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The Triumph and Tragedy of Tobacco Control: A Tale of Nine Nations

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Abstract

The use of law and policy to limit tobacco consumption illustrates one of the greatest triumphs of public health in the late twentieth and early twenty-first centuries, as well as one of its most fundamental failures. Overall decreases in tobacco consumption throughout the developed world represent millions of saved lives and unquantifiable suffering averted. Yet those benefits have not been equally distributed. The poor and the undereducated have enjoyed fewer of the gains. In this review, we build on existing tobacco control scholarship and expand it both conceptually and comparatively. Our focus is the social gradient of smoking both within and across borders and how policy makers have been most effective in limiting smoking prevalence among the more privileged segments of society. To illustrate that point, we reference a range of literature on tobacco taxation, advertising, and public smoking in five economically advanced democracies—France, Germany, Japan, the United Kingdom, and the United States—and four less developed nations—India, China, Brazil, and South Africa—that together comprise 40% of the world's population.

INTRODUCTION

Smoking has long been a marker of social standing, and in the first decades of the twenty-first century the social significance of smoking shows no sign of diminishing. The cycle started early in the twentieth century when the habit of smoking took root among the elite; later it was taken up by the masses, and its meaning was transformed from a testament of fine manners to a demonstration of individual shortcomings. As the catastrophic health consequences of smoking became increasingly clear, governments throughout the developed world initiated tobacco control policies, and those policies sharply reduced smoking prevalence. In a compelling endorsement of the positive impact of public health policy, the number of people who smoked in the United States and Western European countries tumbled between 1965 and 2005 (Feldman & Bayer 2004, p. 300). Contained within that story of success, however, is a less sanguine tale. As smoking rates were dropping, sometimes precipitously, among the more privileged, tobacco consumption among those at the lower end of the social ladder dropped less dramatically.

Echoing the arc of tobacco consumption and control in the developed world is an even broader story. The overall decrease in tobacco consumption in developed nations has coincided with the steady growth of smoking in many other parts of the world. In China, for example, approximately 300 million people are smokers, and one million die annually from tobacco-related diseases (Campaign for Tobacco-Free Kids 2009). In addition to a social gradient that describes tobacco consumption within national borders, therefore, we now have a global social gradient, where information about a given nation's per capita income, level of education, and public health infrastructure enables one to predict the overall rate of tobacco use.

The use of law and policy to limit tobacco consumption thus illustrates one of the greatest triumphs of public health in the late twentieth and early twenty-first centuries, as well as one of

its most fundamental failures. Overall decreases in tobacco consumption throughout the developed world represent millions of saved lives and unquantifiable suffering averted. Yet those benefits have not been equitably distributed; those who already bear disproportionate social burdens—the poor, the undereducated—have enjoyed far fewer of the gains.

Over the past decade, scholars have looked carefully at certain aspects of tobacco control. The literature on tax increases and consumption patterns in the United States, for example, is substantial. Yet only a limited amount of work is being done on tobacco policy from a comparative perspective. Even more striking, literature on the politics of tobacco control within nations is sparse. In this review, we build on existing tobacco control scholarship and expand it both conceptually and comparatively. Our focus is the social gradient of smoking both within and across borders and how policy makers have succeeded in limiting smoking prevalence among some but not all segments of society. To illustrate that point, we reference a range of literature on tobacco taxation, advertising, and public smoking in five economically advanced democracies—France, Germany, Japan, the United Kingdom, and the United States. To illuminate the landscape of tobacco control policy in less developed nations, we focus on the world's two most populous nations, India and China; Brazil, the most populous nation in South America; and South Africa, the second most populous nation in Africa and one with a highly regarded tobacco control strategy. In all, these countries comprise 40% of the world's population.

Efforts within individual nations to limit the consumption of tobacco must be seen in light of international tobacco policy, specifically the World Health Organization's (WHO) Framework Convention on Tobacco Control (FCTC). Few areas of public health policy have broken free of national borders and gone global with as much force as tobacco control. Defying the conventional wisdom that the WHO's limited budget and muted moral authority disable it from playing a significant

role in international affairs, in 1996 the World Health Assembly adopted a resolution urging the WHO to develop an international tobacco control agreement (WHO 1996). Two years later, the WHO's new director general, Gro Harlem Brundtland, made tobacco control her highest priority. At New York's influential Council on Foreign Relations, she made the case for a global approach:

Tobacco-related diseases are spreading like an epidemic and are likely to be killing 10 million people a year around 2020 Into the next century, tobacco will climb the ladder to be the leading cause of disease and premature death worldwide We have the evidence. We know what works. Tightening legislation against advertising, increasing tobacco taxes and controlling the marketing of cigarettes will make a difference for the health of future generations worldwide This is not a challenge confined to independent states. It is a global challenge. (Brundtland 1999)

By 1999, the WHO had drafted the FCTC, the first treaty negotiated under its auspices (WHO 2003).

Among the areas the FCTC addresses are restrictions on tobacco advertising, sponsorship, and promotion; the creation of new packet warnings for tobacco products; and the zoning of public space to limit the harms of environmental tobacco smoke (or secondhand smoke). Because the WHO's regulatory powers are limited, however, the FCTC's provisions are aspirational, and national laws remain the most important factor in determining tobacco control policy. Article 6 of the FCTC, for example, declares: "Without prejudice to the sovereign right of the Parties to determine and establish their taxation policies, each Party should take account of its national health objectives concerning tobacco control and adopt or maintain, as appropriate, measures which may include: (a) implementing tax policies and, where appropriate, price policies, on tobacco products so as to contribute to the health objectives aimed at reducing tobacco consumption" (WHO 2003).

Similarly, in pressing for the control of public smoking and for limitations on advertising, the FCTC notes that parties must operate with deference to their existing laws. The FCTC's significance is thus more symbolic than practical; it indicates that the premier international health organization has made the elimination of smoking a core policy objective. Instead of treating the act of smoking as an individual preference or a legal right, it presents it as an unacceptable risk obligating the national and international community to intervene in the name of public health. Like the new social norms of tobacco consumption in the United States, the WHO's FCTC communicates the view that the world is better off without cigarettes and smokers.

Two questions continue to confront those committed to radically reducing tobacco-related morbidity and mortality at the start of the twenty-first century. First, to what extent should strategies adopted in the prior decades be used further to reduce the prevalence of smoking? Second, how should we address the inequalities that characterize smoking behavior, which are inevitably reflected in inequalities in sickness and death? Part I of this paper examines restrictions on advertisements, changes in tax policy, and limits on smoking in public settings in a group of developed nations—France, Germany, Japan, the United Kingdom, and the United States. Part II turns to the developing world, specifically China, India, Brazil, and South Africa, and explores the contrast between the radical reduction of smoking in industrialized nations and the high prevalence of smoking in less developed countries.

PART I: THE INDUSTRIALIZED WORLD

In the first half of the twentieth century, tobacco consumption rapidly escalated in the world's industrialized nations. Almost as quickly, with the emergence in midcentury of a scientific consensus that cigarette smoking posed a profound threat to the health of individuals and societies, there began an extraordinary movement to limit, control,

Table 1 Changes in prevalence of smoking among men and women between 1963–1965 and 2002

	Men		Women	
	1963–1965	2002	1963–1965	2002
France	72%	33%	33%	21%
Germany	61	39	31	24
Japan	83	57	16	16.6
United Kingdom	68	28	43	26
United States	52	26	34	21

Sources: Feldman & Bayer 2004, p. 300; Fukuda et al. 2005.

and ultimately eliminate tobacco use. What started as a campaign fueled by public health advocates and resisted by private and public actors dependent upon tobacco revenues had, by century’s end, triggered far-reaching social, political, and economic changes in the United States and Western Europe. Between 1963 and 2002, the prevalence of smoking among men in the West was reduced by 50%; among women there were also significant if less dramatic achievements. **Table 1** underscores the magnitude of the changes in France, Japan, Germany, the United Kingdom, and the United States.

These striking achievements, at a population level, fail to make clear the deepening of a steep social gradient in smoking activity. With extraordinary rapidity, what had once promised to be a broadly democratic advance is increasingly inscribed by sharp class disparities. By 1974, the gradient in the United States was already clear: 52% of men with no high school diploma smoked, but that was true for only 28% of those who had graduated from college. By 2000, the rate of smoking had declined to 36% among men with less than a high school education and to 11% among those with a bachelor’s degree or higher. A similar pattern was found among women. Whereas 36% of less educated women smoked in 1970, 25% of those with university degrees smoked; 16 years later, the rates were 27% and 10%, respectively. In Great Britain and France, the smoking rate at the end of the twentieth century was 2.3 times higher among men with low versus high educational attainment. For women in Great Britain, the

differential was 2.5, and in France it was 1.4 (Feldman & Bayer 2004, p. 304).

For much of the postwar era, the rates of smoking among Japanese men were almost twice that of other developed nations. In 1965, 83.2% of men smoked, and in 1997 57.6% were still smokers (Honjo & Kawachi 2000). Among women, there was virtually no change in that same 20-year period. More striking, the steep social gradient in terms of income and education that characterizes smoking in Western Europe and the United States was all but absent. Ten years later, in 2004, a study found virtually no change in smoking at the population level among men. When the analysis was stratified by age, however, the impact of income among those 25–39 was most obvious. Thus, although overall smoking rates remained high, “the impact of income on smoking was not much smaller than in other industrialized nations” (Fukuda et al. 2005).

As industrialized nations sought to confront both an industry that manufactured a toxic product and a deeply embedded pattern of social behavior, they pursued a common set of strategies. Among the first interventions was the requirement that cigarette packages and advertisements include warning labels. But warnings alone were quickly understood to be insufficient to counteract the impact of advertising. As a result, public health advocates began to press for limits or bans on the advertising and promotion of tobacco products (Board Trustees Am. Med. Assoc. 1986). Only rarely, as we discuss below, have such prohibitions raised questions about unacceptable intrusions on freedom of expression.

In addition to their focus on advertising restrictions, tobacco control advocates have also pressed for price-based regulations. Tobacco has long been the object of taxation, and tobacco taxes have represented an important source of government revenue. By the 1980s, some economists began to argue that certain costs of smoking—health-care expenditures and lost productivity, for example—represented negative externalities (Hodgson 1992). Those costs could be

internalized, they claimed, through the imposition of taxes. Such justifications assumed less importance as public health officials increasingly asserted that the purpose of taxation was the suppression of demand. The extent to which the elasticity of demand was affected by the addictive nature of nicotine was a matter of some dispute, but the fact that prices could affect consumption, particularly by adolescents and others with limited disposable income, was beyond question. Whether such taxes are unacceptably regressive in light of the social gradient, or whether the increased burden on the relatively poor could be justified by the extent to which such burdens advance the health of those compelled to pay higher prices for cigarettes, remains controversial.

Finally, governments have moved to restrict smoking in public settings. Such moves often occurred before the evidence of harm to non-smokers was substantiated (Takeshi 1981), but ultimately science provided a powerful warrant for such environmental measures. Although third-party harms remained central to the argument for extending restrictions on public smoking, it was clear to careful observers that an equally important goal was to affect the behavior of smokers themselves.

Advertising

Tobacco advertising had been the target of public health campaigns since the 1960s, but by the 1990s evidence clearly revealed that partial restrictions on advertising were ineffective because they resulted in the placement of promotional materials in unaffected media. France, in 1994, came early to the notion of a total ban on advertising. In the United Kingdom, the Tobacco Advertising Promotion Act of 2002 imposed a total prohibition on both advertising and the sponsorship of sporting events. Germany however, resisted this trend. **Table 2** underscores this point.

It is against this backdrop that the move by the European Union to ban all forms of tobacco advertising should be understood. In 2002, despite the opposition of Germany, the

European Union voted to prohibit advertising in magazines, in newspapers, on the Internet, and at international sports events (BBC News 2002). Three years later, the EU's Tobacco Advertising Directive went into effect, and the EU Commissioner for Health and Consumer Protection stated: "Banning tobacco advertising is one of the most effective ways of reducing smoking" (Assoc. Press 2005). In 2006, the European Court of Justice rejected Germany's challenge to the bans. Focused solely on the question of whether such regulations were a legitimate exercise of EU-wide authority, and not whether the issue of restrictions on advertising represented an intrusion on human rights, the Court stated that "the prohibitions of advertising and sponsorship meet the conditions for them to be adopted for the purpose of the establishment and functioning of the internal market" (quoted in Newman & Bodoni 2006).

The situation in the United States was dramatically different, with First Amendment jurisprudence providing a constitutional protection for advertising unparalleled in other industrial democracies. Building on its prior decisions protecting commercial speech, the Supreme Court in 2001 ruled against an effort by Massachusetts to limit billboards that advertised cigarettes proximate to schools (*Lorillard Tob. Co. v. Reilly* 2001). With this history in mind, the Food and Drug Administration (FDA) drafted new tobacco control legislation in 2009. The new regulations sought to prohibit outdoor advertising within 1,000 feet of schools and playgrounds, limit advertising to a simple block text on white background (the "tombstone" format) in publications with a significant youth readership, limit advertising in video to static black and white, and ban brand name sponsorships of sporting and cultural events (Family Smoking Prevention and Tobacco Control Act, 2009). The FDA's approach fell far short of the European Union's effort to prohibit advertising in all print media, but it did not go unchallenged. The American Civil Liberties Union, questioning the constitutionality of the proposed regulations, stated that "regulating commercial speech for lawful products *only*

Table 2 Legislation on direct advertising of tobacco products, 2006

	Television, cable, video	Locally printed magazines and newspapers	Billboards	Cinema
France	Ban	Ban	Ban	Ban
Germany	Ban	No restrictions	No restrictions	Partial
United Kingdom	Ban	Ban	Ban	Ban

Source: WHO Reg. Off. Eur. 2007.

because those products are widely disliked”—even for cause—was a dangerous precedent. “The antidote to harmful speech can be found in the wisdom of countervailing speech—not in the outright ban of the speech perceived as harmful” (Am. Civil Lib. Union 2009).

Similar civil liberties concerns do not explain the state of advertising restrictions in Japan, however. Although the Tobacco Enterprise Law of 1984 discouraged “excessive” advertising, it imposed no sanctions. Rather, the limited tobacco advertising in Japan is explained by the powerful influence of Japan’s own tobacco industry, which did not favor spending money on advertising and indeed had much to fear from campaigns that might lure smokers to newly available American products. The first guidelines to restrict advertising were issued in 1989 and imposed limits on television and radio ads (Feldman 2006). A decade later, new regulations were issued banning ads on television, radio, and the Internet and in movie theaters. In addition, the rules discouraged advertising in publications that appealed to youth and women and banned billboards within 300 feet of schools. The ubiquitous posters on buses, subways, and trains remained untouched. In 2004, after the approval of the WHO’s FCTC, the Japanese government moved to impose more restrictive measures, banning ads on trains and buses (Feldman 2006). Strict limits were also placed on the frequency of newspaper advertisements, limiting them to 12 per year. Thus, legal restrictions on tobacco advertising in Japan are weaker than in many other industrialized nations, but they have been strengthened in recent years and, along with industry

self-regulation, have contributed to an overall decline in tobacco advertising.

Taxes

The move toward broad policy convergence among industrialized nations is also reflected in their shared recognition of the central role that taxes can play in reducing tobacco consumption. In 2010, experts from 12 nations met under the auspices of the International Agency for Research on Cancer to review and assess the evidence on tax and price policies in tobacco control. There was, asserted the group, “sufficient” evidence to conclude that there was a negative relationship between cigarette prices and cigarette consumption in countries at all levels of income. “Individual-level or household-level data corroborate an inverse relationship between cigarette price and total demand” (Chaloupka et al. 2010). Speaking to the issue of the social class dimensions of such taxation in industrialized nations, the expert group concluded that there was “strong” evidence that in high-income countries tobacco use among lower-income populations was more responsive to tax and price increases than was the case for higher-income populations. This important international review merely confirmed what was already understood by public health officials in individual industrialized nations.

In Great Britain, the taxation of cigarettes for purposes of public health began in the 1970s, and thereafter there were annual tax increases. In the 1990s, the social class gradient and the incidence of taxation became a central issue for those concerned about equity.

Nevertheless, the centrality of tax policy to reducing population-level tobacco use led in 1992 to the policy report *The Health of the Nation*, in which the government stated that it would raise the tax on cigarettes at least 3% per year to help reduce smoking. Tax rates continued to rise in the next years, in part because they were linked to inflation. In 2010, the activist group Action on Smoking and Health argued for yet another tax hike: “[When] tax accounts for over 75 per cent of the retail cost of a typical packet of cigarettes[,] is there justification for raising the tax level further? We believe there is” (Reed 2010, p. 5).

In France, tobacco consumption increased throughout the 1980s, defying the pattern in the United States and other economically advanced democracies, and remained stable in the early 1990s. There, the enactment of the muscular Evin Law in 1991, which contained prescribed tax increases, had a demonstrable impact on tobacco consumption. A WHO analysis of the relationship between price and tobacco consumption in France concluded that from 1993 to 2000 tax increases caused the price of cigarettes to go up annually by 5%. More dramatically, legislation in 2003 raised the price of cigarettes by 40% and caused sales to fall by 33.5% (WHO Reg. Off. Eur. 2007). The impact of such taxes was not lost on financial analysts. As Morgan Stanley reported, “Of the various measures available to governments in reducing demand for tobacco, clearly the one that concerns the cigarette companies the most is rising taxation” (quoted in Joossens & Raw 2007, p. 14).

The situation has been different in Germany, where resistance to strict tobacco control measures has long been a characteristic of public policy. At the start of the twenty-first century, one analyst concluded that “Germany still ranks among the few European countries that have abstained from dramatic [tax] increases” (Frankenberg 2004). However, beginning in 2001, there were five annual tax increases on cigarettes, with the net result of a 33% rise in the real price of cigarettes (Hanewinkel & Isensee 2007). Then,

in 2010, the German government announced an increase of the tobacco tax. But on this occasion, the measure was clearly designed to enhance revenues to compensate for expected financial losses that would be incurred as a result of tax relief measures for the energy industry, which would lead to a revenue shortfall without higher taxes in other sectors.

In the United States, where pressing for tobacco tax increases had long been a central strategy of public health officials and activists, the financial crisis of 2008 drove states to increase cigarette taxes as a way of confronting fiscal concerns. Whatever the motivation, such levies were welcomed by those committed to reducing tobacco consumption. Because excise taxes on cigarettes are largely a matter of state and local policy, vast discrepancies characterize how effectively price has been used as a strategy for reducing consumption (Am. Lung Assoc. 2010). In 2010, New York State’s tax of \$4.20 per pack led the nation. Four additional states had taxes above \$3.00. Twenty-one states, however, taxed cigarettes at less than \$1.00, and Missouri imposed a tax of only 17 cents. The extensive empirical evidence on the impact of tax increases (and consequent price increases) on overall cigarette consumption provided the foundation for those who lauded higher taxes and who decried the existence of states that failed to employ such a policy lever. For the American Lung Association, which lamented the failure to use cigarette tax revenues to fund smoking cessation programs, the answer to the question, “What is the appropriate level to tax cigarettes to protect public health?” is simple: “The higher the better” (Am. Lung Assoc. 2010, p. 35).

There were, however, some dissenting voices in the tobacco control community. Given the social gradient of tobacco consumption in the United States, there was concern about the burden of higher taxes on the relatively poor, who could not or would not give up cigarettes. Others were troubled by neo-prohibitionist implications. Robert Rabin, who for years oversaw the Robert Wood Johnson Foundation’s work on tobacco and drug policy, expressed

Table 3 Limits on public smoking in France, Germany, and the United Kingdom, 2001

	Health-care settings	Government facilities	Restaurants	Bars and pubs	Indoor work places
France	Partial	Partial	Partial	Partial	Partial
Germany	No restrictions	No restrictions	No restrictions	No restrictions	No restrictions
United Kingdom	No restrictions	No restrictions	Voluntary	Voluntary	No restriction

Source: WHO Reg. Off. Eur. 2002.

that worry pointedly: “Why not a de facto ban through aggressive use of the excise tax? As a practical concern, a smoking ban carries all of the attendant risks of smuggling and other illegal forms of access. The historical experience in the Prohibition Era has left an indelible imprint on American political thought. But more fundamentally, an outright ban raises the ethical issue of whether the state should engage in such a proactive course of paternalism” (Rabin 2008, p. 1753).

Japan, where smoking rates among men were higher than in other industrialized nations and where Japan Tobacco’s intimate involvement with the state (the government owns 50%) has left an indelible mark on the politics of cigarette consumption, came late to the explicit use of tax policy to confront the challenge of tobacco consumption. Nevertheless, even there the global trend toward using tax policy to curb smoking was evidenced in 2010. In supporting a tax increase that would raise the price of cigarettes by 30%, the Ministry of Health declared that “tobacco poses health problems. It may be necessary to raise [the tax] to the levels of Europe” (Sanchanta 2009). “We hope the price increase will discourage smokers from buying cigarettes and eventually help them quit smoking” (McCurry 2010).

Limits on Public Smoking

Restrictions on smoking in public settings were slow to take hold in Europe, despite the efforts of tobacco control advocates who centered their arguments on the negative health consequences for nonsmokers. The WHO’s regional office for Europe noted that by 2001 no member state had achieved the

goal of “eliminating involuntary exposure to tobacco smoke in all public places.” **Table 3** makes clear how limited progress had been in France, Germany, and the United Kingdom.

During the next decade, extensive changes would occur. Commenting on this transformation, *The Lancet* in 2007 noted: “Europe is finally stumbling out from under its centuries-old haze of cigarette smoke, as nations that have traditionally clung to their favourite vice” began to follow the examples set by Wales, Ireland, Scotland, Malta, Italy, and Sweden (Spinney 2007, p. 1507). As of mid-2007, smoking bans went into effect throughout the United Kingdom. France, which had introduced some of the first public smoking restrictions in Europe in 1992, moved in 2007 to impose new restrictions, this time with a very different commitment to enforcement. In 2009, those bans were extended to restaurants and bars (Eur. Public Health Alliance n.d.). In 2006, the complex federal politics of Germany, as well as the influence of the tobacco industry, thwarted initial efforts by Chancellor Angela Merkel to impose the kind of restrictions that had begun to characterize public spaces in other EU settings. Instead, Berlin imposed bans in federal government buildings, on trains, and in train stations, and the 16 Länder were left to determine their own regulations. Bavaria took the lead. In a 2010 popular referendum, 60% of voters endorsed a ban on smoking in all clubs, bars, restaurants, cafes, and “beer tents.” The new restrictions, vehemently opposed by bar owners and restaurant associations, extended restrictions first imposed in 2008. Indicative of the changed political and cultural climate surrounding smoking in Europe, the European Commission’s top health official declared in

October 2010 that he would press for EU-wide restrictions, stating that “we need a complete ban on smoking in all public spaces, transport and the workplace” (Phillips 2010).

In the United States, despite the passage of the Family Smoking Prevention and Tobacco Control Act and the FDA’s new tobacco control mandate, regulating public smoking remains the prerogative of states and localities. As a consequence, limitations vary widely. The American Lung Association’s 2010 Annual Report, *State of Tobacco Control*, presents a stark picture. In a grading system based exclusively on the regulation of public smoking, 22 states were given an “A” rating, including the entire West Coast, New England (with the exception of New Hampshire), New York, and New Jersey; 8 were given a B rating; and 12 states flunked, receiving an “F” rating. According to the American Nonsmoker’s Rights Foundation, in 2011 almost 80% of the U.S. population lived in locales that banned smoking in workplaces and/or restaurants and/or bars (Am. Nonsmoker’s Rights Found. 2011b); approximately 50% lived in areas that banned smoking in all workplaces, restaurants, and bars (Am. Nonsmoker’s Rights Found. 2011c). Notably, although the American Lung Association expressed concern about what it characterized as “drastically” slow passage of comprehensive smoke-free laws, striking evidence revealed an increasing receptivity among public health advocates to ever more restrictive measures. Steven Schroeder (former president of the Robert Wood Johnson Foundation) and Kenneth Warner (former dean of the School of Public Health at the University of Michigan), for example, have noted approvingly the prospect of extending smoke-free laws to automobiles where children are present, residential apartments and condominiums, and public parks and beaches. Indeed, in 2010 New York’s City Council passed legislation (Schroeder & Warner 2010, p. 202) proposed by the Commissioner of Health to prohibit smoking on all beaches, in all parks, and in all pedestrian malls, and there was little sign of public opposition to these restrictions. In

so doing, New York joined more than 500 other communities that had already taken such steps (Am. Nonsmokers’ Rights Found. 2011a).

The picture looks very different in Japan, which among industrialized nations remains the least receptive to imposing extensive restrictions on smoking in public settings. But even Japan has experienced changes. In 2003, the country’s most significant tobacco control legislation, the Health Prevention Law, went into effect. Despite its weak wording, it has spurred a wide range of actions. Ten private railway companies in the Tokyo Metropolitan area, for example, banned smoking in all their stations. West Japan Railway, a major carrier, banned smoking at all of its 1,200 stations (Feldman 2006, p. 778). In 2006, 60 municipalities—whose residents constitute 10% of Japan’s population—had some form of tobacco regulation, including in some cases prohibitions on smoking on sidewalks. However, only in 2010 did the Ministry of Health propose regulations requiring local governments to ban smoking in schools, hospitals, offices, and buses, but it continued to allow restaurants, bars, and hotels to maintain smoking areas. Kanagawa, Japan’s second largest (of 47) prefecture, with 9 million residents, enacted a statute in 2010 that largely mirrored the Health Minister’s proposals (*Japan Today* 2009).

Denormalization

Each of these policy strategies—bans on advertising, increasingly steep excise taxes, and ever more restrictive measures regarding public smoking—contributed to a drop in smoking prevalence. It would be a mistake, however, to examine each policy in isolation and not observe their cumulative and synergistic impacts. Perhaps most striking has been how the increasingly restrictive policy context has contributed to the transformation of social norms surrounding smoking. As social historian Allan Brandt (1998) put it, during the latter part of the twentieth century, the “aroma” of smoke had become a “stink.”

The process of denormalizing smoking was at first the consequence of the public health interventions discussed above. But as evidence began to accumulate about how denormalization itself could have a significant impact on the prevalence of smoking, a striking change occurred. Tobacco control advocates and public policy makers began to explicitly pursue denormalization, seeing it not simply as a desirable consequence of other policy interventions but as a discrete policy goal. A Massachusetts tobacco control program thus noted, “norms that allow smokers to smoke in most venues, including while at work or home, provide little incentive to quit” (ABT Assoc. et al. 2000, pp. 79–80). Florida’s tobacco control efforts sought to “deglamorize” smoking, and the extent to which students were “less likely to buy into the allure of tobacco” was reviewed as a mark of their efforts’ impact (Bauer et al. 2000).

California’s campaign to “denormalize” tobacco consumption sought “to push tobacco use out of the charmed circle of normal desirable practice to being an abnormal practice” (Calif. Dep. Health Serv. 1998). Lauding the efforts of the California Health Department, Gilpin et al. (2004) embraced the force of social conformity, noting, “In a society where smoking is not viewed as an acceptable activity, fewer people will smoke, and as fewer people smoke, smoking will become ever more marginalized” (p. 38).

In Europe as well, the utility of denormalization has been embraced. In 2007, a report from the Directorate General of Health and Consumer Protection of the European Commission titled “Towards a Europe Free from Tobacco Smoke” noted that among the benefits of restrictions and limits on public smoking was that “they contributed to the denormalization of smoking within society” (Eur. Commission 2007, pp. 8, 24). That broad transformation would, according to the report, contribute to facilitating quitting by smokers and discourage children and adolescents from beginning to smoke. By 2010, the process of denormalization had become so important to those committed to advancing the public health agenda that the

editor of *Tobacco Control*, the leading international academic tobacco research and policy journal, argued that “score card” accounts of progress on tobacco control should be complemented with data on the “diverse ways that the positive culture of smoking has been eroded” (Chapman & Freeman 2008, p. 31).

The current state of affairs with regard to adult smoking in developed nations that have already adopted muscular tobacco control programs poses a difficult ethical and policy challenge. In the United States, smoking among adults stabilized between 2006 and 2008. In Europe, EU observers stated that “overall prevalence has reached a level from which it will be difficult to show further decline unless substantially stronger measures are implemented” (WHO Reg. Off. Eur. 2007). For some, the data suggested that there was no alternative but to further tighten the public health vise. The goal of limiting tobacco-related morbidity and mortality provided ample warrant for pressing on. Others were less certain. Rabin (2008, p. 1754) has thus noted: “It is important to retain perspective on the fact that for some smoking is a pleasurable and/or psychologically rewarding experience. And correlatively, we should not lose perspective on the question of how restrictive a society we want to create—that is, how far we want to go in reducing individual autonomy, including what can be perceived as self-destructive behavior.” The issues are especially complex because significant decreases in the prevalence of smoking at the population level can only be achieved if measures are targeted at those at the lower end of the social gradient. To the extent that such individuals will bear the burden of increasingly restrictive interventions, questions of equity are paramount.

PART II: LOW- AND MIDDLE-INCOME NATIONS

General Global Gradient

Even as smoking rates were about to enter a period of decline in developed nations, rates began to climb in developing countries,

particularly among citizens who are poor and poorly educated (Iglesias et al. 2007, p. 4). Between 1970 and 2000, total cigarette consumption tripled in the developing world; over the next 25 years it is projected to double once again (Esson & Leeder 2004, p. xi). Today, approximately 84% of the world's smokers, 900 million people, live in countries that are developing or transitional, and by 2030, 70% of the 10 million annual tobacco-related deaths are expected to occur in low-income countries (Jha & Chaloupka 2000, p. 358). From the perspective of disability-adjusted life years (DALYs), the data are stark. In 2000, DALYs from tobacco use by males was 44,044 in low- and middle-income countries but 12,304 in high-income countries, and for females 13,357 versus 6,866, respectively (Iglesias et al. 2007, p. 4, table 1). The sharp gender gap reflected by those figures is likely to shrink if smoking prevalence among men and women evens out in the coming years (Iglesias et al. 2007, p. 4).

The social gradient that now characterizes the border between industrialized and developing countries is also evident within developing nations. According to an analysis of 74 studies that looked at high-, medium-, and low-income countries, less wealthy individuals are consistently the most likely to use tobacco, as are those who are less educated or uneducated (Iglesias et al. 2007, p. xiii). Similarly, awareness of the risks of smoking is relatively low in low- and middle-income countries (Jha & Chaloupka 2000, p. 359), and information campaigns are less effective at reducing smoking prevalence among the poor than the well-off (Jha & Chaloupka 2000, p. 168). In short, the challenge in the developing world can be starkly stated: "As the hazards of smoking accumulate among those who began smoking in developing countries over the past few decades, coupled with population growth and ageing, mortality as a result of smoking will rise substantially in these countries unless effective interventions and policies that reduce smoking among men and prevent increases among women are implemented" (Ezzati & Lopez 2003, p. 851).

We now turn to tobacco control policy in Brazil, China, India, and South Africa.

Advertising

Limits on tobacco advertising in Brazil stretch back a quarter of a century—a federal law imposed regulations in 1986—and must be viewed in the context of a public health strategy that is considered highly innovative when compared to global practices (Iglesias et al. 2007, p. 62). Restrictions on tobacco advertising in Brazil have a constitutional basis. As stated in the 1988 Constitution of Brazil, "Commercial advertising of tobacco, alcoholic beverages, pesticides, medicines and therapies shall be subject to legal restrictions . . . and shall contain, whenever necessary, a warning concerning the damages which may be caused by their use" (Chapter 5, paragraph 4). Upon this constitutional basis rested a 1990 law prohibiting "misleading and unfair advertising," a 1995 Interministerial Ordinance recommending that television stations not show celebrities smoking, and Brazil's most important tobacco control legislation, a 1996 law that included a partial ban on the advertisement of tobacco products. The 1996 law only permitted radio and television stations to advertise tobacco products between 9 PM and 6 AM, and advertisements could not suggest that smoking benefits health, reduces stress, improves sexual pleasure, or inspires athleticism. In 2000, a supplemental law strengthened the advertising restrictions by banning tobacco ads in magazines and newspapers; on television, radio, billboards, and the Internet; and through merchandising and sponsorship of sporting and cultural activities. The law also contained enforcement provisions [Natl. Health Surveill. Agency (ANVISA) 1996, 2000].

In South Africa, the first steps toward limiting tobacco advertising occurred during apartheid, with a 1975 voluntary agreement not to directly advertise tobacco on television and a weak packet warning that was introduced in 1987 (Van Walbeek 2005, p. 13). Then, in 1993, after the establishment of a democratic government under the African National

Congress, the South African parliament passed the Tobacco Products Control Act (TPCA), which regulated certain aspects of tobacco sales and advertising (Swart & Panday 2003, p. 3). Less than five years after the TPCA came into effect, it was amended by the Tobacco Products Control Amendment Act of 1999 (TPCAA), which banned all advertising and promotion of tobacco products, including event and merchandising sponsorship and the distribution of free tobacco samples (Eberlee 2001). Although the TPCAA was opposed by a coalition of tobacco interests, media and advertising executives and free-speech advocates, the ruling African National Congress was able to push it through. Most opposition parties, in an unusual echo of the debates in the United States, voted against it, arguing that it unconstitutionally limited free speech, infringed on privacy, unduly burdened the police, and gave the Health Minister too much power (McNeil 1998).

Historically, China has paid little attention to tobacco control. This is not surprising given that all key aspects of the tobacco industry are overseen by the government's China National Tobacco Company, which controls the marketing, production, distribution, and sales of all tobacco products (Wright & Katz 2007, p. 1493; Hu et al. 2010b, p. 58). The only notable effort to control advertising occurred in 1995, when cigarette advertising was banned in the mass media (except billboards and the Internet) (Raymond & Taylor 2000, p. 293; Gao 2005, p. 82). The ban, however, was not comprehensive, and tobacco companies were still able to advertise through promotional activities and sponsorships (Raymond & Taylor 2000, p. 293).

India has gone further. The earliest effort to control the advertising of tobacco products was the Cigarettes Act of 1975, which mandated health warnings on cigarette packets and on cigarette advertisements. It was followed by the 2000 Cable Television Networks Amendment Act, which prohibited the transmission of tobacco commercials on television nationwide.

In 2003, India passed the Cigarettes and Other Tobacco Products Act, which imposed a broad ban on the advertising of cigarettes and other tobacco products, as well as on tobacco company sponsorship. A 2009 Supreme Court case involving Marlboro's sponsorship of a car race in India found against the organizers of the race, who contended that such sponsorship was distinct from product advertisement. The Court held that using the name Marlboro would promote the sale of cigarettes and did not allow the sponsorship (UNI 2009).

Taxes

As we have noted, the global evidence on the potential impact of pricing policy is of particular relevance to both poor and middle-income countries. According to one analysis, tax increases in such nations have twice as great an impact on tobacco consumption as they do in high-income countries. Whereas a price increase of 10% reduces consumption by 4% in high-income countries, there is an 8% drop in low-income countries (Jha & Chaloupka 2000, p. 359). Nevertheless, the implementation of taxes to advance tobacco control goals has been far from uniform in the developing world.

In Brazil, which bans advertising, prohibits terms such as "light" and "mild," and promotes extensive public education campaigns, the failure to embrace a high tax policy is especially striking. A study by the World Bank thus noted, "Cigarette price decisions in Brazil are not subject to systematic public health considerations, and tax decisions, which affect retail prices, are normally taken in isolation by the Minister of Finance and the Secretariat of the Federal Revenue" (Iglesias et al. 2007, p. 73). In fact, over the past two decades cigarettes have become less expensive in Brazil. When compared with the overall price index and national salaries, the real price of cigarettes increased sharply between 1990 and 1993 and then steadily dropped. The result is that the real price of cigarettes in 2005 was lower than in 1992, and cigarettes in Brazil are less

expensive than elsewhere in the region (with the exception of Paraguay) (Iglesias et al. 2007, pp. 73–74). Increased taxation has not been used to reverse this trend.

The primary tax assessed on Brazilian cigarettes is the Industrial Production Tax (IPI), which has been dropping since 1996. The decrease in the IPI, a federal tax paid by cigarette manufacturers, was assured in 1999 when it was changed from an ad valorem tax of 41.25% to a fixed per-item tax (Iglesias et al. 2007, p. 78). Because lower-income individuals in Brazil smoke less expensive brands of cigarettes, they pay a higher proportion of tax per cigarette than those who smoke premium brands. Consequently, there is some concern that “increasing [tobacco] taxes will penalize poor people” (Iglesias et al. 2007, p. 83). In the five years between 2000 and 2005, the IPI dropped from 30.1% to 19.7% of the price of cigarettes (Iglesias et al. 2007, p. 81). In 2005, the average price of a pack of 20 cigarettes in Brazil was US\$0.88 (Iglesias et al. 2007, p. 76). The only significant tax increase in recent years resulted from pressure in 2003 from the National Commission for the Implementation of the Framework Convention for Tobacco Control and Its Protocols, but that increase did little to address the relative affordability of cigarettes in Brazil (Iglesias et al. 2007, p. 73).

It is less surprising that China has not moved to embrace a high tax strategy, given the relative weakness of its overall tobacco control strategy. The Chinese government continues to regard tobacco taxation purely from the perspective of generating revenue, not as a public health intervention. In 1995, tax revenues and profit from cigarette production and sales in China accounted for 11.3% of the government’s total revenue (Ma et al. 2004, p. 108). Even with China’s rapidly growing economy, 7.6% of the government’s total revenue came from tobacco in 2005 (Wright & Katz 2007, p. 1495). That same year, the government’s total budget for tobacco control was \$31,000 (Wright & Katz 2007, p. 1495). Although economists have argued that “increasing the tobacco tax in China

would be the most cost-effective instrument for tobacco control,” such thinking is clearly not reflected in policy (Hu et al. 2010b, p. 58). Not only does tobacco tax revenue account for a large share of total government revenues, but the central government also allows local governments to retain a large share of tobacco tax revenues (Hu et al. 2010b, p. 58). As a result, dependence on tobacco is acute in some of China’s remote provinces, like Yunnan, which obtains up to 50% of its revenue from tobacco sales (Wright & Katz 2007, p. 1495).

Indicative of the reluctance to use tax policy to limit smoking is an official policy paper issued in 2009, which increased the ad valorem tax on cigarettes (Hu et al. 2010a, p. 80). The explicit purpose of the tax increase was to increase government revenue in light of the economic slowdown in 2009 (Hu et al. 2010a, p. 80). Unlike adjustments to cigarette taxes in many nations, which increase the price of cigarettes, the Chinese government mandated that the new tax be absorbed by the China National Tobacco Company and not be passed on to consumers (Hu et al. 2010a, p. 81). The result is that taxes represent only 40% of the retail price of tobacco (Hu et al. 2010b, p. 59). With income rapidly increasing in China and tobacco taxes kept low, the affordability of cigarettes doubled between 1990 and 2007, leading to an increase in cigarette consumption (Hu et al. 2010b, p. 60).

It is interesting to compare Chinese policy with that of South Africa, which has adopted a much more aggressive posture on tobacco control. The real level of excise tax on cigarettes in South Africa dropped 70% between 1970 and 1990, the last years of apartheid. That led public health advocates in postapartheid South Africa to press the government for tobacco tax increases in the early 1990s, arguing that higher taxes would lead to a decrease in smoking prevalence and an increase in tax revenues (Van Walbeek 2005, p. 187). In 1994, the government increased the excise tax from 20% to 50% of the retail price, which led to a doubling of the price of cigarettes between 1993 and

2000, a decrease in consumption, and a rise in government revenue (Eberlee 2001). Nevertheless, the total tax imposed on cigarettes in South Africa, which represents 45% of the retail price (WHO Reg. Off. Afr. 2010), is low by comparison to Western European nations with long-standing commitments to limiting smoking. Tobacco taxes have been a critical source of government revenue in South Africa, with a full 3% of total tax revenues coming from cigarette taxes in 1999 (World Bank 2001, p. 4). Ironically, given its efforts to control tobacco consumption, South Africa is one of the largest producers of cigarettes in Africa, accounting for 35% of the region's cigarette production (World Bank 2001).

India, too, presents a case in which the role of taxation in tobacco control has been underutilized. Tobacco taxation in India has a unique structure, with a considerable variation that depends on the type of product subject to duty. In 2007–2008, at the low end of the tax structure was an 8.8% tax on bidis and at the high end was a 59% tax imposed on 75–85 mm filtered cigarettes (Rijo 2008). The tax on other cigarettes was 34–38%, depending on their length, filter, and type. The justification for such a variable tax is unclear, but the consequence is not. According to a recent analysis of the price elasticity of tobacco products in India, smokers are sensitive to the price of tobacco, and increased tobacco taxation would serve as an effective means of reducing tobacco consumption (Rijo 2008). But that efficacy is tempered by the availability of inexpensive alternatives to cigarettes, like bidis. Cigarette smokers, when confronted with higher prices, simply switch to the latter, which are taxed at a lower rate and in many cases not taxed at all. To effectively use tax as a public health strategy, therefore, the Indian government would have to raise taxes not only on cigarettes, but on the full range of tobacco products favored by Indian consumers. At present, no such move appears likely. Tobacco taxes in India are well below the FCTC recommendations and have not been regularly adjusted for inflation (Sinha 2010). The result is that tobacco products have

become increasingly affordable in recent years (John et al. 2010, p. 21).

Public Smoking Bans

Reflective of Brazil's broader efforts at tobacco control, in 1996 the government enacted the Protection Against the Risks of Exposure to Secondhand Tobacco Smoke Pollution Law [Natl. Health Surveill. Agency (ANVISA) 1996]. The law prohibits the use of "cigarettes, cigars, cheroots, pipes or any other smoking product, derived or not from tobacco, in a public or private communal place except in an area demarcated specifically for that purpose." The law explicitly mentions government buildings, hospitals and health centers, classrooms, libraries, communal/shared workplaces, and theaters as sites where smoking is banned. A partial smoking ban was also imposed on most forms of public transportation (Ministério da Saude 2010, p. 66). In December 2000, the law was amended to fully prohibit smoking on planes and other forms of public transportation, and in 2002 it was supplemented by an ordinance recommending smoke-free health-care and educational facilities. Some regions have adopted even more stringent bans. In 2009, for example, the state of São Paulo enacted a comprehensive ban on smoking in all enclosed public places and many outdoor areas, which is enforced by strong financial penalties (Law No. 13.541, May 7, 2009).

Like Brazil, South Africa moved to impose restrictions on public smoking toward the end of the 1990s. The TPCA of 1993 limited but did not ban smoking in certain public places. When it was amended in 1999, it prohibited smoking in public places including bars, clubs, restaurants, workplaces, and public transportation (Van Walbeek 2005, citing personal communication with Kenneth Warner, p. 11). The hospitality industry, however, was able to secure an exemption for restaurants and bars to partition 25% of their floor space and equip it with exhaust fans (Eberlee 2001).

Interestingly, China, too, has formally moved to ban smoking in public. In the early

1990s, it banned smoking in theaters, music halls, ballrooms, music tea rooms, recreational halls, sports arenas, libraries, museums, fine art galleries, bookstores, and waiting rooms for public transportation (WHO 2008, p. 1). Smoking was also officially prohibited in classrooms and childcare centers (WHO 2008, p. 1). There is little empirical evidence about the extent to which such measures were enforced. Local regulations have also emerged, first in cities like Hangzhou, Shanghai, and Guangzhou; by late 2006 over 150 cities throughout China had passed regulations that prohibit smoking in public places (WHO 2008, p. 1). Such regulations are limited in scope, and few if any include workplaces (WHO 2008, p. 1). One recent study indicates that fewer than 30% of respondents reported working in an indoor workplace that had a smoke-free policy and that even where such restrictions exist they are often not enforced (Ma et al. 2010, p. 403). Most recently, China adopted measures that appear to follow international trends. On May 1, 2011, new legislation took effect that banned smoking in restaurants, bars, and various forms of transportation. The ban extends to certain outdoor settings. How effective these measures will be and whether enforcement will be undertaken with any seriousness remains to be seen. Remarkably, the new limits do not extend to workplaces.

Despite the formal embrace of policies to restrict smoking in public settings in India, there is little evidence of their impact. Most tobacco control measures in India are imposed at the state level and depend on local enforcement. The Delhi government became the first to impose a ban on smoking in public places through the Delhi Prohibition of Smoking and Non-Smokers Health Protection Act of 1996. The act, which also included a prohibition on the sale of cigarettes to children, went into effect on January 26, 1997 (Gov. NCT of Delhi 2010). Under the act, public places include auditoriums, hospital buildings and health institutions, amusement parks, restaurants, public offices, court buildings, educational institutions, and libraries that are visited by the

general public, but the law does not include “any open place.” According to commentators, the ban has been difficult to enforce and has probably had “little real impact” (Shimkhada & Peabody 2003). Other state-level actions include a 1999 judgment by the Kerala High Court prohibiting smoking in public places, including parks and highways, and legislation in the State of Goa that banned smoking in public places (Shimkhada & Peabody 2003).

In 2003, concurrent with the negotiation that led to the WHO’s FCTC, the Government of India passed the Cigarettes and Other Tobacco Products Act. The act prohibits smoking in public places, defined to include “auditoriums, hospital buildings, railway waiting rooms, amusement centres, restaurants, public offices, court buildings, educational institutions, libraries, [and] public conveyances” but includes provisions for designated smoking areas in hotels that have more than 30 rooms and restaurants that seat more than 30 people. In 2008, the Ministry of Health and Family Welfare published the Prohibition of Smoking in Public Places Rules. Although it is a national regulation, it depends on local enforcement. In 2008, the Health Minister acknowledged that his ministry had no legal power to punish any state that refused to implement the law (UNI 2008). As to enforcement, he indicated that people had a right to ask smokers to stop smoking in public places and that local government officials could collect fines and treat them as general revenue (UNI 2008).

Prevalence, Gradients, and Trends

What can we say about the impact of policy interventions on the prevalence and patterns of smoking in Brazil, China, India, and South Africa? What relationship exists between the application of more comprehensive tobacco control policies and trends in smoking? To what extent does a social gradient characterize smoking as it does in developed nations?

Between 1986 and 2008, Brazil experienced a 48% decrease in smoking prevalence (Ministério da Saude 2010, p. 44). The

prevalence of smoking among males went from 43% in 1989 to 22.6% in 2003 and among females dropped from 27% in 1989 to 15% in 2003 (Iglesias et al. 2007, p. 14). Among those 15 and older, 21.6% of men smoked in 2008, as did 13.1% of women, resulting in 17.2% of the overall population being smokers (Ministério da Saude 2010, p. 83, table 5.2).

Despite these striking achievements, a clear social gradient characterizes smoking in Brazil. Smokers are more likely to live in rural than urban communities, and those who have less than a year of education are twice as likely to smoke as those with 11 or more years of schooling (Ministério da Saude 2010, p. 85, table 5.4).

Among males, the educational divide is even more stark, with 29.3% of those with less than a year of education smoking, compared with just 12.4% of those with 11 or more years of education (Ministério da Saude 2010, p. 89, table 5.8). Household income and smoking are also closely coupled; as one's wages increase, the likelihood of being a smoker decreases—26.6% of men earning less than 25% of the minimum wage smoke, whereas only 13.8% of men earning twice the minimum wage are smokers (p. 89, table 5.8). Interestingly, the social gradient among women is less pronounced; 21.5% of those with a year or less of education smoke, versus 18.7% of those with 11 or more years, and 23.4% of women who earn less than one-fourth of the minimum wage smoke, as opposed to 17.1% of those who earn twice the minimum wage (p. 91, table 5.10). Those with higher incomes are also more likely to quit than those with lower incomes (p. 107, table 5.26).

Although in South Africa as elsewhere the causal relationship between tobacco regulation and tobacco consumption is difficult to disentangle, some researchers have credited South Africa's tobacco control policy with powerful results. As a study from the International Development Research Center notes, "[T]hanks to some of the strictest tobacco control measures ever adopted by the government of a developing country, cigarette consumption has fallen for eight consecutive years [1992–2000] while the percentage of adult smokers

in the country has dropped from 32 to 28 percent" (Eberlee 2001). As of 2000, 27.1% of the population were smokers—43.8% of men, 11.7% of women, and 24.3% of 13–15 year olds (Eberlee 2001). A national demographic and health survey in 2003 found a further decline—35.1% of men and 10.2% of women were classed as current smokers (WHO 2009).

The most intriguing aspect of smoking prevalence in South Africa has been the absence of the social gradient so common in other nations. In the early 1990s, smoking prevalence among the most impoverished and most wealthy South Africans was almost the same (29.4% for the most impoverished, and 28.1% for the most wealthy). The sharp increase in the cost of cigarettes during the 1990s, however, may have made cigarettes unaffordable to the poor (WHO 2009, p. 45). Nevertheless, at the turn of the twenty-first century one finds a similar rate of tobacco consumption regardless of educational attainment, and where differences in prevalence exist, they reveal that those with no education are the least likely to smoke and those with primary and secondary education most likely (Univ. Cape Town 2001, p. 6). More pointedly, the only group that experienced an increase in smoking prevalence in the 1990s was the top 9% of wage earners; among all others, smoking prevalence declined (Univ. Cape Town 2001, p. 7). Regionally, those living in the most affluent provinces smoke more than those living in the least well off provinces. Racially, those classified as black in South Africa are less likely to smoke than those classified as colored or white, and speakers of African languages such as Nguni and Sotho have a lower likelihood of being smokers than those who speak Afrikaans or English (Univ. Cape Town 2001, pp. 5, 6, 8). One possible explanation for South Africa's reverse social gradient is that, in the period for which evidence on smoking is available, close to one-third of the population lived on less than \$2 per day, which left little discretionary income with which to purchase cigarettes (Van Walbeek 2005, p. 41–42). Unfortunately, comprehensive data from the first decade of the twenty-first century are

not available. Thus, it is difficult to determine what impact if any South Africa's tobacco control efforts have had on the social gradient of smoking.

Tobacco use in India is distinctive. Although a comparatively high percentage of the population uses tobacco in some form, relatively few people smoke cigarettes (Int. Inst. Popul. Sci., Ministry Health Fam. Welf. 2010). Only 9% of the population regularly smokes, whereas 21% exclusively use smokeless tobacco products, and 5% use both (Int. Inst. Popul. Sci., Ministry Health Fam. Welf. 2010, p. 31). Overall, 34.6% of Indians 15 and older use some form of tobacco, including 47.9% of males and 20.3% of females (p. 26). Use varies greatly by region; in Goa, a coastal region in the south, only 9% of the population are tobacco users, whereas in the far eastern state of Mizoram, 67% of the population uses tobacco (p. 27, table 4.1).

Social characteristics are an important marker of tobacco use in India. Men with no formal schooling use tobacco at more than twice the rate of those who have completed at least secondary school (68% versus 30.5%), and 32.7% of uneducated women are tobacco users, as opposed to only 3.6% of those with a secondary education or more (Int. Inst. Popul. Sci., Ministry Health Fam. Welf. 2010, p. 34, table 4.6). The education gap persists regardless of the pattern of usage. Only 9.2% of more educated men smoke, and 16.5% of them use smokeless tobacco products, but among uneducated males prevalence increases to 25% and 29.1%, respectively. Even more stark is the fact that smoking prevalence among educated women is a mere 0.1%, which rises to 4% for uneducated women. Just 3.4% of educated women use smokeless tobacco products, whereas 26.7% of uneducated women are users (p. 34).

Fine-grained data about smoking prevalence in China is unavailable, but recent figures indicated that 59.5% of males and 3.7% females are smokers (Shafey et al. 2009, ch. 26). Researchers familiar with smoking epidemiology in China confirm that the highest rate of tobacco consumption is found in households that are the

least well educated and located in rural areas (Qian et al. 2010). In addition, there is significant regional variation in smoking prevalence. In far northeastern Heilongjiang province, for example, 90% of adults smoke, whereas fewer than 10% of those living in Chinese Muslim areas of Ningxia province are smokers (Ma et al. 2004, p. 109).

Unfortunately, the absence of data that tracks tobacco use and smoking over the past decades in China makes it difficult to observe changes in smoking prevalence, the emergence of a social gradient, and the impact (if any) of China's modest efforts at tobacco control. Despite these limitations, a group of public health researchers has recently argued that "[t]he decline in smoking prevalence [between 1993–2003] suggests that tobacco control efforts and improved education have been beneficial, particularly in urban areas . . ." (Qian et al. 2010). The validity of such claims is difficult to verify.

CONCLUSION

For almost half a century, public health efforts in economically advanced democratic societies, often against all odds, have sought to limit the toll exacted by a mass social behavior that established itself in the first half of the twentieth century. A mix of law and policy sought to inform, educate, persuade, nudge, and pressure those who smoked to stop or to prevent those who did not smoke from beginning to do so. Toward century's end, the measures adopted increasingly took on compulsory dimensions—outright bans on advertising, ever higher taxes, and onerous restrictions on where people could smoke. In all, those measures contributed to a profound shift in social mores, a shift that made possible even greater tobacco control efforts. As smoking has become increasingly marginalized and the prevalence of tobacco consumption has declined, a steep and troubling social gradient has dampened the public health triumph of tobacco control.

Disparities in the use of tobacco products are also visible when we shift our gaze to the

less developed world. There, the use of tobacco products remains relatively high, despite the significant policy efforts taken in nations such as Brazil and South Africa. In India and China, there are some muted signs of a trend toward adopting measures on advertising, taxes, and limits on public smoking in accord with the WHO FCTC. But for the most part, tobacco control policies in those nations have had minimal impact. Not surprisingly, the available evidence suggests that the normative shifts that have been produced by law and policy in the developed world and that in turn might make more assertive policy more likely have not occurred in the developing world.

That there exists a social gradient in smoking is unsurprising. For at least two centuries, epidemiological and sociological research has documented the degree to which social class has a powerful influence on morbidity and mortality. Villerme examined the relationship of poverty and mortality in early-nineteenth-century Paris; Engels described the poor health conditions of the working class in England; Virchow in 1848 linked gross poverty in Silesia to the precarious health status of the peasantry; even decades after the establishment of the British National Health Service, the 1980 Black report identified a social gradient in morbidity and mortality in the United Kingdom (Oppenheimer et al. 2002). What makes the social gradient of tobacco consumption, morbidity, and mortality in industrialized nations so striking is that it appears to have been created by public health campaigns designed to limit tobacco consumption. Along many dimensions, those campaigns were extraordinarily successful. As described in this review, they resulted in a significant decline in overall tobacco consumption throughout the industrialized world and in a consequent decrease in suffering and death caused by smoking. But that decline was unevenly distributed, and its benefits were enjoyed primarily by those at the upper end of the social spectrum, whereas those lower on the gradient continued to smoke at disturbingly high rates.

Here, too, there is abundant historical precedent. When previously uncontrollable diseases become subject to effective intervention or when the etiologic bases for disease are exposed and the prospect of intervention emerges, patterns of social inequality have long had a profound impact on who remains at risk. Jo Phelan and Bruce Link, whose work has strongly influenced the “fundamental cause” perspective on public health, underscore this point in their paradoxically titled paper, “Controlling Disease and Creating Disparities: A Fundamental Cause Perspective.” As their research demonstrates, “[w]hen we develop the ability to control disease and death, the benefits of this new-found ability are distributed according to resources of knowledge, money, power, prestige, and beneficial social connections” (Phelan & Link 2005, p. 27). Such advantages, they have demonstrated, “shape individual health behaviors by influencing whether individuals are aware of, have access to, can afford, and are supported in their efforts to engage in health-enhancing behaviors” (Phelan & Link 2005, p. 29).

In the less developed world, the social gradient is best understood as a consequence of the failure of governments to take effective action when confronted with the possibility of a rise in tobacco use. That inaction, or inadequate action, can be explained by a variety of factors—the financial cost of such efforts, the political influence of the domestic tobacco industry, pressures for free trade exerted by industrialized nations acting at the behest of global tobacco companies, a dependence on tobacco-related revenues, a willingness to allow a behavior to spread that had until recently been a symbol of wealth and sophistication in the West. A complete analysis of why developing nations failed to act more decisively to control the spread of tobacco use is well beyond the scope of this paper. How the politics of tobacco control will play out in the next decades is not at all clear. What is certain is that limited tobacco control efforts in the developing world will be accompanied by the specter of an

ever-rising toll in tobacco-related morbidity and mortality. Those data will be yet another indication of the widening divide between the world's rich and poor in an era of globalization.

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