The Economics of Tobacco and Tobacco Control



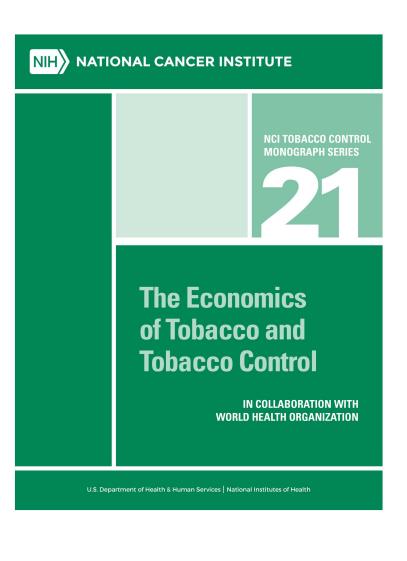
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Contributors

- Senior Editors
 - Frank Chaloupka, University of Illinois at Chicago
 - Geoffrey Fong, University of Waterloo
 - Ayda Yürekli, World Health Organization (former position)
- More than 60 authors from major world regions contributed, and more than 70 served as reviewers





Major Accomplishments

This volume:

- Presents extensive new evidence from low- and middle-income countries (LMICs) and highlights the unique challenges of implementing tobacco control measures in LMICs
- Examines global tobacco control efforts since the 2003 adoption and 2005 entry into force of the World Health Organization Framework Convention on Tobacco Control
- Discusses new infrastructure issues ranging from privatization to trade liberalization and evolving trends in tobacco use and the tobacco product market.

The monograph confirms that effective, evidence-based tobacco control interventions—such as increased taxes; complete bans on tobacco marketing; comprehensive smoke-free policies; dissemination of information on the health consequences of tobacco use; and many other types of interventions—make sense from an economic as well as a public health standpoint.

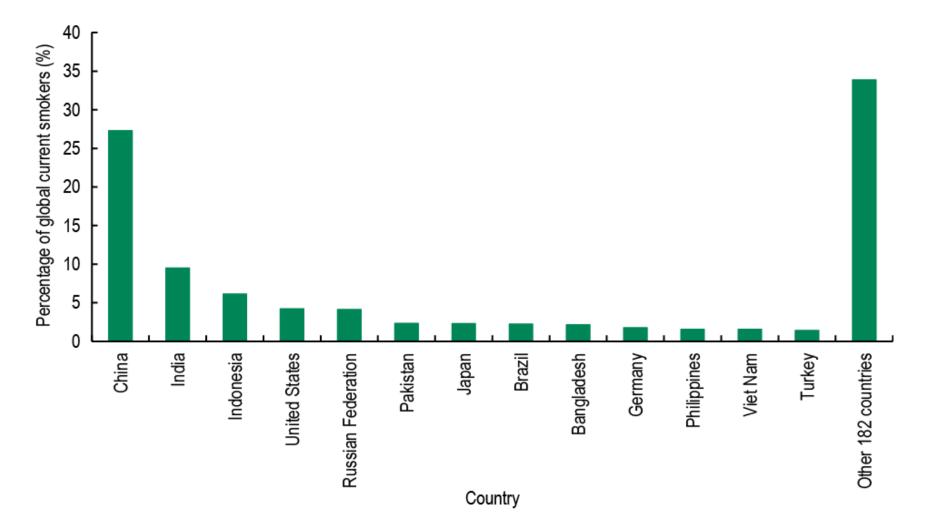
Major Conclusions & Key Chapter Conclusions

Tobacco Use and its Consequences

Major Conclusions

- The global health and economic burden of tobacco use is enormous and is increasingly borne by LMICs.
 - About 1.1 billion smokers globally
 - Including 25 million youth
 - 4 of 5 smokers are in LMICs
 - Another almost 360 million smokeless tobacco users
 - Including 13 million youth
 - Around 6 million premature deaths a year caused by smoking
 - Including ~600,000 from secondhand smoke

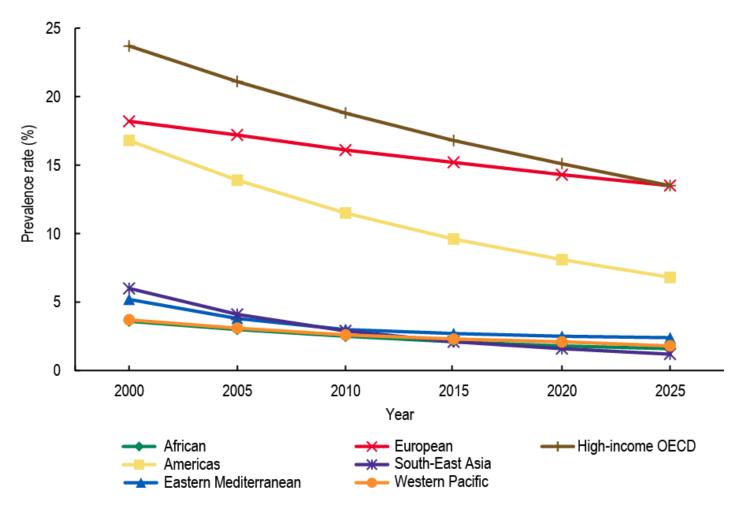
Figure 2.3. Percentage of Global Current Tobacco Smokers Age 15 Years and Over, by Country, 2013



Note: Data for the United States and Japan only include cigarette smokers.

Source: World Health Organization 2015

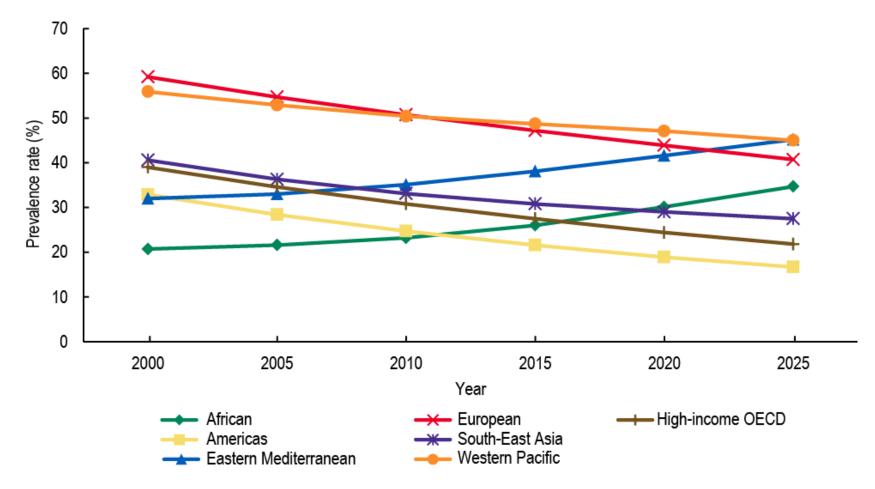
Figure 2.2. Estimated and Projected Prevalence Rates for Tobacco Smoking, by WHO Region, Females, 2000–2025



Notes: WHO = World Health Organization. High-income OECD countries = countries defined as high-income by the Organisation for Economic Co-operation and Development. High-income OECD countries are excluded from their respective regions. Projections are shown for the years 2015, 2020, and 2025.

Source: Based on data from World Health Organization 2015.

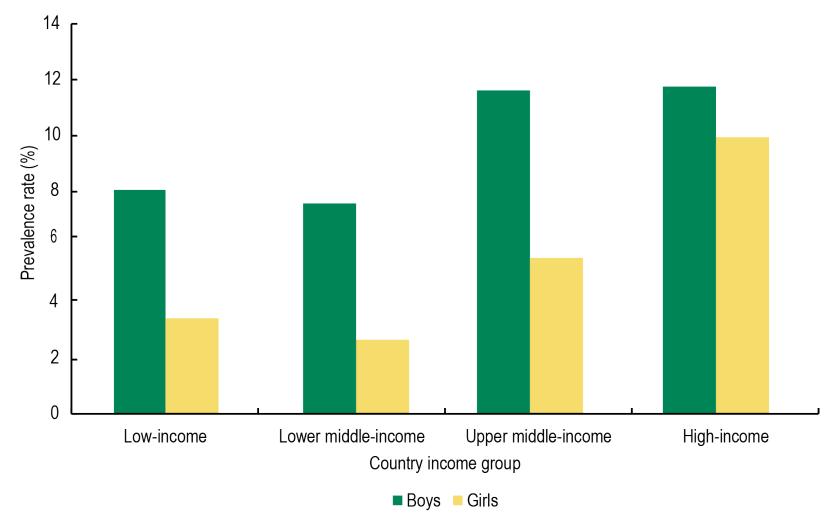
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Source: Based on data from World Health Organization 2015

Figure 2.8. Prevalence of Current Cigarette Smoking Among Youth, by Country Income Group, 2007–2014



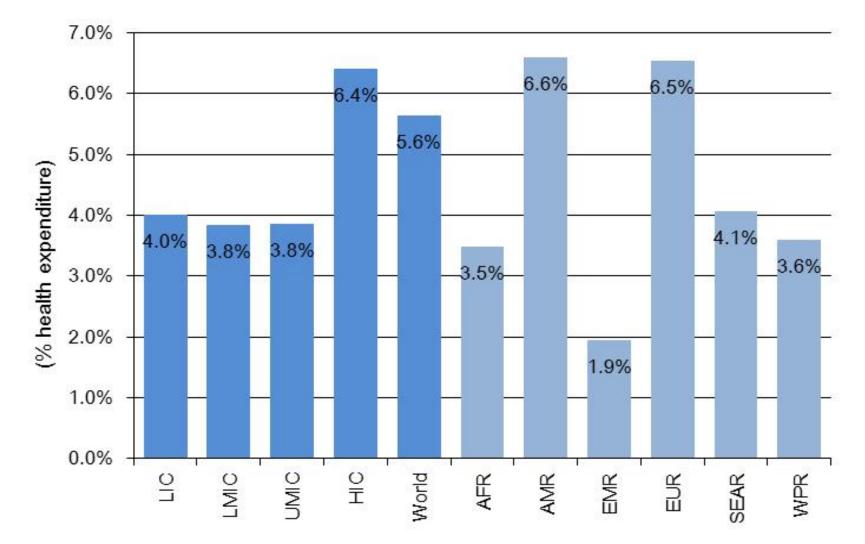
Notes: Country income group classification based on World Bank Analytical Classifications for 2014. The number of users was calculated by applying the prevalence rates to the United Nations–provided population estimates for the year 2010.

Sources: Global Youth Tobacco Survey 2007–2014. Health Behaviour in School-Aged Children 2013–2014.

Major Conclusions

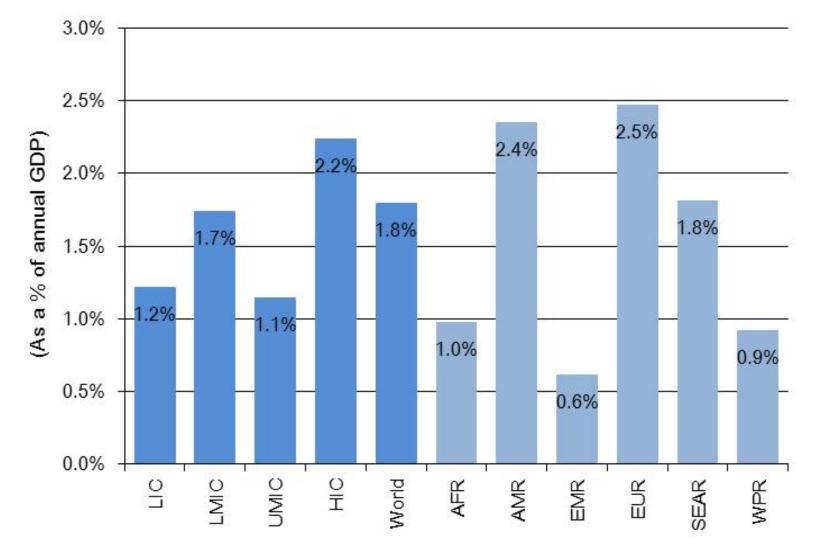
- 2. Failures in the markets for tobacco products provide an economic rationale for governments to intervene in these markets.
 - Imperfect and asymmetric information about the health and economic consequences of tobacco use
 - Complicated by poor understanding of addiction, time inconsistency of preference and most uptake during adolescence
 - Financial and health externalities

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

Demand for Tobacco Products

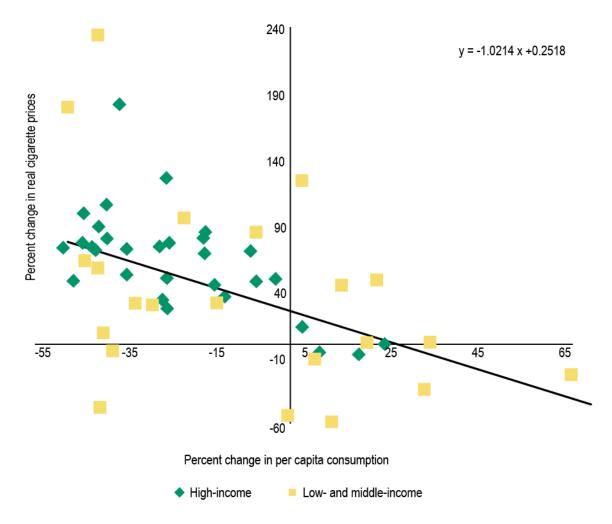


Major Conclusions

3. Effective policy and programmatic interventions are available to reduce the demand for tobacco products and the death, disease, and economic costs that result from their use, but these interventions are underutilized.

Tax & Price

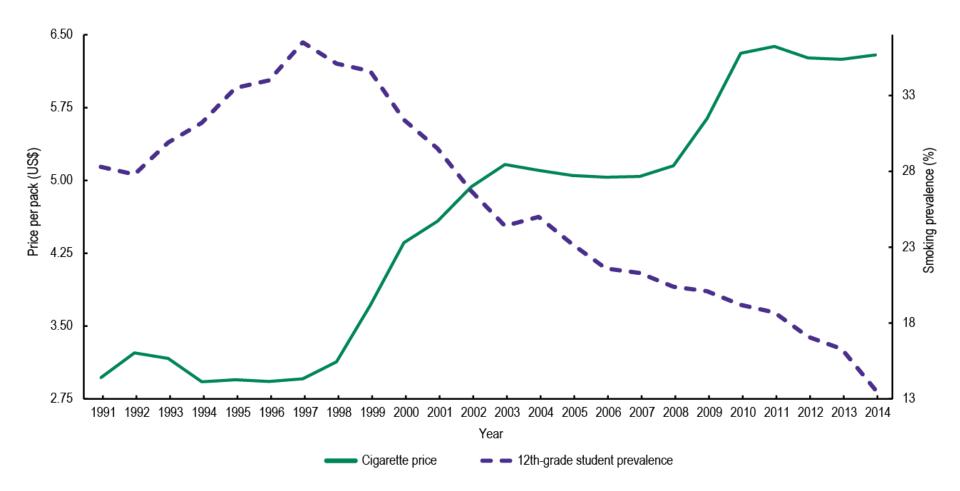
Figure 4.2. Percentage Change in Real Cigarette Prices Versus Percentage Change in Per Capita Consumption of Cigarettes, 1996–2011



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

Sources: Economist Intelligence Unit 2012.³¹ ERC Group 2011

Figure 4.6. Inflation-Adjusted Cigarette Prices and Prevalence of Youth Smoking in the United States, 1991–2014



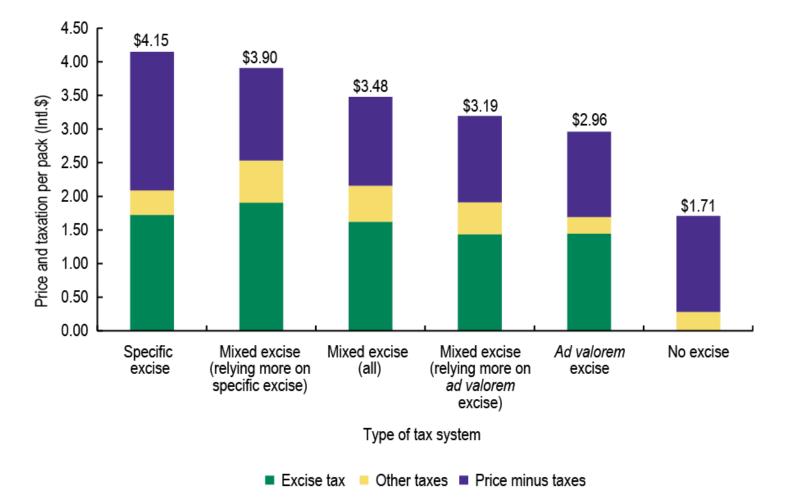
Note: Currency adjusted for inflation using a 2014 base.

Sources: Johnston et al. 2016. Orzechowski and Walker

Chapter 4. The Impact of Tax and Price on the Demand for Tobacco Products

- 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.
- 3. Tobacco use by young people is generally more responsive to changes in taxes and prices of tobacco products than tobacco use by older people.
- 4. Demand for tobacco products is at least as responsive and often more responsive to price in low- and middleincome countries as it is in high-income countries.

Figure 5.3. Price per Pack in International Dollar Purchasing Power Parity (PPP) and the Share of Excise and Total Tax in Price, by Tax Structure, 2014



Note: Averages were weighted by number of current cigarette smokers in each country.

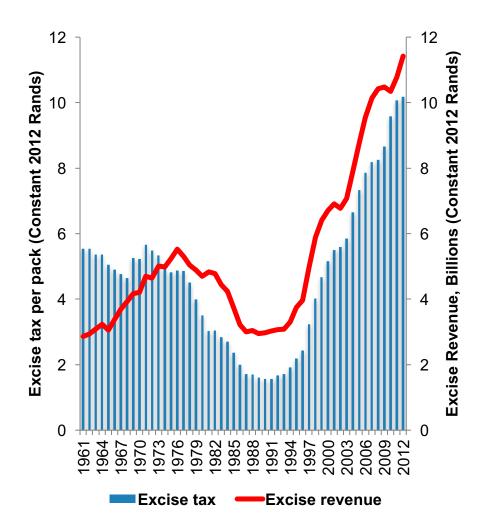
Source: Based on data from World Health Organization 2015

Chapter 5. Design and Administration of Taxes on Tobacco Products

- 1. Governments have a variety of reasons for taxing tobacco products, including generating revenue and improving public health by reducing tobacco use. Although price and tax measures are among the core demand reduction measures of the WHO FCTC, they are among the least implemented.
- 2. Almost all governments tax tobacco products, applying a variety of different taxes and using different tax structures. The different taxes and tax structures vary in their impact on public health. Relying on import duties to generate revenue is not an effective tax policy and does not substantially affect public health. More reliance on high, uniform, and specific excise taxes on tobacco products will have the greatest public health impact.

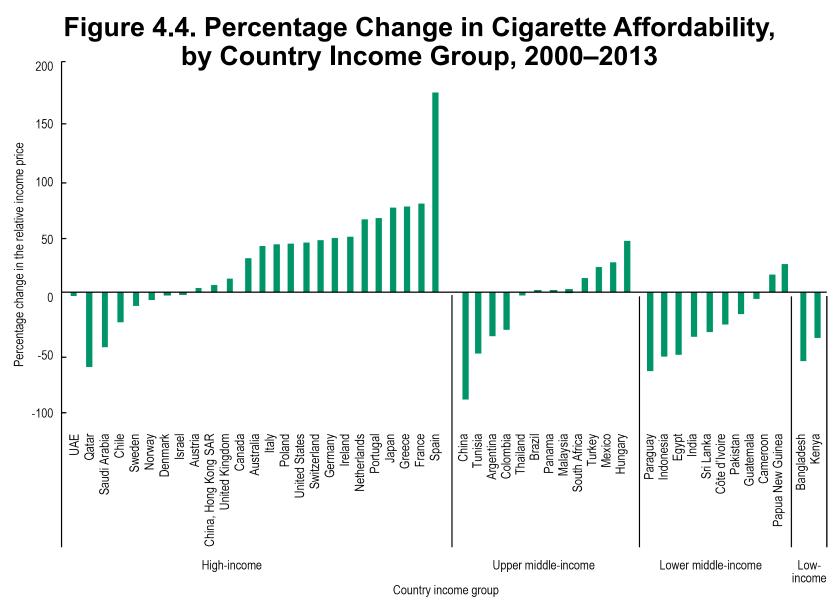
Tax Rates & Tax Revenues, South Africa, 1961-2012

- Governments collected around US\$ 269 billion in tobacco excise revenues in 2014
- an increase of about 80 cents per pack internationally would yield \$140 billion in revenue and increase cigarette prices by 42%, leading to a 9% decline in smoking.



Chapter 5. Design and Administration of Taxes on Tobacco Products (continued)

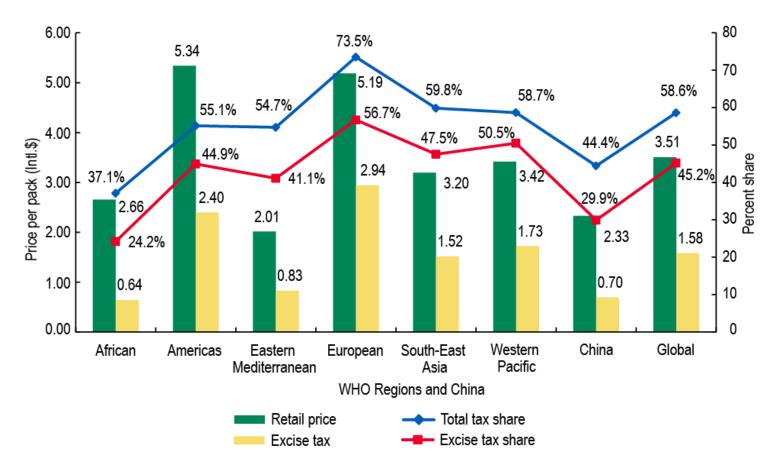
- 3. Because of the low share of tax in the retail prices of cigarettes and the relative inelasticity of demand for tobacco products, **increases in tobacco taxes will ensure higher revenues**.
- 4. A number of countries dedicate part of their tobacco tax revenues for health promotion and/or tobacco control. Dedicating part of tobacco tax revenues for comprehensive tobacco control or health promotion programs (i.e., earmarking) increases the public health impact of higher tobacco taxes.



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. UAE = United Arab Emirates. SAR = Special Administrative Region.

Source: Economist Intelligence Unit 2015

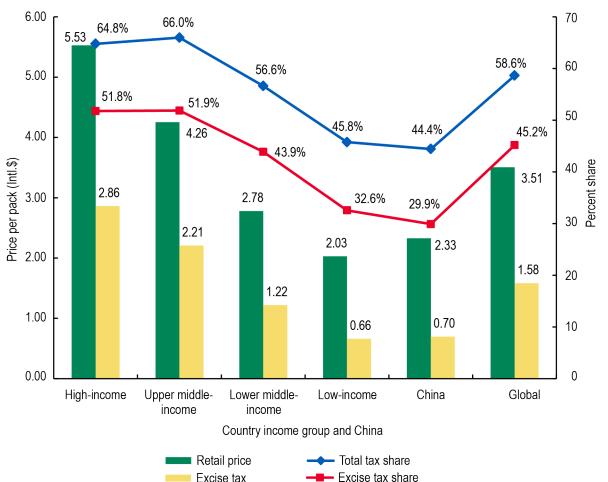
Figure 5.2. Price per Pack in International Dollar Purchasing Power Parity (PPP) and the Share of Excise and Total Tax in Price, by WHO Region, 2014



Notes: Averages were weighted by number of current cigarette smokers in each country. WHO = World Health Organization.

Source: Based on data from World Health Organization 2015.

Figure 5.1. Price per Pack in International Dollar Purchasing Power Parity (PPP) of Most Popular Brand and the Share of Excise and Total Tax in Price, by Country Income Group, 2014

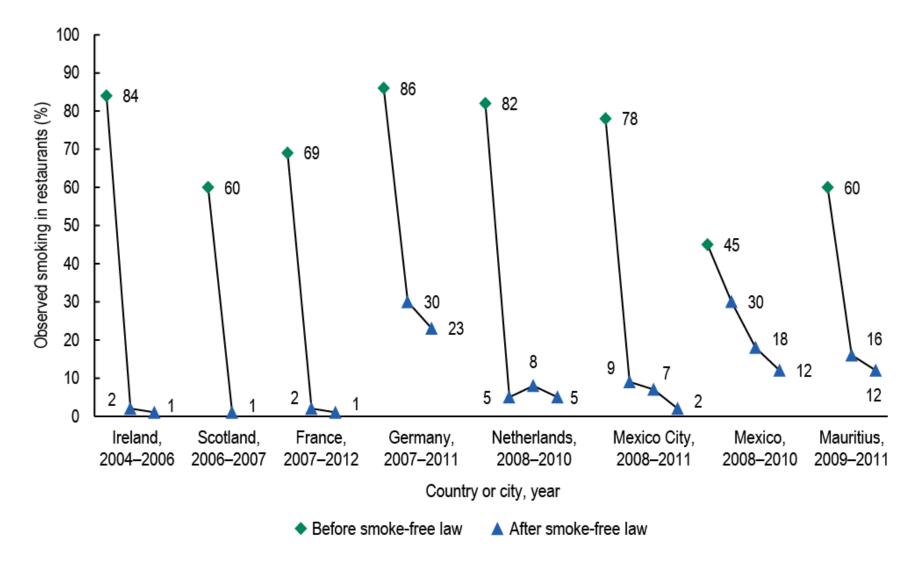


Notes: Averages were weighted by number of current cigarette smokers in each country. Because of its large population, China's estimates were removed from the upper middle-income grouping and displayed separately. Country income group classification was based on World Bank Analytical Classifications for 2014.

Source: Based on data from World Health Organization 2015.

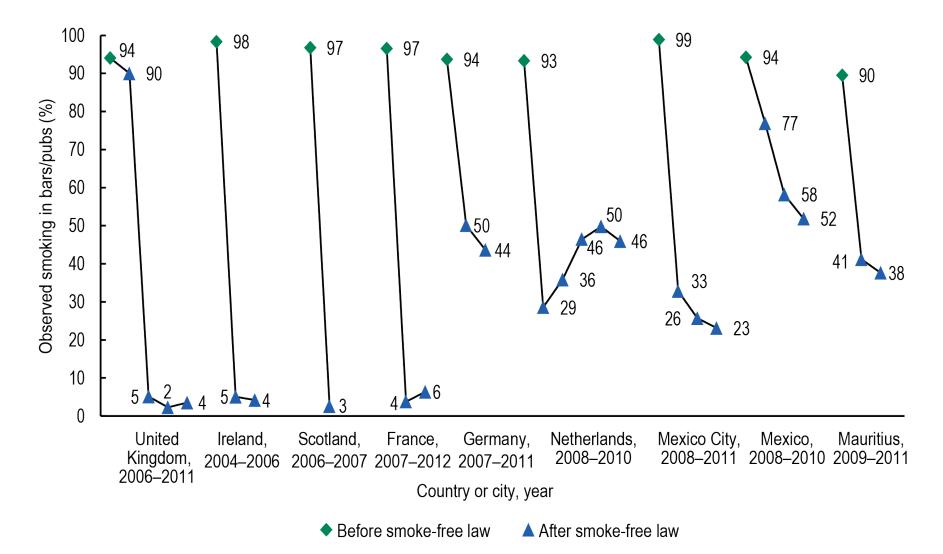
Smoke Free Air

Figure 6.4. Prevalence of Observed Smoking in Restaurants Before and After Smoke-Free Laws



Source: World Health Organization Western Pacific Region and University of Waterloo, ITC Project 2015

Figure 6.5. Prevalence of Observed Smoking in Bars/Pubs Before and After Smoking Bans

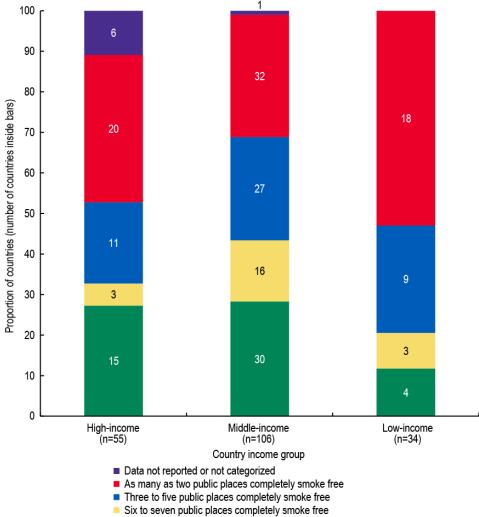


Source: Fong 2011

Chapter 6. The Impact of Smoke-Free Policies

- 1. Comprehensive smoke-free policies reduce exposure to secondhand smoke; compliance with these policies is generally high, and public support for them is strong.
- 2. Comprehensive smoke-free policies in workplaces reduce active smoking behaviors including cigarette consumption and smoking prevalence.
- 3. Overall, rigorous empirical studies (largely from high-income countries) using objective economic indicators find that **smoke-free policies do not have negative economic consequences for businesses**, including restaurants and bars, with a small positive effect being observed in some cases. Findings from the limited existing research conducted in low- and middle-income countries are generally consistent with those from high-income countries.

Figure 6.3. Smoke-Free Laws: Global Coverage, by Country Income Group, 2014



 All public places completely smoke free (or at least 90% of the population covered by complete subnational smoke-free legislation)

Note: Country income group classification based on World Bank Analytical Classifications for 2014.

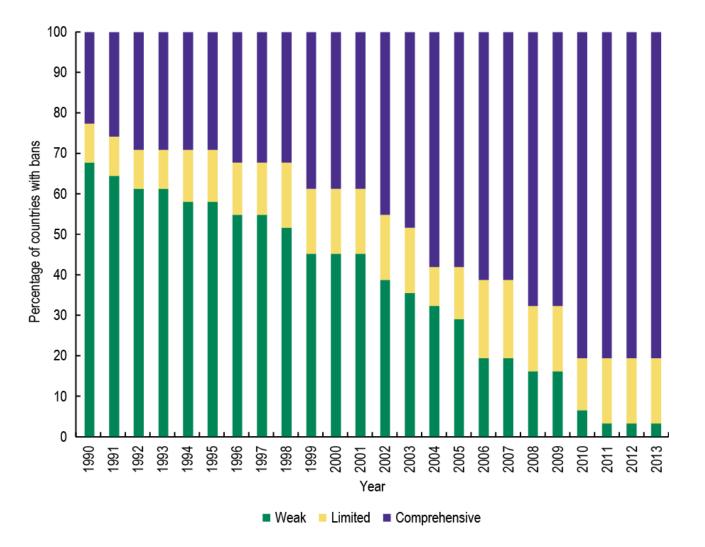
Source: World Health Organization 2015

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Marketing Bans



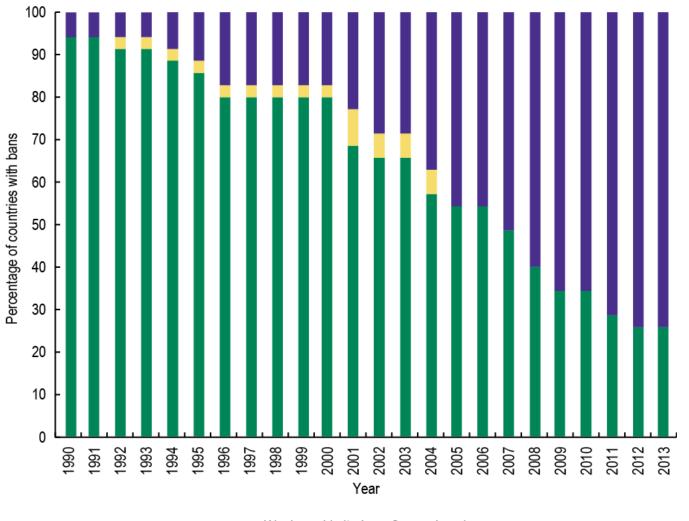
Figure 7.4. Weak, Limited, and Comprehensive Tobacco Advertising Bans in High-Income Countries, 1990–2013



Note: n=31.

Sources: Based on data from ERC Group 1990-2013 and Economist Intelligence Unit 1990-2013

Figure 7.5. Weak, Limited, and Comprehensive Tobacco Advertising Bans in Low- and Middle-Income Countries, 1990–2013



Weak Limited Comprehensive

Note: n=35.

Sources: Based on data from ERC Group 1990-2013 and Economist Intelligence Unit 1990-2013

Table 7.1 Summary of Regression Results of the Updated Analysis of Tobacco Advertising Bans, 1990–2013

	Per capita adult tobacco consumption	
Variables	All countries Model 1 β (SE)	Low- and middle-income countries Model 1a β (SE)
Income (In)	0.538 (0.041)*	0.403 (0.048)*
Price		
Minimum (In)	-0.151 (0.014)*	-0.148 (0.019)*
Advertising ban		
Limited (In)	-0.013 (0.028)	-0.093 (0.067)
Comprehensive (In)	-0.117 (0.020)*	-0.283 (0.030)*
n	1,511	785
R ²	0.923	0.927

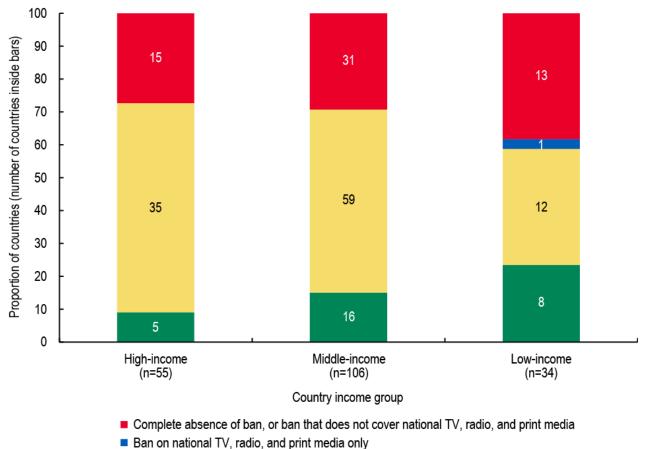
*Statistically significant at the 0.01 level.

Notes: Country-fixed effects, year-fixed effects, and a constant are included in the model with all countries, while only country-fixed effects are included in the model with low- to middle-income countries. No variables were statistically significant at the 0.05 or 0.10 level. Sources: Based on data from ERC Group 1990–2013³² and Economist Intelligence Unit 1990–2013.³³

Chapter 7. The Impact of Tobacco Industry Marketing Communications on Tobacco Use

- 2. The weight of the evidence from multiple types of studies done by researchers from a variety of disciplines and using data from many countries indicates that a causal relationship exists between tobacco company marketing activities and tobacco use, including the uptake and continuation of tobacco use among young people.
- 3. In high-income countries, comprehensive policies to ban the marketing activities of tobacco companies are effective in reducing tobacco use, but partial marketing bans have little or no effect.
- 4. Comprehensive policies to ban the marketing activities of tobacco companies leads to larger reductions in tobacco use in low- and middle-income countries than in high-income countries.

Figure 7.1. Bans on Advertising, Promotion, and Sponsorship, 2014



- Ban on national TV, radio, and print media as well as on some but not all other forms of direct and/or indirect advertising
- Ban on all forms of direct and indirect advertising

Source: World Health Organization 2015



Information





WARNING: TOBACCO SMOKE CAN KILL BABIES QUIT: 1800-438-2000

HKSAR GOVERNMENT WAR

SMOKING CAN ACCELERATE

AGEING OF SKIN

NICOTINE :

mg

TAR:

mg

احترس التدخين يدمر الصحة ويسبب الوفاة الاتار الدمرة للتدخين نصيب الدخن وغير الدخن







Health Authority Warring



imoking causes irreversible damage to the back of the ye. This is known as macular degeneration. Central ision is lost, blindness may follow.

AN quit smoking. Call Quitline 131 848, talk to loctor or pharmacist, or visit www.quitnow.info.au

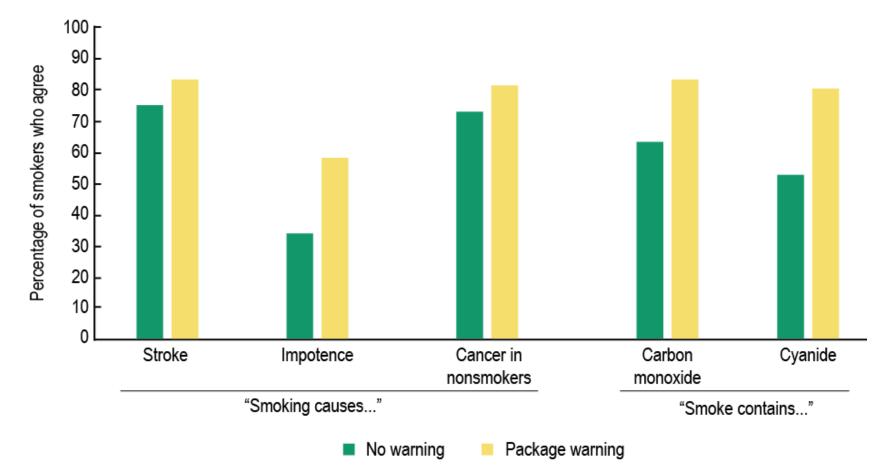


مواجه با دود سیگار ،قلبان ومواد دخانی مصرف شده توسط والدین واطر افیان باعث ایجاد و تشدید بیماریهای تنفسی، آسم و عفونت گوش میانی می شود



Smokers die younger

Figure 8.6. Knowledge About the Harms of Tobacco Use: Comparison of Countries With and Without Health Warning Labels on Particular Topics

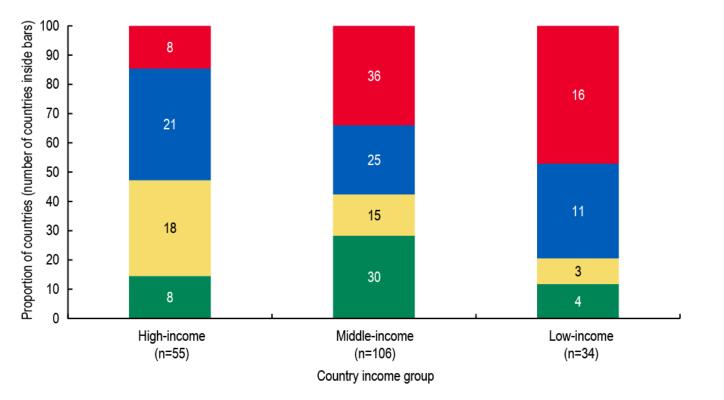


Sources: World Health Organization 2011, based on data from Hammond et al. 2006

Chapter 8. The Impact of Information on the Demand for Tobacco Products

- 3. Well-designed and -implemented anti-tobacco mass media campaigns are effective in improving understanding about the health consequences of tobacco use, building support for tobacco control policies, strengthening social norms against tobacco use, and reducing tobacco consumption among youth and adults.
- 5. Large pictorial health warning labels on tobacco packages are effective in increasing smokers' knowledge, stimulating their interest in quitting, and reducing smoking prevalence. These warnings may be an especially effective tool to inform children and youth and low literacy populations about the health consequences of smoking.

Figure 8.5. Types of Health Warning Labels in Use Around the World, by Country Income Group, 2014



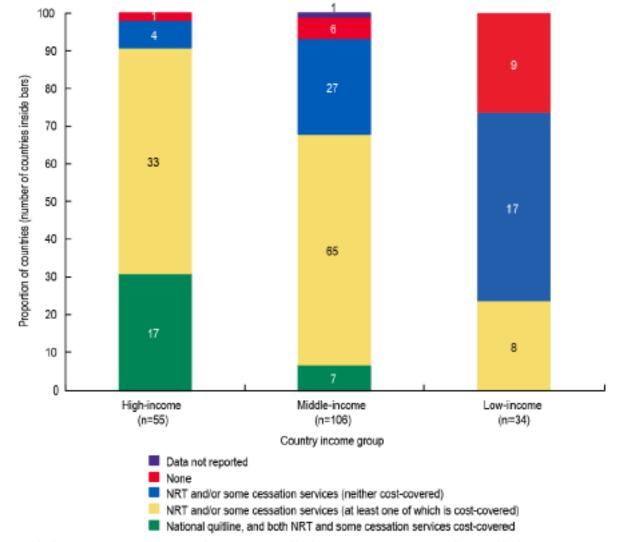
- No warnings or small warnings
- Medium-sized warnings missing some characteristics OR large warnings missing many appropriate characteristics
- Medium-sized warnings with all appropriate characteristics OR large warnings missing some appropriate characteristics
- Large warnings with all appropriate characteristics

Cessation

Chapter 9. Smoking Cessation

- 3. Research from high-income countries demonstrates that a number of effective and cost-effective tobacco dependence treatments can increase the likelihood of successful cessation. Relatively little evidence is available on the effectiveness and cost-effectiveness of tobacco dependence treatments in low- and middle-income countries and on the transferability of effective interventions from high-income countries to low- and middle-income countries.
- 4. Demand for cessation support exists in low- and middleincome countries, but in most of these countries, cessation services and products are often of limited availability or accessibility, or are unaffordable for most of the population.

Figure 9.1 Smoking Cessation Treatment: Cost Coverage by Country Income Group, 2014



Notes: NRT = nicotine replacement therapy. Country income proup classification based on World Bank Analytical Classifications for 2013

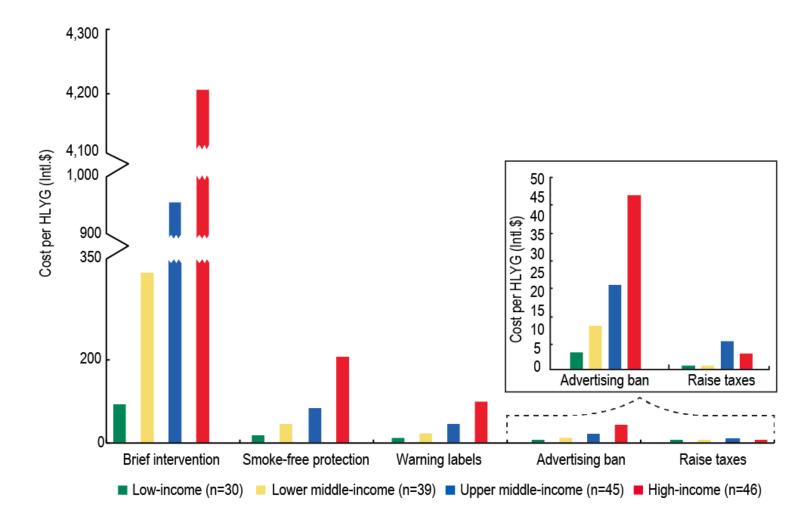
Source: World Health Organization 2015

Cost-Effectiveness

Major Conclusions

4. Policies and programs that work to reduce the demand for tobacco products are highly cost-effective.

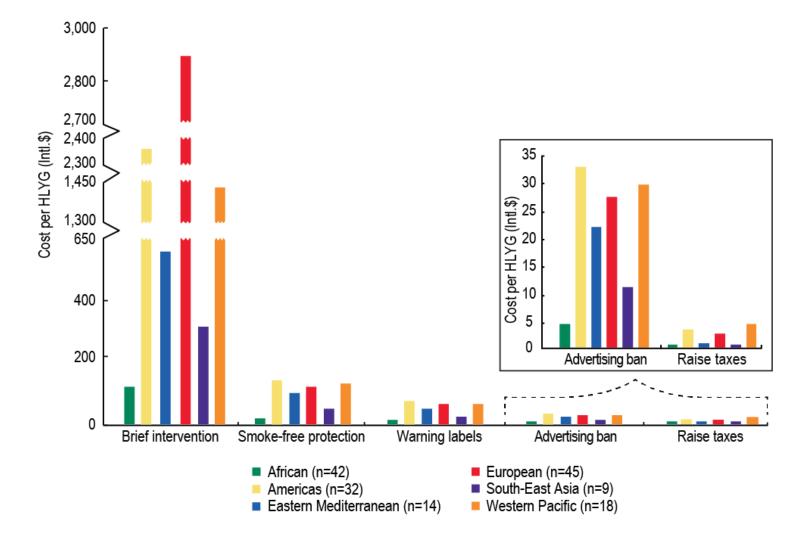
Figure 17.2. Tobacco Control Policies and Cost Per Healthy Life-Year Gained, by Country Income Group



Notes: HLYG = healthy life-year gained. Country income group classification based on World Bank Analytical Classifications for 2014.

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

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



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

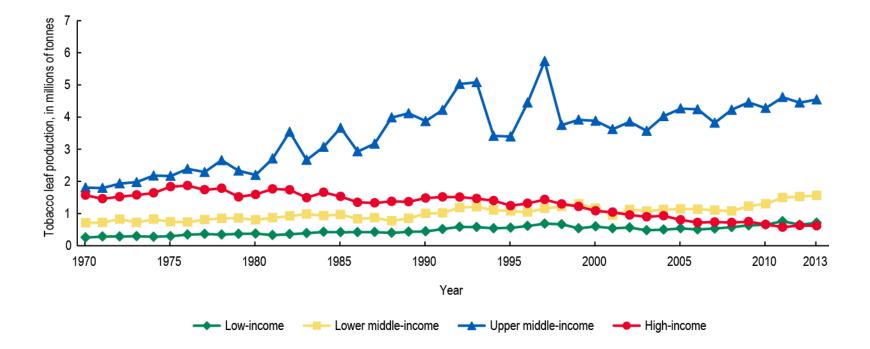
Supply of Tobacco Products



Major Conclusions

 Control of illicit trade in tobacco products, now the subject of its own international treaty, is the key supplyside policy to reduce tobacco use and its health and economic consequences.

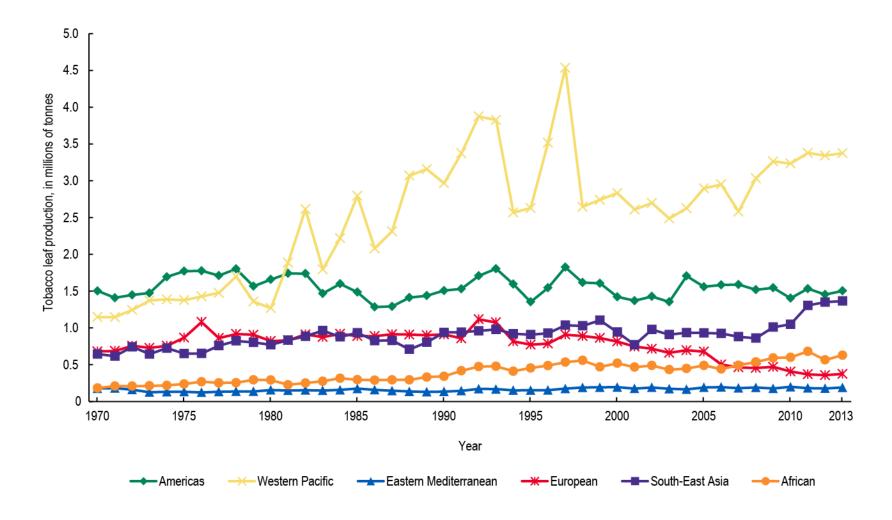
Figure 10.2. Global Tobacco Leaf Production, by Country Income Group, 1970–2013



Note: Country income group classification based on World Bank Analytical Classifications for 2013.

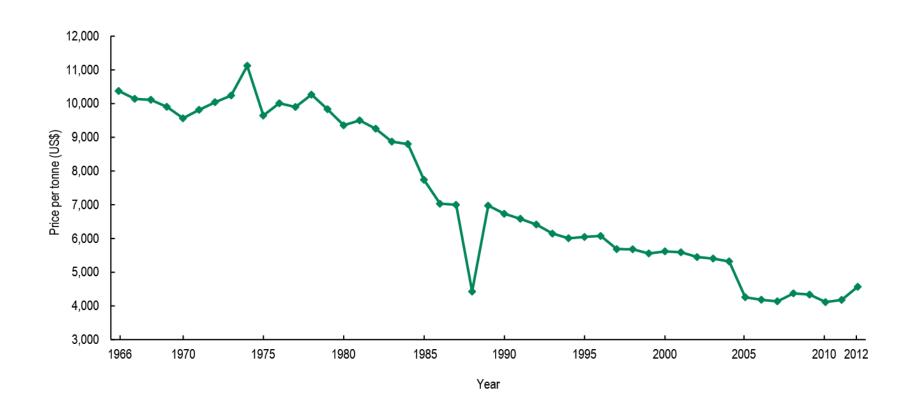
Source: FAOSTAT 1970–2013

Figure 10.3. Global Tobacco Leaf Production, by WHO Region, 1970–2013



Source: FAOSTAT 1970–2013

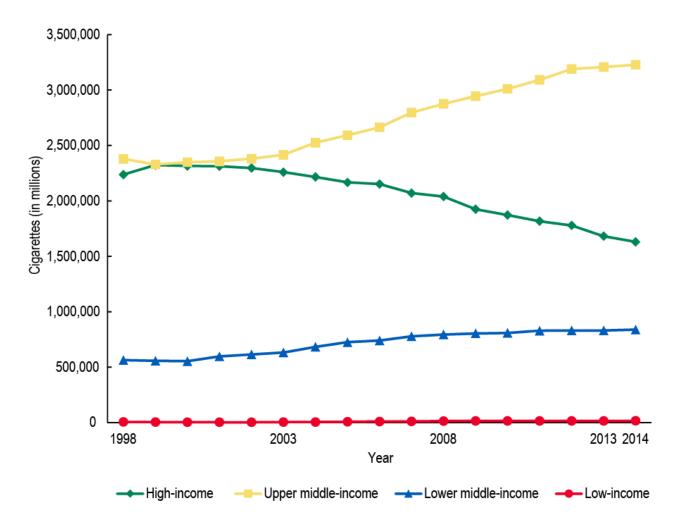
Figure 10.4. Inflation-Adjusted Tobacco Leaf Prices in the United States, 1966–2012



Note: Tobacco leaf prices adjusted for inflation using 2012 U.S. dollars.

Sources: U.S. Department of Agriculture, Economic Research Service 1966–1990,¹⁴¹ FAOSTAT 1991–2012,⁸ and U.S. Department of Labor 2014

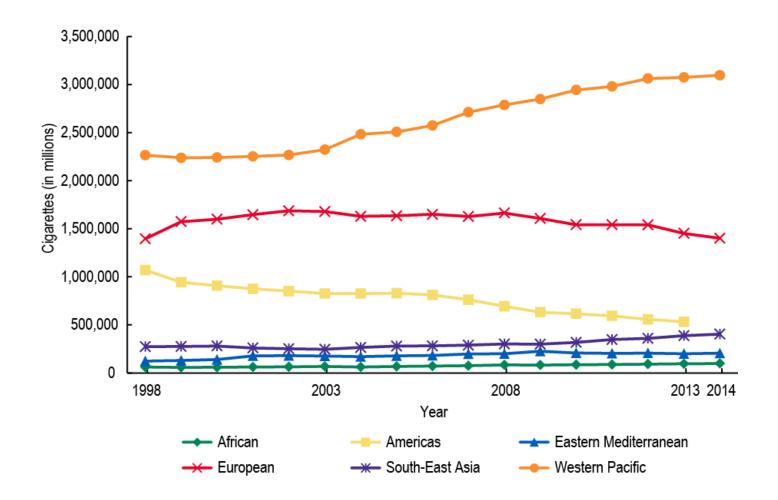
Figure 10.5. Cigarette Production, by Country Income Group, 1998–2014



Notes: Data from a total of 74 countries are shown. Only one country is included in the low-income group (Kenya). Country income group classification based on World Bank Analytical Classifications for 2014.

Source: Euromonitor International 1998–2014

Figure 10.6. Cigarette Production, by WHO Region, 1998–2014



Notes: Data from a total of 74 countries are shown.

Source: Euromonitor International 1998-2014

Chapter 10. Tobacco Growing and Tobacco Product Manufacturing

- In 2013, ten countries accounted for most of the world's tobacco leaf production (80%); China alone produced more than 40% of the world's tobacco leaf. Tobacco is increasingly grown in low- and middle-income countries, and many of these countries export a large proportion of the world's tobacco leaf.
- 3. The vast majority of workers in the tobacco production chain are tobacco farmers doing highly labor-intensive work on small family farms, which are increasingly located in low- and middle-income countries. In contrast, cigarette manufacturing—the higher value phase of the chain—is highly mechanized and dominated by a few large multinational corporations largely based in high-income countries.

Chapter 10. Tobacco Growing and Tobacco Product Manufacturing (continued)

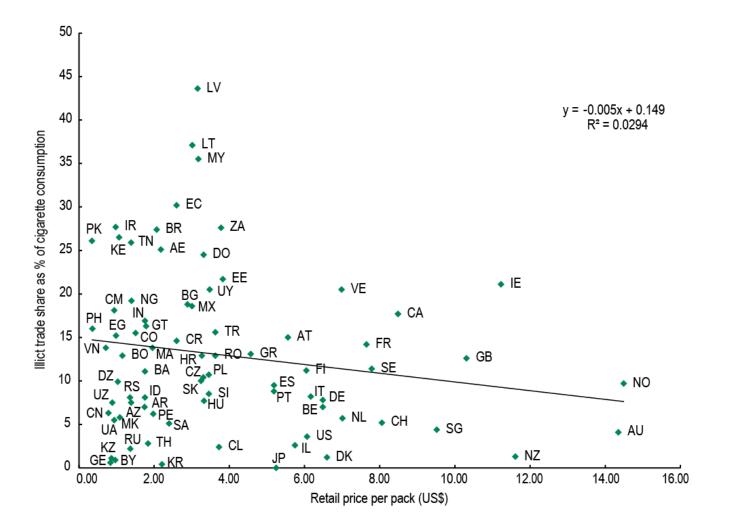
- 4. Tobacco growing is relatively profitable, but farming of other crops has the potential to be as or more profitable than tobacco growing. Alternatives to tobacco growing tend to be highly specific to a country or region. Policies that encourage crop diversification or substitution are useful as part of a comprehensive tobacco control strategy, but alone they will have little impact on tobacco use.
- 6. Product regulation is a rapidly developing component of a comprehensive tobacco control strategy. Regulation of tobacco products is a highly technical area, which poses many challenges for regulators, including challenges relating to the diversity of products, the ability of the tobacco industry to respond quickly to changing market conditions, and the need for sufficient capacity for testing and enforcing regulatory measures; addressing these issues is likely to be particularly challenging for low- and middle-income countries.

Chapter 11. Policies Limiting Youth Access to Tobacco Products

- 2. Youth access policies, when consistently enforced, can reduce commercial access to tobacco products among underage youth. Sufficient resources are needed to implement and enforce these policies well enough to effectively limit youth access to commercial sources of tobacco.
- 3. Evidence from high-income countries indicates that strongly enforced youth access policies that successfully disrupt the commercial supply of tobacco products to underage youth can reduce youth tobacco use, although the magnitude of this effect is relatively small.
- 4. Emerging research suggests that youth access policies can also be effective in reducing youth tobacco use in low- and middle-income countries, although the amount of reduction is unclear.

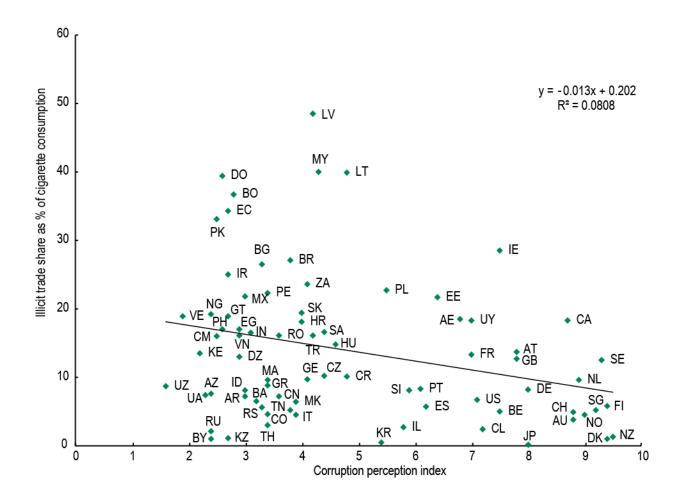
Illicit Trade

Figure 14.8. Share of Illicit Trade Versus Retail Prices of the Most Popular Brands, by Country, 2012



Sources: World Health Organization 2013 and Euromonitor International 2012

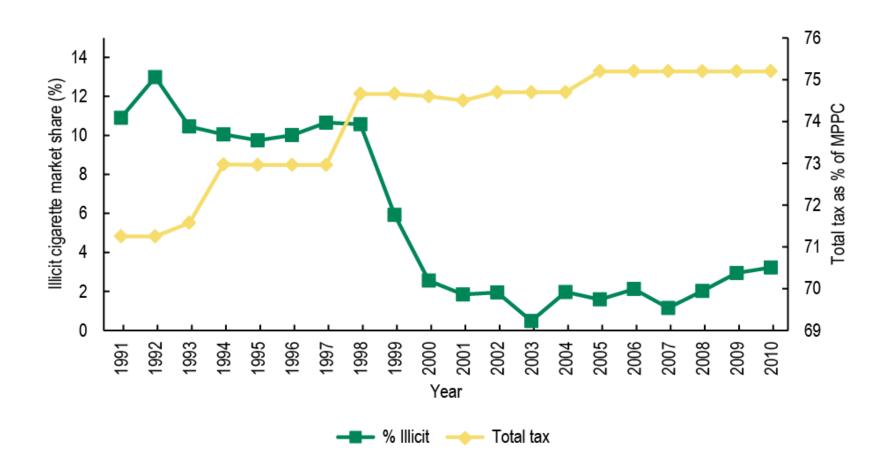
Figure 14.10. Share of Illicit Trade Versus Corruption, by Country, 2011



Note: Lower scores on the corruption perception index indicate higher levels of corruption.

Sources: Euromonitor International 2011 and Transparency International 2011

Figure 14.12. Illicit Cigarette Market Share and Percentage of Most Popular Price Category Accounted for by Taxes, Italy, 1991–2010



Note: MPPC = most popular price category of cigarettes.

Sources: European Commission 1991–2002 and ERC Group 2011

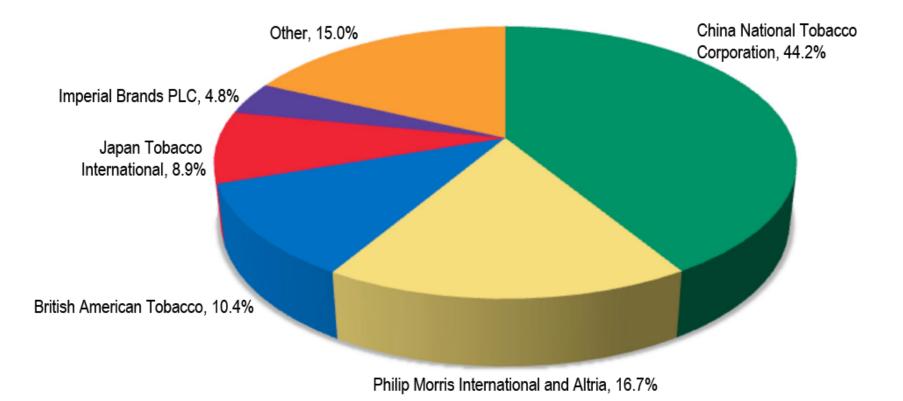
Chapter 14. Tobacco Tax Avoidance and Tax Evasion

- 2. In many countries, factors such as high levels of corruption, lack of commitment to addressing illicit trade, and ineffective customs and tax administration, have an equal or greater role in explaining tax evasion than do product tax and price differentials.
- 4. Experience from many countries demonstrates that illicit trade can be successfully addressed, even when tobacco taxes and prices are raised, resulting in increased tax revenues and reduced tobacco use.
- Implementing and enforcing strong measures to control illicit tobacco trade would enhance the effectiveness of significantly increased tobacco taxes and prices and strong tobacco control policies in reducing tobacco use and its health and economic consequences.

Major Conclusions (continued)

6. The market power of tobacco companies has increased in recent years, creating new challenges for tobacco control efforts.

Figure 12.2. Global Cigarette Market Share Distribution, 2014

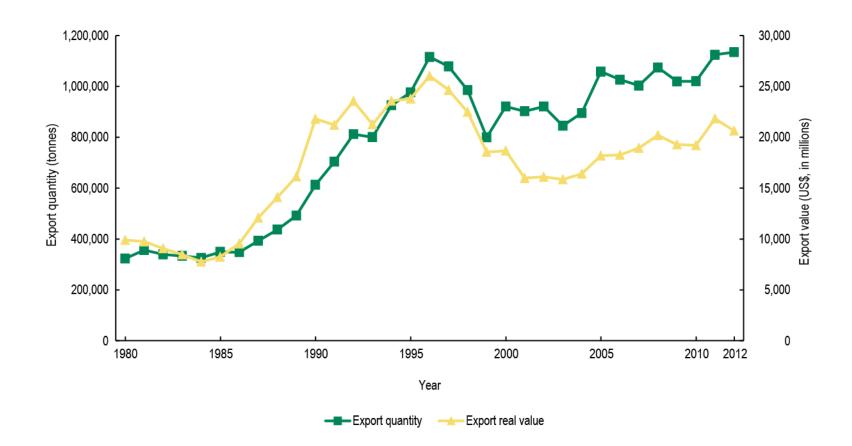


Note: Philip Morris International includes Philip Morris USA.

Source: Euromonitor International 2016



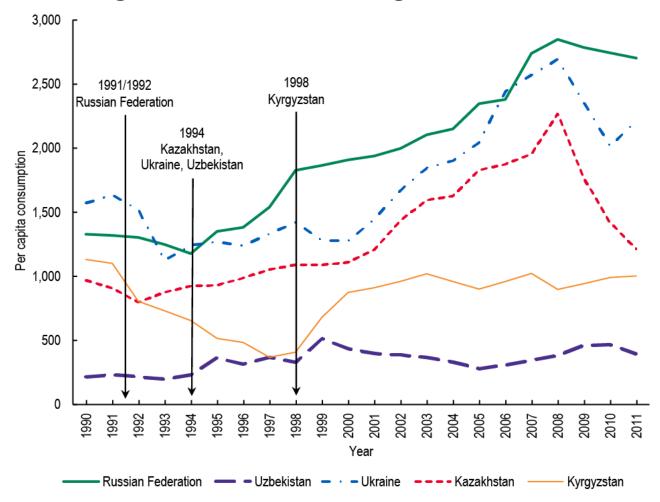
Figure 13.7. Global Cigarette Exports, Quantity and Inflation-Adjusted Value, 1980–2012



Note: Export value adjusted for inflation using 2012 U.S. dollars.

Source: FAOSTAT 1980–2012

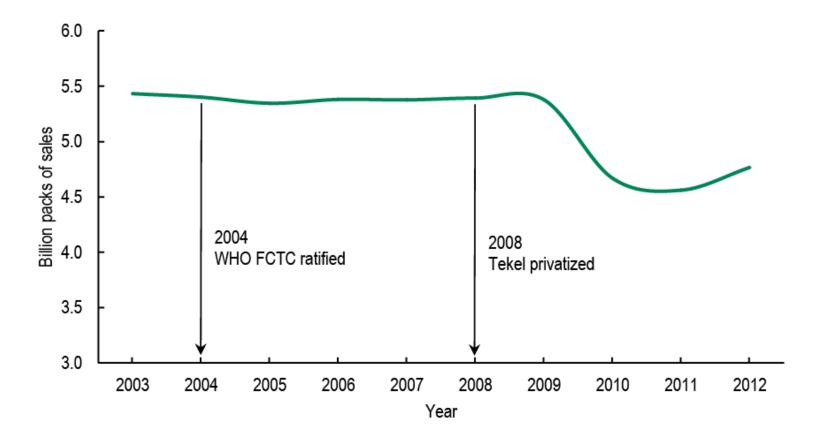
Figure 12.3. Per Capita Consumption of Cigarettes in Selected Countries of the Former Soviet Union, and Year When Privatized Cigarette Production Began, 1990–2011



Note: Multinational tobacco companies (MTCs) entered the market in Ukraine in 1992, but production did not start until 1994. Similarly, negotiations between MTCs and Kyrgyzstan began in 1994, but the MTC did not start production until 1998.

Source: ERC Group 2011

Figure 12.6. Sales of Packs of Cigarettes Before and After Privatization of Tekel in Turkey, 2003–2012



Notes: Sales refers to sales of cigarettes made by all producers, including multinational tobacco companies and Tekel. WHO FCTC = World Health Organization Framework Convention on Tobacco Control.

Source: Euromonitor International 2016

Chapter 12. Tobacco Manufacturing Privatization and Foreign Direct Investment and Their Impact on Public Health

4. Increasingly, the tobacco industry is using trade and investment treaties to challenge innovative tobacco control policies. The tobacco industry also uses the threat of litigation, with its attendant costs, and lobbying campaigns to deter governments from advancing tobacco control policies, especially in low- and middle-income countries. Figure 8.7 An Example of Australia's Plain Packaging, Showing Requirements for the Front and Back of the Cigarette Pack



· below health warning

· no larger than 10 points in size

· in upper case Lucida Sans font

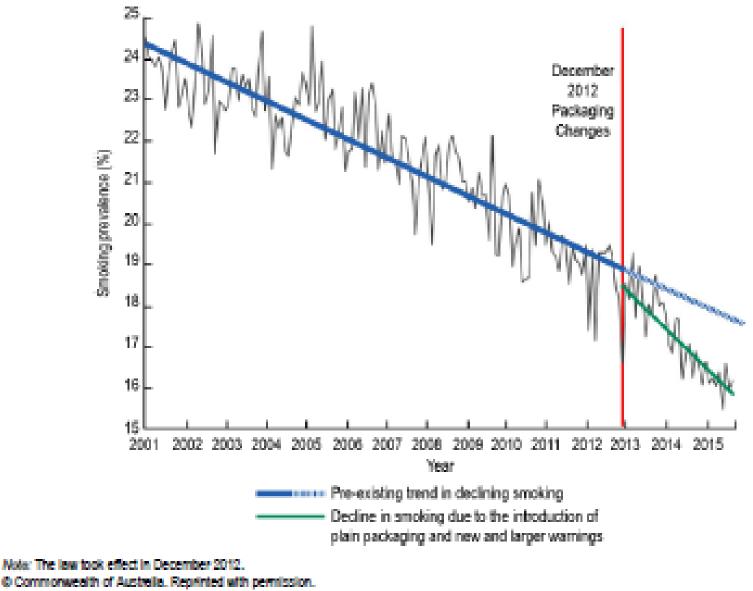
· in Pantone Cool Gray 2C colour

- horizontal and centred
 no larger than maximum sizes
- · in Lucida Sans font
- in Pantone Cool Gray 2C colour
- · In specified capitalisation

© Commonwealth of Australia. Reprinted with permission. Source: Australian Government 2014.¹¹¹







Source: Austrelian Government 2016, 188, 19

Note:

Chapter 13. Licit Trade in Tobacco Products

5. Recent World Trade Organization decisions involving challenges to domestic tobacco control policies suggest that governments can address public health concerns associated with increased liberalization of trade in tobacco leaf and tobacco products by adopting and implementing effective tobacco control policies and programs that apply evenly to domestic and foreign tobacco growers and manufacturers.

Major Conclusions (continued)

7. Tobacco control does not harm economies.

Chapter 15. Employment Impact of Tobacco Control

- Adoption of new production technologies and improved production techniques, together with the shift from state to private ownership in many countries, has reduced employment in both the tobacco-farming and manufacturing sectors.
- 3. In nearly all countries, national tobacco control policies will have either no effect or a net positive effect on overall employment because any tobacco-related job losses will be offset by job gains in other sectors.
- 4. In the few countries that depend heavily on tobacco leaf exports, global tobacco control policies could lead to job losses, but these losses are expected to be small, gradual, and unlikely to affect the current generation of tobacco farmers in these countries.

Major Conclusions (continued)

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

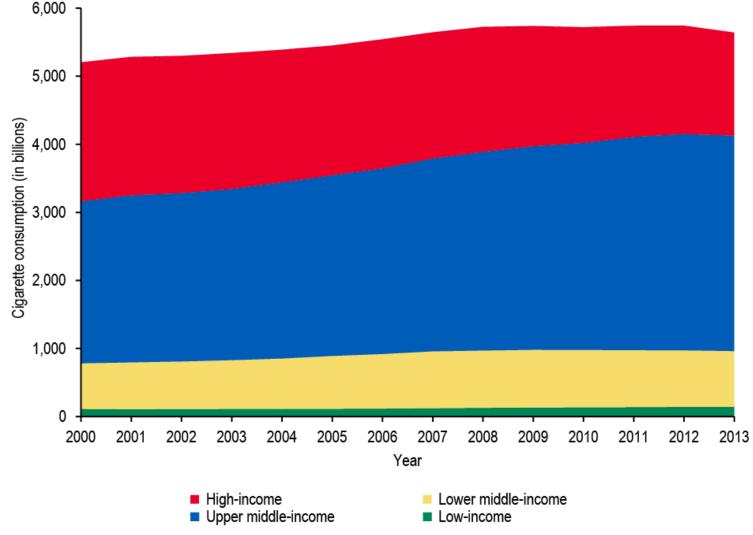
Chapter 16. The Impact of Tobacco Use and Tobacco Control Measures on Poverty and Development

- 1. Tobacco use and its consequences have become increasingly concentrated in low- and middle-income countries and, within most countries, among lower socioeconomic status populations.
- 2. Tobacco use in poor households exacerbates poverty by increasing health care costs, reducing incomes, and decreasing productivity, as well as diverting limited family resources from basic needs.
- **3.** Tobacco control efforts that are integrated with other public health and development policies can improve the overall health of the poor and can help achieve the Sustainable Development Goals.
- 4. Lower income populations often respond more to tobacco tax and price increases than higher income populations. As a result, significant tobacco tax and price increases can help reduce the health disparities resulting from tobacco use.

Major Conclusions (continued)

 Progress is now being made in controlling the global tobacco epidemic, but concerted efforts will be required to ensure that progress is maintained or accelerated.

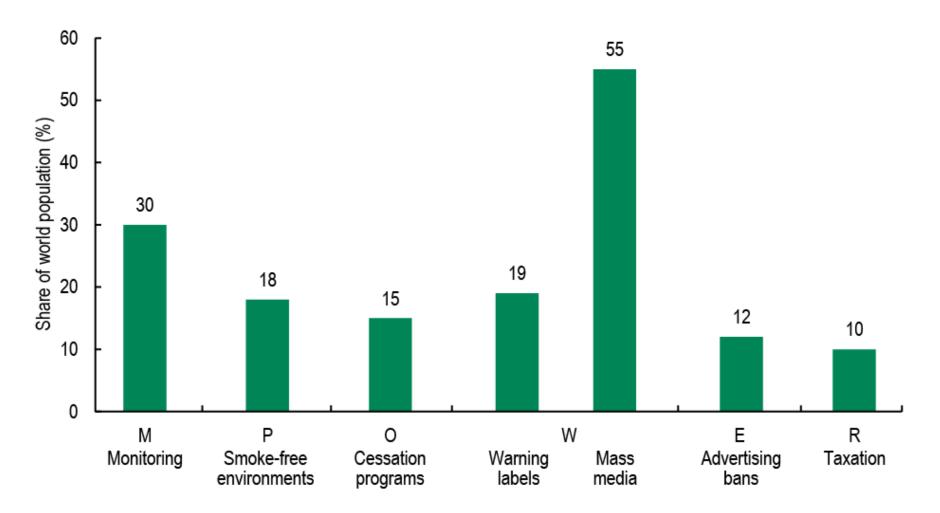
Figure 2.10. Global Consumption of Cigarette Sticks (in Billions), by Country Income Group, 2000–2013



Note: Country income group classification based on World Bank Analytical Classifications for 2013.

Source: Euromonitor International 2016

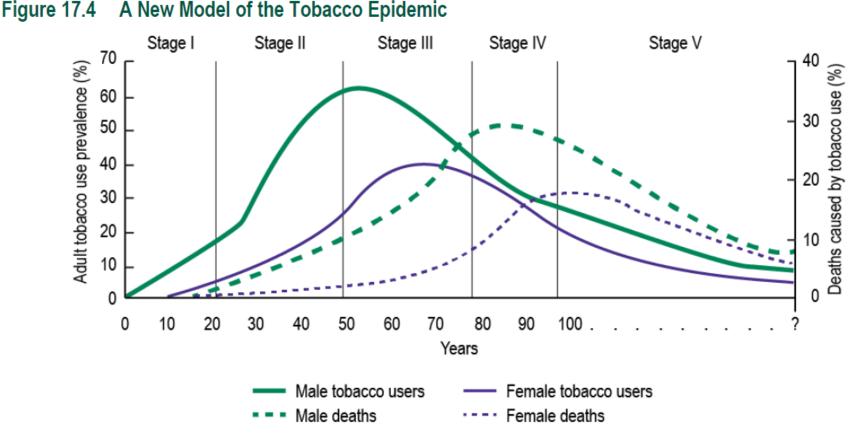
Figure 17.1. Share of the World Population Covered by Selected Tobacco Control Policies, 2014



Note: The tobacco control policies depicted here correspond to the highest level of achievement at the national level. For the definitions of these highest categories, refer to the WHO Report on the Global Tobacco Epidemic, 2015: Raising Taxes on Tobacco.

Source: World Health Organization 2015

The science is clear; the time for action is now.



Source: Adapted from Lopez et al. 1994.61

Adapted with permission from BMJ Publishing Group Ltd., from "A descriptive model of the cigarette epidemic in developed countries," Lopez A, Collishaw N, Piha T, volume 3(3), p. 246.

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