

Section 7
Global Implications of Tobacco Control

Chapter 17
Ending the Epidemic

Chapter 17

Ending the Epidemic

This summary chapter reviews the major conclusions that can be drawn from the study of the economics of tobacco control and identifies priorities for future research in this field.

This monograph presents strong evidence that tobacco control measures are effective and do not harm national economies. Policies and programs that reduce the demand for and supply of tobacco products are highly cost-effective and lessen the disproportionate burden that tobacco use imposes on the poor. Given the enormous health and economic consequences of tobacco use and the rapidly evolving global market for tobacco, these interventions are now more urgently needed than ever, particularly in low- and middle-income countries (LMICs).

Research priorities (particularly in LMICs) include studies to better understand: the effects of tobacco taxation and pricing, the economic impact of tobacco use and tobacco control measures, interrelationships between tobacco use and poverty, illicit trade, economically viable alternatives to tobacco growing and manufacturing, and implementation and evaluation of the World Health Organization Framework Convention on Tobacco Control.

Implementing effective tobacco control measures makes it possible that tobacco could become a minor public health problem rather than the public health catastrophe it currently is or could soon become in most countries. Implementation of strong, comprehensive tobacco control strategies has reduced tobacco use in many countries at all income levels, and government fears that tobacco control will have an adverse economic impact are not supported by the evidence. This monograph provides the evidence that implementing effective tobacco control measures makes sense from both an economic and public health standpoint for countries at all income levels.

High-income countries have succeeded in curbing tobacco consumption by significantly raising tobacco taxes and prices and by employing the tobacco control strategies described in this monograph. However, the majority of tobacco users worldwide today live in LMICs, and in most countries tobacco use is more concentrated in low-income populations. Understanding the effects of tobacco on low-income populations is particularly important for reducing tobacco use and its adverse health consequences.

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Milestones in Tobacco Control Economics

More than 15 years ago, the World Bank's *Curbing the Epidemic: Governments and the Economics of Tobacco Control* drew attention to the spread of the epidemic of tobacco use and its consequences from high-income countries (HICs) to low- and middle-income countries (LMICs).¹ The report presented evidence on the effectiveness of policies to reduce the demand for tobacco products and emphasized the importance of deterring smuggling as the key supply-side intervention. The report also demonstrated that strong tobacco control efforts do not harm economies. Almost all the evidence presented in *Curbing the Epidemic* and its companion volume, *Tobacco Control in Developing Countries*, came from HICs, in large part because of their more extensive implementation of tobacco control policies, readily available data on tobacco use and its determinants and consequences, and the research infrastructure and funding available in these countries.² Implications for tobacco control in LMICs were derived from the evidence from HICs and the limited research available from LMICs.

Since the publication of *Curbing the Epidemic*, global research on the economics of tobacco use and tobacco control, especially in LMICs, has expanded considerably.³ This rapid growth was fueled in part by the globalization of tobacco control policy that followed the adoption and implementation of the World Health Organization (WHO) Framework Convention on Tobacco Control (WHO FCTC), a multinational public health treaty which was negotiated beginning in 1999. Adopted unanimously by WHO Member States in May 2003, the WHO FCTC entered into force on February 27, 2005. It is a legally binding treaty which requires Parties to adopt tobacco control policies and programs that have been shown to be effective in reducing tobacco use and its health and economic consequences.⁴ In developing the treaty, Member States included Articles that addressed both the demand for tobacco products (Articles 6 through 14) and the supply of tobacco products (Articles 15 through 17) while requiring that the tobacco control policies and programs of these Member States be protected from tobacco industry interference (Article 5.3). Moreover, the WHO FCTC establishes obligations relating to surveillance systems (Article 20) and undertaking research to enhance the effective implementation of the treaty.

Three factors—the research gaps identified in *Curbing the Epidemic, Tobacco Control in Developing Countries*, and other reports; WHO FCTC provisions on surveillance and research; and increased attention from global organizations and funding agencies—resulted in hundreds of new studies on the patterns, causes, and consequences of tobacco use in LMICs. At the same time, demand increased for country-specific evidence on the economics of tobacco use and tobacco control. Ministries of finance, industry, trade, and commerce began to show heightened interest in tobacco control, particularly through tobacco taxation. These developments were accompanied by the rise of new nongovernmental organizations (NGOs) focused on tobacco control throughout the world.⁵

More robust local and global tobacco surveillance systems have provided much-needed data for this research. Beginning in 1998, the Centers for Disease Control and Prevention (CDC; an agency of the U.S. Department of Health and Human Services) and WHO developed and implemented the Global Tobacco Surveillance System, which is a set of four integrated surveys: the Global Youth Tobacco Survey, Global Adult Tobacco Survey, Global School Personnel Survey, and Global Health Professions Student Survey.⁶ Taken together, these surveys, conducted over multiple years, now provide comparable, nationally representative data on tobacco use among youth and adults for many countries.

In addition, longitudinal surveys of tobacco users have been developed and implemented by the International Tobacco Control Policy Evaluation (ITC) Project, with funding from the National Cancer Institute (NCI) of the National Institutes of Health (an agency of the U.S. Department of Health and Human Services), the Canadian Institutes of Health Research, other government agencies, private foundations, and others. The ITC Project has conducted surveys in more than 20 low-, middle-, and high-income countries, inhabited by more than 70% of the world's tobacco users.⁷ The rich information collected in these and other surveys has provided researchers with the data they need to evaluate the impact of tobacco control policies on tobacco use and related outcomes.

Equally important for this research are the efforts to develop tobacco control policy surveillance systems. To help Member States implement the key demand-reduction policies required by the WHO FCTC, WHO developed the MPOWER package of the six most important and effective tobacco control measures:⁸

- Monitor tobacco use and prevention policies (Article 20)
- Protect people from tobacco smoke (Article 8)
- Offer help to quit tobacco use (Article 14)
- Warn about the dangers of tobacco (Articles 11 and 12)
- Enforce bans on tobacco advertising, promotion, and sponsorship (Article 13)
- Raise taxes on tobacco (Article 6).

Beginning in 2008, WHO's regular reports on the global tobacco epidemic have tracked the status of these key tobacco control measures.⁹ Additional information on these policies and others required by the WHO FCTC are available through the regular reporting of the Parties' treaty implementation efforts, as required by Article 21.¹⁰

Economists and other tobacco control researchers are increasingly aware of the variety of national, subnational, and commercial data that can be used to assess and inform tobacco control policies. As documented in *Methods for Evaluating Tobacco Control Policies*, published by the International Agency for Research on Cancer (IARC)¹¹ as part of its Handbooks of Cancer Prevention series, data on tax-paid cigarette sales, tobacco production, and trade flows are often readily available from various government agencies, as are national household- and individual-level survey data on expenditures on and use of tobacco products. The IARC handbook also highlights the data available from commercial vendors, such as cigarette price data collected by the Economist Intelligence Unit, Symphony IRI Group (formerly Information Resources, Inc.), A.C. Nielsen, and others, as well as the wealth of country-specific market data provided by Euromonitor International and the ERC Group.

Following *Curbing the Epidemic*, the World Bank and WHO developed and disseminated toolkits for researchers, which provided step-by-step methods for conducting a variety of economic analyses of tobacco use and tobacco control. These toolkits include tools for estimating the demand for tobacco products, assessing the economic costs of tobacco use, measuring tax avoidance and evasion, estimating the employment impact of tobacco control policies, and investigating the impact of tobacco control on the poor.¹² The World Bank, WHO, the Rockefeller Foundation, and others drew on these toolkits and supported workshops to train economists from LMICs on the research methods needed to conduct these analyses.

Financial and/or technical support to conduct economic research was provided by a variety of funders including NCI, WHO, the World Bank, the American Cancer Society, Cancer Research UK, Fogarty International Center at the National Institutes of Health (U.S.), International Development Research Centre’s Research for International Tobacco Control program (Canada), Rockefeller Foundation’s Trading Tobacco for Health initiative (U.S.), Bloomberg Global Initiative to Reduce Tobacco Use (U.S.), and the Bill and Melinda Gates Foundation (U.S.). The joint World Bank and WHO Health, Nutrition and Population *Economics of Tobacco Control* research paper series and the more recent economic report series from the Bloomberg Initiative have disseminated some of this research, and other studies have been published in a variety of economics, public health, public policy, and other peer-reviewed journals.

Despite the substantial growth in research on the economics of tobacco use and tobacco control, concerns about the economic impact of effective tobacco control policies remain a significant obstacle to their adoption and implementation. These arguments—that tobacco control policies and programs result in significant job losses, create black markets in tobacco products, cost governments much-needed tobacco tax and other revenues, and harm the poor—have been and continue to be used by opponents of strong tobacco control policies. For example, in its December 2010 submission to the U.S. Food and Drug Administration (FDA; an agency of the U.S. Department of Health and Human Resources), Altria argued that a ban on mentholated cigarettes would have many unintended consequences, including “significant expansion of the unregulated, illicit cigarette market,” “increased organized crime,” “an erosion in underage access prevention,” “declining tax revenues and tobacco settlement payments to states,” and “significant job losses within the legitimate distribution chain—from farmers to retail clerks.”^{13,p.3} Likewise, the Bakery, Confectionery, Tobacco Workers and Grain Millers International Union argued in its submission to the FDA’s Tobacco Products Scientific Advisory Committee that a ban on menthol “would result in severe job loss for our tobacco industry members.”¹⁴ In addition, in the debate over raising the U.S. federal cigarette excise tax to fund the expansion of the State Children’s Health Insurance Program (S-CHIP), Henchman and Prante, writing on behalf of the Tax Foundation, argued that this “tax increase hurts the poor more than virtually any other way of raising money to fund S-CHIP expansion” while encouraging smuggling and related crime.¹⁵

This monograph provides an up-to-date review of the research on the economics of tobacco use and tobacco control, highlighting findings from LMICs and addressing the opposing arguments around the economic impact of tobacco control policies. This chapter synthesizes the evidence reviewed in earlier chapters, highlighting areas where additional research is needed, and providing a framework for ending the global tobacco epidemic.

What We Have Learned—Major Conclusions

The rapid increase in the quantity of research on the economics of tobacco use and tobacco control that has occurred since the publication of *Curbing the Epidemic* has expanded the evidence base for the effectiveness of tobacco control policies and programs. This section discusses the major conclusions developed in this monograph.

Conclusion 1: The global health and economic burden of tobacco use is enormous and is increasingly borne by low- and middle-income countries.

As chapter 2 shows, the number of smokers age 15 years and older in the world—about 1.1 billion—has changed very little over the past 15 years. The fact that this number has not declined is mainly attributable to population growth, because smoking prevalence has decreased markedly in HICs and in most WHO Regions. As of 2015, around 80% of the world’s smokers live in LMICs. Every year, around 6 million people die from tobacco use; many of these deaths occur in LMICs. In HICs, women smoke at a rate more similar to that of men (17.5% of women compared to 32.1% of men), whereas in LMICs, men are far more likely than women to smoke (35.0% of men compared to 3.6% of women). In many LMICs, however, girls are taking up smoking at rates well above adult female smoking rates, which suggests that the health and economic consequences of smoking in these countries may increase in severity in the foreseeable future. Additionally, the use of a variety of smokeless tobacco products, prevalent in some LMICs among both men and women, contributes to oral cancer and other health effects, though the burden has yet to be fully characterized.

Tobacco use imposes significant economic costs, most notably increased health care spending to treat the diseases caused by tobacco use and the lost productivity that results from tobacco-attributable death and disease (see chapter 3). Evidence from HICs shows that cigarette smoking results in a net increase in health care costs over an individual’s lifetime despite the years of life lost from dying prematurely of a smoking-related disease. Because tobacco use in LMICs is expected to increase, the economic costs of tobacco use in these countries will almost certainly rise over the next few decades, further burdening already strained health care systems.

Conclusion 2: Failures in the markets for tobacco products provide an economic rationale for governments to intervene in these markets.

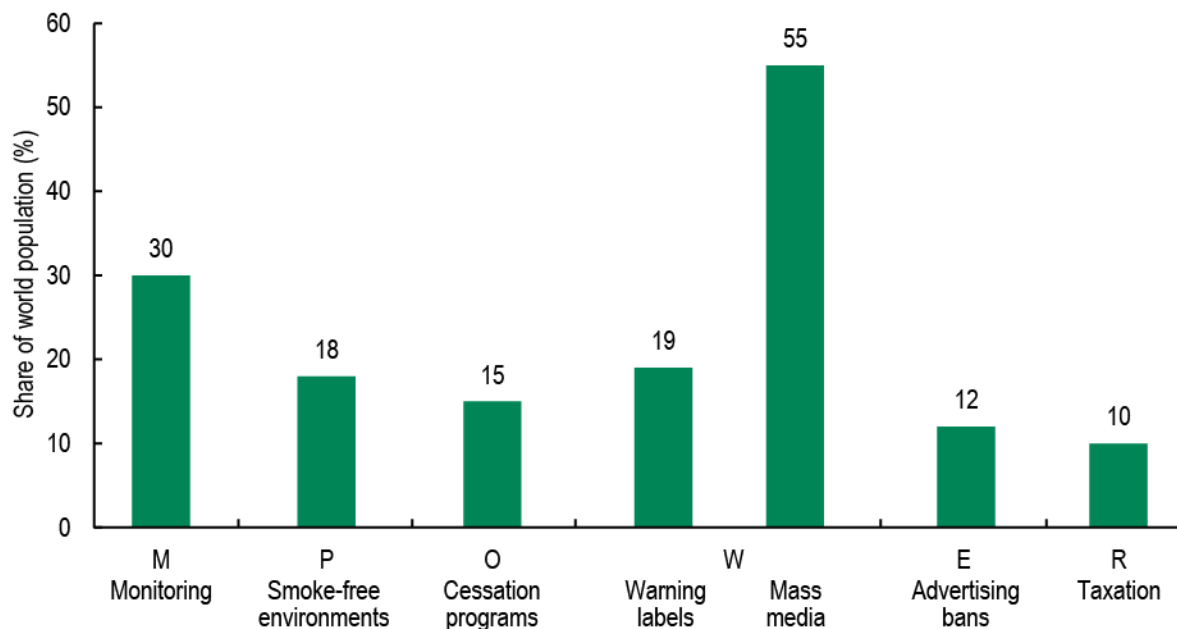
There are multiple failures in the markets for tobacco products, as several chapters describe. Chapter 8 highlights the public’s often imperfect knowledge about the health consequences of consuming tobacco products and the asymmetric nature of the information available to the public. The tobacco industry contributes to information failures through product marketing, which helps distort public perceptions of the relative risks and benefits of tobacco use. In addition, the companies have withheld, denied, and distorted information about their products. Together, this has resulted in higher rates of tobacco use than would have occurred otherwise. Information failures are most pronounced in LMICs but also persist in HICs. These information failures are further complicated by initiation of tobacco use during adolescence and young adulthood, addiction, and the time-inconsistency of individual preferences. Young people are more likely to discount the long-term health consequences of tobacco use and to underestimate their potential for becoming addicted to tobacco products. The vast majority of adult tobacco users regret ever having initiated tobacco use.

In addition, externalities arise from tobacco use, with nonusers incurring costs as a result of others’ tobacco use (chapter 3). The costs of tobacco use vary from country to country, and the external costs are greater in countries where public funds are used to pay for a greater share of health care costs. Nonsmokers, both children and adults, suffer numerous adverse health consequences when exposed to secondhand smoke (SHS) (see chapter 2). Estimates indicate that, globally, about 600,000 nonsmokers die prematurely each year as a result of their SHS exposure.

Conclusion 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.

Although there has been considerable progress in the adoption, implementation, and strengthening of tobacco control policies since the WHO FCTC first entered into force, as of 2014 much of the world's population was not adequately covered by the most effective interventions (at the highest level of achievement), as illustrated in Figure 17.1. These most effective interventions are significant increases in tobacco taxes and prices, comprehensive smoke-free policies, complete bans on tobacco marketing, information interventions, and cessation support; these are summarized below.

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 2015.⁹

Adopting a comprehensive set of tobacco control policies that reduce the demand for tobacco products would lead to significant reductions in the prevalence of tobacco use and in the death, disease, and economic costs it causes. For example, Levy and colleagues¹⁶ estimated that implementation of MPOWER measures between 2007 and 2010 would have prevented almost 7.5 million smoking-attributable deaths globally. Moreover, Mendez and colleagues¹⁷ estimated that global implementation of the MPOWER measures in 2010, with a doubling of cigarette prices, would reduce prevalence from 22.0% to 13.2% in 2030, resulting in almost 350 million fewer smokers. The effects on public health would become increasingly positive over time, particularly given the effectiveness of these interventions in preventing young people from initiating tobacco use, coupled with the lag between the onset of tobacco use and many of its major health consequences.

Tobacco Taxation

Chapters 4 and 5 highlight the most effective of these policies, tobacco taxation, which is the subject of WHO FCTC Article 6. The evidence reviewed in chapter 4 clearly demonstrates the effectiveness of significant increases in tobacco product taxes and prices in reducing all aspects of tobacco use. Higher tobacco taxes that significantly raise tobacco product prices lead current users to quit, keep former users from resuming tobacco use, prevent young people from becoming regular tobacco users, and reduce the consumption of tobacco products by those who continue to use them. Tobacco use among youth and those in the lowest income percentiles is generally more responsive to changes in taxes and prices than tobacco use among older or higher income people.

As explained in chapter 4, although the magnitude of the impact of tax and price increases on tobacco use varies from country to country, estimates from most countries indicate that a tax increase that raises the price by 10% will reduce overall tobacco use by between 2.5% and 5.0%. Estimates from LMICs are particularly variable, and estimates from many countries indicate that a given increase in taxes and prices in LMICs will have at least as great an impact as the same increase in HICs. Specifically, in HICs, most estimates of elasticities of demand range from -0.2 to -0.6 , clustering around -0.4 . In LMICs, elasticity estimates range from -0.2 to -0.8 , clustering around -0.5 . However, in countries like the People's Republic of China, where income growth has significantly outpaced increases in cigarette prices, cigarettes have become increasingly affordable, and cigarette demand is likely to be less responsive to price. In these countries, larger tax increases that significantly reduce the affordability of cigarettes will be necessary to significantly reduce demand.

As chapter 5 shows, the inelasticity of the demand for tobacco products, the relatively low share of tobacco taxes in tobacco product prices, and effective tax administration ensure that increases in tobacco taxes will lead to increases in tobacco tax revenues in the short to intermediate term, despite the reductions in tobacco use that will eventually result from higher taxes. However, tobacco tax systems are complex in many LMICs, creating opportunities for tax avoidance and tax evasion and reducing the health and revenue impact of increases in tobacco tax rates.

Chapter 5 also describes a set of best practices for effective tobacco taxation, drawing on the *WHO Technical Manual on Tobacco Tax Administration*.¹² To date, however, few governments have adopted and implemented tobacco tax structures that are consistent with these best practices. As chapter 5 shows, although the public health impact is increasingly a motive for increases in tobacco excise taxes, the revenue that these taxes generate is often as or more important to governments than the effect on public health. Many governments, particularly those in LMICs, have adopted complicated tax structures that tax the same product at different rates on the basis of various product characteristics or prices. Few governments have reached the target of a 70% excise as a share of price recommended by the *WHO Technical Manual on Tax Administration*, and the gap between this target and actual tax shares is largest for the lowest income countries. Lastly, only a small number of governments have dedicated a portion of their tobacco tax revenues to comprehensive tobacco control programs and/or other health promotion efforts, a strategy that can further enhance the effects of tobacco taxes.

Smoke-Free Policies

As discussed in chapter 6, comprehensive smoke-free policies directly address the externalities that result from nonsmokers' exposure to SHS. As consistently demonstrated in HICs that have adopted comprehensive smoke-free policies, compliance with the policies is generally high, and nonsmokers'

exposure to SHS is significantly reduced. In addition, comprehensive smoke-free policies reduce smoking among both adults and youth while strengthening social norms against smoking. The effectiveness of smoke-free policies is enhanced with implementation of public education efforts about the consequences of exposure to SHS. The evidence clearly demonstrates that comprehensive smoke-free policies do not harm business, contrary to what is often argued by the tobacco industry.

WHO FCTC Article 8 sets out the requirement for smoke-free environments, and guidelines for implementing these policies have been developed based on HICs' experiences with these measures. These guidelines incorporate several key principles including emphasizing the importance of comprehensive policies that cover, without exemptions, all indoor public places and workplaces, recognizing that there are no safe levels of exposure and that the use of designated smoking areas, ventilation, or other approaches will not provide universal protection for nonsmokers.

Despite the strong evidence for the effectiveness of comprehensive smoke-free policies, few countries have adopted policies consistent with these guidelines, and these policies are much more prevalent in HICs than in LMICs. Of the 43 countries that have adopted comprehensive smoke-free policies and measured compliance, almost two-thirds (63%) report high or very high levels of compliance.⁹

Tobacco Advertising, Promotion, and Sponsorship

Tobacco companies use a variety of marketing practices that increase the demand for tobacco products, with potentially greater impact on vulnerable populations, including young people and women (chapter 7). These marketing communication strategies, including conventional mass media advertising, sales promotions, sponsorship, and other activities, contribute to information failures in tobacco product markets by distorting perceptions of the relative costs and benefits of tobacco use. Tobacco product labeling and packaging add to these distortions (chapter 8). As chapter 7 concludes, an extensive body of research has demonstrated a causal relationship between tobacco company marketing activities and tobacco use, including the uptake and continuation of tobacco use among young people. Comprehensive bans on tobacco company marketing practices directly address this market failure and lead to reductions in tobacco use in both HICs and LMICs. In countries that have adopted increasingly comprehensive marketing bans, the remaining channels, particularly product packaging and tobacco product displays at the point of sale, become more important. Addressing tobacco company marketing through the Internet and related communication platforms presents a new challenge for researchers and public health practitioners.

The WHO FCTC guidelines for Article 13 highlight several key principles for maximizing the effectiveness of a ban on tobacco advertising, promotion, and sponsorship,¹⁸ including: the importance of a comprehensive ban that covers all direct and indirect marketing activities, such as the display of tobacco products at the point of sale; the utility of plain (standardized) packaging in eliminating the effectiveness of packaging as a marketing tool; and the importance of addressing depictions of tobacco use in entertainment media as part of a comprehensive ban on tobacco marketing.

The evidence demonstrates that tobacco product packaging and labeling can distort perceptions of the risks of using various tobacco products. These distortions are addressed in Article 11 of the WHO FCTC which obliges Parties to ban the use of misleading terms like "light," "mild," and "low-tar." Guidelines for implementation of Article 13 also address the display of emission yields for tar, nicotine, and carbon monoxide based on machine testing. In the United States, a provision of the Family Smoking Prevention

and Tobacco Control Act (2009) bans use of the terms “light,” “mild,” or “low,” or similar descriptors, without a marketing authorization from the FDA.¹⁹ The court in *United States of America v. Philip Morris USA, Inc.*, also prohibited the defendants and other covered persons and entities from using misleading descriptors such as “low-tar,” “light,” “mild,” and “natural.”^{20,p.938;21}

Although many governments restrict some tobacco company marketing practices, few have adopted comprehensive policies that ban most of these activities. In 2012, Australia became the first country to enact legislation mandating plain packaging for cigarettes. As of September 2016, Hungary, Ireland, France, New Zealand, and the United Kingdom of Great Britain and Northern Ireland have also passed plain packaging laws, and several other countries are also considering doing so (see chapter 8).

Information Interventions

As discussed in chapter 8, there are multiple information failures in the markets for tobacco products. Although the health consequences of tobacco use and exposure to SHS have been well documented, many tobacco users remain unaware of the risks from tobacco use or fail to internalize these risks. This lack of information is compounded by the addictive nature of tobacco use and the fact that many people begin using tobacco products at young ages, often thinking they will be able to quit before they experience the health consequences of tobacco use. This underestimation of the risks from tobacco use is greatest in many LMICs. Communicating information on the consequences of tobacco use is effective in correcting misperceptions of risk and reducing tobacco use.

Many approaches to disseminating information have been tried, with varying degrees of effectiveness. Authoritative reports on the health consequences of tobacco use have been released and widely covered by the news media; school-based anti-tobacco education programs and mass media public education campaigns have been conducted; and health warning labels have been required on tobacco product packaging and in advertising. Prominent pictorial health warning labels are a low-cost intervention that has been found effective in raising awareness about the health consequences of tobacco use and in increasing interest in quitting, with effects at least as strong in LMICs as in HICs. Evidence from various HICs and LMICs also shows that anti-tobacco mass media public education and counter-marketing campaigns can significantly reduce tobacco use while strengthening social norms against tobacco use and increasing public support for tobacco control policies.

The WHO FCTC Article 11 implementation guidelines provide direction for effective implementation of health warning labels.²² According to these guidelines, health warning labels should cover at least half of the principal display area (and aim to cover as much of the principal display area as possible), be pictorial and in color, use culturally appropriate content written in all principal languages of a country, be positioned so that they are not damaged or hidden when the package is opened by normal means, not be obstructed by other pack markings, be rotated regularly and updated periodically, and provide messages that go beyond the health effects for the individual smoker. Although the majority of countries have mandatory health warning labels on tobacco product packaging, most do not meet all of these standards.

The WHO FCTC implementation guidelines for Article 12 specify the steps governments can take to implement effective public education campaigns about the harm caused by tobacco use.²³ These include: providing adequate funding to develop and sustain the necessary infrastructure (organizational structure and capacity); raising public awareness about the harms caused by tobacco use, exposure to secondhand

smoke, and tobacco industry efforts to undermine tobacco control efforts; highlighting the benefits of tobacco cessation; promoting social change; using all available communication tools; and developing and implementing campaigns that reach all populations and target particularly vulnerable populations.

More of the world's population has been exposed to a sustained, high-quality anti-tobacco mass media campaign than to any of the other highly effective demand-reduction interventions previously described (the MPOWER package). However, resource constraints make low-income countries least likely to conduct mass media campaigns.

Cessation Support

Chapter 9 highlights the significant reductions in health risks that follow the cessation of tobacco use. As discussed in several chapters, adoption and implementation of strong tobacco control policies and programs will increase many tobacco users' interest in quitting and will help former users remain abstinent. Even when these strong policies and programs are not available, as described in chapter 9, there is considerable demand for cessation support not only in HICs but in LMICs. Experiences in HICs have shown that quitting is more likely to be successful when an evidence-based cessation intervention is used than when it is not. However, far less is known about the transferability of these interventions to LMICs, at least in part because tobacco dependence treatment services and products are limited in many LMICs and, when available, are often too expensive for many tobacco users interested in quitting.

Recognizing the importance of expanding access to tobacco dependence treatment services and products, guidelines that cover population- and individual-level cessation interventions have been developed for WHO FCTC Article 14.²⁴ These guidelines stress the importance of providing cessation interventions as part of a comprehensive approach to tobacco control, given the increased demand for cessation that results from the adoption and implementation of other tobacco control measures. The guidelines also describe the key components of a cessation program, including: use of population-level approaches such as mass media campaigns, brief advice by all health care workers, and quitlines; use of more intensive individual-level approaches that include behavioral support and, when appropriate, medications; increased availability of cessation medications; adoption of novel approaches when emerging evidence indicates that these are effective; and implementation of a stepwise approach that begins with integrating cessation into health systems and then builds capacity in countries where resources are limited.

More than 80% of countries have cessation services available in one or more settings, and three-quarters of these provide some cost coverage for these services. HICs have the highest rate of provision of cessation services (>90%), and more than half support a toll-free quitline. In contrast, low-income countries have the lowest rates of service provision, with only 18% of low-income countries covering costs for cessation services and only 9% funding a quitline.⁹

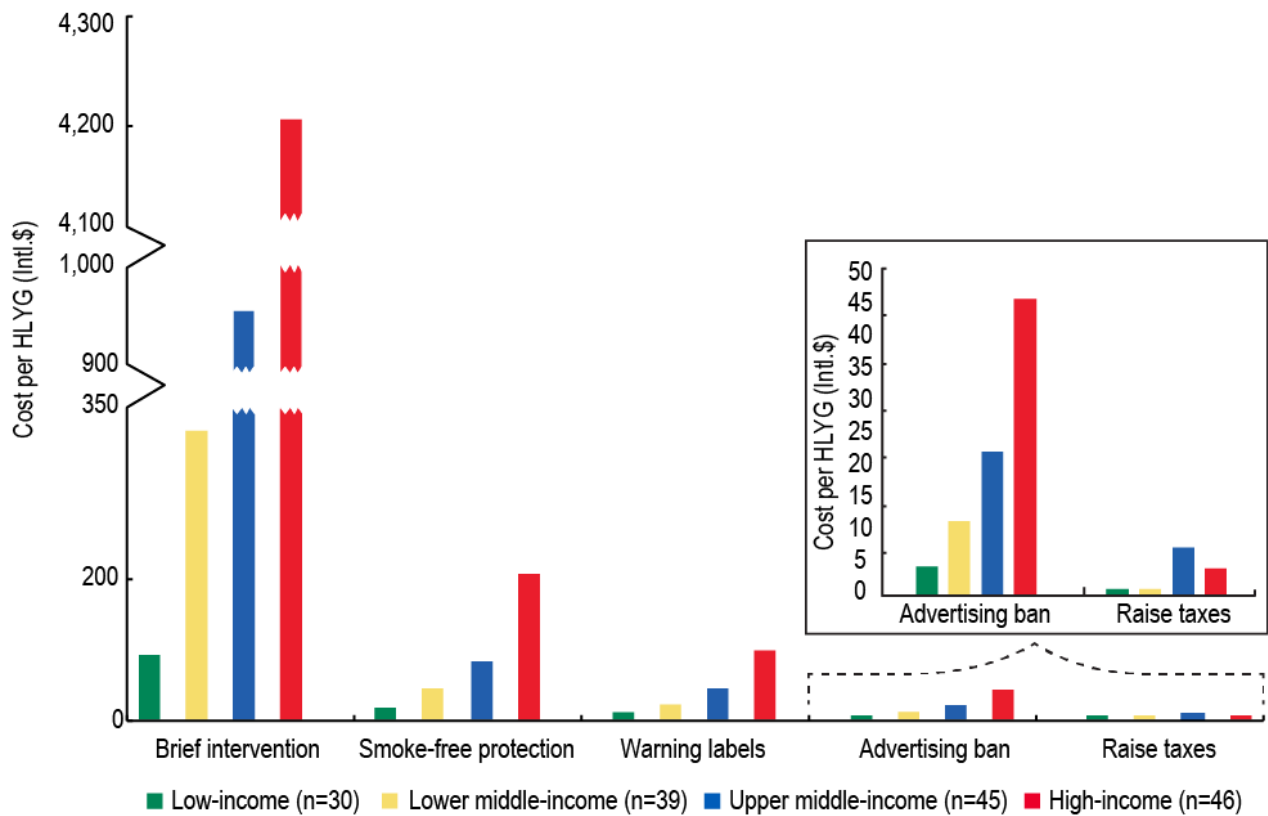
Conclusion 4: Policies and programs that work to reduce the demand for tobacco products are highly cost-effective.

In addition to being effective in reducing tobacco use, the interventions discussed under Conclusion 3 above—tobacco taxation; smoke-free policies; bans on tobacco advertising, promotion, and sponsorship; information interventions; and cessation support—are highly cost-effective. Since 2003, WHO has been developing and refining its “CHOosing Interventions that are Cost Effective” (CHOICE) model²⁵ for

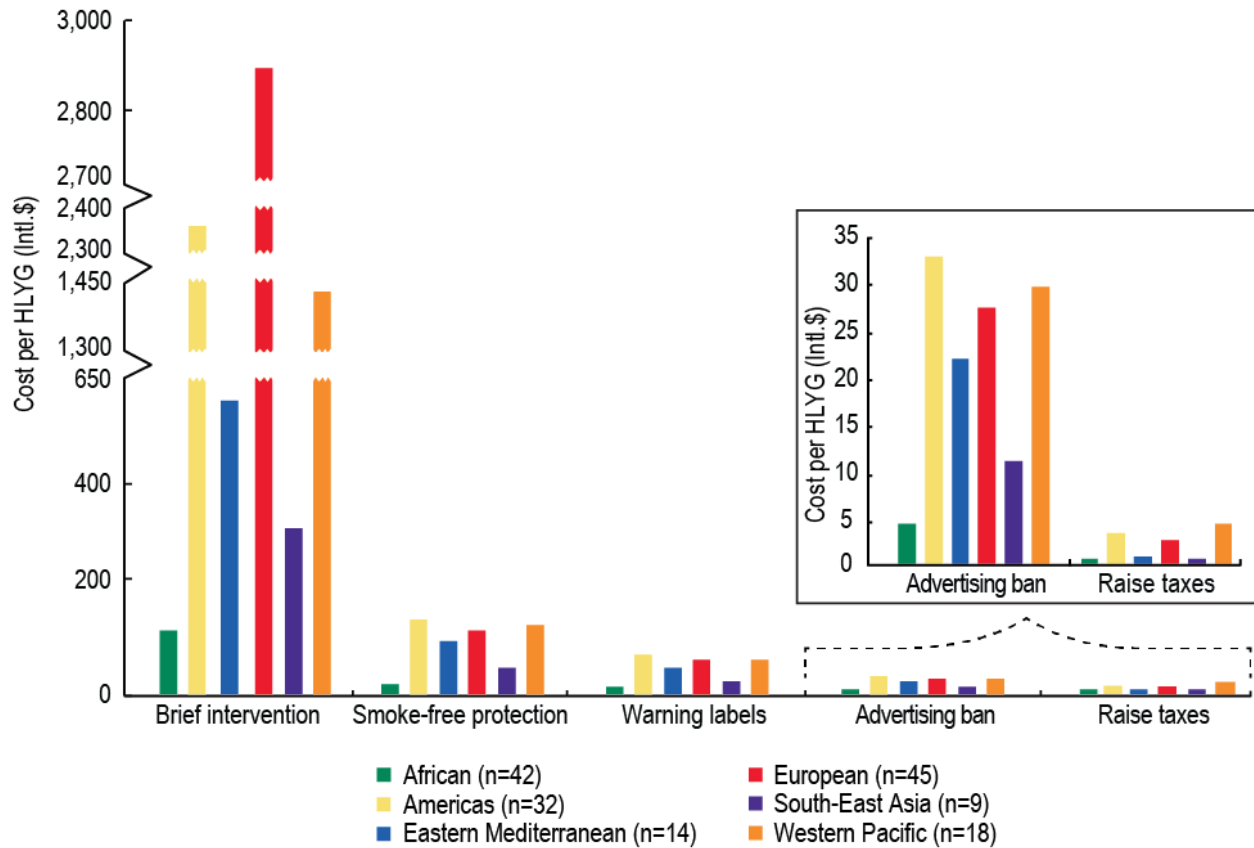
assessing the costs, effectiveness, and cost-effectiveness of a number of health interventions that address communicable and noncommunicable diseases as well as the costs of behaviors that contribute to them.

For tobacco control, CHOICE has modeled the impact of tobacco taxation, smoke-free policy implementation and enforcement, a comprehensive ban on tobacco company marketing, information dissemination via warning labels, and brief interventions (defined as brief counseling by physicians and other health care providers) for smoking cessation. CHOICE draws on existing evidence of the impact of each intervention on tobacco use to assess its effectiveness, and CHOICE economists have developed estimates of program costs (including the costs of administration, training, and media) and costs to individuals of these interventions. Figures 17.2 and 17.3 present the findings from the WHO CHOICE model by country income group and WHO Region, respectively; specifically, the figures present the costs (in international dollars) of the tobacco control policies per healthy life-year gained (HLYG).

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


Note: HLYG = healthy life-year gained.

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

Because of their relatively low administrative costs, tobacco tax increases and comprehensive bans on tobacco company marketing activities are generally the least costly interventions, followed by information dissemination via warning labels and enforcement of smoke-free policies, with brief interventions being the most costly. Despite the considerable revenues that are generated by tobacco taxes and the high cost-effectiveness of tobacco control policies and programs, few governments are investing in tobacco control. WHO estimated that in 2013-2014, global tobacco excise taxes generated nearly US\$ 269 billion in government revenues, but governments spent a combined total of less than US\$ 1 billion on tobacco control.⁹

HICs spent the most on tobacco control—US\$ 1.26 per capita—but this amount was less than 1% of the per capita revenue from tobacco taxes collected in these countries. Middle-income countries spent considerably less—US\$ 0.03 per capita—while low-income countries spent about four-tenths of 1 cent (US\$) per capita.⁹

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.

Several tobacco control interventions target the supply of tobacco leaf and manufactured tobacco products, including the control of illicit trade in tobacco products, restrictions on youth access to tobacco products, support for economically viable alternatives to tobacco production, and product regulation.

Illicit Trade in Tobacco Products

Controlling illicit trade is the key supply-side intervention to enhance the effectiveness of efforts to reduce the demand for tobacco products. Evading tobacco taxes reduces tobacco product prices and costs governments tax revenues. Illicit trade can also weaken the impact of prominent pictorial warning labels, bans on the use of product descriptors, plain packaging, and various forms of product regulation because of the availability of tobacco products that are not in compliance with those policies. The tobacco industry often argues that high cigarette taxes lead to illicit trade and, more recently, has argued that plain packaging will increase illicit trade, despite the absence of evidence for this claim.^{26,27} On the contrary, as described in chapter 14, the evidence demonstrates that non-tax factors, including weak governance, high levels of corruption, poor government commitment to tackling illicit trade, ineffective customs and tax administration, and informal distribution channels for tobacco products, are often of equal or greater importance than tobacco taxes in facilitating illegal trade.

Because the importance of concerted international efforts to curb illicit trade in tobacco products is recognized by many stakeholders, in 2007 the Conference of Parties to the WHO FCTC created an Intergovernmental Negotiating Body to develop a protocol for Article 15, the first protocol to arise from the WHO FCTC. The final text of the Protocol to Eliminate Illicit Trade in Tobacco Products was adopted in November 2012.²⁸ As of October 2016, the protocol had been ratified by 24 Parties, and will go into force after ratification by a total of 40 Parties.

Youth Access to Tobacco Products

As chapter 11 explains, most governments have adopted policies to reduce youth access to tobacco products. In general, sufficient resources are needed to maintain high levels of retailer compliance with these policies, and even when compliance is high, youth are often able to access tobacco products through social sources. In HICs, youth access policies, when consistently enforced, can reduce commercial access to tobacco products by underage youth. Evidence from HICs also suggests that strongly enforced youth access policies that successfully disrupt the commercial supply of tobacco products to minors can reduce underage tobacco use, although the magnitude of this effect is relatively small. The limited evidence on the impact of youth access policies in LMICs suggests that they can be effective in reducing youth tobacco use, but further study is needed. Efforts to limit youth access to tobacco products are an important component of a comprehensive strategy to reduce tobacco use, because they can help denormalize tobacco use among young people and engage parents and communities in broader tobacco control efforts.

Crop Substitution and Diversification Programs

As described in chapter 10, although tobacco farming occupies an essential place in the tobacco value chain, the approximately 19.1 billion U.S. dollars (US\$) accounted for by farming in 2013 represents a very small share of the global tobacco product market. In comparison, the 2013 global tobacco product market was valued at US\$ 783 billion. Governments have long supported tobacco growing through price

supports, subsidies, and other programs; however, the recent trend has been to reduce or eliminate these programs, especially in HICs. Some governments have replaced these programs with efforts to help farmers shift from tobacco growing to the farming of other crops. Some of these other crops can be at least as profitable as tobacco, although the viable alternatives are often specific to particular countries or regions. Crop substitution and diversification programs by themselves are unlikely to lead to a significant reduction in the supply of tobacco leaf as long as tobacco growing remains profitable and there are no barriers to farmers' switching to tobacco. Nevertheless, crop substitution and diversification programs can be an important component of a comprehensive approach to reducing tobacco use because such programs can help counter arguments that tobacco control policies and programs are economically damaging to tobacco farmers. This is especially true in the small number of countries that are highly dependent upon tobacco farming. Guidelines for implementation of WHO FCTC Article 17 (provision of support for economically viable alternative activities) and Article 18 (protection of the environment and the health of persons) have now been developed and adopted.²⁹

Product Regulation

As chapter 10 describes, in the United States and around the world, tobacco product regulation is a quickly developing field that faces several challenges. The design of tobacco products has evolved significantly over many decades, with some design innovations being apparent responses to consumers' concern about the health consequences of tobacco use, and others aimed at reducing costs for manufacturers. Efforts to regulate tobacco products have included limiting the availability of some products (e.g., smokeless tobacco in some countries) and reducing the delivery of various toxicants (e.g., the EU's 10:1:10 machine-based standards for tar, nicotine, and carbon monoxide). Although many countries have adopted policies that narrowly regulate some aspects of tobacco product design or availability, few countries have adopted wide-ranging product regulations. The limited evidence on these narrow regulations suggests that they have had little impact on tobacco use or its consequences at the population level. Indeed, some types of product regulation (e.g., machine-based standards to reduce toxicant delivery) may have had unintended consequences, as consumers may have viewed regulated products as less hazardous, thus contributing to increased or more prolonged tobacco use than would have occurred otherwise.

While future product regulation has the potential to significantly reduce the risks from tobacco products available in the market, there are many challenges to regulating these products in a manner that substantially improves public health. These challenges include the diversity of tobacco products available in the market currently as well as those that may be marketed in the future, the ability of the tobacco industry to respond quickly to changes in market conditions, difficulties in fully understanding the short- and long-term risks of diverse tobacco products at the individual and population levels, and the lack of capacity for testing and enforcing product regulation measures in many countries. Partial guidelines for implementation of WHO FCTC Articles 9 and 10, focused on regulation of tobacco product disclosures and the contents of tobacco products, have been developed and adopted by the Conference of the Parties.^{30,31}

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

Since 1990, the global tobacco market has become increasingly concentrated (see chapters 12 and 13), which is explained in part by the same forces that have contributed to globalization in other industries. Reductions in barriers to trade and foreign direct investment, coupled with the privatization of state-owned tobacco enterprises and a wave of mergers and acquisitions, have led to the disappearance of dozens of tobacco companies.

As of 2014, five tobacco companies—the China National Tobacco Corporation (CNTC), Philip Morris International and Altria, British American Tobacco, Japan Tobacco International, and Imperial Tobacco Group—accounted for more than 85% of the global cigarette market.³² Concentration is typically far higher at the regional or country level, with cigarette markets in most countries dominated by one or two firms. At the same time, the range of tobacco products marketed by individual companies has become increasingly diverse, as cigarette companies have merged with or acquired other tobacco product companies, developed new tobacco products (e.g., dissolvables), and entered the electronic nicotine delivery system (ENDS) market. The trend toward increased concentration seems likely to continue, particularly if China increases its presence in the world tobacco market by expanding its international sales presence. One result of this increased concentration is increased profitability for tobacco companies, several of which are among the most profitable companies in the world.³³

Increased globalization of the tobacco industry poses several challenges for tobacco control. Countries wishing to privatize their state-owned tobacco companies have sometimes agreed to refrain from adopting strong tobacco control policies as a condition of concluding a privatization agreement. International trade and investment agreements have been used by the tobacco industry or sympathetic countries to challenge (or to threaten) domestic tobacco control measures (see chapter 12). As chapter 13 demonstrates, easing of tobacco product trade barriers has led to increased tobacco use in LMICs, probably as a result of greater price competition and increased marketing by multinational tobacco companies. In the United States, mergers of cigarette and smokeless tobacco companies have led to the common branding of a host of smoked and smokeless products (e.g., Camel cigarettes, Snus, Orbs, and Sticks), with companies marketing their smokeless products as alternatives to cigarettes for use when smokers are in smoke-free environments.³⁴ In addition, the greater profitability that comes with increased market power gives tobacco companies the resources to expand their marketing campaigns, invest in new product development and/or changes in the design of existing products, and lobby aggressively against the adoption and implementation of strong tobacco control measures.

The considerable market power of tobacco companies has led researchers and others to propose approaches to reducing or eliminating the profitability and influence of tobacco companies. For example, Gilmore and colleagues³⁵ proposed the creation of an Office for Smoked Tobacco Regulation (OFSMOKE) in the United Kingdom. OFSMOKE would be an independent regulatory agency modeled after agencies that set prices for utility companies or other sectors; the agency would cap manufacturers' prices for cigarettes at a level that would allow them to cover their costs but not to earn the high profits that result from their existing market power. This would result in a significant decline in manufacturers' prices, which would be offset by a comparable increase in cigarette excise taxes, so that retail prices would not fall.

Borland³⁶ proposed an alternative regulatory structure similar to that used by some governments to regulate the distribution of alcoholic beverages. In this scheme, a Tobacco Products Agency (TPA) is created to act as the intermediary between tobacco product manufacturers and tobacco retailers. As the only entity allowed to buy directly from manufacturers, the TPA's buying power would offset the market power of the manufacturers, reducing their profitability. Callard and colleagues³⁷ proposed a more expansive option in which governments, on their own or in partnership with one another, buy out tobacco companies and replace them with not-for-profit entities that have a public health mandate to reduce tobacco use and its consequences. This would be accompanied by legislation that sets targets for reductions in tobacco use and limits tobacco product manufacturing to these not-for-profit enterprises.

Others have proposed more market-based solutions. In 2007, for example, U.S. Senator Mike Enzi introduced the Help End Addiction to Lethal Tobacco Habits Act, which proposed a program modeled after the cap-and-trade programs targeting various pollutants.³⁸ Under this approach, gradually declining prevalence or consumption targets would be set each year, with tobacco companies given allowances based on initial market shares. Companies would then be free to trade their allowances with other firms while adopting their own strategies to meet the falling caps (e.g., by raising prices and/or reducing marketing spending). Although increasing its short-run profitability, the industry would largely be phased out in the long run; under this proposal, for example, the long-run prevalence target was set at 2%. A similar approach could be pursued globally. A model for such action is the Kyoto Protocol to the United Nations Framework Convention on Climate Change, which sets targets for reductions in various greenhouse gases, to which Member States must commit.³⁸

A narrower approach, specifically focused on reducing youth smoking prevalence, was part of the June 1997 proposed "global settlement," which would have settled all potential federal claims and all pending actions brought by U.S. state attorneys general, and would have protected U.S. tobacco companies from future public and private litigation.³⁹ The proposed "look-back" provision would have set gradually falling targets for youth smoking prevalence and would have penalized cigarette companies in proportion to market share if those targets were not met. The U.S. government proposed a similar approach in its Racketeer Influenced and Corrupt Organizations (RICO) lawsuit against the major cigarette companies. The trial judge, U.S. District Judge Gladys Kessler, held that "such a remedy is forward-looking ... and would unquestionably serve the public interest."^{209,p.934} Nonetheless, she did not impose such youth smoking-reduction targets, because she found that they were "not narrowly tailored to prevent and restrain [the tobacco companies'] future RICO violations."^{209,p.934}

Many of the proposals above have been discussed in the context of endgame strategies, which may be defined as ways to swiftly move towards ending the tobacco epidemic—to move beyond tobacco control towards a tobacco-free future.⁴⁰ Endgame strategies may focus on the tobacco product, user, market or supply, or larger institutional structures. These proposals would almost certainly face obstacles to effective implementation and legal challenges from multinational tobacco companies. Nonetheless, they present intriguing options to counter the impact of tobacco industry marketing power and influence, and have spurred creative thinking about novel policy approaches that may be useful for jurisdictions around the world.

The Surgeon General⁴¹ has pointed to two endgame options that may be particularly applicable to the United States: (1) reducing the nicotine content to make cigarettes less addictive,⁴² and (2) greater restrictions on tobacco sales, particularly at the local level, including bans on entire categories of tobacco products.^{43,44} The Surgeon General has also noted that potential endgame strategies should be

applied as part of an integrated national tobacco control strategy, based on enhanced implementation of already proven strategies, including tobacco taxation.⁴¹

Conclusion 7: Tobacco control does not harm economies.

As chapter 15 shows, the share of jobs that depend on tobacco has been falling in most countries around the world. Various forces have contributed to this decline, including technological advances in tobacco farming and tobacco product manufacturing that have made both significantly less labor intensive. Globalization of the tobacco industry has accelerated the decline. As research from a growing number of jurisdictions demonstrates, tobacco control efforts do not lead to net job losses because jobs lost in tobacco-dependent sectors are replaced by jobs gained in other sectors, as resources once spent on tobacco products are spent on other consumer goods and services. Similarly, tobacco sector job losses in response to reduced tobacco use following tax increases are more than offset by increases in jobs in other sectors, which result as governments spend the new tax revenues on relatively labor-intensive activities. Given the increasingly globalized nature of tobacco markets, this is particularly true for countries where multinational tobacco companies dominate the local markets, given the outflow of the profits earned by these countries.

In the few countries that are particularly dependent on tobacco growing and tobacco leaf exports, global tobacco control policies may lead to job losses once global tobacco consumption begins to fall. However, these job losses are likely to be gradual, predictable, and far enough in the future that they will not affect the current generation of tobacco farmers. Governments concerned about the impact of tobacco control on tobacco farmers and those involved in tobacco production can implement programs that help these workers make the transition to alternative livelihoods (see chapter 10). In some countries, governments have used a portion of their tobacco tax revenues to support such programs.

Additionally, numerous studies, largely from HICs, clearly show that smoke-free policies do not adversely affect businesses, including the hospitality sector, with revenues and employment no lower, and often higher, in businesses covered by these policies. For the hospitality sector, this is likely because any reductions in business from smokers are offset or more than offset by increased patronage from nonsmokers (see chapter 6).

Finally, the improved health and well-being that come from reductions in tobacco use generates significant economic benefits. For example, a study from the United States, building on the Murphy and Topel⁴⁵ and Nordhaus⁴⁶ framework for assessing the benefits of medical research, concluded that the tobacco control efforts following the 1964 Surgeon General's report were worth as much as US\$ 700 billion a year by 2004.⁴⁷

Conclusion 8: Tobacco control reduces the disproportionate burden tobacco use imposes on the poor.

Tobacco use is concentrated among the poor, both within and across countries, as shown in chapters 2 and 16. As a result, tobacco use explains a significant share of the health disparities between the rich and the poor, and those disparities are exacerbated by poor people's relative lack of access to the health care needed to treat the diseases caused by tobacco use and exposure to secondhand smoke. The disparities are worsened, particularly for children in low-income families, by the diversion of household spending from food, housing, health care, education, and other needs to spending on tobacco products. Moreover, tobacco use contributes to poverty, as illnesses caused by tobacco use lead to increased health care spending and reduced income.

Tobacco control policies are effective in reducing the burden of tobacco use on the poor. Research shows that in HICs and many LMICs, tobacco use among the poor is more responsive to changes in taxes and prices than is tobacco use among the rich. This means that significant increases in tobacco taxes and prices will lead to larger reductions in tobacco use and, as a result, greater improvements in health among the poor than among the rich, while increasing the relative burden of tobacco taxation on the rich. These findings are less true, however, in countries where complex tax structures and/or illicit trade keep prices for some tobacco products highly affordable, even for those with low incomes.

Research suggests that pictorial warning labels may have a greater impact in lower income countries than they do in higher income countries. Similarly, school-based education programs and efforts to reduce youth access to tobacco products—interventions that have had a limited impact in HICs—appear to have a much greater impact in LMICs. This result is consistent with the economic concept of diminishing marginal returns; that is, the marginal impact of tobacco control activities in a country where little has previously been done is likely to be greater than the impact in countries with a longer history of tobacco control efforts. Comprehensive smoke-free policies, primarily aimed at protecting nonsmokers from the serious harms of SHS exposure, also produce broad improvements in public health by promoting quitting and helping to promote nonsmoking norms.⁴⁸

Conclusion 9: 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.

In HICs, decades of concerted program and policy efforts, supported by a broad-based research effort, have now borne fruit: In most HICs, the prevalence of smoking has declined substantially, although this overall progress masks much higher rates among some sub-populations, especially the poor. Many LMICs have benefited from the experience of HICs and are increasingly making progress as well. The WHO FCTC, the first international treaty negotiated under Article 19 of WHO's constitution, has become one of most rapidly and widely embraced treaties in the history of the United Nations. With 180 Parties (179 countries and the European Union, as of November 2015), the treaty has helped galvanize the implementation of effective tobacco control measures around the world.

The WHO Framework Convention Alliance, created in 1999 by a small group of NGOs to support the WHO FCTC negotiations, has grown into a network of over 500 civil society organizations around the world and continues to play an important role in the WHO FCTC process. Additionally, over the past 10 years, the Bloomberg Philanthropies and the Bill and Melinda Gates Foundation have devoted over US\$ 500 million to building local capacity and advancing strong tobacco control policies in many countries.^{49,50} In March 2015, the two organizations also launched a joint Anti-Tobacco Trade Litigation Fund, pledging US\$ 4 million for technical assistance and litigation support to LMICs facing tobacco industry trade law challenges to tobacco control efforts.⁵¹ A vast global movement exists today and continues to advance tobacco control in many parts of the world. This movement is driven by countless regional and local organizations as well as the participation of advocates, health professionals, and experts from a wide variety of fields, including science, law, and economics.

Research documenting the health and economic burden of tobacco use as well as studies to inform evidence-based program and policy interventions have been key factors enabling countries to make progress in reducing tobacco use. As this monograph highlights, an extensive body of research shows that effective tobacco control policies exist and are cost-effective; foremost among these are significant

increases in tobacco taxes and prices. As discussed earlier in this chapter, a wide variety of private and public organizations have supported research on the economics of tobacco control in LMICs.

Finally, there is now recognition that the goals and interests of the tobacco industry, to sell tobacco products, and the public health community, to control and eventually eliminate tobacco use, are inherently incompatible. The guidelines for Article 5.3 note that “the tobacco industry has operated for years with the express intention of subverting the role of governments and of WHO in implementing public health policies to combat the tobacco epidemic.”^{52,p.1} And as U.S. District Court Judge Gladys Kessler wrote, the major U.S. cigarette companies “have marketed and sold their lethal products with zeal, with deception, with a single-minded focus on their financial success, and without regard for the human tragedy or social costs that success exacted.”^{20,p.4} These findings underscore the need to protect public health policies from the commercial and other vested interests of the tobacco industry, as stated in WHO FCTC Article 5.3, and to continue to monitor the tobacco industry’s tactics and strategies to promote tobacco use.

Despite these successes, many threats to progress remain. Tobacco use is not yet decreasing in the WHO African and Eastern Mediterranean Regions, and even in regions and countries where tobacco use has decreased, progress can be reversed. The low smoking rates among women (relative to men) in many world regions means that women remain a potential growth area for tobacco use and thus a potential target for tobacco company marketing. The Internet and social media, often used to market newer products, provide an efficient means by which tobacco companies can reach consumers with marketing and sales opportunities. Thus, maintaining or increasing progress will require continued research and surveillance of the epidemic and implementation of the evidence-based strategies required by the WHO FCTC.

What We Need to Know—Research Priorities

Research into the economics of tobacco use and tobacco control, particularly in LMICs, has grown tremendously in recent decades. However, gaps in our knowledge remain, as has been indicated throughout this monograph. Other authors have also identified priority research gaps in this area. For example, WHO’s *A Prioritized Research Agenda for Prevention and Control of Noncommunicable Diseases*⁵³ notes the importance of tobacco control research for reducing noncommunicable diseases and highlights tobacco economics research priorities. Similarly, van Walbeek and colleagues⁵⁴ identified research priorities focused on tax, price, and illicit trade as part of a themed issue on WHO FCTC policy research for the journal *Nicotine & Tobacco Research*. Below we highlight several overarching research needs in the area of the economics of tobacco use and tobacco control.

Research on Tobacco Taxation and Pricing

Although much is known about the impact of tobacco taxation and pricing on tobacco use, government revenues, and related issues (as discussed in chapters 4 and 5 and elsewhere in this monograph), country-specific evidence is often lacking, particularly in many LMICs. Research that provides country-specific estimates of the price elasticity of demand for tobacco products is important for policymakers who want to fully understand the impacts of tax and price increases. Similarly, research that assesses the differential impact of alternative types of tobacco taxes (e.g., *ad valorem* taxes versus specific taxes) on tobacco product prices and price gaps, tobacco use, and government revenues is needed to help restructure tobacco taxes to maximize their effects on public health and revenue. Research on the

differential impact of tax and price on vulnerable populations, including young people, the poor, and women, can be informative.

Governments may also consider implementing differential tax structures for different classes of tobacco products, under which some products (e.g., significantly reduced-risk tobacco products) are taxed at lower rates than more harmful products. In the short term, differential treatment may be useful to accelerate a transition from the most harmful products to less harmful products; in time, differential treatment would be ended to encourage the elimination of all tobacco product use.⁵⁵ Research to assess the impact of such policies would be important.

Research on the Economic Impact of Tobacco Use and Tobacco Control

Research from HICs that quantifies the increased health care costs, lost productivity, and other costs resulting from the death and disease caused by tobacco use has been instrumental in informing the public, including policymakers, about the need for tobacco control interventions. In HICs, continued study of the economic costs of SHS exposure and the use of tobacco products other than cigarettes would be informative. As chapter 3 shows, comparable country-specific evidence on the economic costs of tobacco use in LMICs is limited; country-specific estimates of these costs are critically needed and would almost certainly catalyze tobacco control efforts in LMICs.

In recent years, the WHO FCTC has spurred many countries to enact tobacco control measures, including comprehensive smoke-free laws, tobacco marketing bans, and others. However, concerns about the potential economic consequences of tobacco control activities can deter policymakers from taking effective action. Research that addresses these concerns is a high priority for tobacco control efforts, especially in LMICs. This research could include assessments of (1) the impact of a decline (or a slower increase) in tobacco use on jobs in the tobacco sector and other economic sectors, and (2) the effects of smoke-free policies on the business activity of restaurants, bars, and other hospitality-sector establishments. Previous work has shown that lower tobacco use leads to reduced spending to treat diseases caused by tobacco and to the increased productivity of a healthier workforce. Therefore, research should also consider the potential economic gains resulting from tobacco control policies. Similarly, research that assesses the relative cost-effectiveness of different tobacco control measures is important, particularly in LMICs, where resources to devote to tobacco control are especially limited.

Research on the Interrelationships Between Tobacco Use and Poverty

Tobacco use accounts for a significant proportion of the health disparities between the rich and poor and can increase poverty by diverting funds from basic necessities (e.g., food and housing), education, and health care, to tobacco products (chapter 16). However, the belief that keeping tobacco products affordable to low-income users is a pro-poor policy and that tobacco control interventions have a negative impact on the poor can deter policymakers from taking effective action to reduce tobacco use. Research that further documents the interrelationships between tobacco use and poverty could strengthen support for tobacco control interventions and the case for including tobacco control in national development strategies, including poverty reduction. Research is particularly needed to demonstrate how tobacco control policies can be used to help reduce socioeconomic disparities in tobacco use and its consequences.

Research on Illicit Trade

The control of illicit trade in tobacco products—now the subject of an international treaty—is important for public health and law enforcement, and for ministers of finance and many other stakeholders. Therefore, research that addresses various issues in illicit trade is a high priority, including studies that identify country- and region-specific determinants of illicit trade, estimate how changes in tobacco product taxes affect the extent and nature of illicit trade, and identify effective interventions for curbing illicit trade. This evidence is especially needed to counter misinformation about the effects of tax increases on the illicit trade in tobacco products, which is often a barrier to tax increases, and to maximize the public health and revenue impact of tobacco taxes.

Research on Economically Viable Alternatives to Tobacco Growing and Manufacturing

In the small number of LMICs where tobacco farming and manufacturing contribute significantly to overall economic activity, research that identifies economically viable alternatives to tobacco growing and manufacturing is a high priority, along with strategies for reducing economic dependence on tobacco. This research could inform crop substitution and diversification programs that would make alternative crops more attractive to tobacco farmers. It could also help develop programs to move those engaged in tobacco product manufacturing and distribution to other economically productive activities. Findings from this research could help allay policymakers' concerns about the impact of tobacco control policies and programs on economic activity in the tobacco sector and demonstrate the potential gains from economic activity that has shifted to other sectors.

Surveillance Needs

Surveillance remains a key component of tobacco control economics research and other areas of study. The monograph points to the following five broad categories of variables for surveillance:

1. Tobacco use—that is, the prevalence of use of diverse smoked and smokeless tobacco products, and ENDS, and the frequency and intensity of use by age group, socioeconomic status, and gender—and nonsmokers' exposure to SHS.
2. Economic costs of tobacco use, including costs of health care, lost productivity, and other economic costs. This includes a focus on exposure to SHS, the interaction of SHS with other indoor and outdoor air pollutants (where applicable), and the contribution of tobacco use to the noncommunicable disease burden.
3. Tobacco-related knowledge and beliefs, including social norms regarding tobacco use, support for tobacco control policies, and the social determinants of tobacco use.
4. Financial aspects of tobacco, including tobacco product sales, tax revenues, and the extent of tax avoidance and evasion.
5. Measures related to tobacco control, including resources devoted to tobacco control programs; policy variables such as implementation, enforcement, and compliance; and industry surveillance (e.g., the economic contribution of tobacco growing and manufacturing, tobacco product prices, tobacco company marketing, lobbying efforts, and others).

Ideally, core tobacco indicators will be integrated into existing national surveillance systems and will be comparable across countries so that they can be used in regional and international comparisons and in the regional and global evaluations of tobacco control interventions.

Ending the Epidemic

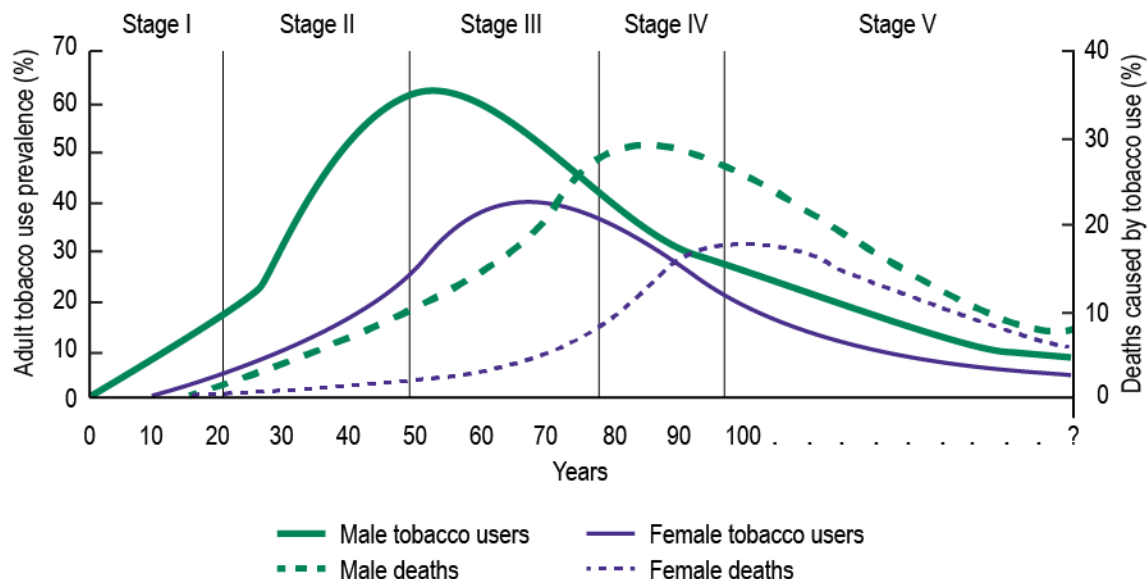
The evidence reviewed in this monograph provides reason for optimism about the prospects for swiftly ending the global tobacco epidemic. Effective implementation of comprehensive tobacco control policies and programs has more than halved tobacco use in several HICs. In the United States, for example, overall smoking prevalence has declined from 40% in 1964 to less than 17% in 2014.^{41,56} Similarly, in the United Kingdom, male and female cigarette smoking prevalence has declined by about 50% since the early 1970s.⁵⁷ Globalization of the tobacco industry has been countered by the globalization of tobacco control efforts, with the WHO FCTC spurring strong tobacco control action in both HICs and LMICs. In LMICs where governments have implemented aggressive, comprehensive tobacco control strategies, smoking prevalence has also declined rapidly. For example, in Uruguay between 2003 and 2009, adult smoking prevalence rates declined from 39% to 31% for males, and from 28% to 20% for females.⁵⁸ Prevalence rates had further declined by 2011, to 29.7% among males and 19.1% among females.⁵⁹ As another example, smoking prevalence in Turkey significantly decreased among adults, falling from 31.2% (16.0 million smokers) in 2008 to 27.1% (14.8 million) in 2012, for a relative decline in smoking prevalence of 13.4% (13.5% decline for males, and 13.7% for females).⁶⁰

With the potential for continued and more rapid progress, it is now possible to envision a dramatic change in the course of the tobacco epidemic. The model of the epidemic originally proposed by Lopez and colleagues⁶¹ (see chapter 2), specific to cigarette smoking, could be expanded to include all types of tobacco product use and extended by adding a fifth stage to the existing four stages of the model.⁶² In the proposed fifth stage, the prevalence of tobacco use by both men and women continues to decline, accompanied by a continued decline in deaths caused by tobacco use (Figure 17.4). In this scenario, tobacco use eventually becomes a minor public health problem rather than the public health catastrophe that it currently is or will soon become in most countries. Indeed, as documented in this monograph, progress is being made: The prevalence of smoking is decreasing in all country income groups and most WHO Regions, and population growth is the reason why the overall number of smokers is not declining. This is a considerable achievement that has undoubtedly averted many premature deaths.

Reaching this fifth stage will depend on widespread application of the demand-reducing policies shown to be most effective in reducing tobacco use. Governments that have adopted some combination of these policies have been effective in significantly reducing tobacco use. To date, however, almost no government has adopted and implemented all the key demand-reduction policies at their optimal levels, and most of the world's population is not covered by any of them at the optimal level.⁹ As described in this monograph, a comprehensive approach to tobacco control includes significant tax and price increases, comprehensive smoke-free policies, complete bans on tobacco marketing, prominent pictorial warning labels and anti-tobacco mass media public education campaigns, and support for cessation. Adopting these policies would lead to hundreds of millions fewer tobacco users, as more adults would quit and fewer children and youth would initiate tobacco use.

Interventions targeting the supply of tobacco products are also likely to play an important supporting role in ending the tobacco epidemic. Effectively addressing illicit trade will strengthen the impact of higher tobacco taxes and other demand-reduction strategies, and providing economically viable alternatives to tobacco farming and manufacturing will help facilitate the transition to a tobacco-free economy. Product regulation is also a rapidly developing component of a comprehensive tobacco control strategy.

Figure 17.4 A New Model of the Tobacco Epidemic



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.

Tobacco use remains the single largest preventable cause of death in the world. It is responsible for around 6 million deaths and likely over US\$ 1 trillion in health care costs and lost productivity each year.³³ The economic and public health burden of tobacco is expected to continue to rise, at least in the near term, as tobacco mortality rises and increasingly shifts from HICs to LMICs. Governments have the tools to reduce tobacco use and the death, disease, and economic costs that it imposes, but most have fallen far short of effectively implementing these tools. The WHO FCTC provides a framework for effective multilateral tobacco control efforts. As this monograph shows, significant increases in tobacco taxes and prices, comprehensive smoke-free policies, complete bans on tobacco company marketing, and prominent pictorial warning labels are very low-cost, highly effective options to curb tobacco use and its consequences. At the same time, tobacco taxes generate substantial revenues that can be used to support other, more costly but still highly cost-effective demand-reducing interventions, including anti-tobacco mass media campaigns and support for cessation services and treatments. Government fears that tobacco control will have an adverse economic impact are not justified by the evidence. The science is clear; the time for action is now.

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