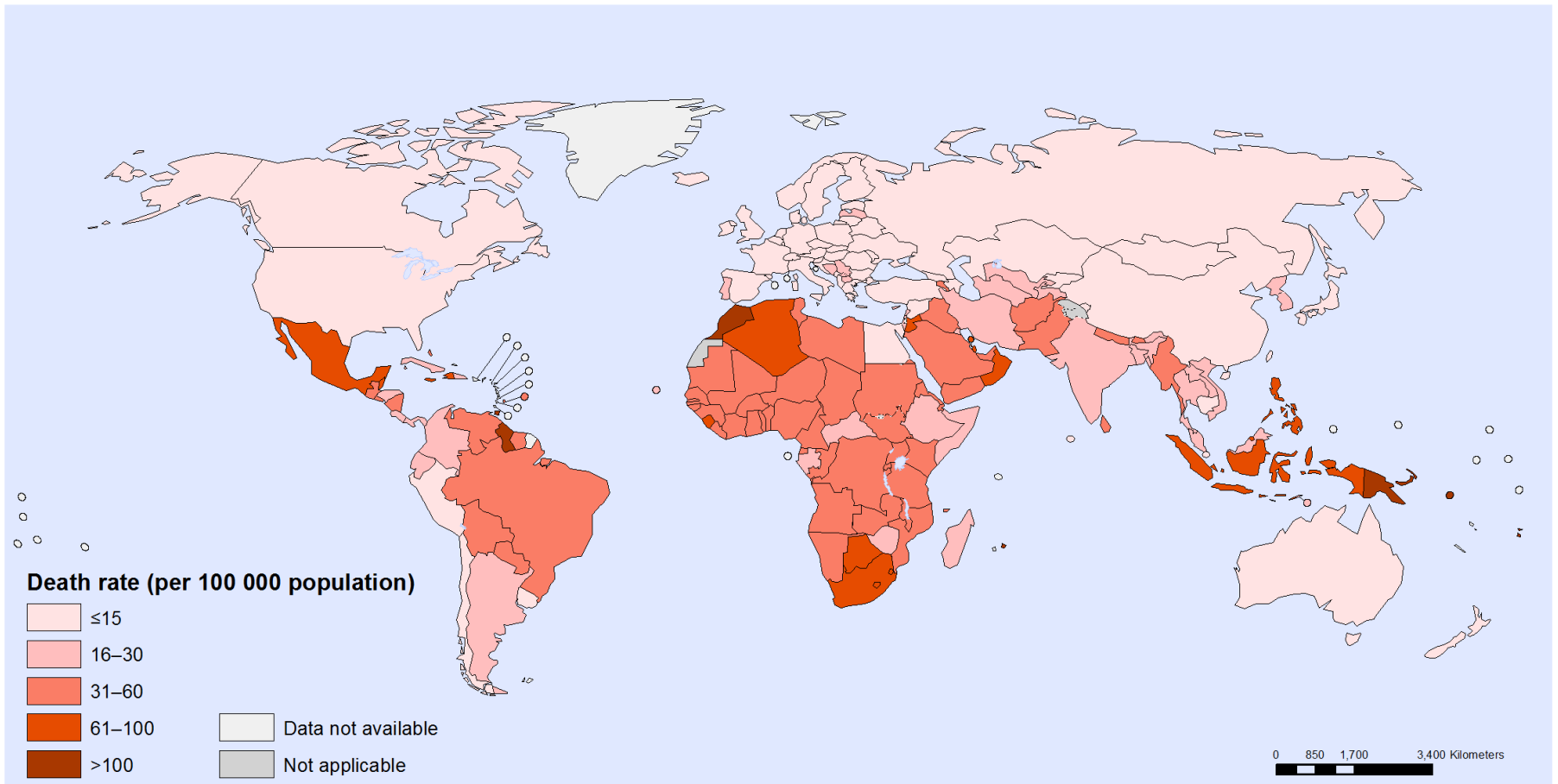
Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization



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Diabetes mortality: Age-standardized death rate per 100 000 population, both sexes, 2012



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Data Source: World Health Organization
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization



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